Integrating the Healthcare Enterprise

IHE

IHE Radiology
Technical Framework Supplement

Cross-Enterprise Remote Read
Workflow Definition
(XRR-WD)

Rev. 1.1 Trial Implementation

Date: January 13, 2017
Author: IHE Radiology Technical Committee
Email: radiology@ihe.net

Foreword

This is a supplement to the IHE Radiology Technical Framework V15.0. Each supplement
30 undergoes a process of public comment and trial implementation before being incorporated into
the volumes of the Technical Frameworks.

This supplement is published on January 13, 2017 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://www.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 **<u>bold underline</u>**. 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 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://www.ihe.net/Technical_Frameworks.

CONTENTS

55

Introduction to this Supplement

315

The Cross-Enterprise Remote Reading Workflow Definition (XRR-WD) Profile is a Workflow
Definition profile based on the ITI XDW (Cross-Enterprise Document Workflow) Profile. This
workflow definition establishes a common set of rules for participants involved in a Cross-
Enterprise Read of Images workflow.

320

A Remote Read process can be managed within many different sharing infrastructures. In this
profile, we present a workflow that uses the XDS-I.b infrastructure to share both the Workflow
Documents that manage the Remote Read and also the DICOM®[1] manifest and images for the
study being read.

In Volume 1, we present the typical use-cases to illustrate some of the many possible way the

325

XRR-WD Profile can be used to manage the Remote Reading Workflow. We define the
Workflow Participants involved and their responsibilities within the workflow itself.

In Volume 3, we explain how to use a Workflow Document to track and manage this workflow.
In particular, we specify transaction to manage each step of the workflow, and rules to follow to
go through these steps.

330

At the end of the supplement, Appendix A contains a complete example of a Workflow
Document produced during a Cross-Enterprise Read of Imaging workflow.

Open Issues and Questions

1. The current version of the supplement mandates the sharing of Workflow Documents
   using the XDS.b. Readers should provide feedback on this topic. Should XCA XDR

335

   MHD also be addressed?

2. The current version of the supplement mandates the sharing of Clinical Documents (other
   than the Workflow Document) using the XDS infrastructure. Is this a reasonable
   requirement? Are we introducing some limitation to the profile implementation? Should
   environments such as XCA XDR or MHD also be addressed? (These would be added as

340

   a new Options in future)

3. We are now use priority to convey the urgency of a task. Could this create problems or
   conflicts with WS-HumanTask specification/implementation?

   From WS-HumanTask: "priority: This element is used to specify the priority of the task.
   It is an optional element which value is an integer expression. If present, the WS-

345

   HumanTask Definition shall specify a value between 0 and 10, where 0 is the highest
   priority and 10 is the lowest. If not present, the priority of the task is considered as 5. The
   result of the expression evaluation is of type htt:tPriority"

---

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

Closed Issues

1. Is priority an appropriate way to request a Preliminary Report? *Resolution: The WS-HumanTask standard has been extended by IHE in order to identify a dedicated element for the type of Report requested.*

2. Should the Performer be allowed to close a workflow entirely with a failure status? Or should it be limited to EXITED the Perform task only, and leave the closure of the workflow to the Requester only? *Resolution: No. The Performer needs to be able only to exit the Perform Remote read task. The failure of the entire process is in charge to the Requester.*

3. Much behavior is deferred to "business rules" of the implementation. Will this inhibit interoperability? *Resolution: Yes. In order to prevent interoperability issues we further profiled the structure of the Read Request (RAD-4 request message base64 encoded in XDS-SD document) and we formalized how to encode actualOwner, potentialOwner, notficiationRecipients elements.*

4. What deployment considerations should be done to manage in acceptable workflow management? Should we address timing issues in vol.1? *Resolution: a dedicated section is defined in Concept section to address Performance and deployment issues.*

5. What should be covered in the security considerations, given the complexity of multi-national shared affinity domains? *Security Considerations section addresses many concepts of interest for this profile.*

6. Does the required grouping with DSUB introduce too much complexity? *DSUB is needed. A new CP is submitted to XDS.b in order to provide other lightweight mechanisms to be aware for assigned pending tasks.*

7. What deployment considerations should be done to manage in acceptable workflow management? Should we address timing issues in vol.1? *A section dedicated has been added.*

350

355

360

365

370

375

Volume 1 – Profiles

Copyright Permission

None

Domain-specific additions

None

Add Section 41…

41 Cross-Enterprise Remote Read (XRR-WD) Profile

385 Remote Reading Workflow is the practice of having medical images interpreted (read) by a reading specialist who is not present at the site where the image study was acquired and is not reporting using the local PACS and dictation system at the acquiring site. More specifically, the reading specialist is being asked to read an imaging study from another organization which may have a different Hospital Information System, Radiology Information System and/or PACS.

390 This is particularly important for smaller clinical institutions, including urgent care units, imaging centers, private practices and mobile imaging services with limited credentialed 24/7 staff to handle the reading workload. It may also be important for subspecialties like Nuclear Medicine or Neuro-radiology where these professionals are generally located at large institutions in major metropolitan areas.

395 The Cross-Enterprise Remote Reading Workflow Definition (XRR-WD) Profile builds upon the ITI Cross-Enterprise Document Workflow (XDW) Profile to manage the workflow between facilities performing the workflow tasks.

400 Cross-enterprise document and image sharing profiles such as Cross-Enterprise Document Sharing (XDS) and Cross-Enterprise Document Sharing for Imaging (XDS-I) provide cross-institutional access of the patient's clinical documents and images. Institutions today share studies for better treatment of their patients. This image-sharing infrastructure is already producing improved patient care outcomes and reducing the need for duplicate procedures. The ability to manage reading workload within an affinity domain community is the next logical step.

405 This XRR-WD Profile reduces integration burdens in environments that offer XDS-I sharing infrastructures already established. In addition to that, due to the fact that this profile is based on a XDW workflow management infrastructure and there are other types of clinical workflows that can also leverage XDW (e.g., Referrals, Consultations, etc.), for deployments that have already deployed XDW or planning to, XDW enables the creation of a network of interactions between the Remote Reading Workflow and various other types of clinical workflow using the same infrastructure.

410 Both this profile and the Remote Radiology Reporting Workflow (RRR-WF) Profile address remote reporting workflow.

In RRR-WF:

- Workflow details and state are held in a RESTful resource

- Actors interact with the workflow by RESTful messages to a worklist server

415 - Images are shared using XDS-I, DICOMweb or DICOM Store

In XRR-WD:

- Workflow details and the state are held in a series of documents

- Actors interact with the workflow by submitting revised documents to a federated document sharing infrastructure

420   •   Images are shared using XDS-I

• The XRR-WD approach builds on the IHE ITI Cross-Enterprise Workflow Profile, which re-uses the XDS Document Registry and Document Repository as a real-time workflow manager.

41.1 XRR-WD Actors, Transactions, and Content Modules

425 This section defines the actors, transactions, and/or content modules which are required to implement this profile. General definitions of actors are given in the Technical Frameworks General Introduction Appendix A at http://www.ihe.net/Technical_Frameworks.

Figure 41.1-1 shows the actors directly involved in the XRR-WD Profile and the relevant transactions between them. If needed for context, other actors that may be indirectly involved
430 due to their participation in other related profiles are shown in dotted lines. Actors which have a mandatory grouping are shown in conjoined boxes.
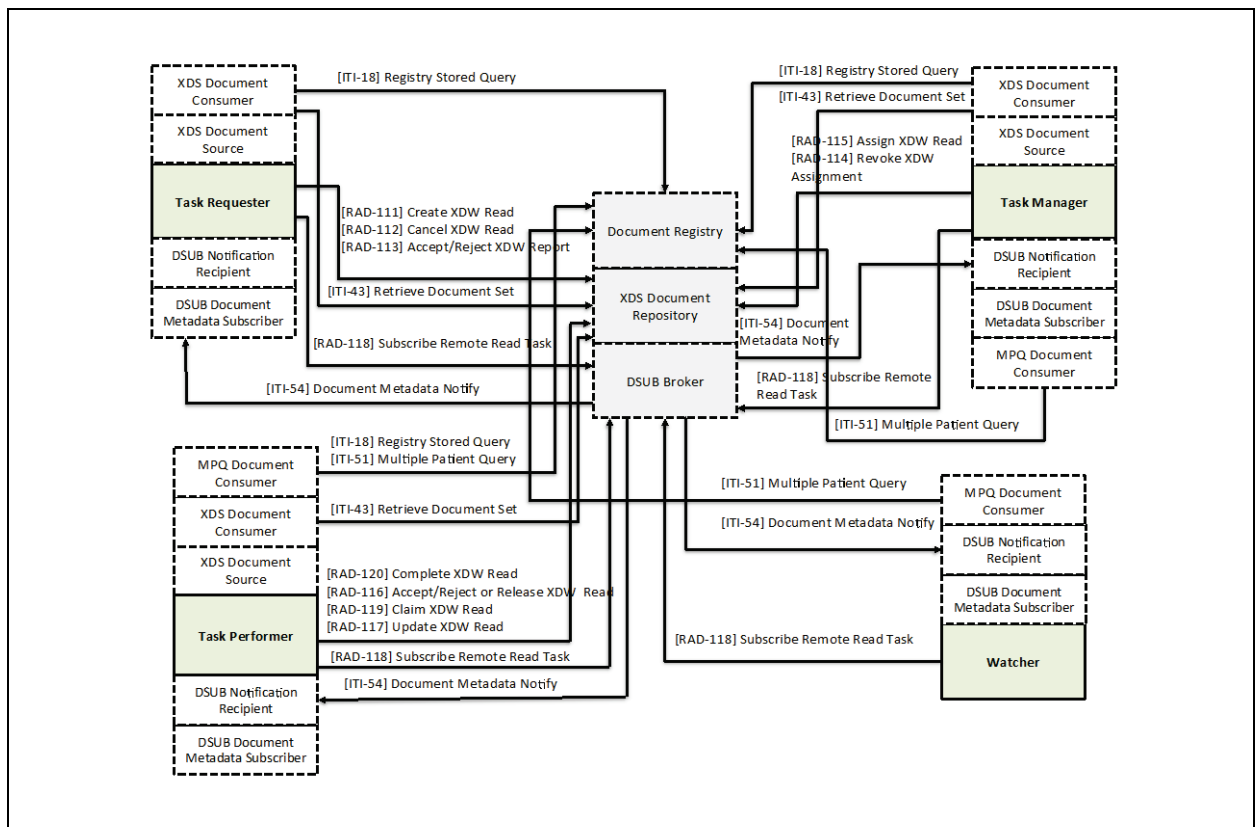
Figure 41.1-1: XRR-WD Actor Diagram – XDS Environment Option

Note: This figure shows transactions for XRR-WD actors that support the XDS Environment Option. For this revision of the
435 XRR-WD Profile, all actors shall support the XDS Environment Option; other options may be available in future revisions.

Table 41.1-1 lists the transactions for each actor directly involved in the XRR-WD Profile. In order to claim support of this profile, an implementation of an actor shall perform the required transactions (labeled "R") and may support the optional transactions (labeled "O"). Actor groupings are further described in Section 41.3.

440

Table 41.1-1: XRR-WD Profile - Actors and Transactions

Actors	Transactions	Optionality	Reference
Task Requester	Create XDW Read [RAD-111]	R	RAD TF-3: 4.111
	Cancel XDW Read [RAD-112]	R	RAD TF-3: 4.112
	Accept/Reject XDW Report [RAD-113]	R	RAD TF-3: 4.113
	Subscribe Remote Read Task [RAD-118]	R	RAD TF-3: 4.118
Task Manager	Revoke XDW Assignment [RAD-114]	R	RAD TF-3: 4.114
	Assign XDW Read [RAD-115]	R	RAD TF-3: 4.115
	Subscribe Remote Read Task [RAD-118]	R	RAD TF-3: 4.118
Task Performer	Accept/Reject or Release XDW Read [RAD-116]	R	RAD TF-3: 4.116
	Update XDW Read [RAD-117]	R	RAD TF-3: 4.117
	Claim XDW Read [RAD-119]	R	RAD TF-3: 4.119
	Complete XDW Read [RAD-120]	R	RAD TF-3: 4.120
	Subscribe Remote Read Task [RAD-118]	R	RAD TF-3: 4.118
Watcher	Subscribe Remote Read Task [RAD-118]	R	RAD TF-3: 4.118

41.1.1 Actor Descriptions and Actor Profile Requirements

The transaction and content requirements are documented in Transactions (Volume 2 and 3) and
445   Content Modules (Volume 3). This section documents requirements on profile actors.

This profile allows actors to implement business rules that provide flexibility when supporting local workflows. Such business rules are out of scope for this profile.

41.1.1.1 Task Requester

The Task Requester is responsible for initiating the workflow by creating the Remote Reading
450   Workflow Document.

41.1.1.2 Task Manager

The Task Manager is responsible for receiving the Remote Reading Workflow Document from a Task Requester and then assigning the read request to a Task Performer in accordance to Collaboration Group policies.

455   The Task Manager shall be capable of subscribing for remote reading workflow documents that needs to be assigned to a Task Performer at start-up.

41.1.1.3 Task Performer

460

The Task Performer is responsible for the execution of the Read. The Task Performer shall be capable of producing and sharing documents produced during the execution of the Read (Final Report, Preliminary Report, etc.).

The Task Performer shall be capable of subscribing for remote reading workflow documents intended for the Task Performer itself at the start-up. The Task Performer shall be capable of subscribing for a specific remote reading workflow documents.

41.1.1.4 Watcher

465

The Watcher Actor tracks/monitors the evolution of the workflow. Required Groupings for the Watcher are defined in Section 41.3. These grouped actors support transactions that enable the Watcher to track the status of workflow tasks in this profile.

The Watcher shall be capable of subscribing for all remote reading workflow documents at start-up. The Watcher may be configurable to instead subscribe to a subset of those notifications.

470

The Watcher shall be capable of reporting on the status of workflow tasks. The format, contents and analysis in such reports are not defined by IHE. Such details should be worked out as part of the product design. Possibilities include display, processing, printing, export, etc.

41.2 XRR-WD Actor Options

475

Options that may be selected for each actor in this profile, if any, are listed in the Table 41.2-1 along with the actors to which they apply. Dependencies between options when applicable are specified in notes.

Table 41.2-1: XRR-WD - Actors and Options

Actor	Option Name	TF Volume and Section
Task Requester	XDS Environment Option[1]	RAD TF-1:41.2.1
Task Performer	XDS Environment Option[1]	RAD TF-1:41.2.1
Task Manager	XDS Environment Option[1]	RAD TF-1:41.2.1
Watcher	XDS Environment Option[1]	RAD TF-1:41.2.1

480

Note 1: For this revision of the XRR-WD Profile, all actors shall support the XDS Environment Option; other options may be available in future revisions.

The XRR-WD Profile does not mandate baseline mechanisms to:

- share the reading tasks;

- receive notifications of assignments and other workflow related events;

485   • discovery of reading tasks.

Those mechanisms are defined by "Environment Options" which allow the profile to be
deployed in a variety of environments. Actors will not interoperate unless they support the same
environment option.

41.2.1 XDS Environment Option

490   Task Requester, Task Performer, Task Manager and Watcher Actors that supports this option
shall be grouped with relevant actors in the Cross-Enterprise Document Sharing (XDS.b) and
Multi-Patient Query (MPQ) Profiles to perform the sharing of the Remote Reading Workflow
Document. Actors that support this option have additional required groupings shown in Table
41.3-1.

495   Actors that support the XDS Environment Option:

    • share the reading tasks listed in workflow documents, using the XDS infrastructure.

    • receive notifications of workflow related events via DSUB notifications

    • discover reading tasks via MPQ queries.

41.3 XRR-WD Required Actor Groupings

500   Table 41.3-1 details all required actor groupings. The rationale for these groupings follows.

XRR-WD actors are grouped with XDW actors to support the creation, consumption and update
of the Remote Reading Workflow Document. This allows the actors in this profile at any point in
the workflow to access the most current status of the workflow and share the tasks performed
with all other workflow actors.

505   The Task Requester and Task Performer Actors are grouped with XDS-I.b Imaging Document
Source and Imaging Document Consumer Actors to enable them to consume images associated
with the Remote Reading Workflow and provide any output back to the XDS Affinity Domain.

XRR-WD actors that support the **XDS Environment Option** have additional grouping
requirements:

510   • The Task Requester, Task Performer, and Task Manager are grouped with XDS.b
      Document Consumer and Document Source to enable the sharing of Remote Reading
      Workflow Documents.

    • Task Manager, Task Performer and Watcher are grouped with the MPQ Document
      Consumer in order to enable these actors to discover information about the Remote
515   Reading Workflow in the event they did not receive expected DSUB notification.

    • XRR-WD actors are grouped with DSUB Document Metadata Subscriber and DSUB
      Document Metadata Notification Recipient Actors to enable an interoperable system for
      task status update notification. DSUB infrastructure is intended to provide specific

520   notifications to the participants of the Remote Reading Workflow when an XDS.b
environment is the XDW infrastructure for workflow sharing infrastructure.

Section 41.5 describes some optional groupings that may be of interest for security
considerations and Section 41.6 describes some optional groupings in other related profiles.

Table 41.3-1: XRR-WD Required Actor Groupings

XRR-WD Actor	Actor to be grouped with	Reference	Content Bindings Reference
Task Requester	XDW Content Creator	ITI TF-1: 30.1.1	ITI TF-3:5.4
	XDW Content Updater	ITI TF-1: 30.1.3	ITI TF-3:5.4
	XDW Content Consumer	ITI TF-1: 30.1.2	ITI TF-3:5.4
	XDS-I.b Imaging Document Consumer	RAD TF-1: 18	--
	XDS-I.b Imaging Document Source	RAD TF-1: 18	--
	XDS.b Document Source[1]	ITI TF-1: 10.1.1.1	--
	XDS.b Document Consumer[1]	ITI TF-1: 10.1.1.2	--
	DSUB Document Metadata Subscriber[1]	ITI TF-1: 26.1.1.2	--
	DSUB Document Metadata Notification Recipient[1]	ITI TF-1: 26.1.1.4	--
Task Manager	XDW Content Updater	ITI TF-1: 30.1.3	ITI TF-3:5.4
	XDW Content Consumer	ITI TF-1: 30.1.2	ITI TF-3:5.4
	XDS.b Document Source[1]	ITI TF-1: 10.1.1.1	--
	XDS.b Document Consumer[1]	ITI TF-1: 10.1.1.2	--
	DSUB Document Metadata Subscriber[1]	ITI TF-1: 26.1.1.2	--
	DSUB Document Metadata Notification Recipient[1]	ITI TF-1: 26.1.1.4	--
	MPQ Document Consumer[1]	ITI TF-1: 25.1	--
Task Performer	XDW Content Updater	ITI TF-1: 30.1.3	ITI TF-3:5.4
	XDW Content Consumer	ITI TF-1: 30.1.2	ITI TF-3:5.4
	XDS-I.b Imaging Document Consumer	RAD TF-1: 18	--
	XDS-I.b Imaging Document Source	RAD TF-1: 18	--
	XDS.b Document Source[1]	ITI TF-1: 10.1.1.1	--
	XDS.b Document Consumer[1]	ITI TF-1: 10.1.1.2	--
	DSUB Document Metadata Subscriber[1]	ITI TF-1: 26.1.1.2	--
	DSUB Document Metadata Notification Recipient[1]	ITI TF-1: 26.1.1.4	--
	MPQ Document Consumer[1]	ITI TF-1: 25.1	--
Watcher	XDW Content Consumer	ITI TF-1: 30.1.2	ITI TF-3:5.4

XRR-WD Actor	Actor to be grouped with	Reference	Content Bindings Reference
	DSUB Document Metadata Subscriber[1]	ITI TF-1: 26.1.1.2	--
	DSUB Notification Recipient[1]	ITI TF-1: 26.1.1.4	--
	MPQ Document Consumer[1]	ITI TF-1: 25.1	--

525   Note 1: The XRR-WD actor shall be grouped with the identified actor if it supports the XDS Environment Option.

41.4 XRR-WD Overview

Cross-Enterprise Remote Reading Workflow Definition Profile is a Workflow Definition profile for Remote Reading Workflow, which builds upon the ITI Cross-Enterprise Document Workflow (XDW) Profile to manage the workflow between facilities performing the workflow
530   tasks.

41.4.1 Concepts

Remote Reading Workflow is the practice of having medical images interpreted (read) by a reading specialist who is not present at the site where the imaging study was acquired and is not reporting using the local PACS and dictation system at the acquiring site. More specifically, the
535   reading specialist is being asked to read an imaging study from another organization which may have a different Hospital Information System, Radiology Information System and/or PACS.

41.4.1.1 Collaboration Group

XRR-WD focuses on technical aspects to enable Remote Reading. Deployments also need to address the business relationship, including the business rules associated with the Remote Read
540   process. These are out-of-scope to for this profile; however, the basic concept is described here.

The Collaboration Group is a group of legal entities bound by a business agreement to request and perform radiology reads among each other. The content of this agreement may vary based on regional regulations and institutional policies.

As part of the business agreement, the entities involved could share additional services other than
545   the actual read. Those services are out of scope for this profile.

41.4.1.2 Workflow Stakeholders

The Workflow Stakeholder is an abstraction of the systems and users involved in the Remote Read process. They can be identified based on their roles in the process. Each of the Workflow Stakeholders has specific rights and duties in the process. They drive the process from one step
550   to another, performing determinate actions on the workflow.

Workflow Stakeholder	Definition
Attending Physician	Physician who oversees the care of the patient.
Technologist	Individual qualified to perform an imaging procedure.

Workflow Stakeholder	Definition
Referring Physician	Physician who referred the patient for the imaging procedure. Note that this could be the attending physician.
Imaging Facility	Facility where clinical imaging procedures are performed to create an exam to be read remotely. This healthcare facility initiates and completes the cross-enterprise read for an imaging study.
Reading Facility	Facility where the cross-enterprise read of the remote exams is performed.
Image Share Service	Services managed on behalf of a healthcare community for the purpose of exchanging clinical records and workflow collaboration. This includes workflow dispatch and monitoring related to imaging.
Radiologist	A clinical physician who is credentialed to read clinical images and generate a report for the imaging procedure, as per local regulations.

41.4.1.3 Remote Read Documents

This section describes the Documents and other objects involved in the Remote Read process.

555

Table 41.4.1.3-1: Document Referenced

Document Types	Definition
Final Report	The clinical imaging report signed by a credentialed Radiologist.
Preliminary Report	The clinical imaging report, which may be provided in advance of a Final Report.
Image Manifest	Document identifying the image set that is subject of the Read Request
Image Set	Clinical images referenced in the Image Manifest.
Read Request	Request for a Radiologist to perform a clinical read of images acquired.
Relevant Clinical Documents	Any Clinical Document deemed to be relevant for the remote read. For example, this may include the original Referral, a supporting Laboratory Report or technologist's notes and comments. It may include Image Manifests and image reports of prior image studies
Relevant Images	Image Manifests and image reports of prior image studies that are considered relevant for the read process.

41.4.1.4 Using XDW to represent the Remote Read process

The Cross-Enterprise Remote Reading Workflow manages the Remote Read process. This XRR-
560   WD Profile is built upon the ITI XDW Profile for this purpose.

Each Cross-Enterprise Remote Reading Workflow is coordinated via a Remote Reading
Workflow Document. The steps in the workflow are modeled in four workflow tasks within a
Remote Reading Workflow Document as represented in Figure 41.4.1.4-1 and outlined below.
Each transaction requires an update of the Workflow Document. Each update is required to not
565   alter the workflow tasks not explicitly affected by the transaction.

Section 41.4.2.1.2 describes how XRR-WD actors use transactions to exchange the Remote Reading Workflow Document as these workflow tasks are added and updated:

- **Request Remote Read task**: This task represents submission of a new Read Request.

570

   The Task Requester creates a new Remote Reading Workflow Document to represent the Read Request. It adds the Request Remote Read task to the Remote Reading Workflow Document, specifying the reading task to be performed and providing the references to images (Image Manifest) and relevant clinical documents.

- **Dispatch Remote Read task:** This task represents assigning a read request to a Task Performer.

575

   The Task Manager assigns the Read Request to a Task Performer by completing the Dispatch Remote Read task in the Remote Reading Workflow Document.

- **Perform Remote Read task**: This task represents the activities of the Task Performer after assigned a Read Request.

580

   The Task Performer first accepts, or optionally claims the assignment of the Read Request. The Task Performer then processes the Read Request. The final, preliminary or updated Report (Image Report) and any evidence documents as output of this task are referenced.

- **Complete Remote Read task:** The Task Requester accepts the Final Report and completes the Workflow.

585

   The Task Requester accepts the Final Report and processes the completion of the Remote Read.
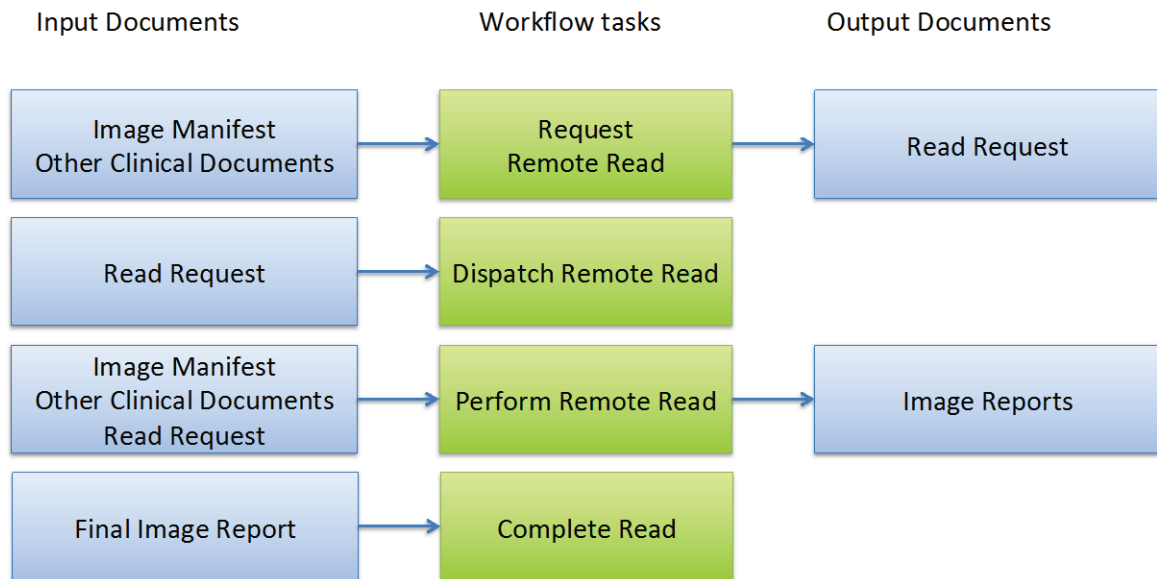
Figure 41.4.1.4-1: Workflow Tasks for the Remote Read process

590

The XRR-WD process flow, including the task states/status is shown in Figure 41.4.1.4-2. Transactions listed are:

- Create XDW Read [RAD-111]

595
- Cancel XDW Read [RAD-112]
- Accept/Reject XDW Report [RAD-113]
- Revoke XDW Assignment [RAD-114]
- Assign XDW Read [RAD-115]
- Accept/Reject or Release XDW Read [RAD-116]

600
- Update XDW Read [RAD-117]
- Subscribe Remote Read Task [RAD-118]
- Claim XDW Read [RAD-119]
- Complete XDW Read [RAD-120]
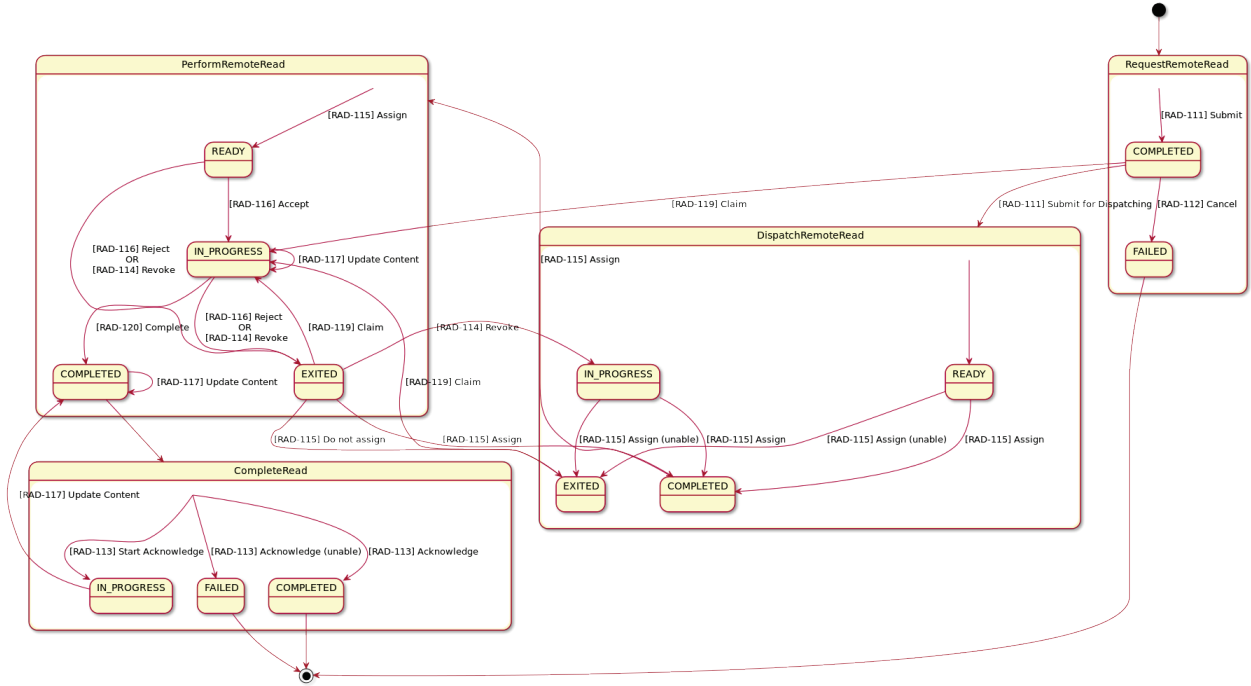
605

Figure 41.4.1.4-2: Cross-Enterprise Remote Reading Workflow Definition complete process flow.

Note: The diagram was generated using plantUML) A high resolution version of this figure is
610   stored in the IHE ftp site at ftp://ftp.ihe.net/Radiology/iherad-2017/Tech_Cmte/Supp_Development/XRR-WD

```
@startuml
title XRR-WDprocessFlow



[*] --> RequestRemoteRead


state  RequestRemoteRead{


state COMPLETED
state FAILED
RequestRemoteRead --> COMPLETED: [RAD-111] Submit
COMPLETED-->FAILED: [RAD-112] Cancel
```

```
}


FAILED-->[*]


COMPLETED --> DispatchRemoteRead: [RAD-111] Submit for Dispatching


state DispatchRemoteRead{

state "COMPLETED" as COMPLETED2

state "EXITED" as EXITED2

state "IN_PROGRESS" as IN_PROGRESS2

state "READY" as READY2

DispatchRemoteRead --> READY2

READY2 --> EXITED2: [RAD-115] Assign (unable)

READY2 --> COMPLETED2: [RAD-115] Assign

IN_PROGRESS2 --> EXITED2: [RAD-115] Assign (unable)

IN_PROGRESS2 --> COMPLETED2: [RAD-115] Assign


}


COMPLETED2 --> PerformRemoteRead: [RAD-115] Assign


state PerformRemoteRead{


state "COMPLETED" as COMPLETED3

state "IN_PROGRESS" as IN_PROGRESS3


PerformRemoteRead --> READY: [RAD-115] Assign

READY --> IN_PROGRESS3: [RAD-116] Accept

IN_PROGRESS3 --> COMPLETED3: [RAD-120] Complete

IN_PROGRESS3 --> EXITED: [RAD-116] Reject \nOR\n [RAD-114] Revoke

IN_PROGRESS3 --> IN_PROGRESS3: [RAD-117] Update Content

READY --> EXITED: [RAD-116] Reject \nOR\n [RAD-114] Revoke

EXITED --> IN_PROGRESS2: [RAD-114] Revoke

EXITED --> EXITED2: [RAD-115] Do not assign
```

```
EXITED --> COMPLETED2: [RAD-115] Assign

COMPLETED3 -->COMPLETED3: [RAD-117] Update Content

COMPLETED-->IN_PROGRESS3: [RAD-119] Claim


}

EXITED --> IN_PROGRESS3: [RAD-119] Claim

COMPLETED3--> CompleteRead


state CompleteRead{

state "IN_PROGRESS" as IN_PROGRESS4

state "COMPLETED" as COMPLETED4

state "FAILED" as FAILED4

CompleteRead -down-> IN_PROGRESS4: [RAD-113] Start Acknowledge

IN_PROGRESS4 -up-> COMPLETED3: [RAD-117] Update Content

CompleteRead -down-> COMPLETED4: [RAD-113] Acknowledge

CompleteRead -down-> FAILED4: [RAD-113] Acknowledge (unable)


}

FAILED4 --> [*]

COMPLETED4 --> [*]


EXITED2 --> IN_PROGRESS3: [RAD-119] Claim


@enduml
```

Table 41.4.1.4-1 lists the various documents that may be referenced as either input or output
documents for each workflow task/status pair defined by the XRR-WD Profile.

615   The following table is informative. Details about the requirements are defined in the
corresponding transactions. The table lists for each task/status pair inputs/outputs document that
are attached by XRR-WD actors.

The values used in the Optionality columns are defined as follows:

R: Required. The document is referenced as input or output for the task.

620   **RE**: Required if present. The document is referenced if present as input or output for the task.

C: Conditional. The document is referenced as input or output for the task if a specific condition is verified.

 O: Optional. The document can be referenced as input or output for the task.

N/A: Not Applicable. Such document references are not provided.

625

Table 41.4.1.4-1: Tasks/Status/Documents related to the Cross-Enterprise Remote Read process (Informative)

Workflow Task	Task Status	Input Documents	Optionality	Output Documents	Optionality
Request Remote Read	COMPLETED	Image Manifest	R	Read Request	R
		Relevant Clinical Document	RE		
		Relevant Manifest	RE		
		Previous Read Process Reference (reference to a Workflow Document)	C (R if this is a "Read Over Read")	-	N/A
	FAILED	-	N/A	-	N/A
Dispatch Remote Read	READY	-	N/A	-	N/A
	IN-PROGRESS	-	N/A	-	N/A
	COMPLETED	Image Manifest	R	-	N/A
		Read Request	R		
	EXITED	-	N/A	-	
Perform Remote Read	READY	Read Request	R	-	N/A
		Image Manifest	R		
		Relevant Clinical Document	O		
		Relevant Manifest	O	-	N/A
	IN-PROGRESS	-	N/A	Preliminary Report	O

Workflow Task	Task Status	Input Documents	Optionality	Output Documents	Optionality
	COMPLETED	-	N/A	Preliminary Report	C (R if the Task Requester asked only for a Preliminary Report)
		-	N/A	Final Image Report	C (R if the Task Requester asked for a Final Report)
	FAILED	-	N/A	-	N/A
	EXITED	-	N/A	-	N/A
Complete Remote Read	COMPLETED	Final Report or Preliminary Report	R	-	N/A
	IN_PROGRESS	Final Report or Preliminary Report	O	-	N/A
	FAILED	-	N/A	-	N/A

41.4.1.5 Preliminary vs Final Report

630   Some reading tasks are intended to result in a final report. Others may only require a preliminary report; for example, a request to a Nighthawk service might ask for a preliminary read only because the local radiologist will generate a final report the next day. Some requests may require a final report, but due to urgency may want a preliminary report too if it can be made available more quickly. The need for a Preliminary Report is expressed through an IHE extension to the
635   WS-HumanTask schema: the xrr-wd:requestedReportTypes XML element.

The Task Performer is expected to examine this parameter to understand what to return.

When a Final Report and a Preliminary Report are requested, the Perform Remote Read task is complete when the Final Report is made available, regardless of whether a Preliminary Report was made available or not. The Task Performer can indicate that the preliminary report is
640   available by updating the Perform Remote Read task to add the Preliminary Report as output.

When a Final Report Only is requested, the Task Performer might still produce a preliminary report as part of the process for generating the final report, but the Task Requester has no interest in that preliminary report and does not expect it to be returned.

645 When only a Preliminary Report is requested, the Perform Remote Read task is complete when the Preliminary Report is available. The Task Performer might still produce a Final Report as part of the reading process; the Task Requester may ignore that Final Report.

41.4.1.6 Urgency of a Read

Some reading tasks may be urgent and the Task Requester might express its interest in receiving a report as soon as possible. Examples include a trauma case read for an ER department.

650 The Request Remote Read task for such cases might have some of the following characteristics:

- priority = "1": Emergency (equivalent to HL7®[2] v2 priorityCode of "1")

- expirationTime: this attribute enables the Task Requester to specify a date/time by which the Read needs to be completed

Some attributes normally provided, like patient history or patient name, might be absent due to
655 lack of time to populate them.

A system assigning read tasks might choose Task Performers contracted to handle urgent reads, or known to have a fast turnaround time.

41.4.1.7 "Performer" of the Perform Remote Read Task

The Task Performer is not necessarily the system on which the reading task will be actually
660 performed.

In some implementations, the Task Performer may function as a type of proxy. For example, the Task Performer might perform the following steps:

1. retrieve the images (and other inputs such as evidence documents) referenced in the workflow document

665 2. import them into local storage

3. add a proxy workitem onto the reading worklist on the local RIS

4. monitor the progress and results of the local reading task

5. forward the report into community accessible storage

6. update the attributes of the original reading workflow document appropriately and move
670 it to the completed state.

The proxy might also handle mapping any local or community identifiers (patient ID, procedure codes, accession numbers, etc.) in the clinical content produced back to the values in the XDS Affinity Domain.

---

[2] HL7 is the registered trademark of Health Level Seven International.

41.4.1.8 Workflow Management Behaviors

675   Like XDW, the XRR-WD Profile uses XDS as the centralized infrastructure to store the Workflow Document. XDW does not define a centralized mechanism to orchestrate the evolution of a workflow nor does it verify that the workflow is following the expected path or that workflow participants are interacting in the expected way. Each system that participates in the Remote Read Workflow is responsible for the validation of pre-conditions and for ensuring

680   that the Read Request and the Remote Reading Workflow Document are compliant with transactional requirements defined in the XRR-WD Profile.

Although not required, additional behaviors can be added to the XDS Document Registry / Document Repository or other system to:

- Enforce specific roles of participants in the workflow

685   - Validate that workflow documents updated are syntactically correct

- Select workitems suitable for specific Task Performers

- Avoid intervention of malicious actors in the workflow

41.4.1.9 Assigned vs Claimed workitems

A workitem is assigned to a particular system by setting the potentialOwner of the Perform

690   Remote Read task and setting the status of this task to READY. At this point, the state of the workitem is assigned and the Task Performer has not actually agreed to accept the assignment until it claims the Perform Remote Read task. Until a Perform Remote Read task is claimed, it may be reassigned. Only the Task Performer in potentialOwner may Claim the workitem.

In the Open Worklist case, the workitem is not assigned prior to being claimed.

695   The Task Performer claims the Perform Remote Read task to accept and take control of the workflow. When it claims the Perform Remote Read task, the Task Performer changes the state of the Perform Remote Read task to IN PROGRESS. This event results in progress notification events being sent to subscribed systems (e.g., Task Requester, Task Manager, Watcher).

41.4.1.10 Exchange of additional process information (Reason Codes)

700   In many cases, workflow actors need to share information other than the status of a task. For example, they need to convey to another actor the reason why a specific change of status is occurred, or they need to provide additional information in order to proceed with the workflow. The element identified to convey that information is the **taskDetails/comment** child element of the XDW task. The following sections provide some guidance for using that element.

705   For each case, this profile identifies some codes that may be used by implementations. Those code systems are extensible.

41.4.1.10.1 Cancellation of the Read

The Task Requester is the only actor able to fail the entire Remote Reading Workflow. Reasons for the failure are tracked inside a dedicated element that characterizes the Request Remote Read task: **ht:comment**. The Task Requester is required at least to provide a string that describes those reasons (comment/text). However, there are some reasons for failure that can be encoded in order to be processed automatically by the other participants in the workflow. In order to do that, the **comment** element is extended by IHE in order to convey a code for the failure. This optional and repeatable element is **xrr-wd:reasonCode** and it is defined in the urn:ihe:rad:xrr-wd:2016:v1 namespace. This element is of type HL7v3 CE (urn:hl7-org:v3). Task Requester may use reasons for discontinuation from Table 41.4.1.10.1-1; these are selected from DICOM PS3.16 CID 9300 to code the reason for failure.

710

715

Table 41.4.1.10.1-1: Reasons for discontinuation

Coding Scheme Designator	Code Value	Code Meaning
DCM	110500	Doctor canceled procedure
DCM	110502	Incorrect procedure ordered
DCM	110504	Patient died
DCM	110509	Change of procedure for correct charging
DCM	110510	Duplicate order
DCM	110513	Discontinued for unspecified reason
DCM	110523	Object Set incomplete
DCM	110526	Resource pre-empted
DCM	110530	Workitem assignment rejected by assigned resource

720

41.4.1.10.2 Rejection/Releasing of the Read

Using the same approach as cancellation, the Task Performer conveys reasons for a rejection or release of an assigned or claimed read. The Task Performer is required to convey at least a text string that describes reasons for the reject/release but it may provide coded reasons using the **xrr-wd:reasonCode** element. Task Performer may use reasons for discontinuation from Table 41.4.1.10.1-1.

725

41.4.1.10.3 Acknowledgement of the Report

When the Perform Remote Read task is completed, the Task Requester shall acknowledge the production of a report that meets Collaboration Group requirements. If the Task Requester rejects the report produced, it shall track reasons for rejection in the **taskDetails/comment** element. The Task Requester shall at least provide a text string that describe reasons for the

730

rejection of the Report and may provide a coded reasons using the **`xrr-wd:reasonCode`**
element. Task Requester may use reasons in Table 41.4.1.10.3-1 to code reason for the rejection
of the Report.

735

Table 41.4.1.10.3-1: Reasons for rejection

Coding Scheme Designator	Code Value	Code Meaning
IHE	R00001	Unsigned report
IHE	R00002	Report cannot be retrieved
IHE	R00003	Wrong report

41.4.1.11 Identification of users/systems

There are use cases that require the identification of systems, users or group of users (e.g.,
740   assignment of a read to a specific Task Performer). These entities are tracked in three task child
elements: **`actualOwner`**, **`potentialOwners`** and **`notificationRecipients`**. The
underlying standards (both WS-HumanTask and XDW) do not define how to encode these
elements. The XRR-WD Profile requires that users, group of users or systems are identified
using XON, XCN or XTN HL7 data types, where XON identifies the organization, XCN
745   identifies a person and XTN identifies a telecommunication endpoint. See ITI TF-3: Table
4.2.3.1.7-2 for a description of XON, XCN and XTN format.

41.4.1.12 Deployment and Performance considerations

The XRR-WD Profile relies on the functionalities of the underlying XDS.b/DSUB infrastructure.
A particularly deployment of XDS.b/DSUB may begin as a document sharing infrastructure. In
750   order to support additional real-time workflow such as XRR-WD, implementers should take into
consideration the following:

- **Timing issue**: A Remote Reading Workflow depends on having the ImageManifest
  available in the Document Repository. This impacts how soon an Imaging Document
  Source submits an imaging manifest in order for the study to be read. For some
755   implementations, this is not in real time, but for Remote Reading Workflow, the manifest
  submission time is a critical issue, in particular if the remote read is a time-sensitive case.

- **Auditing issue**: All interactions between XRR-WD actors and the Document Registry /
  Repository Actors involve a query and retrieve process to access the Workflow
  Document, and each update to the workflow results in a submission of an updated
760   workflow document. All of these transactions will trigger a pair of ATNA audit records
  by the two actors in both the query and the retrieve transaction. So it is important for the
  existing Audit Record Repository to be equipped to handle the significant increase in
  load.

765
- **Registry/Repository load increase**: Although the Workflow Document is a small document, the frequent update of the Workflow Document with new tasks or status updates means these actors need to be equipped to handle a significant increase in load.

41.4.1.13 Remote Reading Workflow Document and filtering

Information about the patient and the procedure are included in documents shared as part of the remote reading workflow. That information is stored in XDW Workflow Document, XDS

770 Metadata and Read Request document. The following informative table lists some of the key details which a Task Requester includes in the Remote Reading Workflow when created are:

Table 41.4.1.13-1: Reading Task Attributes (informative)

Detail	Corresponding XDW Attribute , XDS Metadata , Read Request attributes
Patient name, ID	patient/name patient/id XDW elements
Modality required (e.g., CT, MR, etc.)	remote reading workflow document eventCodeList metadata
Sub-specialty required (e.g., NM, Neuro, etc.)	remote reading workflow document practiceSettingCode metadata
Procedure being reported (the "orderable")	remote reading workflow document eventCodeList metadata
Body System/Part	remote reading workflow document eventCodeList metadata
Want Preliminary Report, Final Report, or both	requestedReportTypes XDW element of the Request Remote Read task
Expected Completion Date/Time	expirationTime XDW element of the Request Remote Read task
Priority/Urgency	priority XDW element of the Request Remote Read task
Accession # and Issuing Organization	remote reading workflow document referenceIdList metadata
References to the acquired images and location	Input / Output XDW elements of the Request Remote Read task.
Reason for Exam	OBR-31 component of the OMI message encoded in the Read Request document
Referring Physician	PV1-8 component of the OMI message encoded in the Read Request document
Ordering Department	ORC-12 component of the OMI message encoded in the Read Request document

775 Document Sharing Metadata mapping specified above follows requirements defined in RAD TF-3: Table 4.68.4.1.2.3-1.

The Task Requester is expected to populate the above attributes adequately, to properly communicate the nature of the reading task, to facilitate appropriate assignment of the task, or to facilitate Task Performers being able to efficiently query or subscribe for relevant remote reading

780 workflow documents.

A Task Performer, which might be handling tasks for a particular reader, several readers, or an entire reading practice, can use the above attributes to query for appropriate types of studies, or alternatively to subscribe to be notified when appropriate types of studies are posted to the worklist.

785 A Task Performer might, for example, query or subscribe for Remote Reading Workflow Documents that are Ultrasound studies and Cardiac specialty, or perhaps all CT studies without filtering on specialty, or all Neurology studies without filtering on modality. Also, Task Performers may do further "local filtering" by examining additional attributes of the Remote Reading Workflow Document to decide which to present to the human reader and how to sort

790 them.

41.4.2 Use Cases

The use cases presented below are described assuming the following environment that illustrates a typical application for a Remote Reading workflow.

After-hours reading is an example of a common workflow that illustrates the basic process
795 enabled by the XRR-WD Profile. This is where an Imaging Facility which performs imaging procedures does not have credentialed Radiologists to read performed image studies after hours.

For this example, the Northern Community Hospital (NCH) has an Imaging Facility which performs imaging procedures on patients after 5:00 PM. There is an attending physician requesting the imaging procedures performed by a qualified Technologist. However, after hours,
800 the site's Reading Facility lacks the credentialed Radiologists to perform the read.

Capital Health Alliance (CHA) is a community Health Information Exchange. The charter of this exchange is to provide the infrastructure and services for the purpose of sharing clinical patient records among its members. The members of this HIE are clinical institutions and facilities which provide patient care in this community. CHA includes the infrastructure and services for
805 sharing image studies between its members. The services include reading workload sharing of images.

NCH is a member of CHA. NCH has a business agreement with CHA to share clinical images with its members. It also has a business agreement with a collaboration group within CHA to share reading workload.

810 Greater City Hospital (GCH) has a Reading Facility with credentialed Radiologists who perform reading of radiographic images. It is also a member of the CHA Health Information Exchange. It participates in the image sharing services. This group has a business agreement to provide, pending staff availability, reading workload sharing of radiographic images.

Note: In the sequence diagrams in the following Use Cases, the Document Metadata Notify [ITI-53] transaction payload is
815 presented in order to identify the actual status and name of the XDW task that changed status after the execution of an XRR-WD transaction.

41.4.2.1 Use Case #1: Assigned Remote Read Process

This use case describes a basic Remote Read Process in a cross-enterprise environment. In this use case an Imaging Facility, which performs imaging procedures, does not have credentialed
820 Radiologists to read performed image studies after hours. However, this facility participates in a HIE (Health Information Exchange) community in which other enterprises share Imaging Read services.

41.4.2.1.1 Assigned Remote Read Process Use Case Description

This use case is initiated by a patient arriving at the Northern Community Hospital referred for a CT head scan. The CT Technologist preps the patient, performs and completes the scan.

The workflow to have this Image Study remotely read is conducted in the following steps:

Submit Read Request:

Once the scan is complete, the relevant clinical information is gathered and the read request is created. This read request should include: scan procedure and protocol, attending physician, referring physician (note that attending and referring physician may be the same), the urgency of the request, etc.

The Task Requester can provide additional documents along with the Read Request document:

- Image Manifest, referencing the images acquired

- Referral, if available containing the reason for exam, patient history, requisition

- Exam/Tech Notes, to include observations during the scan

NCH's Task Requester software submits the Read Request to the Capital Health Alliance, and CHA's cross-enterprise Task Manager software is notified. The Task Manager validates the read request.

Assign Remote Read (Dispatch Remote Read Request to Task Performers):

The CHA Task Manager notifies Greater City Hospital, a Task Performer, based on Collaboration Group's business agreement of the available read request to perform.

Accept Read (Confirm Availability):

Greater City Hospital's (GCH) Task Performer software receives the notification from the Task Manager software. Internally, it confirms that it has the available credentialed Radiology staff to perform the read request. GCH's Task Performer software notifies CHA's Task Manager that it can perform the read. The Read Request Assignment is confirmed.

Complete Read (Final Report production):

Upon completion of the read, the Radiologist submits a Final Report. The Reading Facility's Task Performer software gathers the Final Report and other evidence Documents created and submits it to the CHA HIE for distribution back to NCH's Read Request Software. All clinical content submitted include the originating patient and procedure identifiers and the original Accession tracking number.

Acknowledge Read Completion:

NCH's Task Requester software receives the final report and the relevant Evidence Documents submitted by GCH. NCH completes the imaging procedure workflow. It may include the business transactions to reimburse the Reading Facility for services rendered.

Once the Imaging Study Procedure is completed, the Read Request Workflow process is closed.

41.4.2.1.2 Assigned Remote Read Process Flow

The following sequence of tasks within the workflow describes the typical process flow for the
860   Basic Remote Read Process.
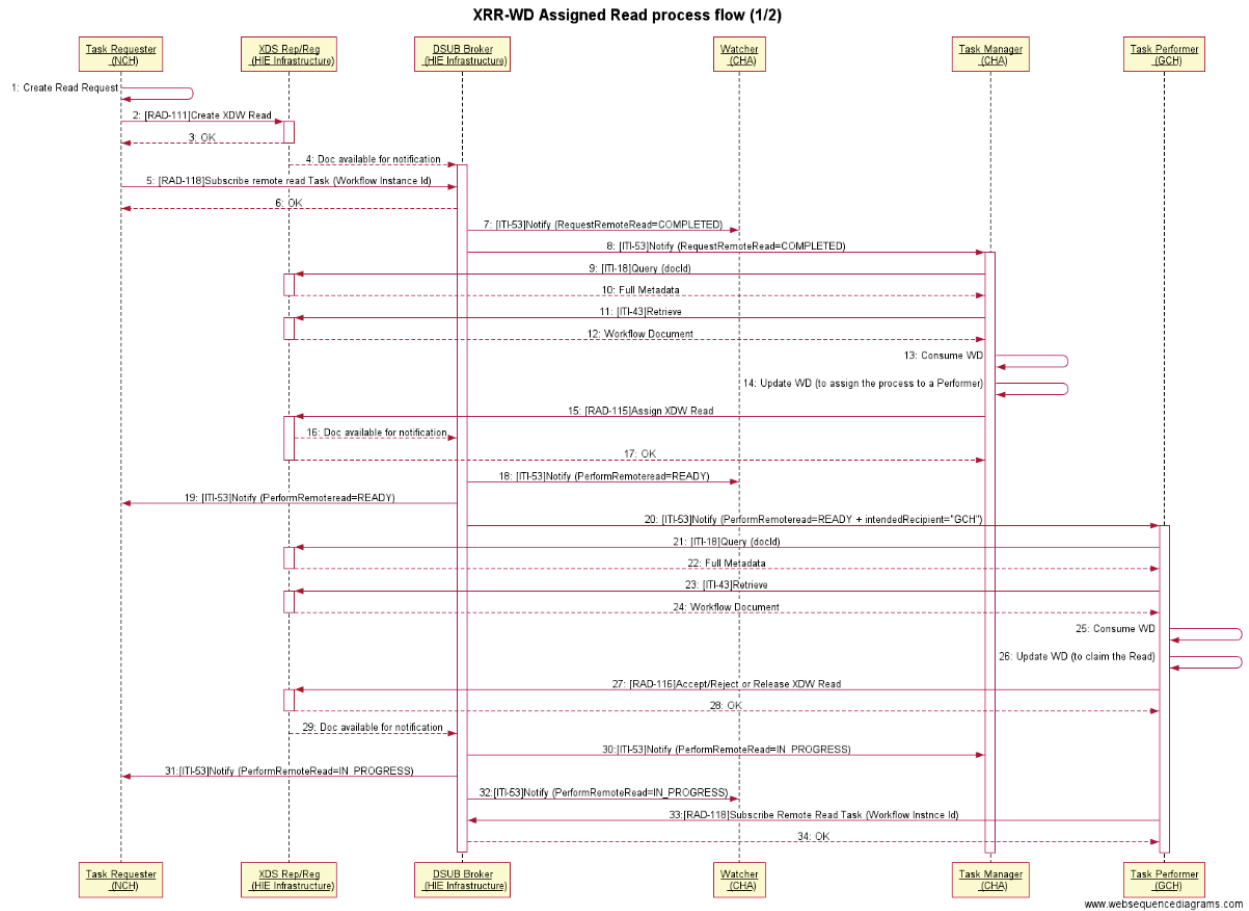
Figure 41.4.2.1.2-1: XRR-WD Assigned Read process flow (1/2)

Note: Diagram generated using https://www.websequencediagrams.com
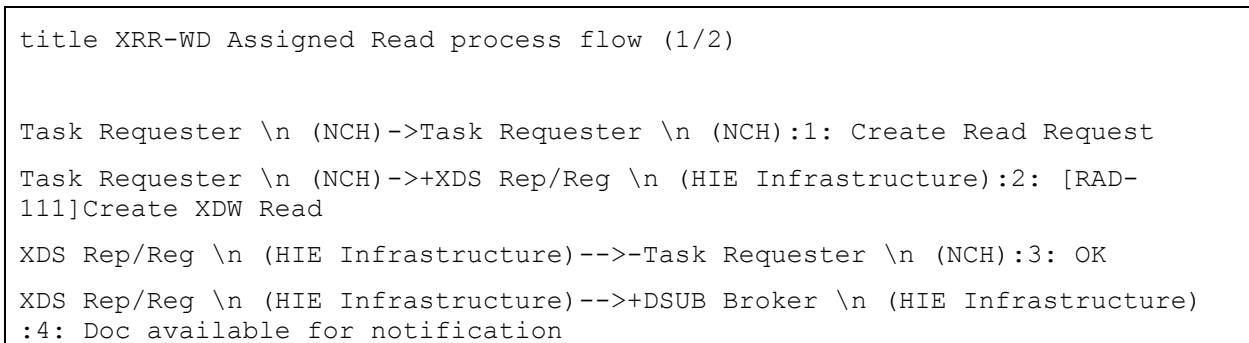
865

```
title XRR-WD Assigned Read process flow (1/2)


Task Requester \n (NCH)->Task Requester \n (NCH):1: Create Read Request

Task Requester \n (NCH)->+XDS Rep/Reg \n (HIE Infrastructure):2: [RAD-
111]Create XDW Read

XDS Rep/Reg \n (HIE Infrastructure)-->-Task Requester \n (NCH):3: OK

XDS Rep/Reg \n (HIE Infrastructure)-->+DSUB Broker \n (HIE Infrastructure)
:4: Doc available for notification
```

```
Task Requester \n (NCH)->DSUB Broker \n (HIE Infrastructure):5: [RAD-
118]Subscribe remote read Task (Workflow Instance Id)

DSUB Broker \n (HIE Infrastructure)-->Task Requester \n (NCH):6: OK

DSUB Broker \n (HIE Infrastructure)->Watcher \n (CHA):7: [ITI-53]Notify
(RequestRemoteRead=COMPLETED)

DSUB Broker \n (HIE Infrastructure)->+Task Manager \n (CHA):8: [ITI-
53]Notify (RequestRemoteRead=COMPLETED)


Task Manager \n (CHA)->+XDS Rep/Reg \n (HIE Infrastructure):9: [ITI-18]Query
(docId)

XDS Rep/Reg \n (HIE Infrastructure)-->-Task Manager \n (CHA):10: Full
Metadata


Task Manager \n (CHA)->+XDS Rep/Reg \n (HIE Infrastructure):11: [ITI-
43]Retrieve

XDS Rep/Reg \n (HIE Infrastructure)-->-Task Manager \n (CHA):12: Workflow
Document


Task Manager \n (CHA)->Task Manager \n (CHA):13: Consume WD

Task Manager \n (CHA)->Task Manager \n (CHA):14: Update WD (to assign the
process to a Performer)


Task Manager \n (CHA)->+XDS Rep/Reg \n (HIE Infrastructure):15: [RAD-
115]Assign XDW Read

XDS Rep/Reg \n (HIE Infrastructure)-->DSUB Broker \n (HIE
Infrastructure):16: Doc available for notification

XDS Rep/Reg \n (HIE Infrastructure)-->-Task Manager \n (CHA):17: OK


DSUB Broker \n (HIE Infrastructure)->Watcher \n (CHA):18: [ITI-53]Notify
(PerformRemoteread=READY)

DSUB Broker \n (HIE Infrastructure)->Task Requester \n (NCH):19: [ITI-
53]Notify (PerformRemoteread=READY)

DSUB Broker \n (HIE Infrastructure)->+Task Performer \n (GCH):20: [ITI-
53]Notify (PerformRemoteread=READY + intendedRecipient="GCH")


Task Performer \n (GCH)->+XDS Rep/Reg \n (HIE Infrastructure):21: [ITI-
18]Query (docId)

XDS Rep/Reg \n (HIE Infrastructure)-->-Task Performer \n (GCH):22: Full
Metadata
```

```
Task Performer \n (GCH)->+XDS Rep/Reg \n (HIE Infrastructure):23: [ITI-
43]Retrieve

XDS Rep/Reg \n (HIE Infrastructure)-->-Task Performer \n (GCH):24: Workflow
Document


Task Performer \n (GCH)->Task Performer \n (GCH):25: Consume WD

Task Performer \n (GCH)->Task Performer \n (GCH):26: Update WD (to claim the
Read)


Task Performer \n (GCH)->+XDS Rep/Reg \n (HIE Infrastructure):27: [RAD-
116]Accept/Reject or Release XDW Read

XDS Rep/Reg \n (HIE Infrastructure)-->-Task Performer \n (GCH):28: OK


XDS Rep/Reg \n (HIE Infrastructure)-->DSUB Broker \n (HIE
Infrastructure):29: Doc available for notification

DSUB Broker \n (HIE Infrastructure)->Task Manager \n (CHA):30:[ITI-53]Notify
(PerformRemoteRead=IN_PROGRESS)


DSUB Broker \n (HIE Infrastructure)->Task Requester \n (NCH):31:[ITI-
53]Notify (PerformRemoteRead=IN_PROGRESS)

DSUB Broker \n (HIE Infrastructure)->Watcher \n (CHA):32:[ITI-53]Notify
(PerformRemoteRead=IN_PROGRESS)


Task Performer \n (GCH)->DSUB Broker \n (HIE Infrastructure):33:[RAD-
118]Subscribe Remote Read Task (Workflow Instance Id)

DSUB Broker \n (HIE Infrastructure)-->Task Performer \n (GCH):34: OK
```
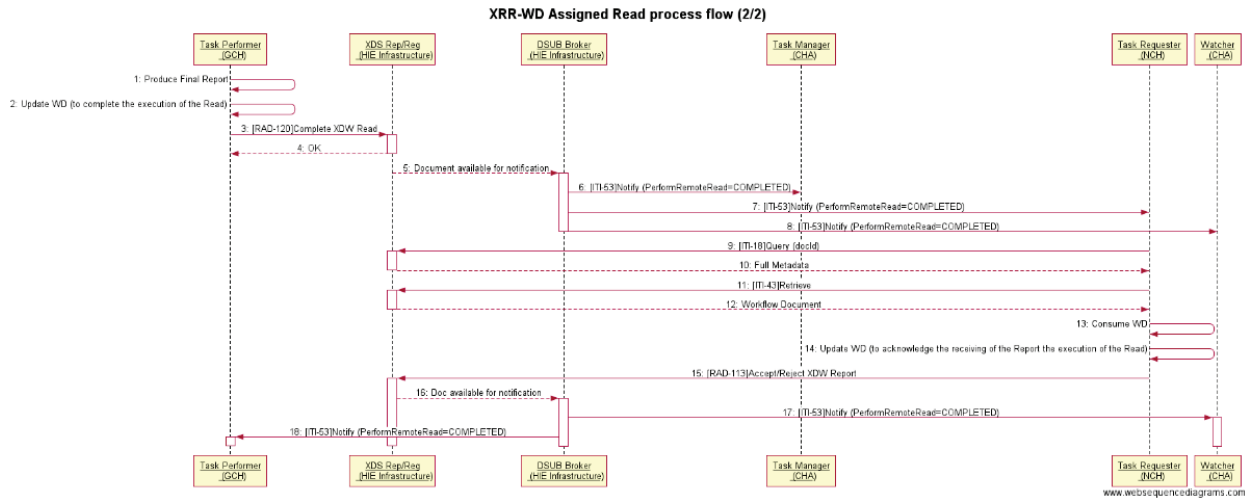
Figure 41.4.2.1.2-2: XRR-WD Assigned Read process flow (2/2)

Note: Diagram generated using https://www.websequencediagrams.com)

870

```
title XRR-WD Assigned Read process flow (2/2)


Task Performer \n (GCH)->Task Performer \n (GCH):1: Produce Final Report

Task Performer \n (GCH)->Task Performer \n (GCH):2: Update WD (to complete
the execution of the Read)


Task Performer \n (GCH)->+XDS Rep/Reg \n (HIE Infrastructure):3: [RAD-
120]Complete XDW Read

XDS Rep/Reg \n (HIE Infrastructure)-->-Task Performer \n (GCH):4: OK


XDS Rep/Reg \n (HIE Infrastructure)-->+DSUB Broker \n (HIE
Infrastructure):5: Document available for notification

DSUB Broker \n (HIE Infrastructure)->Task Manager \n (CHA):6: [ITI-53]Notify
(PerformRemoteRead=COMPLETED)

DSUB Broker \n (HIE Infrastructure)->Task Requester \n (NCH):7: [ITI-
53]Notify (PerformRemoteRead=COMPLETED)

DSUB Broker \n (HIE Infrastructure)->-Watcher \n (CHA):8: [ITI-53]Notify
(PerformRemoteRead=COMPLETED)



Task Requester \n (NCH)->+XDS Rep/Reg \n (HIE Infrastructure):9: [ITI-
18]Query (docId)
```

```
XDS Rep/Reg \n (HIE Infrastructure)-->-Task Requester \n (NCH):10: Full
Metadata


Task Requester \n (NCH)->+XDS Rep/Reg \n (HIE Infrastructure):11: [ITI-
43]Retrieve

XDS Rep/Reg \n (HIE Infrastructure)-->-Task Requester \n (NCH):12: Workflow
Document




Task Requester \n (NCH)->Task Requester \n (NCH):13: Consume WD

Task Requester \n (NCH)->Task Requester \n (NCH):14: Update WD (to
acknowledge the receiving of the Report the execution of the Read)


Task Requester \n (NCH)->+XDS Rep/Reg \n (HIE Infrastructure):15: [RAD-
113]Accept/Reject XDW Report

XDS Rep/Reg \n (HIE Infrastructure)-->+DSUB Broker \n (HIE
Infrastructure):16: Doc available for notification


DSUB Broker \n (HIE Infrastructure)->+Watcher \n (CHA):17: [ITI-53]Notify
(PerformRemoteRead=COMPLETED)

DSUB Broker \n (HIE Infrastructure)->+Task Performer \n (GCH):18: [ITI-
53]Notify (PerformRemoteRead=COMPLETED)
```

41.4.2.2 Use Case #2: Remote Read, Preliminary Urgent Read Request Scenario

This scenario describes the use case in which the Task Requester would start an Urgent Remote
Read process.

875
41.4.2.2.1 Remote Read, Preliminary Urgent Read Request Scenario Use Case Description

A Preliminary Urgent Read Request use case is where an Imaging Facility which performs
imaging procedures has an urgent need for a Preliminary Report of the performed image studies
in advance of a Final Report. This use case may be a trauma case read for an ER department.

880
The Urgent Read Request use case is a specialization of the Assigned Remote Read Process
described in Section 41.4.2.1 with the following exceptions:

    1. Emergency Department physician is the attending physician identified in the read request.

2. The Read Request includes an Urgency code of STAT and a request for a preliminary read.

885   3. The Collaboration Group may be constrained to include only Task Performers capable of handling Urgent Read Requests. The Task Manager shall identify only Task Performers that are of this group.

4. The process is identified as critical by the Task Performer system because it interprets the Urgency code (priority) set by the Task Requester and it interprets the need for a
890   preliminary report (requestedReportType).

5. Task Performer provides a preliminary report back to the Task Requester and the attending physician before a Final Report is created.

6. Task Performer creates the Final report as described in the Assigned Remote Read Process and provides it back to the Task Requester.

895

41.4.2.2.2 Remote Read, Preliminary Urgent Read Request Scenario process flow
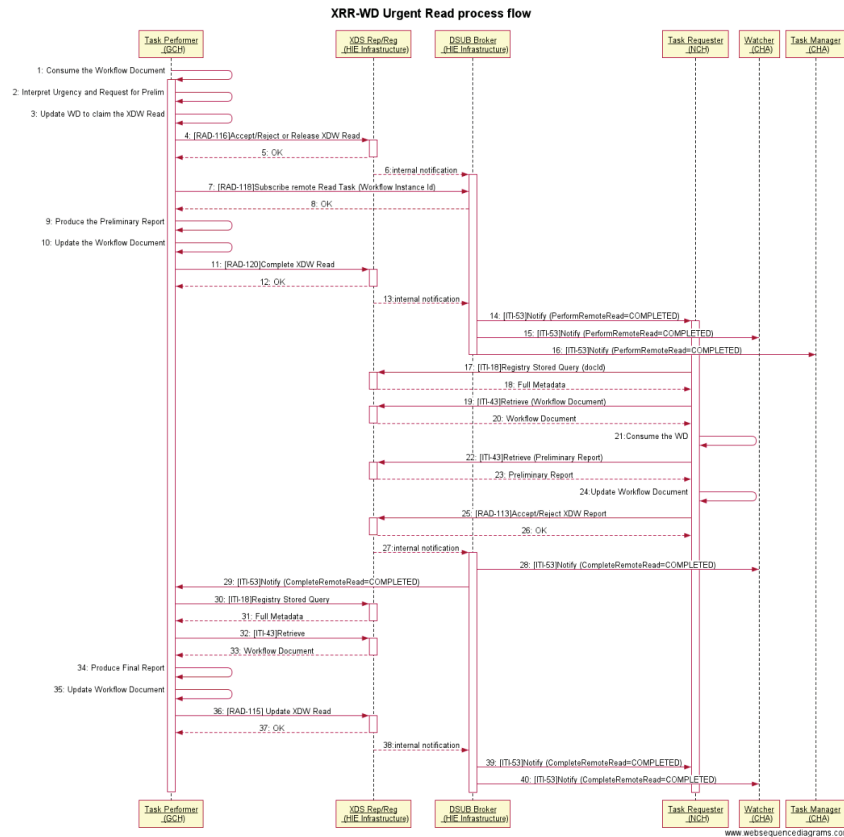
Figure 41.4.2.2.2-1: XRR-WD Urgent Read process flow

Note Diagram generated using https://www.websequencediagrams.com

```
title XRR-WD Urgent Read process flow



Task Performer \n (GCH)->+Task Performer \n (GCH):1: Consume the
Workflow Document

Task Performer \n (GCH)->Task Performer \n (GCH):2: Interpret Urgency
and Request for Prelim

Task Performer \n (GCH)->Task Performer \n (GCH):3: Update WD to claim
the XDW Read


Task Performer \n (GCH)->+XDS Rep/Reg \n (HIE Infrastructure):4: [RAD-
116]Accept/Reject or Release XDW Read

XDS Rep/Reg \n (HIE Infrastructure)-->-Task Performer \n (GCH):5: OK


XDS Rep/Reg \n (HIE Infrastructure)-->+DSUB Broker \n (HIE
Infrastructure):6:internal notification

Task Performer \n (GCH)->DSUB Broker \n (HIE Infrastructure):7: [RAD-
118]Subscribe remote Read Task (Workflow Instance Id)

DSUB Broker \n (HIE Infrastructure)-->Task Performer \n (GCH):8: OK


Task Performer \n (GCH)->Task Performer \n (GCH):9: Produce the
Preliminary Report

Task Performer \n (GCH)->Task Performer \n (GCH):10: Update the
Workflow Document



Task Performer \n (GCH)->+XDS Rep/Reg \n (HIE Infrastructure):11: [RAD-
120]Complete XDW Read

XDS Rep/Reg \n (HIE Infrastructure)-->-Task Performer \n (GCH):12: OK

XDS Rep/Reg \n (HIE Infrastructure)-->DSUB Broker \n (HIE
Infrastructure):13:internal notification


DSUB Broker \n (HIE Infrastructure)->+Task Requester \n (NCH):14: [ITI-
53]Notify (PerformRemoteRead=COMPLETED)

DSUB Broker \n (HIE Infrastructure)->Watcher \n (CHA):15: [ITI-
53]Notify (PerformRemoteRead=COMPLETED)

DSUB Broker \n (HIE Infrastructure)->-Task Manager \n (CHA):16: [ITI-
53]Notify (PerformRemoteRead=COMPLETED)
```

```
Task Requester \n (NCH)->+XDS Rep/Reg \n (HIE Infrastructure):17: [ITI-
18]Registry Stored Query (docId)

XDS Rep/Reg \n (HIE Infrastructure)-->-Task Requester \n (NCH):18: Full
Metadata


Task Requester \n (NCH)->+XDS Rep/Reg \n (HIE Infrastructure):19: [ITI-
43]Retrieve (Workflow Document)

XDS Rep/Reg \n (HIE Infrastructure)-->-Task Requester \n (NCH):20:
Workflow Document


Task Requester \n (NCH)->Task Requester \n (NCH):21:Consume the WD

Task Requester \n (NCH)->+XDS Rep/Reg \n (HIE Infrastructure):22: [ITI-
43]Retrieve (Preliminary Report)

XDS Rep/Reg \n (HIE Infrastructure)-->-Task Requester \n (NCH):23:
Preliminary Report


Task Requester \n (NCH)->Task Requester \n (NCH):24:Update Workflow
Document

Task Requester \n (NCH)->+XDS Rep/Reg \n (HIE Infrastructure):25: [RAD-
113]Accept/Reject XDW Report

XDS Rep/Reg \n (HIE Infrastructure)-->-Task Requester \n (NCH):26: OK


XDS Rep/Reg \n (HIE Infrastructure)-->+DSUB Broker \n (HIE
Infrastructure):27:internal notification


DSUB Broker \n (HIE Infrastructure)->Watcher \n (CHA):28: [ITI-
53]Notify (CompleteRemoteRead=COMPLETED)

DSUB Broker \n (HIE Infrastructure)->Task Performer \n (GCH):29: [ITI-
53]Notify (CompleteRemoteRead=COMPLETED)


Task Performer \n (GCH)->+XDS Rep/Reg \n (HIE Infrastructure):30: [ITI-
18]Registry Stored Query

XDS Rep/Reg \n (HIE Infrastructure)-->-Task Performer \n (GCH):31: Full
Metadata


Task Performer \n (GCH)->+XDS Rep/Reg \n (HIE Infrastructure):32: [ITI-
43]Retrieve
```

```
XDS Rep/Reg \n (HIE Infrastructure)-->-Task Performer \n (GCH):33:
Workflow Document


Task Performer \n (GCH)->Task Performer \n (GCH):34: Produce Final
Report

Task Performer \n (GCH)->Task Performer \n (GCH):35: Update Workflow
Document


Task Performer \n (GCH)->+XDS Rep/Reg \n (HIE Infrastructure):36: [RAD-
115] Update XDW Read

XDS Rep/Reg \n (HIE Infrastructure)-->-Task Performer \n (GCH):37: OK

XDS Rep/Reg \n (HIE Infrastructure)-->DSUB Broker \n (HIE
Infrastructure):38:internal notification


DSUB Broker \n (HIE Infrastructure)->Task Requester \n (NCH):39: [ITI-
53]Notify (CompleteRemoteRead=COMPLETED)

DSUB Broker \n (HIE Infrastructure)->Watcher \n (CHA):40: [ITI-
53]Notify (CompleteRemoteRead=COMPLETED)
```

900

41.4.2.3 Use Case #3: Remote Read, Sub-Specialty Read Request Scenario

This scenario describes the need to request a Read for a specific sub-specialty.

41.4.2.3.1 Remote Read, Sub-Specialty Read Request Use Case Description

A Sub-Specialty Read Request workflow is where an imaging facility needs to request that a
905 Sub-specialist perform the read. For example, a community hospital has an Attending Physician
who is providing the oversight of the Technologist performing a Nuclear Medicine (NM) SPECT
procedure. The Imaging Facility lacks a credentialed NM Radiologist to read NM SPECT. A
read by a credentialed NM Radiologist is required.

The Sub-Specialty Request Remote Read use case is a specialization of the Assigned Remote
910 Read Process described in Section 41.4.2.1 with the following exceptions:

1. The Read Request identifies sub-specialty reader qualifications as NM Radiologist.

2. The Collaboration Group may be constrained to include only Task Performers with
   credentialed NM Radiologists.

3. The Task Manager only assigns the read to a Task Performer which has credentialed NM
915 Radiologist as members of their staff.

4. A credentialed NM Radiologist authors the Final Report.

41.4.2.4 Use Case #4: Remote Read Over Read Consult Scenario

This use case describes the scenario in which the Task Requester decides to request a second
Read of a Final Report.

920 **41.4.2.4.1 Remote Read Over Read Consult Use Case Description**

The Remote Read Over Read Consult Request workflow is where an imaging facility has an
imaging Report and needs to request an Over Read Consult. This is often done for purposes of
quality assurance. As an example, a requesting physician has a Final Report, but is concerned
about the quality.

925 This use case is a specialization of the Assigned Remote Read Process described in Section
41.4.2.1 with the following exceptions:

1. The Read Request is identified by a specific type "Over Read"

2. The Request Remote Read task shall identify as input the previous Remote Reading
   Workflow Document. The original author of the initial Final Report is identified in the
930   request.

3. The Task Performer shall ensure that the original author of the initial Final Report does
   not perform this task. Note that a Task Performer may have several Radiologists which
   may be credentialed to perform the Read task.

4. The over read consulting physician either agrees or disagrees with the original report's
935   content. In the case of an agreement, the second Remote Read author can either modify
   the original Report adding a new additional 'Verifying Observer' or can create a new
   Final Report. In the case of a disagreement, a discrepancy report is generated.

41.4.2.5 Use Case #5: Remote Read Cancellation Scenario

This use case describes the need to cancel a Pending Read Request, because the Request is no
940 longer valid.

41.4.2.5.1 Remote Read Cancellation Use Case Description

The Remote Read Cancellation workflow is where a requesting imaging facility needs to cancel
a request because the Read is no longer needed (for example, because the Read Request was
made incorrectly, or the read can be completed within the Imaging Facility by the availability of
945 local radiologists).

In this case, the Task Requester shall update the Remote Reading Workflow Document, updating
the status of the Request Remote Read task into FAILED and closing the workflow.

All the participants in the workflow are notified of this update. After the workflow is closed in a
failure condition, participants can no longer change the status of any task present in the Remote
950 Reading Workflow document.

The Task Manager and the Task Performer cannot fail the Read process in any state. Further details about pre-condition for the cancellation are defined in RAD TF-3: 4.112.

41.4.2.5.2 Remote Read Cancellation Process Flow
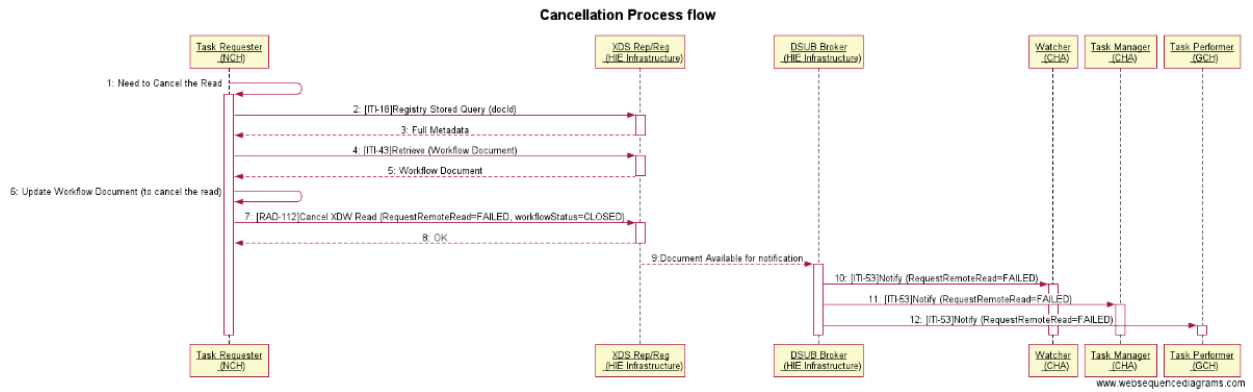
955 **Figure 41.4.2.6.2-1: Cancellation Process flow**

Note: Diagram generated using https://www.websequencediagrams.com)

```
title Cancellation Process flow


Task Requester \n (NCH)->+Task Requester \n (NCH):1: Need to Cancel the Read

Task Requester \n (NCH)->+XDS Rep/Reg \n (HIE Infrastructure):2: [ITI-
18]Registry Stored Query (docId)

XDS Rep/Reg \n (HIE Infrastructure)-->-Task Requester \n (NCH):3: Full
Metadata


Task Requester \n (NCH)->+XDS Rep/Reg \n (HIE Infrastructure):4: [ITI-
43]Retrieve (Workflow Document)

XDS Rep/Reg \n (HIE Infrastructure)-->-Task Requester \n (NCH):5: Workflow
Document


Task Requester \n (NCH)->Task Requester \n (NCH):6: Update Workflow Document
(to cancel the read)


Task Requester \n (NCH)->+XDS Rep/Reg \n (HIE Infrastructure):7: [RAD-
112]Cancel XDW Read (RequestRemoteRead=FAILED, workflowStatus=CLOSED)

XDS Rep/Reg \n (HIE Infrastructure)-->-Task Requester \n (NCH):8: OK

```

```
XDS Rep/Reg \n (HIE Infrastructure)-->+DSUB Broker \n (HIE
Infrastructure):9:Document Available for notification



DSUB Broker \n (HIE Infrastructure)->+Watcher \n (CHA):10: [ITI-53]Notify
(RequestRemoteRead=FAILED)

DSUB Broker \n (HIE Infrastructure)->+Task Manager \n (CHA):11: [ITI-
53]Notify (RequestRemoteRead=FAILED)

DSUB Broker \n (HIE Infrastructure)->+Task Performer \n (GCH):12: [ITI-
53]Notify (RequestRemoteRead=FAILED)
```

41.4.2.6 Use Case #6: Report Addendum

960   This use case describes the scenario in which the Task Performer produces an Addendum to the
Final Report after the Task Requester had accepted the Final Report.

41.4.2.6.1 Report Addendum Use Case Description

If the Task Performer needs to communicate the production of an Addendum to the Task
Requester, the Task Performer retrieves the CLOSED Remote Reading Workflow Document and
965   updates it, adding the reference to the Addendum as output to the Perform Remote Read task.
The status of the Perform Remote Read task is unchanged.

The Task Requester is notified of this update, so that it can subsequently retrieve the Addendum
from the XDS infrastructure.

41.4.2.6.2 Report Addendum Process Flow
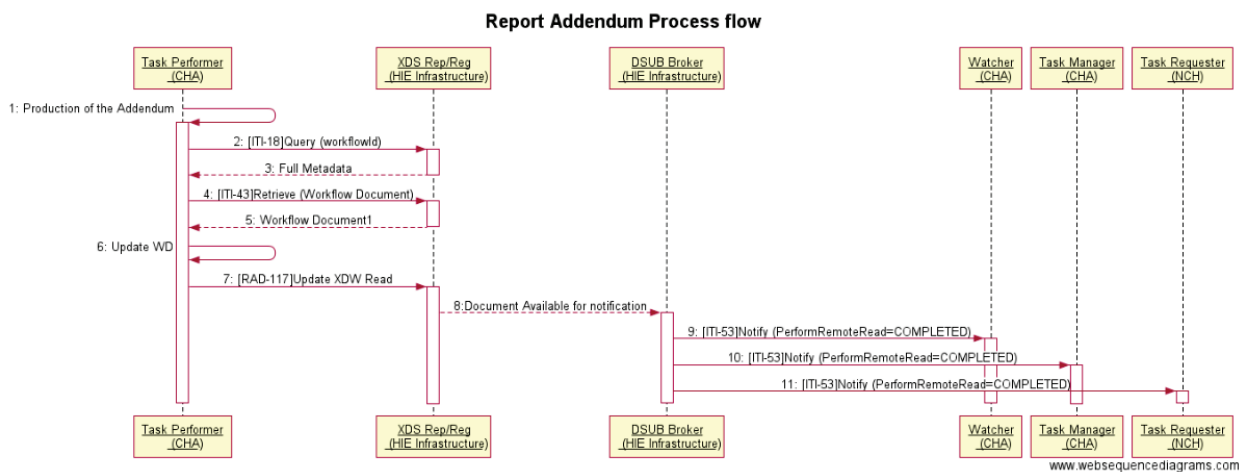
970

Figure 41.4.2.6.2-1: Report Addendum Process Flow

Note Diagram generated using https://www.websequencediagrams.com)

```
title Report Addendum Process flow

Task Performer \n (CHA)->+Task Performer \n (CHA):1: Production of the
Addendum

Task Performer \n (CHA)->+XDS Rep/Reg \n (HIE Infrastructure):2: [ITI-
18]Query (workflowId)
XDS Rep/Reg \n (HIE Infrastructure)-->-Task Performer \n (CHA):3: Full
Metadata

Task Performer \n (CHA)->+XDS Rep/Reg \n (HIE Infrastructure):4: [ITI-
43]Retrieve (Workflow Document)
XDS Rep/Reg \n (HIE Infrastructure)-->-Task Performer \n (CHA):5: Workflow
Document1

Task Performer \n (CHA)->Task Performer \n (CHA):6: Update WD
Task Performer \n (CHA)->+XDS Rep/Reg \n (HIE Infrastructure):7: [RAD-
117]Update XDW Read
XDS Rep/Reg \n (HIE Infrastructure)-->+DSUB Broker \n (HIE
Infrastructure):8:Document Available for notification

DSUB Broker \n (HIE Infrastructure)->+Watcher \n (CHA):9: [ITI-53]Notify
(PerformRemoteRead=COMPLETED)
DSUB Broker \n (HIE Infrastructure)->+Task Manager \n (CHA):10: [ITI-
53]Notify (PerformRemoteRead=COMPLETED)
DSUB Broker \n (HIE Infrastructure)->+Task Requester \n (NCH):11: [ITI-
53]Notify (PerformRemoteRead=COMPLETED)
```

975 **41.4.2.7 Use Case #7: Remote Read, Assign Cancellation**

This use case describes the scenario in which the Task Manager wants to revoke the assignment
of a task that has or has not already been claimed.

41.4.2.7.1 Remote Read, Assign Cancellation Use Case Description

The Task Manager is configured to revoke tasks assigned to Task Performer that have not
980 accomplished their activities within six working hours from their assignment (E.g., the Greater
City Hospital has network problems and after claiming the task, the Task Performer could not
communicate the completion of the Read). The Task Manager can revoke the assignment of the
Perform Remote Read task at any time before task completion by changing the status of the
Perform Remote Read task to EXITED.

985 Then, the Task Manager will set the status of the Dispatch Remote Read task to IN_PROGRESS
before assigning the task to another Task Performer.

When the assignment of a remote reading workflow is revoked, the Task Manager could assign
the read to a new Task Performer if needed.

990   Note: Local policies could further constrain the set of workflow status values that allows the
Task Manager to revoke the assignment of a Perform Remote Read task.

41.4.2.7.2 Remote Read, Assign Cancellation Process Flow
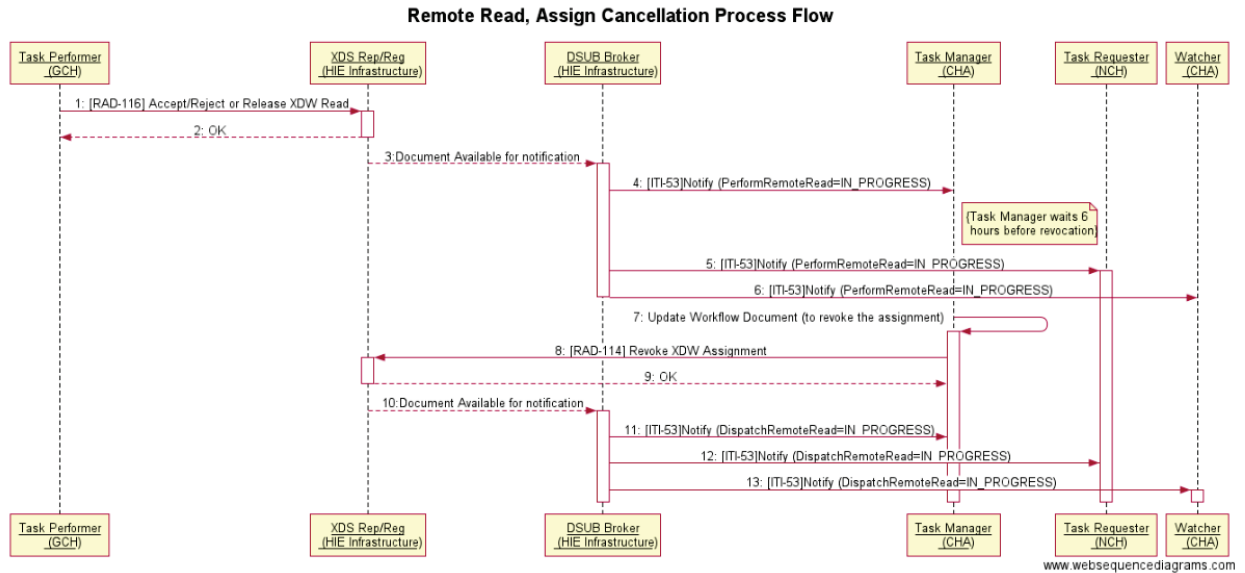
Figure 41.4.2.7.2-1: Remote Read, Assign Cancellation Process Flow

Note: Diagram generated using https://www.websequencediagrams.com)

995

```
title Remote Read, Assign Cancellation Process Flow

Task Performer \n (GCH)->+XDS Rep/Reg \n (HIE Infrastructure):1: [RAD-116]
Accept/Reject or Release XDW Read
XDS Rep/Reg \n (HIE Infrastructure)-->-Task Performer \n (GCH):2: OK

XDS Rep/Reg \n (HIE Infrastructure)-->+DSUB Broker \n (HIE
Infrastructure):3:Document Available for notification
DSUB Broker \n (HIE Infrastructure)->Task Manager \n (CHA):4: [ITI-53]Notify
(PerformRemoteRead=IN_PROGRESS)
note right of Task Manager \n (CHA): {Task Manager waits 6 \n hours before
revocation}
DSUB Broker \n (HIE Infrastructure)->+Task Requester \n (NCH):5: [ITI-
53]Notify (PerformRemoteRead=IN_PROGRESS)
DSUB Broker \n (HIE Infrastructure)->-Watcher \n (CHA):6: [ITI-53]Notify
(PerformRemoteRead=IN_PROGRESS)

Task Manager \n (CHA)->+Task Manager \n (CHA):7: Update Workflow Document
(to revoke the assignment)

Task Manager \n (CHA)->+XDS Rep/Reg \n (HIE Infrastructure):8: [RAD-114]
Revoke XDW Assignment
XDS Rep/Reg \n (HIE Infrastructure)-->-Task Manager \n (CHA):9: OK
```

```
XDS Rep/Reg \n (HIE Infrastructure)-->+DSUB Broker \n (HIE
Infrastructure):10:Document Available for notification
DSUB Broker \n (HIE Infrastructure)->Task Manager \n (CHA):11: [ITI-
53]Notify (DispatchRemoteRead=IN_PROGRESS)
DSUB Broker \n (HIE Infrastructure)->Task Requester \n (NCH):12: [ITI-
53]Notify (DispatchRemoteRead=IN_PROGRESS)
DSUB Broker \n (HIE Infrastructure)->+Watcher \n (CHA):13: [ITI-53]Notify
(DispatchRemoteRead=IN_PROGRESS)
```

41.4.2.8 Use Case #8: Open Worklist

This use case describes the scenario in which the Task Performer can directly query for pending
Read Request that can be claimed.

1000 #### 41.4.2.8.1 Open Worklist Use Case Description

When the Task Requester starts a remote read process, the Remote Reading Workflow
Document and the pending Read Request are submitted to the XDS infrastructure via Create
XDW Read [RAD-111] transaction. As members of the Collaboration Group, the Task
Performers can periodically access pending Read Requests using a Multiple Patient Query [ITI-
1005 51] transaction, or they could be notified via DSUB notification. If a Task Performer determines
to claim an open Read Request, it starts a Claim XDW Read [RAD-119] transaction. If the
transaction is completed successfully, then the Perform Remote Read task is assigned to the Task
Performer and the remote reading process follows the normal process flow.

41.4.2.8.2 Open Worklist Process Flow

1010
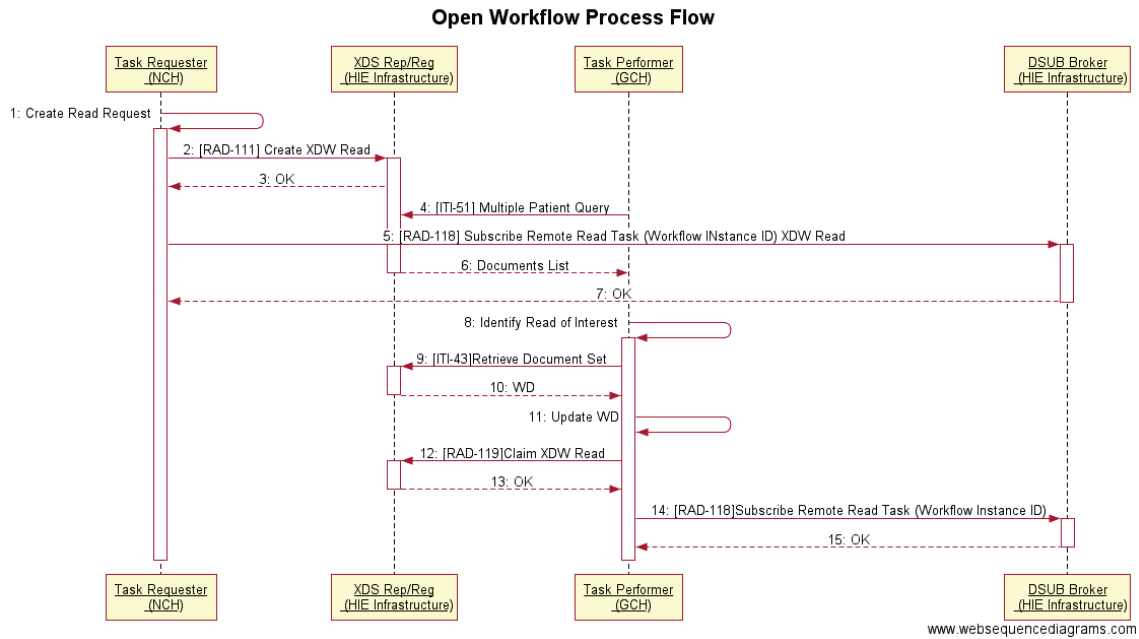
Figure 41.4.7.2-1: Open Worklist process flow

Note Diagram generated using https://www.websequencediagrams.com)

```
title Open Workflow Process Flow


Task Requester \n (NCH)->+Task Requester \n (NCH):1: Create Read Request


Task Requester \n (NCH)->+XDS Rep/Reg \n (HIE Infrastructure):2: [RAD-111]
Create XDW Read

XDS Rep/Reg \n (HIE Infrastructure)-->Task Requester \n (NCH):3: OK


Task Performer \n (GCH)->XDS Rep/Reg \n (HIE Infrastructure):4: [ITI-51]
Multiple Patient Query

Task Requester \n (NCH)->+DSUB Broker \n (HIE Infrastructure):5: [RAD-118]
Subscribe Remote Read Task (Workflow Instance ID) XDW Read

XDS Rep/Reg \n (HIE Infrastructure)-->-Task Performer \n (GCH):6: Documents
List

DSUB Broker \n (HIE Infrastructure)-->-Task Requester \n (NCH):7: OK


Task Performer \n (GCH)->+Task Performer \n (GCH):8: Identify Read of
Interest
```

```
Task Performer \n (GCH)->+XDS Rep/Reg \n (HIE Infrastructure):9: [ITI-
43]Retrieve Document Set

XDS Rep/Reg \n (HIE Infrastructure)-->-Task Performer \n (GCH):10: WD


Task Performer \n (GCH)->Task Performer \n (GCH):11: Update WD

Task Performer \n (GCH)->+XDS Rep/Reg \n (HIE Infrastructure):12: [RAD-
119]Claim XDW Read

XDS Rep/Reg \n (HIE Infrastructure)-->-Task Performer \n (GCH):13: OK


Task Performer \n (GCH)->+DSUB Broker \n (HIE Infrastructure):14: [RAD-
118]Subscribe Remote Read Task (Workflow Instance ID)

DSUB Broker \n (HIE Infrastructure)-->-Task Performer \n (GCH):15: OK
```

1015

41.4.2.9 Use Case #9: Open Worklist and race-condition

This use case describes the scenario in which a Task Performer can directly query for pending
Read Requests but when it tries to claim a Read Request, it gets an error because the same Read
Request has been already claimed by another Task Performer.

1020   #### 41.4.2.9.1 Open Worklist and race-condition Use Case Description

When the Task Requester starts a remote read process, the Remote Reading Workflow
Document and the pending Read Request are submitted to the XDS infrastructure via Create
XDW Read [RAD-111] transaction. A Task Performer can be notified for pending Read
Requests in many different ways (e.g., via DSUB notification if it subscribed for those
1025   documents). When a Task Performer member of the Collaboration Group is notified of the
creation of a new Remote Reading Workflow, it could discover all the information related to the
Request, using a Registry Stored Query [ITI-18] transaction. The same Read Request can be
examined by many different Task Performers at the same time. When a Task Performer wants to
claim the Perform Remote Read task, it starts a Claim XDW Read [RAD-119] transaction. In
1030   some cases, a second Task Performer can try to claim the same Perform Remote Read task after
the first Task Performer using a Claim XDW Read [RAD-119] transaction. The second claim
request ends with an error because the Task Performer cannot update the workflow document as
it has been replaced (deprecated). In this case, the second Task Performer can perform a new
query to discover the updated status of the workflow. The Perform Remote Read task is assigned
1035   to the first Task Performer, and the remote reading workflow follows the normal process flow.

41.4.2.9.2 Open Worklist and race-condition Process Flow

Open Workflow and race-condition Process Flow
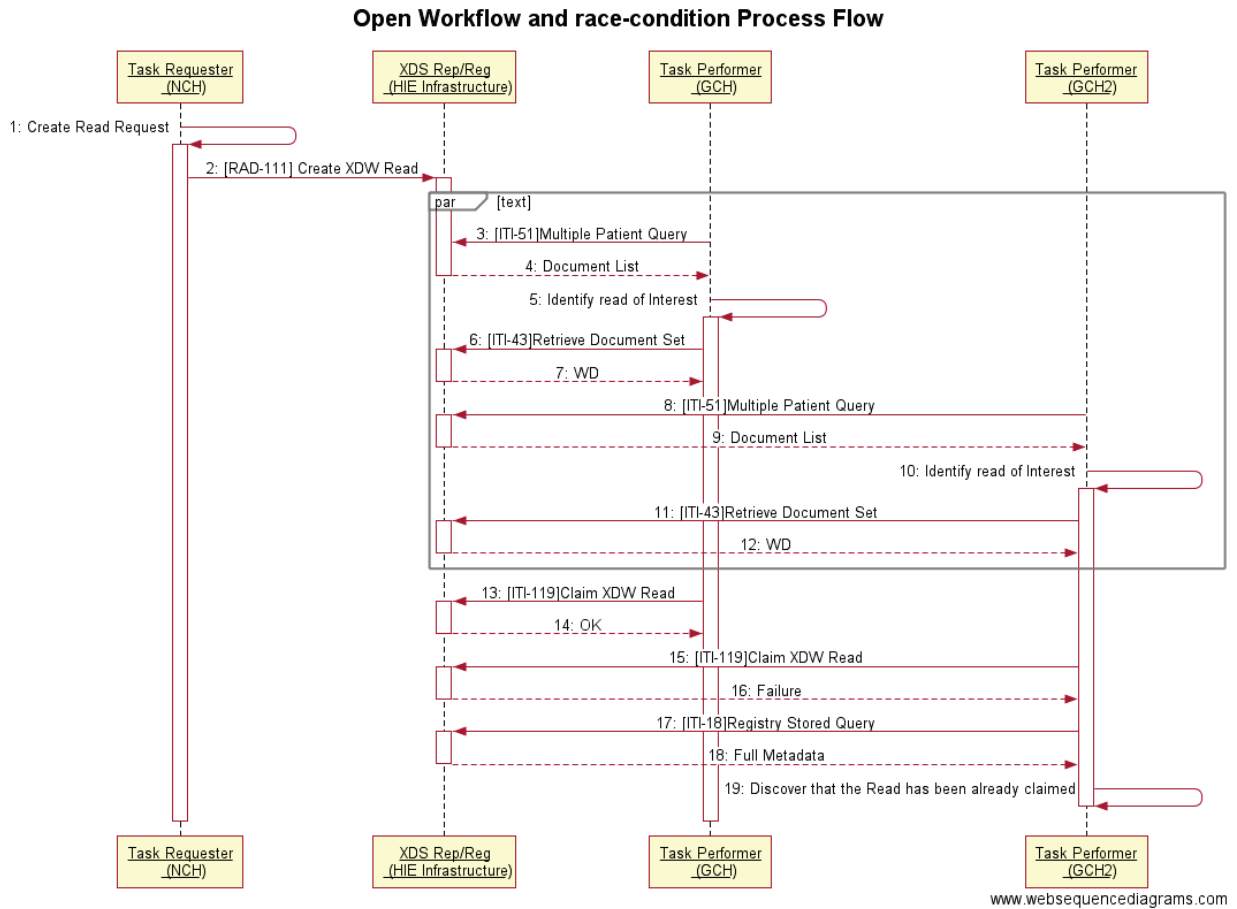
Figure 41.4.2.9.2-1: Open Worklist and race-condition process flow

1040   Note: Diagram generated using https://www.websequencediagrams.com)
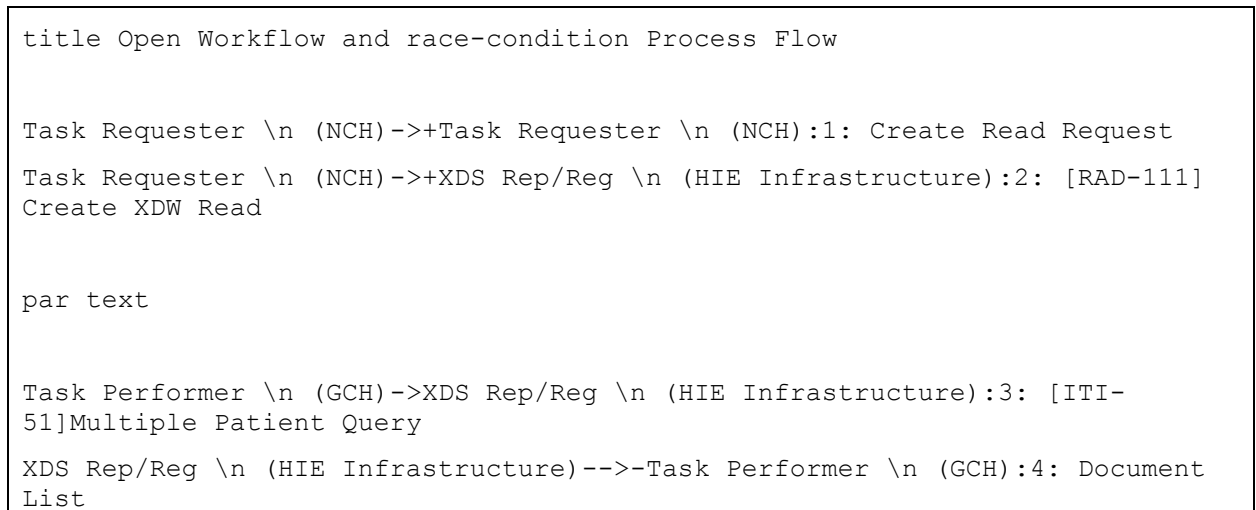
```
title Open Workflow and race-condition Process Flow


Task Requester \n (NCH)->+Task Requester \n (NCH):1: Create Read Request

Task Requester \n (NCH)->+XDS Rep/Reg \n (HIE Infrastructure):2: [RAD-111]
Create XDW Read


par text


Task Performer \n (GCH)->XDS Rep/Reg \n (HIE Infrastructure):3: [ITI-
51]Multiple Patient Query

XDS Rep/Reg \n (HIE Infrastructure)-->-Task Performer \n (GCH):4: Document
List
```

```
Task Performer \n (GCH)->+Task Performer \n (GCH):5: Identify read of
Interest


Task Performer \n (GCH)->+XDS Rep/Reg \n (HIE Infrastructure):6: [ITI-
43]Retrieve Document Set

XDS Rep/Reg \n (HIE Infrastructure)-->-Task Performer \n (GCH):7: WD


Task Performer \n (GCH2)->+XDS Rep/Reg \n (HIE Infrastructure):8: [ITI-
51]Multiple Patient Query

XDS Rep/Reg \n (HIE Infrastructure)-->-Task Performer \n (GCH2):9: Document
List

Task Performer \n (GCH2)->+Task Performer \n (GCH2):10: Identify read of
Interest


Task Performer \n (GCH2)->+XDS Rep/Reg \n (HIE Infrastructure):11: [ITI-
43]Retrieve Document Set

XDS Rep/Reg \n (HIE Infrastructure)-->-Task Performer \n (GCH2):12: WD


end


Task Performer \n (GCH)->+XDS Rep/Reg \n (HIE Infrastructure):13: [ITI-
119]Claim XDW Read

XDS Rep/Reg \n (HIE Infrastructure)-->-Task Performer \n (GCH):14: OK


Task Performer \n (GCH2)->+XDS Rep/Reg \n (HIE Infrastructure):15: [ITI-
119]Claim XDW Read

XDS Rep/Reg \n (HIE Infrastructure)-->-Task Performer \n (GCH2):16: Failure


Task Performer \n (GCH2)->+XDS Rep/Reg \n (HIE Infrastructure):17: [ITI-
18]Registry Stored Query

XDS Rep/Reg \n (HIE Infrastructure)-->-Task Performer \n (GCH2):18: Full
Metadata


Task Performer \n (GCH2)->-Task Performer \n (GCH2):19: Discover that the
Read has been already claimed
```

41.5 XRR-WD Security Considerations

1045

This profile relies on the XDW Profile for workflow management and on the XDS.b Profile for document sharing infrastructure. Implementers should refer to the security considerations related to those profiles (see ITI TF-1: 30.5 and ITI TF-1: 10.7). The XRR-WD Profile does not define additional audit constraints for workflow events because the Remote Reading Workflow Document defined in XRR-WD tracks clinical/administrative events related to the workflow itself. In case of failure conditions, reasons for the failure are tracked inside a comment section

1050

of the specific task of the Remote Reading Workflow Document that originates the failure (see RAD TF-3: 4.112.4.1.2.1.1.1 for details).

This profile has some special security considerations beyond the considerations that would apply to any XDS deployment, e.g.:

1055

- Issues of cross-border law, contract, data protection, etc. may arise. IHE cannot profile or predict exactly how these will affect technical details of an XRR-WD deployment. The transactions in this profile make use of the ITI Audit Trail and Node Authentication (ATNA) Profile for machine authentication, communications protection, and event logging. Machine authentication acts as a proxy for many legal considerations. By establishing the identity of the machines involved, the applicable laws, contracts can be

1060

established so that appropriate security rules are followed. This will have significant policy implications for the security rules engines that will need to be part of both risk assessment and policy determination.

- Some actors, such as the Task Performer, are likely to be members of multiple affinity domains when independent organizations share the services of a common remote reading

1065

organization. The IHE recommendations for setting up an affinity domain assume that actors are members of only one domain. Some actors that comply with this profile will need additional capabilities to support membership in multiple affinity domains.

- All of the actors in this profile shall have "create" and "update" permissions for the Document Registry and Document Repository involved. This introduces responsibility to

1070

maintain authentication and authorization relationships between multiple organizations. If a reading organization terminates an employee, it will be necessary to inform the security and authorization services of all the different affinity domains involved.

- Security and audit logs will have more complex management relationships because each of the different affinity domains will be interested in different aspects of these security

1075

logs.

- Event management, breach management, change notification, and other security related activities will be of potential interest to multiple affinity domains. Corrective action taken by an actor involved in multiple affinity domains affects all of the affinity domains and shall be properly coordinated with all of them.

1080

All of the security considerations associated with membership in an affinity domain and with the underlying ITI transactions also apply.

41.6 XRR-WD Cross Profile Considerations

This section identifies some relationships between this profile and other profiles. These dependencies shall not be considered additional requirements for Actors in the Cross-Enterprise Remote Reading Workflow Profile.

XRR-WD actors might be grouped with a Notification Puller in the ITI Document Metadata Subscription (DSUB) Profile to pull notifications about updates to documents the XRR-WD actors have not received. This is recommended for certain fault conditions where notifications may not be reliably received by the Task Manager, the Task Performer, the Watcher or by the Task Requester.

Appendices

Appendix A - Actor Summary Definitions

Actor	Definition
Task Requester	Submits a read request
Task Manager	Dispatches a read request
Task Performer	Executes a read
Watcher	Monitors the evolution of a workflow

1095

Appendix B - Transaction Summary Definitions

Transaction	Definition
Create XDW Read [RAD-111]	Submits the Remote Reading Workflow Document that initiate the remote reading workflow
Cancel XDW Read [RAD-112]	Closes the remote reading workflow with a failure condition
Accept/Reject XDW Report [RAD-113]	Tracks the result of the acknowledge for Final Report publication
Revoke XDW Assignment [RAD-114]	Revokes the assignment of a Perform Remote Read task
Assign XDW Read [RAD-115]	Assigns a Read Request to a Task Performer
Accept/Reject or Release XDW Read [RAD-116]	Claim a pre-assigned remote read or Reject a pre-assigned remote read.
Update XDW Read [RAD-117]	Updates content of a Perform Remote Read task
Subscribe Remote Read Task [RAD-118]	Subscribes for remote reading workflow document updates
Claim XDW Read [RAD-119]	Claims an open-assigned remote read
Complete XDW Read [RAD-120]	Tracks the publishing of the Final Report

Glossary

No new terms

1100

Volume 2 – Transactions

<div style="border:1px solid">*Add Sections*</div>

4.111 Create XDW Read [RAD-111]

4.111.1 Scope

1105

The Create XDW Read transaction starts a Remote Read workflow.

A Create XDW Read transaction carries the Remote Reading Workflow Document and the Read Request document and associated metadata.

4.111.2 Actor Roles

1110

Actor:	Task Requester
Role:	Submits documents to a Document Repository
Actor(s):	Document Repository
Role:	Receives, stores and registers documents provided

4.111.3 Referenced Standards

XDS.b (Cross-Enterprise Document Sharing): For a list of the standards for the underlying Provide and Register Document Set-b [ITI-41] transaction, see ITI TF-2b: 3.41.3.

1115 **XDW (Cross-Enterprise Document Workflow):** For requirements and standards related to the Remote Reading Workflow Document, see ITI TF-1:20 and ITI TF-3: 4.5.

4.111.4 Interaction Diagram
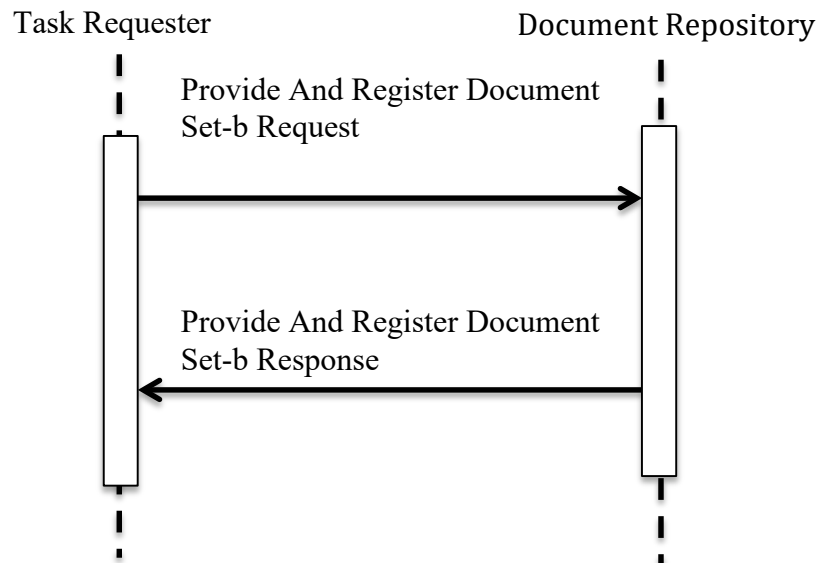
1120

4.111.4.1 Provide And Register Document Set-b Request

This message is a Provide and Register Document Set-b [ITI-41] with additional constraints.

4.111.4.1.1 Trigger Events

The Task Requester sends this message when it is ready to initiate the Remote Reading
Workflow and has acquired and collected all the information needed.

The information needed is:

- **Read Request Document:** the request for a Radiologist to perform a clinical read of images acquired for a Requested Procedure.

- **Image Manifest:** a document identifying the image set that is the subject of the Read Request Document.

- **Previous Read:** If the Remote Reading Workflow is classified as a "Read Over the Read" by the Task Requester.

4.111.4.1.2 Message Semantics

This message is a Provide and Register Document Set-b Request message. The Task Requester is
the Content Sender. The Document Repository is the Content Receiver acting as Document
Repository.

This message shall comply with the message semantics defined for the Provide and Register
Document Set-b Request message in ITI TF-2b: 3.41.4.1.2.

This section also defines:

1140
- the Remote Reading Workflow Document Content submitted in the Provide and Register Document Set-b;

- the Read Request Document submitted in the Provide and Register Document Set-b;

- the Document Sharing Metadata requirements for the Submission Set and Document Entry.

1145 This specification does not require that all the documents referenced as input or output documents within the Remote Reading Workflow Document are included in the same submissionSet.

4.111.4.1.2.1 Remote Reading Workflow Document Content Requirements

4.111.4.1.2.1.1 Remote Reading Workflow Document Elements

1150 The Task Requester shall create a new Remote Reading Workflow Document according to the definition of an XDW Workflow Document in ITI TF-3: 5.4 with the following constraints:

- **`<workflowStatus>`** shall be set to "OPEN"

- **`<workflowDefinitionReference>`** shall be set to "1.3.6.1.4.1.19376.1.2.1.41.1"

- **`<TaskList>`** shall comply with constraints in Section 4.111.4.1.2.1.1.1

1155 ### 4.111.4.1.2.1.1.1 Remote Reading Workflow Document TaskList Element

This element shall be structured according to ITI TF-3:5.4.2.3 "XDW Workflow Document Elements from the OASIS Human Task," with the additional constraints specified below.

The Task Requester shall put in the **`<TaskList>`** element a **`<XDWTask>`** child element that represents the Request Remote Read task (see Section 4.111.4.1.2.1.1.1.1).

1160 The Task Requester may put in the **`<TaskList>`** element a **`<XDWTask>`** child element that represents the Dispatch Remote Read to have the Remote Reading Workflow mediated by a Task Manager (see Section 4.111.4.1.2.1.1.1.2).

4.111.4.1.2.1.1.1.1 XDWTask "Request Remote Read"

The child element **`<taskDetails>`** (which is a child element of the **`<XDWTask>`**) are
1165 constrained as follows:

- **`<taskType>`** shall have the value "Request Remote Read"

- **`<status>`** shall have value "COMPLETED".

- **`<priority>`** shall have a value based on the urgency of the Read Request Document.

- **`<requestedReportTypes>`** shall have a value as described below.

1170 The following mapping represents the default value set for priority; however, local
policies/settings may define more fine-grained values including 0 and 10:

- "1": Emergency (equivalent to "1" HL7 v2 priorityCode)

- "5": Urgent (equivalent to "2" HL7 v2 priorityCode)

- "9": Elective (equivalent to "3" HL7 v2 priorityCode)

1175 The Task Requester may set the value of additional elements that characterize the nature and the
execution of the requested read:

- **<expirationTime>**: may be used to specify a date/time by which the read needs to
be completed

- **<notificationRecipients>**: may be used to identify users/organizations that
1180 needs to be notified of the creation of the Remote Reading Workflow Document. The
values shall be XON, XCN or XTN HL7 data types, where XON identifies an
organization, XCN identifies a person and XTN identifies a telecommunication endpoint,
see ITI TF-3: Table 4.2.3.1.7-2.

requestedReportTypes is an extension defined by the namespace urn:ihe:rad:xrr-
1185 wd:2016:v1, containing a list of **reportType** child elements. Each **reportType** element is
of type **xs:token** and can contain one of the following values:

- PRELIMINARY_REPORT: the Task Requester requires the Task Performer to create a
preliminary report.

- FINAL_REPORT: the Task Requester requires the Task Performer to create a final
1190 report.

The XML schema for this element is presented below:

```xml
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
elementFormDefault="qualified" xmlns:xrr-wd="urn:ihe:rad:xrr-
wd:2016:v1" targetNamespace="urn:ihe:rad:xrr-wd:2016:v1">
<xs:element name="requestedReportTypes">
    <xs:complexType>
        <xs:sequence>
            <xs:element minOccurs="1" maxOccurs="2" name="reportType">
                <xs:simpleType>
                    <xs:restriction base="xs:token">
                        <xs:enumeration value="PRELIMINARY_REPORT"/>
                        <xs:enumeration value="FINAL_REPORT"/>
                    </xs:restriction>
                </xs:simpleType>
            </xs:element>
        </xs:sequence>
    </xs:complexType>
```

```
</xs:element>
</xs:schema>
```

The child elements **taskData/input/part** contain references to input documents.
1195   Document references are encoded as attachments, see ITI TF-3: Table 5.4.3-9 AttachmentInfo
Element.

- **part/@name**="ImageManifest": (1..1) this is a required input that identifies the Image
  Manifest of the images that are required to be read.

- **part/@name** ="ReadRequest": (1..1) this is a required input that identifies the Read
1200   Request Document. See Section 4.111.4.1.2.2.

- **part/@name** ="relevantClinicalDocuments": (0..N) this is an optional and repeatable
  input that identifies relevant Clinical Document(s).

- **part/@name** ="relevantImageManifests": (0..N) this is an optional and repeatable
  input that identifies relevant Image Manifest(s) other than identified in the
1205   "ImageManifest" part.

- **part/@name** ="previousRead" (0..1) conditional: this attachment is required if this
  Read is a "Read Over the Read". It identifies the Remote Reading Workflow Document
  for the original Read process encoded as defined in the XDW Profile.

The child element **<taskEventHistory>** (which is a child element of the **<XDWTask>**) is
1210   constrained as follows:

- shall comply with ITI TF-3: Table 5.4.3-11.

- **taskEvent/status** shall have a value of "COMPLETED".

4.111.4.1.2.1.1.1.2 XDWTask "Dispatch Remote Read"

If the Task Requester is intended to dispatch the Request Remote Read task above, it shall also
1215   add a **<XDWTask>** element with a **<taskDetails>** that describes the Dispatch Remote Read
task details:

The **<taskType>** child element shall have the value "Dispatch Remote Read".

The **<status>** child element shall be "READY".

4.111.4.1.2.2 Read Request Content Requirements

1220   The Read Request document shall be structured in accordance to the XDS-SD Profile. The
CDA®[3] R2 Document shall provide as scanned part of the XDS-SD document the OMI request

---

[3] CDA is the registered trademark of Health Level Seven International.

message of Procedure Scheduled [RAD-4] transaction base64 encoded. Participants of the
Collaboration Group (RAD TF-1: 41.4.4.1) need to agree on patient identification and other
encoding or terminologies specified in the OMI message.

4.111.4.1.2.3 Document Sharing Metadata requirements

Document metadata for this transaction shall comply with the requirements in ITI TF-3:4
"Metadata used in Document Sharing Profiles".

This section specifies additional Document Sharing Metadata requirements for both the Remote
Reading Workflow Document and for the Read Request Document.

The DocumentEntry metadata of the Remote Reading Workflow Document shall meet the
following constraints:

- The eventCodeList metadata attribute is used to document the current status of the
  workflow and the status of task(s) within the workflow. This enables queries or DSUB
  notifications about status based on the values in eventCodeList:

    - A single entry of eventCodeList shall convey the actual status (OPEN) of the
      workflow: code = "urn:ihe:iti:xdw:2011:eventCode:open" codingScheme="
      1.3.6.1.4.1.19376.1.2.3".

    - A single entry of the eventCodeList shall convey the actual status of the Request
      Remote Read task OR the actual status of the Dispatch Remote Read task:
      code="urn:ihe:rad:xrr-wd:2015:eventCodeTaskStatus:RequestReadCompleted" or
      code="urn:ihe:rad:xrr-wd:2015:eventCodeTaskStatus:DispatchReadReady"
      codingScheme="1.3.6.1.4.1.19376.1.2.1" .

- The eventCodeList shall be used to convey Acquisition Modality and Anatomic Region
  in accordance with Metadata requirements defined in RAD TF-3: Table 4.68.4.1.2.3-1.

- The eventCodeList shall be used to convey the Procedure Code Sequence (0008,1032) of
  the performed procedure.

- The practiceSettingsCode metadata shall provide the department or service that created
  the Read Request;

- The referenceIdList metadata shall provide the accession number in accordance with
  RAD TF-3: Table 4.68.4.1.2.3-1.

- The typeCode shall convey the following code: "XRR-WD" codingScheme:
  1.3.6.1.4.1.19376.1.2.1.41.1.

Note: The semantics for typeCode for the Remote Reading Workflow Document is not consistent with requirements identified
in the XDS-I.b Profile; however, they are consistent with XDW requirements.

The SubmissionSet metadata of the Remote Reading Workflow Document shall meet the
following constraints:

- the intendedRecipient metadata shall contain all identifiers found in the **XDWtask/taskDetails/notificationRecipients** element of the Request Remote Read task.

1260 The DocumentEntry metadata of the Read Request document shall meet the following constraints:

- A single entry of eventCodeList metadata shall convey the type of the Read just requested.

  - If the Task Requester is asking for a Read over the Read, code="urn:ihe:rad:xrr-wd:2015:readOverRead" codingScheme="1.3.6.1.4.1.19376.1.2.1".

1265

  - Otherwise code="urn:ihe:rad:xrr-wd:2015:normalRead" codingScheme="1.3.6.1.4.1.19376.1.2.1".

4.111.4.2 Provide and Register Document Set-b Response

This specification does not add requirements to the Provide and Register Document Set-b
1270 Response message defined in ITI TF-2b: 3.41.4.2.

4.111.4.2.1 Trigger Events

See ITI TF-2b:3.41.4.2.1.

4.111.4.2.2 Message Semantics

See ITI TF-2b:3.41.4.2.2.

1275 ### 4.111.4.2.3 Expected Actions

See ITI TF-2b:3.41.4.2.3.

If an error is generated by the Document Repository, that error should be managed by the Task
Requester in accordance with local defined behaviors, and in accordance with XDW actor
behaviors (race condition) defined in ITI TF-3: 5.4.5.1

1280 ### 4.111.5 Security Considerations

See ITI TF-2b: 3.41.5.

4.111.5.1 Security Audit Considerations

See ITI TF-2b: 3.41.5.1.

4.112 Cancel XDW Read [RAD-112]

1285 ### 4.112.1 Scope

This transaction cancels an ongoing Remote Reading Workflow.

4.112.2 Actor Roles

Actors:	Task Requester
Role:	Ends the Remote Reading Workflow with a Failure condition
Actor:	Document Repository
Role:	Receives and stores the Remote Reading Workflow Document

1290   ## 4.112.3 Referenced Standards

XDS.b (Cross-Enterprise Document Sharing): For a list of the standards for the underlying Provide and Register Document Set-b [ITI-41] transaction, see ITI TF-2b: 3.41.3.

XDW (Cross-Enterprise Document Workflow): For requirements and standards related to the Remote Reading Workflow Document, see ITI TF-1:20 and ITI TF-3: 4.5.

1295   ## 4.112.4 Interaction Diagram
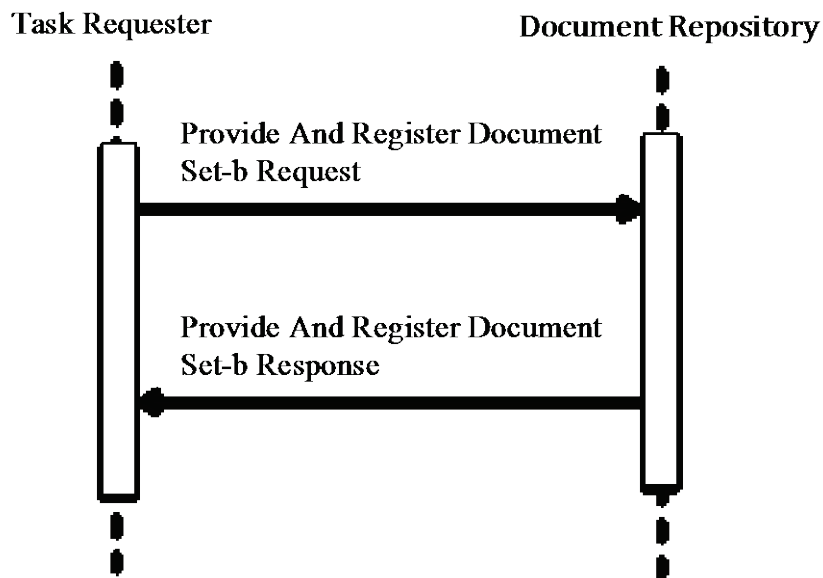
4.112.4.1 Provide And Register Document Set-b Request

1300   This message is a Provide and Register Document Set-b with additional constraints.

4.112.4.1.1 Trigger Events

The Task Requester wants to cancel a Remote Reading Workflow.

The **pre-conditions** are encoded as:

WorkflowDocument/workflowStatus="OPEN" and
WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/taskType="Request Remote Read" and
WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/actualOwner=Task Requester and one of the following:

1. The Remote Read workflow has not been dispatched or claimed yet
   count(**WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/taskType**="Perform Remote Read")=0;

   OR

2. The Perform Remote Read task has been assigned but not claimed yet
   WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/taskType="Perform Remote Read" and
   WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/status="READY"

   OR

3. The Perform Remote Read task has been claimed but not completed yet
   WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/taskType="Perform Remote Read" and
   WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/status="IN_PROGRESS"
   OR

4. The dispatching cannot be completed
   (**WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/taskType**="Dispatch Remote Read" and
   WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/status="EXITED")

   OR

5. All the Task Performers have rejected the assigned read.
   (**WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/taskType**="Perform Remote Read" and
   WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/status="EXITED")

4.112.4.1.2 Message Semantics

This message is a Provide and Register Document Set-b Request message.

The Task Requester is the Content Sender. The Document Repository is the Content Receiver acting as Document Repository.

This message shall comply with the message semantics defined for the Provide and Register Document Set-b Request message ITI TF-2b: 3.41.4.1.2.

This section also defines:

- Content of Remote Reading Workflow Document.

- Document Sharing Metadata requirements.

4.112.4.1.2.1 Remote Reading Workflow Document Content Requirements

4.112.4.1.2.1.1 Remote Reading Workflow Document Elements

`<WorkflowStatus>` shall be set to "CLOSED".

For **`<TaskList>`** constraints see Section 4.112.4.1.2.1.1.1

4.112.4.1.2.1.1.1 Remote Reading Workflow Document TaskList Element

This element shall be structured according to ITI TF-3: 5.4.2.3 "XDW Workflow Document Elements from the OASIS Human Task," with the additional constraints specified below.

The Task Requester shall add a **`<taskEvent>`** element with status "FAILED" as child element to the Request Remote Read **`<XDWTask>`** and add a child element **`taskData/comments`** to record reasons for the failure. The Task Requester shall provide a plain text string that describes the reason for failure. The Task Requester can provide a code (xrr-wd:reasonCode child element) that classifies the reasons for the failure (the Task Requester shall provide reasons for rejection in the **`taskDetails/comment`** element as described in RAD TF-1: 41.4.1.10).

4.112.4.1.2.2 Document Sharing Metadata requirements

Document metadata for this transaction shall comply with the requirements in ITI TF-3:4 "Metadata used in Document Sharing Profiles".

This section specifies additional Document Sharing Metadata requirements for both the Remote Reading Workflow Document and for the Read Request Document.

The DocumentEntry metadata of the Remote Reading Workflow Document shall meet the following constraints:

- The eventCodeList metadata attribute is used to document the current status of the workflow and the status of task(s) within the workflow. This enables queries or DSUB notifications about status based on the values in eventCodeList:

- A single entry of eventCodeList metadata shall convey the status (CLOSED) of the workflow: code = "urn:ihe:iti:xdw:2011:eventCode:closed" codingScheme=" 1.3.6.1.4.1.19376.1.2.3"

- A single entry of the eventCodeList metadata shall convey the status of the updated task. The value shall be: code="urn:ihe:rad:xrr-wd:2015:eventCodeTaskStatus:RequestReadFailed" codingScheme="1.3.6.1.4.1.19376.1.2.1"

4.112.4.1.3 Expected Actions

The Document Repository shall process the Provide and Register Document Set-b Request message as described in ITI TF-2b: 3.41.4.1.3.

4.112.4.2 Provide and Register Document set-b Response

This specification does not add requirements to the Provide and Register Document Set-b Response message defined in ITI TF-2b: 3.41.4.2

4.112.4.2.1 Trigger Events

See ITI TF-2b: 3.41.4.2.1

4.112.4.2.2 Message Semantics

See ITI TF-2b: 3.41.4.2.2

4.112.4.2.3 Expected Actions

See ITI TF-2b: 3.41.4.2.3.

If an error is generated by the Document Repository, that error should be managed by the Task Requester in accordance with local defined behaviors, and with accordance to XDW actor behaviors (race condition) defined in ITI TF-3: 5.4.5.

4.112.5 Security Considerations

4.112.5.1 Security Audit Considerations

See ITI TF-2b: 3.41.5.1.

4.113 Accept/Reject XDW Report [RAD-113]

4.113.1 Scope

This transaction acknowledges the production of a Final Report (or Preliminary Report) or requests the revision of a Final Report.

4.113.2 Actor Roles

Actor:	Task Requester
Role:	Acknowledges production or revision of a Final Report.
Actor:	Document Repository
Role:	Receives and stores the Remote Reading Workflow Document

1400

4.113.3 Referenced Standards

XDS.b (Cross-Enterprise Document Sharing): For a list of the standards for the underlying Provide and Register Document Set-b [ITI-41] transaction, see ITI TF-2b: 3.41.3.

XDW (Cross-Enterprise Document Workflow): For requirements and standards related to the
1405 Remote Reading Workflow Document, see ITI TF-1:20 and ITI TF-3:4.5.

4.113.4 Interaction Diagram
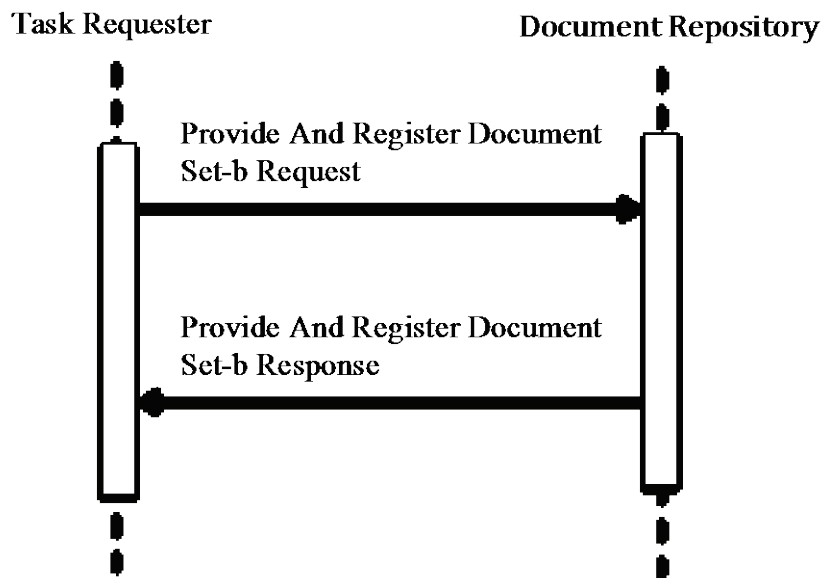
1410 ### 4.113.4.1 Provide and Register Document Set-b Request

This message is a Provide and Register Document Set-b [ITI-41] with additional constraints.

4.113.4.1.1 Trigger Events

The Task Requester sends this message after it learns that a Final Report (or a Preliminary
Report) is completed or has been revised. The mechanism to learn this is not defined by this
1415 transaction (e.g., via notification or by pulling the Remote Reading Workflow Document).

The **pre-conditions** are encoded either as:

1. Final Report (or Preliminary Report) is initially created
   WorkflowDocument/workflowStatus="OPEN" and
   (**WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/task**
   1420 **Type**="Request Remote Read" and
   WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/actu
   alOwner=Task Requester) and
   (**WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/task**
   Type="Perform Remote Read" and
   1425 **WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/stat**
   us="COMPLETED")

   OR

2. Final Report (or Preliminary Report) has been revised

   WorkflowDocument/workflowStatus="OPEN" and
   1430 (**WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/task**
   Type="Request Remote Read" and
   WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/actu
   alOwner=Task Requester) and
   (**WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/tas**
   1435 **kType**="Complete Remote Read" and
   WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/stat
   us="IN_PROGRESS")

4.113.4.1.2 Message Semantics

This message is a Provide and Register Document Set-b Request message.

1440 The Task Requester is the Content Sender. The Document Repository is the Content Receiver
acting as Document Repository.

This message shall comply with the message semantics defined for the Provide and Register
Document Set-b Request message ITI TF-2b:3.41.4.1.2.

The Task Requester shall communicate one of three decisions: accept, reject, additional action.
1445 The business logic used by the Task Requester to make this decision is out of scope for this
transaction and should be agreed by the Collaboration Group.

This section also defines:

- Remote Reading Workflow Document Content.

- Document Sharing Metadata requirements

4.113.4.1.2.1 Remote Reading Workflow Document Content Requirements

The Remote Reading Workflow Document is updated by the Task Requester.

The Task Requester shall update the `<TaskList>` to either:

- add a Complete Remote Read task to the Workflow Document, if that task is not present;

- or create a new `taskEvent` within the Complete Remote Read task, if the Complete Remote Read task is already present

4.113.4.1.2.1.1 Remote Reading Workflow Document Elements

The Task Requester shall update the Remote Reading Workflow Document according to the definition of an XDW Workflow Document in ITI TF-3: 5.4 with the following constraints:

Accept Case:

The `<workflowStatus>` shall be set to "CLOSED".

Reject Case:

The `<workflowStatus>` shall be set to "CLOSED".

Additional Action Case:

The `<workflowStatus>` shall remain "OPEN".

For `<TaskList>` constraints, see Section 4.115.4.1.2.1.1.1

4.113.4.1.2.1.1.1 XDWTask "Complete Remote Read"

Accept Case:

The Task Requester accepts the Final Report (or the Preliminary Report) as complying rules defined by the Collaboration Group:

- If the Complete Remote Read task is already present in the Remote Reading Workflow Document, the Task Requester shall add a new `<taskEvent>` element with `taskData/taskDetails/status` child element with value "COMPLETED".

- If there is no Complete Remote Read task, the Task Requester, shall add one to the `<TaskList>` element. The `<XDWTask>` element shall have a `taskData/taskDetails/taskType` child element with value "Complete Remote Read" and a `taskData/taskDetails/status` child element with value "COMPLETED".

Reject Case:

The Task Requester decides that it is unable to obtain a Final Report (or Preliminary Report)
compliant with rules defined by the Collaboration Group from the Task Performer:

- If the Complete Remote Read task is already present in the Remote Reading Workflow
  Document, the Task Requester shall add a new **`<taskEvent>`** element with
  `taskData/taskDetails/status` child element with value "FAILED".

- If there is no Complete Remote Read task, the Task Requester, shall add one to the
  `<TaskList>` element. The **`<XDWTask>`** element shall have a
  `taskData/taskDetails/taskType` child element with value "Complete Remote
  Read" and a **`taskData/taskDetails/status`** child element with value
  "FAILED".

The Task Requester shall populate **`taskData/comments`** child element of the updated task
with reasons for rejection. The Task Requester shall provide a plain text string that describes the
reason for failure. The Task Requester can provide a code (xrr-wd:reasonCode child element)
that classifies the reasons for the failure (the Task Requester shall provide reasons for failure in
the **`taskDetails/comment`** element as described in RAD TF-1: 41.4.1.10.).

Additional Action Case:

The Task Requester decides that it needs additional action from the Task Performer to obtain a
Final Report compliant with Domain Policies (e.g., revise the Final Report produced, add a
digital signature, etc.).

- If the Complete Remote Read task is already present in the Remote Reading Workflow
  Document, the Task Requester shall add a new **`<taskEvent>`** element with
  `taskData/taskDetails/status` child element with value "IN_PROGRESS".

- If there is no Complete Remote Read task, the Task Requester, shall add one to the
  `<TaskList>` element. The **`<XDWTask>`** element shall have a
  `taskData/taskDetails/taskType` child element with value "Complete Remote
  Read" and a **`taskData/taskDetails/status`** child element with value
  "IN_PROGRESS".

The Task Requester shall provide specific requests to the Task Performer using the
`taskDetails/comment` element. The Task Requester shall provide a plain text string that
describes the request for revision. The Task Requester can provide a code (xrr-wd:reasonCode
child element) that classifies the request for revision as described in RAD TF-1:41.4.1.10.

4.113.4.1.2.2 Document Sharing Metadata requirements

Document metadata for this transaction shall comply with the requirements in ITI TF-3:4
"Metadata used in Document Sharing Profiles".

This section specifies additional Document Sharing Metadata requirements for the Remote
Reading Workflow Document.

1515   The DocumentEntry metadata of the Remote Reading Workflow Document shall meet the
following constraints:

- The eventCodeList metadata attribute is used to document the current status of the
workflow and the status of task(s) within the workflow. This enables queries or DSUB
notifications about status based on the values in eventCodeList:

1520

- A single entry of eventCodeList metadata shall convey the status of the workflow in
accordance with the value of the **`<workflowStatus>`** element (see XDW
supplement for the set of applicable values).

- A single entry of the eventCodeList metadata shall convey the status of the Complete
Remote Read task. The value shall be one of:

1525

  - code="urn:ihe:rad:xrr-wd:2015:eventCodeTaskStatus:CompleteReadCompleted"
codingScheme="1.3.6.1.4.1.19376.1.2.1"

  - code="urn:ihe:rad:xrr-wd:2015:eventCodeTaskStatus:CompleteReadFailed"
codingScheme="1.3.6.1.4.1.19376.1.2.1"

  - code="urn:ihe:rad:xrr-wd:2015:eventCodeTaskStatus:CompleteReadInprogress"
1530   codingScheme="1.3.6.1.4.1.19376.1.2.1"

4.113.4.1.3 Expected Actions

The Document Repository shall process the Provide and Register Document Set-b Request
message as described in ITI TF-2b:3.41.4.1.3.

4.113.4.2 Provide and Register Document set-b Response

1535   This specification does not add requirements to the Provide and Register Document Set-b
Response message defined in ITI TF-2b:3.41.4.2

4.113.4.2.1 Trigger Events

See ITI TF-2b: 3.41.4.2.1

4.113.4.2.2 Message Semantics

1540   See ITI TF-2b: 3.41.4.2.2

4.113.4.2.3 Expected Actions

See ITI TF-2b: 3.41.4.2.3.

If an error is generated by the Document Repository, that error should be managed by the Task
Requester in accordance with local defined behaviors, and with accordance to XDW actor
1545   behaviors (race condition) defined in ITI TF-3: 5.4.5.

4.113.5 Security Considerations

See ITI TF-2b: 3.41.5.

4.113.5.1 Security Audit Considerations

See ITI TF-2b: 3.41.5.1.

4.114 Revoke XDW Assignment [RAD-114]

1550

4.114.1 Scope

This transaction revokes the assignment of a Perform Remote Read task.

4.114.2 Actor Roles

Actor:	Task Manager
Role:	Revokes the assignment of a Perform Remote Read task already assigned.
Actor:	Document Repository
Role:	Receives and stores the Remote Reading Workflow Document

1555

4.114.3 Referenced Standards

XDS.b (Cross-Enterprise Document Sharing): For a list of the standards for the underlying Provide and Register Document Set-b [ITI-41] transaction, see ITI TF-2b: 3.41.3.

XDW (Cross-Enterprise Document Workflow): For requirements and standards related to the
1560 Remote Reading Workflow Document, see ITI TF-1:20 and ITI TF-3:4.5.

4.114.4 Interaction Diagram
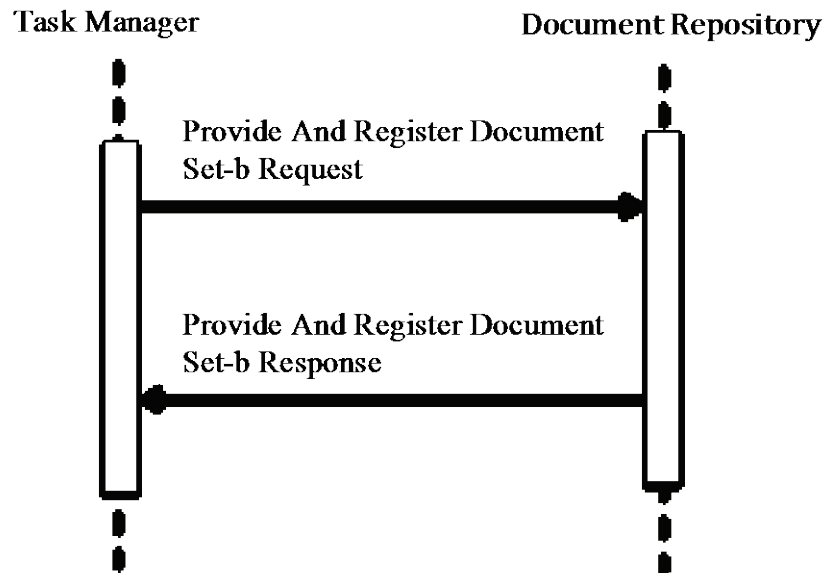
1565 4.114.4.1 Provide And Register Document Set-b Request

This message is a Provide and Register Document Set-b [ITI-41] with additional constraints.

4.114.4.1.1 Trigger Events

The Task Manager sends this message when it decides to revoke an assigned Perform Remote Read task. The business logic used by the Task Manager to make this decision is out of scope for this transaction and should be agreed upon as Domain Policies (e.g., inactivity time of the 1570 Performer, network issues related to the Performer, etc.).

A **pre-condition** is encoded as:

At least one "Perform Remote Read" task has already been assigned to a Task Performer but it has not been completed yet, which is encoded as:

1575
- **WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/task Type=**"Perform Remote Read" and **WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/task Status=**"READY".

  OR

1580
- **WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/task Type=**"Perform Remote Read" and **WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/task Status=**"IN_PROGRESS".

4.114.4.1.2 Message Semantics

1585 This message is a Provide and Register Document Set-b Request.

The Task Manager is the Content Sender. The Document Repository is the Content Receiver acting as Document Repository.

This message shall comply with the message semantics defined for the Provide and Register Document Set-b Request message ITI TF-2b: 3.41.4.1.2.

1590 This section also defines:

- Remote Reading Workflow Document Content.

- Document Sharing Metadata requirements.

4.114.4.1.2.1 Remote Reading Workflow Document Content Requirements

4.114.4.1.2.1.1 Remote Reading Workflow Document Elements

1595 The Task Requester shall update the Remote Reading Workflow Document according to the definition of an XDW Workflow Document in ITI TF-3: 5.4 with the following constraints:

- for **<TaskList>** constraints see Section 4.114.4.1.2.1.1.1

4.114.4.1.2.1.1.1 Remote Reading Workflow Document TaskList Element

The Task Manager shall:

1600 - add a **<taskEvent>** element with status "EXITED" as child element to the "Perform Remote Read" task.

- Add a **<taskEvent>** element with status "IN_PROGRESS" as child element to the "Dispatch Remote Read" task.

4.114.4.1.2.2 Document Sharing Metadata requirements

1605 Document metadata for this transaction shall comply with the requirements in ITI TF-3:4 "Metadata used in Document Sharing Profiles".

This section specifies additional Document Sharing Metadata requirements for the Remote Reading Workflow Document.

The DocumentEntry metadata of the Remote Reading Workflow Document shall meet the
1610 following constraints:

- The eventCodeList metadata attribute is used to document the current status of the workflow and the status of task(s) within the workflow. This enables queries or DSUB notifications about status based on the values in eventCodeList:

- A single entry of eventCodeList metadata shall convey the actual status (OPEN) of the workflow: code = "urn:ihe:iti:xdw:2011:eventCode:open" codingScheme=" 1.3.6.1.4.1.19376.1.2.3"

- A single entry of the eventCodeList metadata shall convey the actual status of the Dispatch Remote Read task: code="urn:ihe:rad:xrr-wd:2015:eventCodeTaskStatus:DispatchReadInprogress" codingScheme="1.3.6.1.4.1.19376.1.2.1"

- The status ("EXITED") of the Perform Remote Read task shall not be conveyed within an entry of the eventCodeList metadata.

4.114.4.1.3 Expected Actions

The Document Repository shall process the Provide and Register Document Set-b Request message as described in ITI TF-2b: 3.41.4.1.3.

The mechanism to advise the previously assigned Task Performer (e.g., via notification or by pulling the Remote Reading Workflow Document) is not defined in this transaction.

4.114.4.2 Provide and Register Document set-b Response

This specification does not add requirements to the Provide and Register Document Set-b Response message defined in ITI TF-2b: 3.41.4.2

4.114.4.2.1 Trigger Events

See ITI TF-2b: 3.41.4.2.1.

4.114.4.2.2 Message Semantics

See ITI TF-2b: 3.41.4.2.2.

4.114.4.2.3 Expected Actions

See ITI TF-2b: 3.41.4.2.3.

If an error is generated by the Document Repository, that error should be managed by the Task Manager in accordance with local defined behaviors, and in accordance with XDW actor behaviors (race condition) defined in ITI TF-3: 5.4.5.1

4.114.5 Security Considerations

See ITI TF-2b: 3.41.5.

4.114.5.1 Security Audit Considerations

See ITI TF-2b: 3.41.5.1.

1645 ## 4.115 Assign XDW Read [RAD-115]

4.115.1 Scope

This transaction records the result of assignment in a Remote Reading Workflow Document. The result can be an assignment to a specific Task Performer or the failure of that assignment.

4.115.2 Actor Roles

1650

Actor:	Task Manager
Role:	Identifies a Task Performer that can execute the read and updates the Remote Reading Workflow Document accordingly.
Actor:	Document Repository
Role:	Receives and stores Remote Reading Workflow Document updates

4.115.3 Referenced Standards

XDS.b (Cross-Enterprise Document Sharing): For a list of the standards for the underlying Provide and Register Document Set-b [ITI-41] transaction, see ITI TF-2b: 3.41.3.

1655 **XDW (Cross-Enterprise Document Workflow):** For requirements and standards related to the Remote Reading Workflow Document, see ITI TF-1:20 and ITI TF-3:4.5.

4.115.4 Interaction Diagram
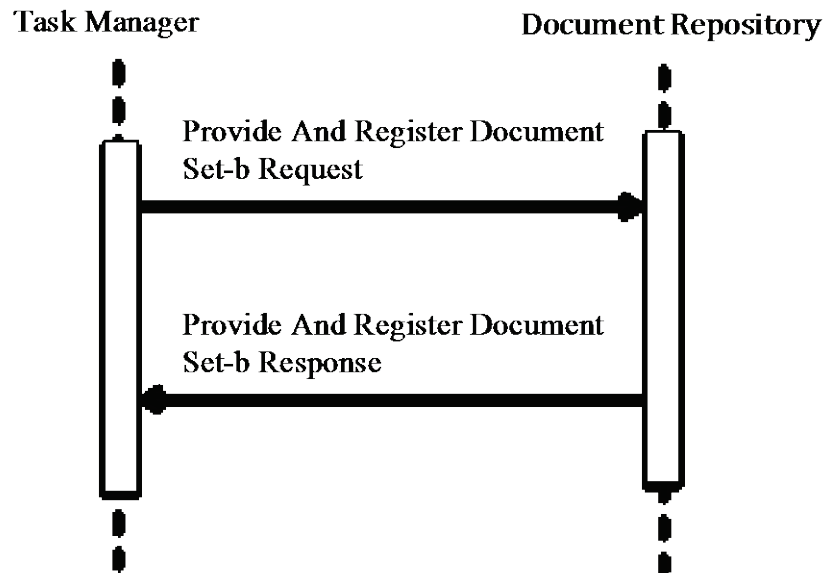
1660

4.115.4.1 Provide And Register Document Set-b Request

This message is a Provide and Register Document Set-b [ITI-41] with additional constraints.

4.115.4.1.1 Trigger Events

The Task Manager sends this message when it learns of Read Requests ready to be dispatched.
1665 The mechanism to learn this is not defined by this transaction (e.g., via notification or by pulling
the Remote Reading Workflow Document).

The Task Manager sends this message only if the Request Remote Read task is "pending", either
it has just been created or a previous dispatch is failed/skipped and it has been dispatched again.

This means that the Task Manager shall be able to identify a group of Task Performers able to
1670 complete the Read. Rules for assignment are out of scope for this specification, and should be
locally defined by affinity domain policies.

This message can be triggered by:

1. a Dispatch Remote Read task is activated by the Task Requester;

   OR

1675 2. a previous assignment is revoked by a Task Manager;

   OR

3. an assignment is rejected by a Task Performer (See Section 4.116 Accept/Reject or
   Release XDW Read)

___

1680   The **pre-conditions** are encoded as:

1. The Dispatch Remote Read task is activated
    (**WorkflowDocument/workflowStatus**=”OPEN”) and
    (**WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/sta
    tus=**”READY” and

1685   **WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/task
    Type=**”Dispatch Remote Read”)

2. A previous assignment is revoked by the Task Manager
    (**WorkflowDocument/workflowStatus=**”OPEN”) and
    (**WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/stat

1690   us=**”IN_PROGRESS” and
    **WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/task
    Type=**”Dispatch Remote Read”)

3. The previous assignment is rejected by the Task Performer
    (**WorkflowDocument/workflowStatus**=”OPEN”)

1695   (**WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/stat
    us**=”EXITED” and
    **WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/task
    Type**=”Perform Remote Read”)

1700   Note: the “Perform Remote Read” task can be set to the state EXITED in two cases: if an assignment is rejected and if
    a claimed task is released. The Task Manager can support additional behaviors in order to force a specific
    evolution of the process in accordance to that distinction.

4.115.4.1.2 Message Semantics

This message is a Provide and Register Document Set-b Request.

The Task Manager is the Content Sender. The Document Repository is the Content Receiver
1705   acting as Document Repository.

This message shall comply with the message semantics defined for the Provide and Register
Document Set-b Request message ITI TF-2b: 3.41.4.1.2.

This section also defines:

*   Remote Reading Workflow Document Content.

1710   *   Document Sharing Metadata requirements.

4.115.4.1.2.1 Remote Reading Workflow Document Content Requirements

4.115.4.1.2.1.1 Remote Reading Workflow Document Elements

The Task Requester shall update the Remote Reading Workflow Document according to the
definition of an XDW Workflow Document in ITI TF-3: 5.4 with the following constraints:

1715
- for **\<TaskList\>** constraints see Section 4.115.4.1.2.1.1.1

4.115.4.1.2.1.1.1 Remote Reading Workflow Document TaskList Element

This element shall be structured according to ITI TF-3: 5.4.2.3 "XDW Workflow Document Elements from the OASIS Human Task," with the additional constraints in Sections 4.115.4.1.2.1.1.1.1 and 4.115.4.1.2.1.1.1.2.

1720 **4.115.4.1.2.1.1.1.1 XDWTask "Dispatch Remote Read"**

If the Task Manager is able to identify a Task Performer to be assigned:

- It shall add a **\<taskEvent\>** element within the Dispatch Remote Read task to record the result of the assignment.

1725
- the **\<XDWTask\>** child element "Dispatch Remote Read" shall have a **\<status\>** child element with value "COMPLETED".

If the Task Manager is not able to identify a Task Performer to be assigned:

- It shall add a **\<taskEvent\>** element within the Dispatch Remote Read task to record the result of the assignment.

1730
- The **\<XDWTask\>** child element "Dispatch Remote Read" shall have a **\<status\>** child element with value "EXITED".

4.115.4.1.2.1.1.1.2 XDWTask "Perform Remote Read"

If the Task Manager is able to identify a Task Performer to be assigned:

- It shall add a new "Perform Remote Read" task as a **\<XDWTask\>** child element of the **\<TaskList\>** element

1735 The child element \<taskDetails\> (which is a child element of the \<XDWTask\>) are constrained as follows:

- **\<status\>** child element with value "READY".

- **\<potentialOwners\>**: this element allows to "reserve" the task for a Task Performer. A Task Performer can be a user or a group of users (see OASIS WS-HumanTask
1740 standards for further details). Only the identified Task Performer can claim the task. This transaction requires that the performer is identified using XON or XCN or XTN HL7 data types, where XON identifies the organization, XCN identifies a person and XTN identifies a telecommunication endpoint, see ITI TF-3: Table 4.2.3.1.7-2 for a description of XON, XCN and XTN formats.

1745
- **\<notificationRecipients\>**: this element specifies user/organization that needs to be notified. This transaction requires that a notification recipient is identified using XON or XCN or XTN HL7 data types, where XON identifies the organization, XCN

identifies a person and XTN identifies a telecommunication endpoint, see ITI TF-3:
Table 4.2.3.1.7-2 for description of XON, XCN and XTN format. The Task Manager
1750   shall specify the Task Performer identified as a "notificationRecipient" for the task.

The Task Manager may set the value of additional elements that characterize the nature and the
execution of the Read:

- **`<expirationTime>`**: this element specifies a date/time by which the Read needs to be
  completed. If the **`expirationTime`** element of the Request Remote Read task is
  1755   valued, the Task Manager shall set the **`expirationTime`** of the Perform Remote Read
  task with the same value.

4.115.4.1.2.2 Document Sharing Metadata requirements

Document metadata for this transaction shall comply with the requirements in ITI TF-3:4
"Metadata used in Document Sharing Profiles".

1760   This section specifies additional Document Sharing Metadata requirements for the Remote
Reading Workflow Document.

The DocumentEntry metadata of the Remote Reading Workflow Document shall meet the
following constraints:

- The eventCodeList metadata attribute is used to document the current status of the
  1765   workflow and the status of task(s) within the workflow. This enables queries or DSUB
  notifications about status based on the values in eventCodeList:

  - A single entry of eventCodeList metadata shall convey the status (OPEN) of the
    workflow: code = "urn:ihe:iti:xdw:2011:eventCode:open" codingScheme="
    1.3.6.1.4.1.19376.1.2.3"

  1770   - A single entry of the eventCodeList metadata shall convey the status of the Perform
    Remote Read task: code="urn:ihe:rad:xrr-
    wd:2015:eventCodeTaskStatus:PerformReadReady"
    codingScheme="1.3.6.1.4.1.19376.1.2.1"

    OR
    1775   A single entry of the eventCodeList metadata shall convey the actual status of the
    Dispatch Remote Read task if the assignment cannot be completed:
    code="urn:ihe:rad:xrr-wd:2015:eventCodeTaskStatus:DispatchReadExited"
    codingScheme="1.3.6.1.4.1.19376.1.2.1".

The SubmissionSet metadata of the Remote Reading Workflow Document shall meet the
1780   following constraints:

- the intendedRecipient metadata shall contain all identifiers found in the
  `XDWtask/taskDetails/notificationRecipients` element of the Request
  Remote Read task.

4.115.4.1.3 Expected Actions

1785 The Document Repository shall process the Provide and Register Document Set-b Request
message as described in ITI TF-2b: 3.41.4.1.3.

4.115.4.2 Provide and Register Document set-b Response

This specification does not add requirements to the Provide and Register Document Set-b
Response message defined in ITI TF-2b: 3.41.4.2

1790 **4.115.4.2.1 Trigger Events**

See ITI TF-2b: 3.41.4.2.1.

4.115.4.2.2 Message Semantics

See ITI TF-2b: 3.41.4.2.2.

4.115.4.2.3 Expected Actions

1795 See ITI TF-2b: 3.41.4.2.3.

If an error is generated by the Document Repository, that error should be managed by the Task
Manager in accordance with local defined behaviors, and in accordance with XDW actor
behaviors (race condition) defined in ITI TF-3: 5.4.5.1

4.115.5 Security Considerations

1800 See ITI TF-2b: 3.41.5.

4.115.5.1 Security Audit Considerations

See ITI TF-2b: 3.41.5.1.

4.116 Accept/Reject or Release XDW Read [RAD-116]

4.116.1 Scope

1805 This transaction allows a Task Performer to accept or reject the assignment of a Remote Read.
This transaction also allows a Task Performer that claimed a Remote Read to release it.

4.116.2 Actor Roles

Actor:	Task Performer
Role:	Accepts or rejects the assignment of a Remote Read. It can also release a claimed Remote Read.
Actor:	Document Repository

Role:	Receives and stores the Remote Reading Workflow Document

1810 ### 4.116.3 Referenced Standards

XDS.b (Cross-Enterprise Document Sharing): For a list of the standards for the underlying Provide and Register Document Set-b [ITI-41] transaction, see ITI TF-2b: 3.41.3.

XDW (Cross-Enterprise Document Workflow): For requirements and standards related to the Remote Reading Workflow Document, see ITI TF-1:20 and ITI TF-3:4.5.

1815 ### 4.116.4 Interaction Diagram
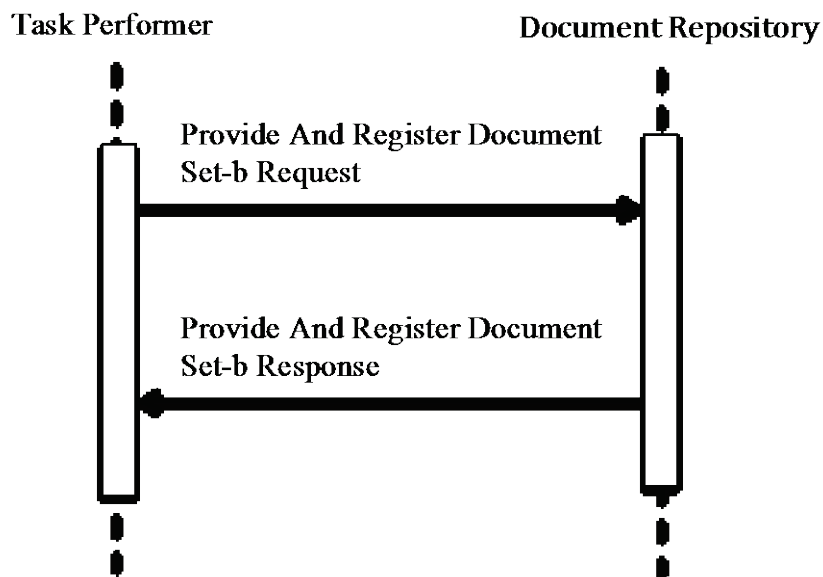
4.116.4.1 Provide And Register Document Set-b Request

1820 This message is a Provide and Register Document Set-b [ITI-41] with additional constraints.

4.116.4.1.1 Trigger Events

The Task Performer sends this message when it learns that a Perform Remote Read task has been assigned to itself. The mechanism to learn this is not defined by this transaction (e.g., via notification or by pulling the Remote Reading Workflow Document).

1825 The Task Performer shall send this message if:

1. the Perform Remote Read task is assigned to itself.

2. the Task Performer wants to release a Perform Remote Read task that it previously claimed.

The **pre-conditions** are encoded as:

1830
- The Perform Remote Read task is assigned to the Task Performer if the Workflow Document is open
  WorkflowDocument/workflowStatus="OPEN" and
  WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/status="READY" and

1835
  WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/taskType="Perform Remote Read" and
  WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/potentialOwners=Task Performer.

- Or the Perform Remote Read task has been claimed (but not completed) by the Task
1840
  Performer if the Remote Reading Workflow Document is open
  WorkflowDocument/workflowStatus="OPEN" and
  WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/status="IN_PROGRESS" and
  WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/taskType="Perform Remote Read" and
1845
  WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/actualOwner=Task Performer

Note: this transaction does not define a method for identifying Task Performers.

4.116.4.1.2 Message Semantics

1850
This message is a Provide and Register Document Set-b Request message.

The Task Performer is the Content Sender. The Document Repository is the Content Receiver acting as Document Repository.

This message shall comply with the message semantics defined for the Provide and Register Document Set-b Request message in ITI TF-2b: 3.41.4.1.2.

1855
This section also defines:

- Remote Reading Workflow Document Content.

- Document Sharing Metadata requirements.

4.116.4.1.2.1 Remote Reading Workflow Document Content Requirements

4.116.4.1.2.1.1 Remote Reading Workflow Document Elements

1860
The Task Performer shall update the Remote Reading Workflow Document according to the definition of an XDW Workflow Document in ITI TF-3: 5.4.

This transaction does not require the creation of new tasks within the Remote Reading Workflow
Document; however, it requires the Task Performer to add a new `taskEvent` in the Perform
Remote Read task. See Section 4.116.4.1.2.1.1.1.

1865 ### 4.116.4.1.2.1.1.1 XDWTask "Perform Remote Read"

If the Task Performer is accepting the assignment of the Read, a new `<taskEvent>`
(characterized by: `status`=IN_PROGRESS, `eventType`="start") shall be added to the
`<taskEventHistory>` element.

If the Task Performer is rejecting the assignment of the Read, a new `<taskEvent>`
1870 (characterized by: `status`=EXITED, `eventType`="skip") shall be added to the
`<taskEventHistory>` element.

If the Task Performer is releasing a Read that has already been claimed, a new `<taskEvent>`
(characterized by: `status`=EXITED, `eventType`="release") shall be added to the
`<taskEventHistory>` element.

1875 The Task Performer shall provide reasons for rejection/releasing in the
`taskDetails/comment` element. The Task Performer shall provide a plain text string that
describes the reason for rejection/releasing. The Task Performer can provide a code that
classifies the reasons for rejection/releasing (the Task Performer shall provide reasons for
rejection/releasing in the `taskDetails/comment` element as described in RAD TF-1:
1880 41.4.1.10)

4.116.4.1.2.2 Document Sharing Metadata requirements

Document metadata for this transaction shall comply with the requirements in ITI TF-3:4
"Metadata used in Document Sharing Profiles".

This section specifies additional Document Sharing Metadata requirements for the Remote
1885 Reading Workflow Document.

The DocumentEntry metadata of the Remote Reading Workflow Document shall meet the
following constraints:

- The eventCodeList metadata attribute is used to document the current status of the
  workflow and the status of task(s) within the workflow. This enables queries or DSUB
1890 notifications about status based on the values in eventCodeList:

  - A single entry of eventCodeList metadata shall convey the current status (OPEN) of
    the workflow: code = "urn:ihe:iti:xdw:2011:eventCode:open" codingScheme="
    1.3.6.1.4.1.19376.1.2.3"

  - A single entry of the eventCodeList metadata shall convey the current status of the
1895 Perform Remote Read task. The value shall be one of:

- code="urn:ihe:rad:xrr-wd:2015:eventCodeTaskStatus:PerformReadExited" codingScheme="1.3.6.1.4.1.19376.1.2.1"

- code="urn:ihe:rad:xrr-wd:2015:eventCodeTaskStatus:PerformReadInprogress" codingScheme="1.3.6.1.4.1.19376.1.2.1"

1900 **4.116.4.1.3 Expected Actions**

The Document Repository shall process the Provide and Register Document Set-b Request message as described in ITI TF-2b: 3.41.4.1.3.

4.116.4.2 Provide and Register Document set-b Response

1905 This specification does not add requirements to the Provide and Register Document Set-b Response message defined in ITI TF-2b: 3.41.4.2

4.116.4.2.1 Trigger Events

See ITI TF-2b: 3.41.4.2.1.

4.116.4.2.2 Message Semantics

See ITI TF-2b: 3.41.4.2.2

1910 **4.116.4.2.3 Expected Actions**

See ITI TF-2b: 3.41.4.2.3.

If an error is generated by the Document Repository, that error should be managed by the Task Performer in accordance with local defined behaviors, and in accordance with XDW actor behaviors (race condition) defined in ITI TF-3: 5.4.5.1

1915 **4.116.5 Security Considerations**

See ITI TF-2b: 3.41.5.

4.116.5.1 Security Audit Considerations

See ITI TF-2b: 3.41.5.1.

4.117 Update XDW Read [RAD-117]

1920 **4.117.1 Scope**

This transaction makes update(s) to the Perform Remote Read task without changing the status of the task (e.g., attach a Preliminary Report, attach an Addendum to the Final Report, attach the Final Report if the Task Requester asked only for a Preliminary Report, etc.).

1925 The Preliminary Report, the Final Report or the Addendum to the Final Report can be submitted by using this transaction or by using a Provide and Register Document Set-b [ITI-41] transaction.

4.117.2 Actor Roles

Actor:	Task Performer
Role:	Updates the content of the Perform Remote Read task.
Actor:	Document Repository
Role:	Receives and stores the Remote Reading Workflow Document

1930 ### 4.117.3 Referenced Standards

XDS.b (Cross-Enterprise Document Sharing): For a list of the standards for the underlying Provide and Register Document Set-b [ITI-41] transaction, see ITI TF-2b: 3.41.3.

XDW (Cross-Enterprise Document Workflow): For requirements and standards related to the Remote Reading Workflow Document, see ITI TF-1:20 and ITI TF-3:4.5.

1935 ### 4.117.4 Interaction Diagram
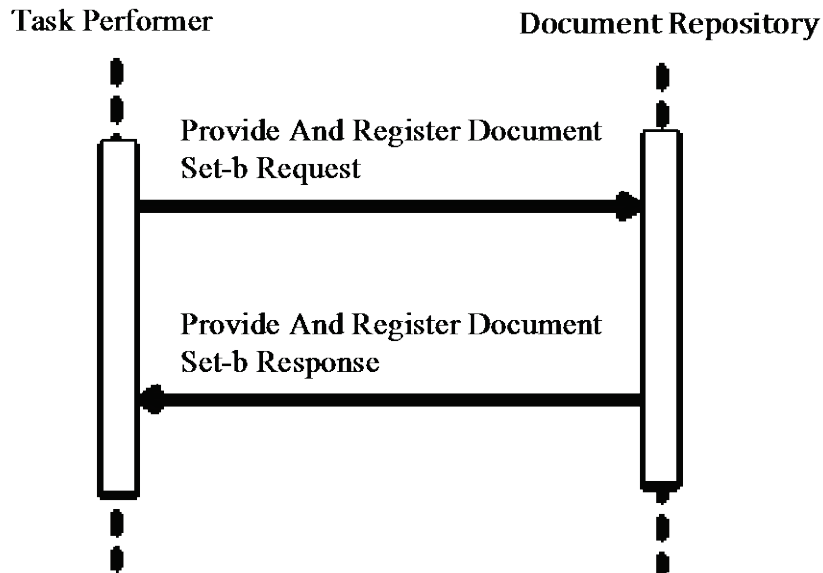
4.117.4.1 Provide And Register Document Set-b Request

1940 This message is a Provide and Register Document Set-b [ITI-41] with additional constraints.

4.117.4.1.1 Trigger Events

The Task Performer sends this message when it needs to:

- Update the content of the Perform Remote Read task without changing the status of the task or the status of the workflow

1945
- Attach new documents as input or output

- Modify already attached documents

If the Task Requester asks for additional actions, the Task Performer may use this message to make requested revisions.

The **pre-conditions** are encoded as:

1950 The Perform Remote Read task is IN_PROGRESS or COMPLETED and the Task Performer is the actual owner, which is encoded as:

- **WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/actualOwner=**Task Performer and

   WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/task
1955 **Type=**"Perform Remote Read" and
   WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/task
   Status="IN_PROGRESS"

   OR

1960
- **WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/actualOwner=**Task Performer and

   WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/task
   Type="Perform Remote Read" and
   WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/task
1965 **Status=**"COMPLETED"

Note the Remote Reading Workflow Document may be "closed" if the Task Performer is providing an addendum to a Final Report that has already been acknowledged.

4.117.4.1.2 Message Semantics

This message is a Provide and Register Document Set-b Request message.

1970 The Task Performer is the Content Sender. The Document Repository is the Content Receiver acting as Document Repository.

This message shall comply with the message semantics defined for the Provide and Register Document Set-b Request message ITI TF-2b:3.41.4.1.2.

This section also defines:

1975
- Remote Reading Workflow Document Content

- Documents Produced or Updated (Preliminary Report, Final Report, Addendum to the Final Report, Remote Reading Workflow Document)

- Content of the Documents submitted to the Document Repository Document Sharing Metadata requirements

1980 **4.117.4.1.2.1 Remote Reading Workflow Document Content Requirements**

The Remote Reading Workflow Document is updated by the Task Performer.

4.117.4.1.2.1.1 Remote Reading Workflow Document Elements

The Task Performer shall update the Remote Reading Workflow Document according to the definition of an XDW Workflow Document in ITI TF-3: 5.4 with the following constraints:

1985
- The Task Performer shall not change the value of **`<workflowStatus>`** in the Remote Reading Workflow Document

- for **`<TaskList>`** constraints see Section 4.117.4.1.2.1.1.1

4.117.4.1.2.1.1.1 Remote Reading Workflow Document TaskList Element

If the Task Performer needs to attach documents to the Perform Remote Read task, it shall add to
1990 the element **`<XDWTask>`** one child element **`taskData/output/part`** for each additional document.

If the attachment is a Preliminary Report: **`part/@name`**="PreliminaryReport".

If the attachment is a Final Report: **`part/@name`**="FinalReport".

If the attachment is an Addendum to the Final Report:
1995 **`part/@name`**="AddendumToFinalReport".

The Task Performer can make further updates to the Perform Remote Read task; however, it shall not use this message to change the status of the Perform Remote Read task.

4.117.4.1.2.2 Preliminary Report Content Requirements

The Preliminary Report document may be in any format.

2000 It may be structured in accordance with the XDS-I.b Profile (RAD TF-3: 4.68.4.1.2.2).

4.117.4.1.2.3 Final Report Content Requirements

The Final Report document may be in any format.

It may be structured in accordance with the XDS-I.b Profile (RAD TF-3: 4.68.4.1.2.2).

4.117.4.1.2.4 Addendum Content Requirements

2005 The Addendum to the Final Report document may be in any format.

It may be structured in accordance with the XDS-I.b Profile (RAD TF-3: 4.68.4.1.2.2).

4.117.4.1.2.5 Document Sharing Metadata requirements

Document metadata for this transaction shall comply with the requirements in ITI TF-3:4 "Metadata used in Document Sharing Profiles".

2010 This section specifies additional Document Sharing Metadata requirements for the Remote Reading Workflow Document.

The DocumentEntry metadata of the Remote Reading Workflow Document shall meet the following constraints:

- The eventCodeList metadata attribute is used to document the current status of the
2015 workflow and the status of task(s) within the workflow. This enables queries or DSUB notifications about status based on the values in eventCodeList:

  - A single entry of eventCodeList metadata shall convey the current status of the workflow in accordance with the value of the **`<workflowStatus>`** element (OPEN or CLOSED). The value shall be one of:

2020
    - code = "urn:ihe:iti:xdw:2011:eventCode:open" codingScheme=" 1.3.6.1.4.1.19376.1.2.3"

    - code = "urn:ihe:iti:xdw:2011:eventCode:closed" codingScheme=" 1.3.6.1.4.1.19376.1.2.3"

  - A single entry of the eventCodeList metadata shall convey the status of the Perform
2025 Remote Read task. The value shall be one of:

    - code="urn:ihe:rad:xrr-wd:2015:eventCodeTaskStatus:PerformReadInprogress" codingScheme="1.3.6.1.4.1.19376.1.2.1"

    - code="urn:ihe:rad:xrr-wd:2015:eventCodeTaskStatus:PerformReadCompleted" codingScheme="1.3.6.1.4.1.19376.1.2.1"

2030 The Preliminary Report document and the Addendum to the Final Report, may be included in the same Submission Set in this Update XDW Read [RAD-117] transaction or in a different Submission Set using a Provide and Register Document Set-b [ITI-41] transaction.

4.117.4.1.3 Expected Actions

The Document Repository shall process the Provide and Register Document Set-b Request
2035 message as described in ITI TF-2b: 3.41.4.1.3.

4.117.4.2 Provide and Register Document set-b Response

This specification does not add requirements to the Provide and Register Document Set-b
Response message defined in ITI TF-2b: 3.41.4.2

4.117.4.2.1 Trigger Events

2040   See ITI TF-2b: 3.41.4.2.1

4.117.4.2.2 Message Semantics

See ITI TF-2b: 3.41.4.2.2

4.117.4.2.3 Expected Actions

See ITI TF-2b: 3.41.4.2.3.

2045   If an error is generated by the Document Repository, that error should be managed by the Task
Performer in accordance with local defined behaviors, and in accordance with XDW actor
behaviors (race condition) defined in ITI TF-3: 5.4.5.1

4.117.5 Security Considerations

See ITI TF-2b: 3.41.5.

2050   ### 4.117.5.1 Security Audit Considerations

See ITI TF-2b:3.41.5.1.

4.118 Subscribe Remote Read Task [RAD-118]

4.118.1 Scope

This transaction allows the Subscriber to subscribe for notification of updates to specific tasks.
2055   The Subscriber will receive notifications for events of interest in separate transactions.

4.118.2 Actor Roles

Actor:	Task Requester, Task Manager, Task Performer, Watcher,
Role:	Subscriber: Subscribes for notifications
Actor:	Document Metadata Notification Broker
Role:	Broker: Manages subscription requests

4.118.3 Referenced Standards

2060 **DSUB (Document Metadata Subscription):** For a list of the standards for the underlying Document Metadata Subscribe [ITI-52] transaction, see ITI TF-2b: 3.52.3.

4.118.4 Interaction Diagram
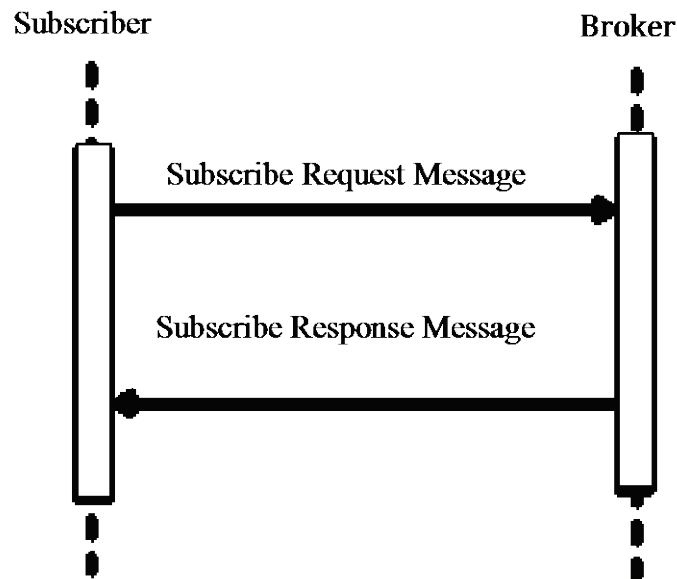
2065

4.118.4.1 Subscribe Request Message

This message is a Subscribe Request Message with additional constraints.

4.118.4.1.1 Trigger Events

The Subscriber wants to be notified of updates to Remote Reading Workflow Documents.

2070 The Task Requester shall send this message:

- When the Task Requester has completed the Create XDW Read [RAD-111] transaction with Success.

The Task Performer shall send this message:

- When the Task Performer has completed the Claim XDW Read [RAD-119] transaction.

2075 - When the Task Performer has completed the Accept/Reject or Release XDW Read [RAD-116] transaction in case of claiming the Perform Remote Read task.

- At start-up.

The Task Manager shall send this message:

- At start-up.

2080   The Watcher shall send this message:

- At start-up.

The Subscriber can send other subscription requests if needed.

4.118.4.1.2 Message Semantics

2085   This message is a Subscribe Request message from the Document Metadata Subscribe [ITI-52] transaction. The Subscriber is the Document Metadata Subscriber. The Broker is the Document Metadata Notification Broker.

This message shall comply with the message semantics defined for the Subscribe Request message in ITI TF-2b: 3.52.4.1.2.

A Subscriber can use subscription parameters as follows.

2090   **4.118.4.1.2.1 Subscription for a specific Remote Reading Workflow document**

The Subscriber shall request notification of all updates to a specific Remote Reading workflow using the following parameters:

- *topics* = "ihe:FullDocumentEntry"

- *Subscription Filter* = "urn:uuid:aa2332d0-f8fe-11e0-be50-0800200c9a66" (Subscription
2095   for DocumentEntry metadata)

- *$XDSEntryReferenceIdList filter* = workflow Instance Id

4.118.4.1.2.2 Subscription for a Remote Reading Workflow documents that need to be assigned to a Task Performer

2100   The Subscriber shall request notification of any Remote Reading workflow changing state to Dispatch Remote Read READY, Perform Remote Read EXITED, Perform Remote Read IN_PROGRESS , Perform Remote Read COMPLETED using the following parameters:

- *topics* = "ihe:FullDocumentEntry"

- *Subscription Filter* = "urn:uuid:742790e0-aba6-43d6-9f1f-e43ed9790b79" (Patient-
2105   Independent Subscription for DocumentEntry metadata)

- *$XDSDocumentEntryTypeCode = "XRR-WD"*

- *$XDSDocumentEntryEventCodeList =*
  urn:ihe:rad:xrr-wd:2015:eventCodeTaskStatus:DispatchReadReady OR
  urn:ihe:rad:xrr-wd:2015:eventCodeTaskStatus:PerformReadExited OR

2110

urn:ihe:rad:xrr-wd:2015:eventCodeTaskStatus:PerformReadInprogress OR
urn:ihe:rad:xrr-wd:2015:eventCodeTaskStatus:PerformReadCompleted

4.118.4.1.2.3 Subscription for a Remote Reading Workflow documents intended to the Subscriber

2115 The Subscriber shall request notification for any remote reading workflow document that changes the intended recipient to Subscriber:

- *topics* = "ihe:SubmissionSetMetadata"
- *Subscription Filter* = "urn:uuid:868cad3d-ec09-4565-b66c-1be10d034399" (Patient-Independent Subscriptions for SubmissionSet metadata)

2120 - *$XDSSubmissionSetIntendedRecipient* = Subscriber.

> *Note:* It is out of scope for this profile to define how the Subscriber is identified. This should be defined by local policies and by Affinity Domain configurations.

4.118.4.1.2.4 Subscription for all updates to any Remote Reading workflow

The Subscriber can request notification of all updates to any Remote Reading workflow using
2125 the following parameters:

- *topics* = "ihe:FullDocumentEntry"
- *Subscription Filter* = "urn:uuid:742790e0-aba6-43d6-9f1f-e43ed9790b79" (Patient-Independent Subscription for DocumentEntry metadata)
- *$XDSDocumentEntryTypeCode* = "XRR-WD"

2130 ### 4.118.4.1.3 Expected Actions

The Broker shall process the Subscribe Request message as described in ITI TF-2b: 3.52.4.1.3

4.118.4.2 Subscribe Response message

4.118.4.2.1 Trigger Events

See ITI TF-2b:3.52.4.2.1.

2135 ### 4.118.4.2.2 Message Semantics

The Broker shall return a Subscribe Response message as described in ITI TF-2b: 3.52.4.2.2

4.118.4.2.3 Expected Actions

The Subscriber shall process the Subscribe Response message as described in ITI TF-2b: 3.52.4.2.3.

2140 **4.118.5 Security Considerations**

See ITI TF-2b: 3.41.5.

4.118.5.1 Security Audit Considerations

See ITI TF-2b: 3.41.5.1.

4.119 Claim XDW Read [RAD-119]

2145 **4.119.1 Scope**

This transaction allows a Task Performer to claim a Read without a previous assignment.

4.119.2 Actor Roles

Actor:	Task Performer
Role:	Claims a Remote Read request not pre-assigned.
Actor:	Document Repository
Role:	Receives and stores the Remote Reading Workflow Document

2150 **4.119.3 Referenced Standards**

XDS.b (Cross-Enterprise Document Sharing): For a list of the standards for the underlying
Provide and Register Document Set-b [ITI-41] transaction, see ITI TF-2b: 3.41.3.

XDW (Cross-Enterprise Document Workflow): For requirements and standards related to the
Remote Reading Workflow Document, see ITI TF-1:20 and ITI TF-3:4.5.

2155 **4.119.4 Interaction Diagram**
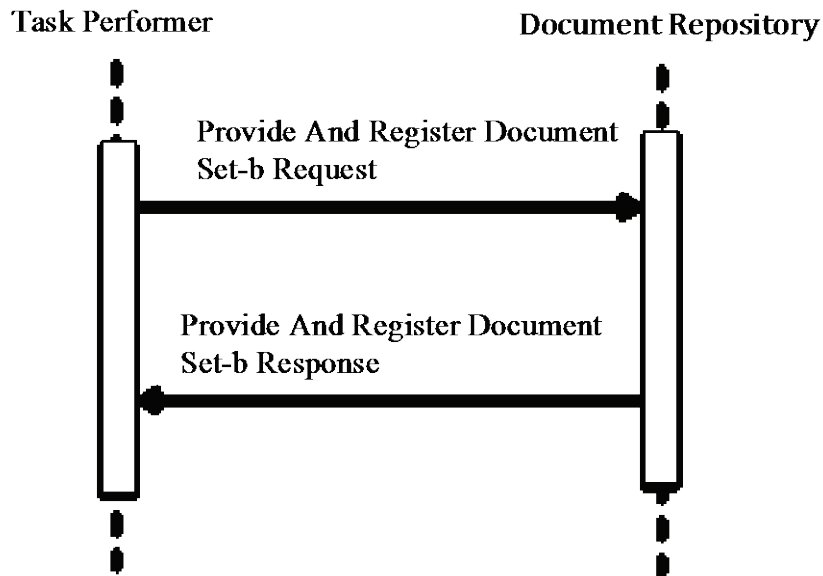
4.119.4.1 Provide And Register Document Set-b Request

This message is a Provide and Register Document Set-b [ITI-41] with additional constraints.

4.119.4.1.1 Trigger Events

2160 The Task Performer sends this message when it decides to claim the Perform Remote Read task that is not assigned.

A remote read might not be assigned because the Task Requester did not involve Task Manager, or because the Task Manager is not able to complete the Dispatch Remote Read task.

The mechanism to learn that a remote read is ready to be claimed is not defined here (e.g., via
2165 notification or by pulling the Remote Reading Workflow Document)

A **pre-condition** is encoded as:
The Perform Remote Read task has not been assigned yet or the Dispatch Remote Read task is exited.

- **WorkflowDocument/workflowStatus**="OPEN" and
2170 count(**WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/ taskType**="Dispatch Remote Read")=0 and
count(**WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/ taskType**="Perform Remote Read")=0;

  OR

2175 - **WorkflowDocument/workflowStatus**="OPEN" and
WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/task

Type="Dispatch Remote Read" and
WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/status="EXITED" and

2180 count(**WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/taskType=**"Perform Remote Read" and
WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/status="IN_PROGRESS" or "COMPLETED")=0

OR

2185 • **WorkflowDocument/workflowStatus=**"OPEN" and
WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/taskType="Perform Remote Read" and
WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/status="EXITED" and

2190 count(**WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/taskType=**"Dispatch Remote Read") =0 or
(**WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/taskType=**"Dispatch Remote Read" and
WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/status= "COMPLETED")

2195

4.119.4.1.2 Message Semantics

This message is a Provide and Register Document Set-b Request message.

The Task Performer is the Content Sender. The Document Repository is the Content Receiver acting as Document Repository.

2200 This message shall comply with the message semantics defined for the Provide and Register Document Set-b Request message ITI TF-2b: 3.41.4.1.2.

This section also defines:

• Remote Reading Workflow Document Content

• Document Sharing Metadata requirements

2205 #### 4.119.4.1.2.1 Remote Reading Workflow Document Content Requirements

4.119.4.1.2.1.1 Remote Reading Workflow Document Elements

The Task Requester shall update the Remote Reading Workflow Document according to the definition of an XDW Workflow Document in ITI TF-3: 5.4 with the following constraints:

• for **<TaskList>** constraints see Section 4.119.4.1.2.1.1.1.

4.119.4.1.2.1.1.1 Remote Reading Workflow Document TaskList Element

The Task Performer shall add a "Perform Remote Read" task (`<XDWTask>` element with
`WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/taskType`="
Perform Remote Read") in status "IN_PROGRESS".

4.119.4.1.2.2 Document Sharing Metadata requirements

Document metadata for this transaction shall comply with the requirements in ITI TF-3:4
"Metadata used in Document Sharing Profiles".

This section specifies additional Document Sharing Metadata requirements for the Remote
Reading Workflow Document.

The DocumentEntry metadata of the Remote Reading Workflow Document shall meet the
following constraints:

- The eventCodeList metadata attribute is used to document the current status of the
  workflow and the status of task(s) within the workflow. This enables queries or DSUB
  notifications about status based on the values in eventCodeList:

- A single entry of eventCodeList metadata shall convey the status (OPEN) of the
  workflow: code = "urn:ihe:iti:xdw:2011:eventCode:open" codingScheme="
  1.3.6.1.4.1.19376.1.2.3"

- A single entry of the eventCodeList metadata shall convey the status of the Perform
  Remote Read task: code="urn:ihe:rad:xrr-
  wd:2015:eventCodeTaskStatus:PerformReadInprogress"
  codingScheme="1.3.6.1.4.1.19376.1.2.1"

4.119.4.1.3 Expected Actions

The Document Repository shall process the Provide and Register Document Set-b Request
message as described in ITI TF-2b: 3.41.4.1.3.

4.119.4.2 Provide and Register Document set-b Response

This specification does not add requirements to the Provide and Register Document Set-b
Response message defined in ITI TF-2b: 3.41.4.2

4.119.4.2.1 Trigger Events

See ITI TF-2b: 3.41.4.2.1

4.119.4.2.2 Message Semantics

See ITI TF-2b: 3.41.4.2.2

4.119.4.2.3 Expected Actions

See ITI TF-2b: 3.41.4.2.3.

If an error is generated by the Document Repository, that error should be managed by the Task Performer in accordance with local defined behaviors, and in accordance with XDW actor
2245 behaviors (race condition) defined in ITI TF-3: 5.4.5.1

4.119.5 Security Considerations

See ITI TF-2b: 3.41.5.

4.119.5.1 Security Audit Considerations

See ITI TF-2b: 3.41.5.1.

2250 ## 4.120 Complete XDW Read [RAD-120]

4.120.1 Scope

This transaction marks the Perform Remote Read task as completed with a reference to the Final Report (or the Preliminary Report) produced, and document inputs used.

4.120.2 Actor Roles

2255

Actor:	Task Performer
Role:	Sets the Perform Remote Read task status to completed
Actor:	Document Repository
Role:	Receives and stores documents provided

4.120.3 Referenced Standards

XDS.b (Cross-Enterprise Document Sharing): For a list of the standards for the underlying Provide and Register Document Set-b [ITI-41] transaction, see ITI TF-2b: 3.41.3.

2260 **XDW (Cross-Enterprise Document Workflow):** For requirements and standards related to the Remote Reading Workflow Document, see ITI TF-1:20 and ITI TF-3:4.5.

4.120.4 Interaction Diagram
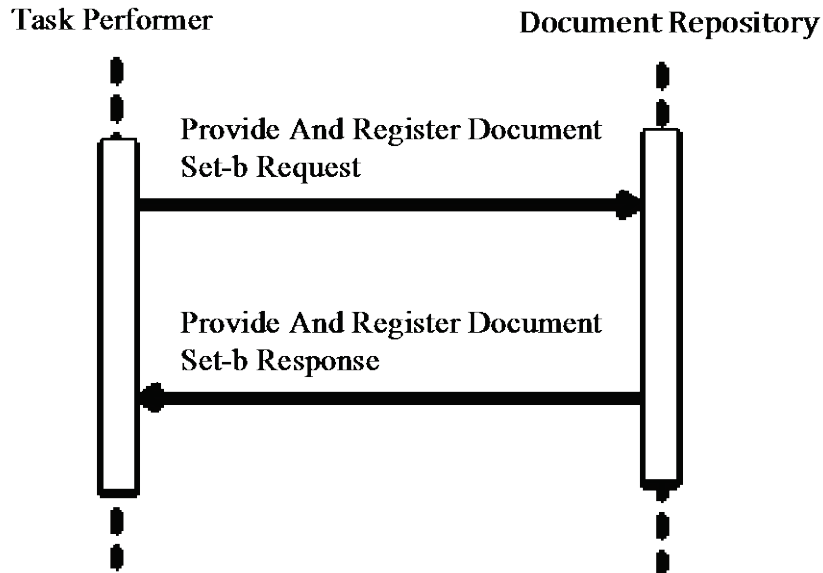
2265

4.120.4.1 Provide And Register Document Set-b Request

This message is a Provide and Register Document Set-b [ITI-41] with additional constraints.

4.120.4.1.1 Trigger Events

The Task Performer send this message when the Task Performer completes the Perform Remote Read task in accordance to the Request made by the Task Requester.

The Task Performer can send this message if:

1. The Task Requester asked for a Final Report and the Task Performer completed a claimed Read process and the Final Report is available.

2. The Task Requester asked for a Preliminary Report and the Task Performer completed a claimed Read process and the Final Report is available.

3. The Task Requester asked for a Preliminary Report and the Preliminary Report is available.

The **pre-condition are** encoded as:

1. A Perform Remote Read task is already claimed by the Task Performer
   WorkflowDocument/workflowStatus="OPEN" and
   (**WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/status=**"IN_PROGRESS" and
   WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/taskType="Perform Remote Read" and
   WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/actu

        alOwner=Task Performer) and
(**WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/task
Type**="Request Remote Read" and
**WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/requ
estedReportTypes/reportType**="FINAL_REPORT") and
Final Report Available

2. A Perform Remote Read task is already claimed by the Task Performer
    WorkflowDocument/workflowStatus="OPEN" and
    (**WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/stat
    us=**"IN_PROGRESS" and
    **WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/task
    Type=**"Perform Remote Read" and
    **WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/actu
    alOwner=**Task Performer) and
    (**WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/task
    Type=**"Request Remote Read" and
    **WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/requ
    estedReportTypes/reportType**="PRELIMINARY_REPORT") and
    Final Report available

3. A Perform Remote Read task is already claimed by the Task Performer
    WorkflowDocument/workflowStatus="OPEN" and
    (**WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/stat
    us=**"IN_PROGRESS" and
    **WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/task
    Type=**"Perform Remote Read" and
    **WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/actu
    alOwner=**Task Performer) and
    (**WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/task
    Type=**"Request Remote Read" and
    **WorkflowDocument/TaskList/XDWTask/taskData/taskDetails/requ
    estedReportTypes/reportType**="PRELIMINARY_REPORT") and
    Preliminary Report Available

4.120.4.1.2 Message Semantics

This message is a Provide and Register Document Set-b Request message.

The Task Performer is the Content Sender. The Document Repository is the Content Receiver
acting as Document Repository.

This message shall comply with the message semantics defined for the Provide and Register
Document Set-b Request message ITI TF-2b: 3.41.4.1.2.

This section also defines:

2325
- Remote Reading Workflow Document Content.

- Final Report Content

- Document Sharing Metadata requirements

4.120.4.1.2.1 Remote Reading Workflow Document Content Requirements

The Remote Reading Workflow Document is updated by the Task Performer.

2330 This transaction does not require the creation of new tasks within the Remote Reading Workflow
Document; however, it requires the Task Performer to add a new `taskEvent` in the Perform
Remote Read task (see Section 4.120.4.1.2.1.1.1).

4.120.4.1.2.1.1 Remote Reading Workflow Document Elements

The Remote Read Perform shall update the Remote Reading Workflow Document according to
2335 the definition of an XDW Workflow Document in ITI TF-3: 5.4.

4.120.4.1.2.1.1.1 XDWTask "Perform Remote Read"

The Task Performer shall add a new `<taskEvent>` (characterized by:
`status`=COMPLETED, `eventType`="complete") to the `<taskEventHistory>` element.

The Task Performer shall update the element `<XDWTask>` to have one or two child elements
2340 `taskData/output/part` where:

- `part/@name` ="FinalReport" or "PreliminaryReport"

- `part/attachmentInfo/identifier`: identifies the report produced (see ITI TF-
3: Table 5.4.3-9: AttachmentInfo element for further details about input/output encoding
in XDW tasks)

2345 ### 4.120.4.1.2.2 Document Sharing Metadata requirements

Document metadata for this transaction shall comply with the requirements in ITI TF-3:4
"Metadata used in Document Sharing Profiles".

This section specifies additional Document Sharing Metadata requirements for the Remote
Reading Workflow Document.

2350 The DocumentEntry metadata of the Remote Reading Workflow Document shall meet the
following constraints:

- The eventCodeList metadata attribute is used to document the current status of the
workflow and the status of task(s) within the workflow. This enables queries or DSUB
notifications about status based on the values in eventCodeList:

2355
- A single entry of eventCodeList metadata shall convey the status of the workflow. The value shall be: code = "urn:ihe:iti:xdw:2011:eventCode:open" codingScheme="1.3.6.1.4.1.19376.1.2.3"

- A single entry of the eventCodeList metadata shall convey the status of the task that was changed. The value shall be: code="urn:ihe:rad:xrr-wd:2015:eventCodeTaskStatus:PerformReadCompleted" codingScheme="1.3.6.1.4.1.19376.1.2.1"

2360

This transaction does not define document sharing metadata requirements for the Final Report document nor for the Preliminary Report. The Final Report document or the Preliminary Report may be included in the same Submission Set as the Remote Reading Workflow Document in this transaction (Complete XDW Read [RAD-120] transaction) or in a different Submission Set using a Provide and Register Document Set-b [ITI-41] transaction.

2365

4.120.4.1.3 Expected Actions

The Document Repository shall process the Provide and Register Document Set-b Request message as described in ITI TF-2b: 3.41.4.1.3.

2370 ### 4.120.4.2 Provide and Register Document set-b Response

This specification does not add requirements to the Provide and Register Document Set-b Response message defined in ITI TF-2b: 3.41.4.2

4.120.4.2.1 Trigger Events

See ITI TF-2b: 3.41.4.2.1.

2375 ### 4.120.4.2.2 Message Semantics

See ITI TF-2b: 3.41.4.2.2.

4.120.4.2.3 Expected Actions

See ITI TF-2b: 3.41.4.2.3.

If an error is generated by the Document Repository, that error should be managed by the Task
2380 Performer in accordance with local defined behaviors, and with accordance to XDW actor behaviors (race condition) defined in ITI TF-3: 5.4.5.

4.120.5 Security Considerations

See ITI TF-2b: 3.41.5.

4.120.5.1 Security Audit Considerations

2385 See ITI TF-2b: 3.41.5.1.

Volume 2 Namespace Additions

Add the following terms to the IHE Namespace:

Urn namespace
urn:ihe:rad:xrr-wd:2015:normalRead
urn:ihe:rad:xrr-wd:2015:readOverRead
urn:ihe:rad:xrr-wd:2015:eventCodeTaskStatus:RequestReadCompleted
urn:ihe:rad:xrr-wd:2015:eventCodeTaskStatus:RequestReadFailed
urn:ihe:rad:xrr-wd:2015:eventCodeTaskStatus:DispatchReadReady
urn:ihe:rad:xrr-wd:2015:eventCodeTaskStatus:DispatchReadInprogress
urn:ihe:rad:xrr-wd:2015:eventCodeTaskStatus:DispatchReadCompleted
urn:ihe:rad:xrr-wd:2015:eventCodeTaskStatus:DispatchReadFailed
urn:ihe:rad:xrr-wd:2015:eventCodeTaskStatus:PerformReadReady
urn:ihe:rad:xrr-wd:2015:eventCodeTaskStatus:PerformReadInprogress
urn:ihe:rad:xrr-wd:2015:eventCodeTaskStatus:PerformReadExited
urn:ihe:rad:xrr-wd:2015:eventCodeTaskStatus:PerformReadFailed
urn:ihe:rad:xrr-wd:2015:eventCodeTaskStatus:PerformReadCompleted
urn:ihe:rad:xrr-wd:2015:eventCodeTaskStatus:CompleteReadFailed
urn:ihe:rad:xrr-wd:2015:eventCodeTaskStatus:CompleteReadCompleted
urn:ihe:rad:xrr-wd:2015:eventCodeTaskStatus:CompleteReadInprogress

2390

Volume 3 – Content Modules

Not applicable

2395

2400 # Volume 4 – National Extensions

Not applicable