

Integrating the Healthcare Enterprise



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**IHE IT Infrastructure
Technical Framework Supplement**

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**Remove Metadata and Documents
(RMD)**

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Rev. 1.3 – Trial Implementation

20 Date: August 28, 2020
Author: ITI Technical Committee
Email: iti@ihe.net

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

Foreword

30 This is a supplement to the IHE IT Infrastructure Technical Framework V17.0. Each supplement undergoes a process of public comment and trial implementation before being incorporated into the volumes of the Technical Frameworks.

This supplement is published on August 28, 2020 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 IT Infrastructure Technical Framework. Comments are invited and may be submitted at
35 http://www.ihe.net/ITI_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.

<i>Amend Section X.X by the following:</i>
--

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

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

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

Information about the structure of IHE Technical Frameworks and Supplements can be found at http://www.ihe.net/IHE_Process and <http://www.ihe.net/Profiles>.

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

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Introduction to this Supplement

130 **Notice:** This supplement includes the Delete Document Set transaction [ITI-62] previously found in the XDS Metadata Update Supplement. This transaction is renamed to the Remove Metadata transaction. The Delete Document Set transaction was removed from the XDS Metadata Update Supplement through CP-ITI-1018.

135 The IT Infrastructure Technical Committee determined that moving the Delete Document Set transaction [ITI-62] would better demonstrate the requirements necessary for the complete removal of a patient care record within an XDS Affinity Domain. Furthermore, this transaction is not dependent on metadata versioning and could be used in XDS Affinity Domain environments whether or not any other capabilities described in the XDS Metadata Update Supplement are implemented.

140

The Remove Metadata and Documents (RMD) Profile was developed to allow for the removal of metadata from the Document Registry and documents from a Document Repository that are no longer required to be discoverable within a patient's care record. The decision to remove this data may have been initiated either by an automated mechanism or manual administrative procedure in order to enforce a pre-determined policy or legal requirement within an XDS Affinity Domain. It is out of scope for IHE profiles to define such policies or requirements.

145

This profile combines both a new and existing functionality to fulfill these requirements. A new transaction enables removal of the document from a Document Repository. An existing transaction from the XDS Metadata Update Supplement enables the removal of metadata from the Document Registry. A new Document Administrator represents the requestor for both transactions.

150

The Remove Metadata and Documents Profile does not define how a receiving actor interprets the instructions to remove either metadata or documents. This includes whether or not data should be physically removed from a host system. Because of the complex nature of local, regional, and national legal requirements surrounding patient privacy and data retention, these decisions are left to implementers as to how to best address these requirements.

155

Open Issues and Questions

160 ***RMD_023: Volume 1 material required for Final Text integration was identified during final review. Some material depends on the Metadata Update supplement going to Final Text, as well. How should this be handled?***

165 *Resolution: The Technical Committee agreed that this could wait until this profile is accepted for final text integration. This includes Section 10.4 (General Principals- XDS), Appendix E (Cross Profile Considerations), Appendix G (Security Considerations), Appendix K (XDS Concepts Details), Appendix L (XDS Affinity Domain Definition Checklist) or Appendix M (Cross-Enterprise Document Sharing and IHE Roadmap); or ITI TF-2x: Appendix K (XDS Security Environment).*

Closed Issues

170 **Note:** Issues included in this profile from the Metadata Update Supplement are indicated in parenthesis (e.g., MV031).

RMD_001: Should the workflow proposed by this transaction be directed at the Repository or Registry?

175 *Resolution: It was agreed that two separate transactions are needed. The existing ITI-62 transaction shall remain pointed at the Document Registry. A new transaction will be created specifically for the Document Repository. No dependencies can be made between the success of the success of the Remove Metadata and Remove Documents transaction because of local, regional, or nation restrictions. The use of a single workflow, either directed through the*
180 *Registry or Repository, was deferred for consideration as a future workitem if use cases provide a sufficiently demonstrative workflow.*

RMD_002: Which actor is responsible for the coordination of these transactions? Is a new actor needed?

185 *Resolution: The work item will show a single actor, Document Administrator, being responsible for orchestrating both transactions. Text will be added to Volume 1 to show how the Document Administrator's responsibilities may be distributed with other XDS Actors.*

RMD_003: Should the work item remained defined for actors only within the XDS Affinity Domain (e.g., Cross-Community Remove)?

Resolution: Cross-community considerations are out of scope for this profile.

190 ***RMD_004: Should the transactions also support asynchronous calls and workflow?***

Resolution: It was felt that the demand was not sufficient to warrant including asynchronous workflow and/or language within this supplement.

195 **RMD_005: Should a new state be added to represent the removal of metadata in the Document Registry and/or binary stored in the Document Source/Repository? Should this be left for implementers to decide?**

Resolution: This has been left for implementers to decide.

RMD_007: Could the Document Repository just use the DocumentAvailability attribute and set the status to Online/Offline?

200 *Resolution: It was agreed that the Offline status does not mean that the document has been permanently removed from the system and could be brought back Online. Thus, this was rejected.*

RMD_008: Should either transaction be required to enforce patient identifier rules that are consistent with other XDS/XDR submit and update transactions (e.g., to be removed, all objects must have the same patient identifier)?

205 *Resolution: Currently, ITI-62 does not have this restriction. Both transactions are intended for administrative use only.*

RMD_009: Confirm that the existing ITI-62 transaction should be used for the removal of other metadata objects beside DocumentEntry objects and its related Association objects. If so, what additional guidance should be provided to implementers?

210 *Resolution: Technically, ITI-62 did not have any technical limitations to prevent implementer from removing Submission Sets or Folders with this transaction. For this profile, this transaction has been renamed to describe its use better.*

This is being further address in RMD_010.

215 **RMD_010: Could ITI-62 be given additional functionality to allow for the automated removal of associated metadata objects, versions, and known copies within the Document Registry? Should a new transaction(s) be defined that would simplify the removal of metadata from the Document Registry?**

220 *Resolution: Time was not available to address the full scope of this issue within this Technical Committee work item. A new work item may be considered in the future to address these concerns.*

RMD_011: Should ITI-62 be the only method for requesting that a patient record be removed from an XDS Affinity Domain? How about an HL7^{®1}-V2 or FHIR^{®2} message?

Resolution: This remains out of scope for this profile.

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

² FHIR is the registered trademark of Health Level Seven International.

225 **RMD_012: Should the Document Administrator be used for this profile or is a different actor needed (e.g., Content Updater/Remover)? This would help focus the supplement if RMD is not published in concurrence with MU.**

Resolution: It was felt that reusing existing actors for this profile would allow for better comprehension by implementers.

230 **RMD_013: Do restrictions need to be added to ITI-62 to restrict users from removing prior versions of metadata and leaving just the latest version?**

Resolution: This will be addressed if any rules and/or restrictions for metadata versioning are introduced in Metadata Update Supplement. Currently, the ebXML standard allows for the removal of both approved and deprecated objects. This is sufficient for non-MU environments.

235 **RMD_014: Should the existing MU transactions be renamed to improve and better identify their expected actions (e.g.: rename Update Document Set to Update Metadata, and Delete Document Set to Remove Metadata)?**

Resolution: This profile renames the Delete Document Set transaction to better reflect its technical capabilities and use within this profile. The transaction's, wsa:Action, though, cannot be modified as this would be considered a breaking change for existing implementations.

240 **RMD_015 (MV031): Metadata Update and Delete will both require significant authentication/authorization challenges. Should these be mandated by this profile or left to be decided upon by developers?**

Resolution: Recommendations made in security sections. No mandates made.

245 **RMD_016 (MV038): Should ITI establish rules for the deletion of metadata? Example is a submission of a DocumentEntry with its attendant SubmissionSet and HasMember association. The minimal deletion of the DocumentEntry must delete the association as well. This leaves a SubmissionSet with no contents. Should the profile require the deletion of the SubmissionSet as well? Obviously more complicated examples exist.**

250 *MU Resolution: IHE has not added any restrictions to be base standard. The amount of deletion is not restricted.*

Resolution: This has been addressed by providing guidance to allow full removal of metadata. In addition, a new requirement and error code has been added to ITI-62 to encourage the removal of a non-referenced Submission Set as best practice. See RMD_010 for related topic.

255 **RMD_017 (MV042): A public comment made issue of the lack of a defined way to request a deletion from the Document Repository. This has been recorded as Change Proposal 533.**

Resolution: This has been addressed in this profile.

RMD_018: Should an On-demand Document Source be included in Volume 1 material for the Remove Documents transaction?

260 *Resolution: It was determined that no specialized requirements were needed for this actor in this profile.*

RMD_019: Should the XDS Document Source be specifically called-out in this profile as an optional target for the Remove Documents transaction? This would address a comment made during the Planning Committee presentation where a system could inadvertently retain a document because a notification to remove it could not be received from a Document Administrator.

Resolution: It was felt that adding this case was not necessary. The actors and transactions are flexible to accommodate this workflow, if desired.

270 **RMD_020 (CP-ITI-810/CP-ITI-984): Should the ATNA audit message for the ITI-62 transaction include a ParticipantObjectIdTypeCode entry for Association objects? If so, what classification uuid should be used for HasMember associations? Should the message be grouped by the patient identifier?**

275 *Resolution: Submission Set and Folder classification nodes were added. Association objects have also been added and will use the association type as its identifier. A statement was added to the Security Considerations section indicating to implementers that more than one patient identifier could be referenced by a metadata object. A generic entry for ebXML ObjectRef was added for situations where the object type could not be determined. It is expected that this would only be used if an error occurred.*

RMD_021: Should RMD include the XDR Document Recipient for ITI-62?

280 *Resolution: Agreement was reached not to include the Document Recipient in RMD. Although it included in the Metadata Update Supplement, no justification could be identified. Inclusion is not supported by the RMD primary use cases, and its removal is not overly concerning as MU is remains in trial implementation. This still could be included as a cross-profile consideration later, if needed.*

RMD_022: Should ITI-18 be updated to add the Document Administrator before FT?

285 *Resolution: Text has been added and graphic updated.*

290 **RMD_023: Suggest that adding two named options for the Doc Administrator: "Remote Registry" and "Remote Repository". An Admin that supports Remote Registry would be required to support ITI-62 (and probably should be grouped with my recommended Document Consumer), and an Admin that supports Remote Repository would be required to support ITI-86. This would give potential purchasers a way to identify systems that provide the functionality they need.**

295 *Resolution: It was agreed that both options should be added for the Document Administrator. The Committee disagreed in creating a mandatory grouping with the Document Consumer Actor as this would require the Document Administrator to support the Retrieve Document Set [ITI-43] transaction in addition to the Registry Stored Query [ITI-18] transaction.*

RMD_024: Suggest exploring in a more detail the implications of patient record removal.

Resolution: This suggestion was agreed. A new section and use case were added to call out the complexity and possible legal and ethical ramifications of removing patient records for implementers. It was highlighted, though, that determining such policies is out of scope for IHE.

300 ***RMD_025: Is there a need for a two-phase commit to synchronize activity between the Registry and Repository. What is the recommended behavior if a Doc Admin succeeds to delete from the Registry, but then fails to delete from the Repository (or vice versa)?***

305 *Resolution: It was reaffirmed that the Document Administrator can be responsible for orchestrating both transactions but could not enforce their successful completion because of local policy considerations. No additional guidance was added for situations when a failure occurs either removing the metadata or document. This was left for implementers to determine what will work best in their individual workflows.*

RMD_026: Suggest exploring, in a more detailed way, the implication of removing data from a Document Registry or Repository. This section is intended for educational purposes.

310 *Resolution: It was agreed to add a new section, Policy Choices, to discuss some of the possible implications of removing data. Additional language was added to justify why the profile cannot go further in defining "remove" and why this decision is left to implementers.*

315 **General Introduction**

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

Appendix A – Actor Summary Definitions

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

320

Actor	Definition
Document Administrator	The Document Administrator is an actor capable of updating and/or removing metadata from the Document Registry. This actor may also be capable of removing associated documents from the Document Repository.

Appendix B – Transaction Summary Definitions

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

Transaction	Definition
Remove Metadata [ITI-62]	The Remove Metadata transaction is used by the Document Administrator to request removal of one or more metadata objects from a Document Registry.
Remove Documents [ITI-86]	The Remove Documents transaction is used by the Document Administrator to request the removal of documents from a Document Repository.

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Volume 1 – Integration Profiles

44 Remove Metadata and Documents (RMD) Profile

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The Remove Metadata and Documents (RMD) Profile supports the means to prevent the discovery of specific patient records held by an XDS Affinity Domain with transactions to remove metadata from the Document Registry and documents from a Document Repository. The decision to remove this data may have been initiated either by an automated mechanism or manual administrative procedure in order to enforce a pre-determined policy or legal requirement within an XDS Affinity Domain.

335

The Document Administrator requests that a receiving actor remove metadata or documents. Because of the complex nature of local, regional, and national legal requirements surrounding patient privacy, legal holds, and data retention, the definition of “removal” in this context is determined by the XDS Affinity Domain. Based on local policy, "removal" could mean, for example:

340

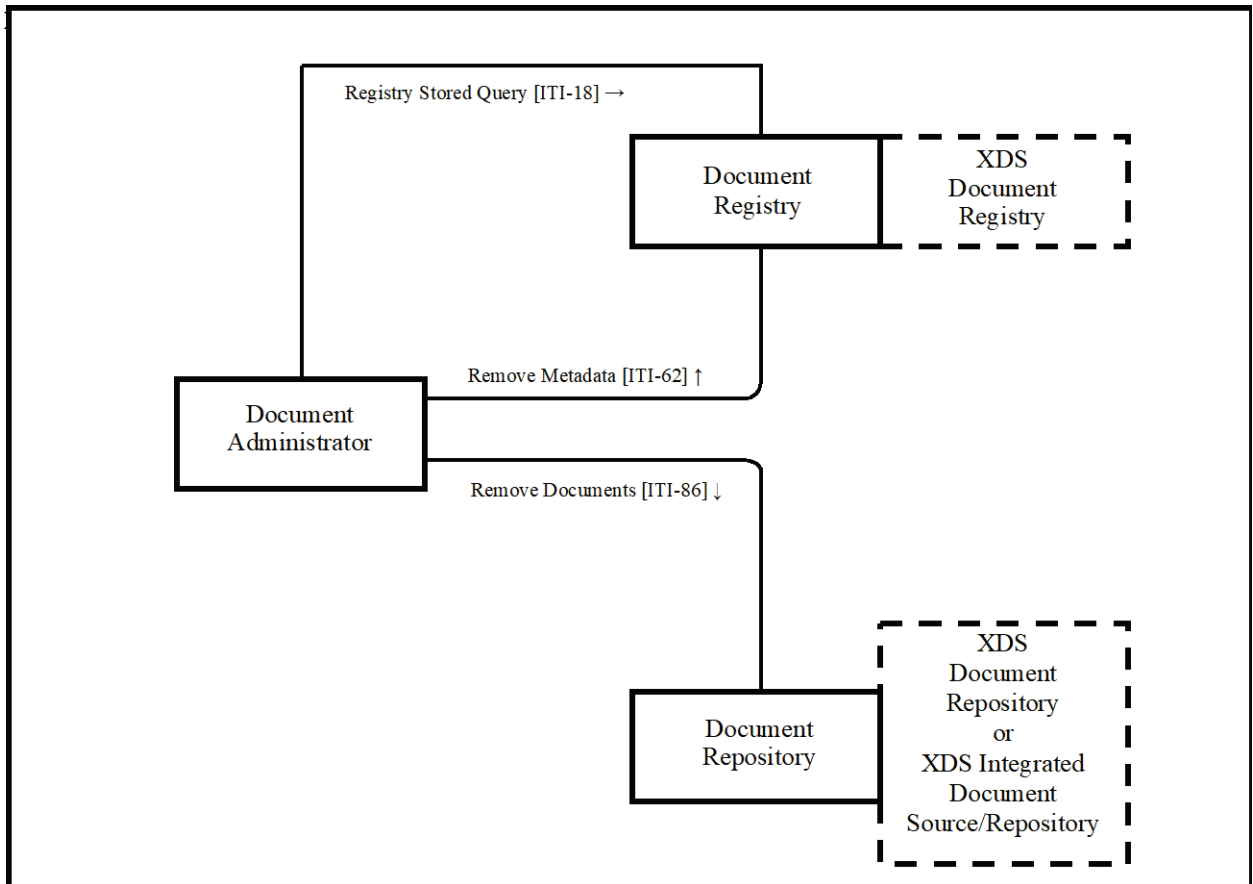
- Deletion of the document or metadata
- Hiding of the document or metadata from non-privileged users
- Migration of the document or metadata from the “live” system to an archival system
- Queuing the request for confirmation by a human administrator
- No visible effect (or no immediate visible effect)

It is out of scope for IHE to define the behavior of the receiving actor. It is the responsibility of the XDS Affinity Domain to ensure that deployed systems implement the appropriate processes.

345

44.1 RMD Actors/Transactions

Figure 44.1-1 shows the actors directly involved in the RMD Profile and the relevant transactions between them. Actors which have a mandatory grouping are shown in conjoined boxes.



350

Figure 44.1-1: RMD Actor Diagram

Table 44.1-1 lists the transactions for each actor directly involved in the RMD Profile. To claim compliance with this profile, an actor shall support all required transactions (labeled “R”) and may support the optional transactions (labeled “O”).

355

Table 44.1-1: RMD Profile - Actors and Transactions

Actors	Transactions	Optionality	Reference
Document Administrator	Remove Metadata [ITI-62]	O (Note 1)	ITI TF-2b: 3.62
	Remove Documents [ITI-86]	O (Note 1)	ITI TF-2c: 3.86
	Registry Stored Query [ITI-18]	O	ITI TF-2a: 3.18
Document Registry	Remove Metadata [ITI-62]	R	ITI TF-2b: 3.62
	Registry Stored Query [ITI-18]	R	ITI TF-2a: 3.18

Actors	Transactions	Optionality	Reference
Document Repository	Remove Documents [ITI-86]	R	ITI TF-2c: 3.86

Note 1: The Document Administrator shall support either the Remove Metadata [ITI-62] or Remove Documents [ITI-86] transaction, or both.

44.1.1 Actor Descriptions and Requirements

360 Transaction requirements are documented in Transactions (Volume 2). This section documents any additional requirements on profile’s actors.

44.1.1.1 Document Administrator

A Document Administrator may request that content be removed from a Document Registry or Document Repository. Content removal may have been initiated by an automated mechanism or manual administrative procedure, in accordance with local policy.

365 A Document Administrator may use the Registry Stored Query [ITI-18] transaction, or other means to determine the Document Sharing metadata for removal.

The Document Administrator uses the Remove Metadata [ITI-62] transaction to request removal of the identified metadata from a Document Registry.

370 A Document Administrator uses the Remove Documents [ITI-86] transaction to request removal of an identified document from a Document Repository.

44.1.1.2 Document Registry

A Document Registry accepts a Remove Metadata [ITI-62] transaction request. It removes metadata from the grouped XDS Document Registry, in accordance with local policy.

375 A Document Registry accepts a Registry Stored Query [ITI-18] transaction request and responds with appropriate metadata from the grouped XDS Document Registry.

44.1.1.3 Document Repository

A Document Repository accepts a Remove Documents [ITI-86] transaction request. It removes identified documents from the grouped XDS Document Repository, in accordance with local policy.

380 44.2 RMD Actor Options

Options that may be selected for each actor in this profile, if any, are listed in the Table 44.2-1. Dependencies between options when applicable are specified in notes.

Table 44.2-1: RMD - Actors and Options

Actor	Option Name	Reference
Document Administrator	Remote Registry Option	ITI TF-1: 44.2.1
	Remote Repository Option	ITI TF-1: 44.2.2
Document Registry	No options defined	--
Document Repository	No options defined	--

385

44.2.1 Remote Registry Option

A Document Administrator that supports the Remote Registry Option is capable of making requests to remove metadata from a remote Document Registry. The Document Administrator shall support both the Remove Metadata [ITI-62] and Registry Stored Query [ITI-18] transactions.

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44.2.2 Remote Repository Option

A Document Administrator that supports the Remote Repository Option is capable of making requests to remove documents from a remote Document Repository. The Document Administrator shall support the Remove Documents [ITI-86] transaction.

395

44.3 RMD Required Actor Groupings

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

Table 44.3-1: RMD - Required Actor Groupings

RMD Actor	Profile/Actor to be grouped with	Reference
Document Administrator	ATNA / Secure Node or Secure Application	ITI TF-1: 9.1
	CT / Time Client	ITI TF-1: 7.1
Document Registry	XDS / Document Registry	ITI TF-1: 10.1.1.3
	ATNA / Secure Node or Secure Application	ITI TF-1: 9.1
	CT / Time Client	ITI TF-1: 7.1
Document Repository	XDS / Document Repository	ITI TF-1: 10.1.1.4
	or XDS / Integrated Document Source/Repository	ITI TF-1: 10.1.1.6
	ATNA / Secure Node or Secure Application	ITI TF-1: 9.1

RMD Actor	Profile/Actor to be grouped with	Reference
	CT / Time Client	ITI TF-1: 7.1

400

44.4 RMD Overview

44.4.1 Concepts

405 The Remove Metadata and Documents (RMD) Profile supports the means to prevent the discovery of specified patient records held by an XDS Affinity Domain. The Document Administrator initiates the removal of metadata from the Document Registry and documents from the Document Repository.

410 In order to allow for use in a variety of workflows and to meet local policy requirements, no dependencies are specified between the success of the Remove Metadata [ITI-62] and Remove Documents [ITI-86] transactions. This profile allows implementers to determine which configuration will work best for their environments. In many deployments, the risk of discovering non-retrievable documents can be reduced by removing the metadata before removing documents.

415 When removing metadata, the Document Administrator must construct a request that would leave the Document Registry in a consistent state. The Document Registry is responsible for verifying metadata integrity and consistency.

44.4.2 Use Cases

44.4.2.1 General Use Case

420 The Document Administrator acts on behalf of the XDS Affinity Domain when patient records need to be removed from its systems. The Document Administrator requests the removal of metadata from the Document Registry and associated documents from the Document Repository.

44.4.2.1.1 General Use Case Description

425 Patient D goes to the community hospital because of an urgent medical problem. The interviewing physician writes an impression document that is provided to the Document Repository and registered in the hospital's Document Registry. Later, Patient D claims that the document was inappropriate, and requests the complete removal of all versions of the document from the hospital's records. The hospital finds the claims of Patient D to be valid and agrees to remove the document's registration from the Document Registry and the document itself from the Document Repository. After removal, the document is no longer discoverable in the hospital's system.

430 **44.4.2.1.2 Process Flow**

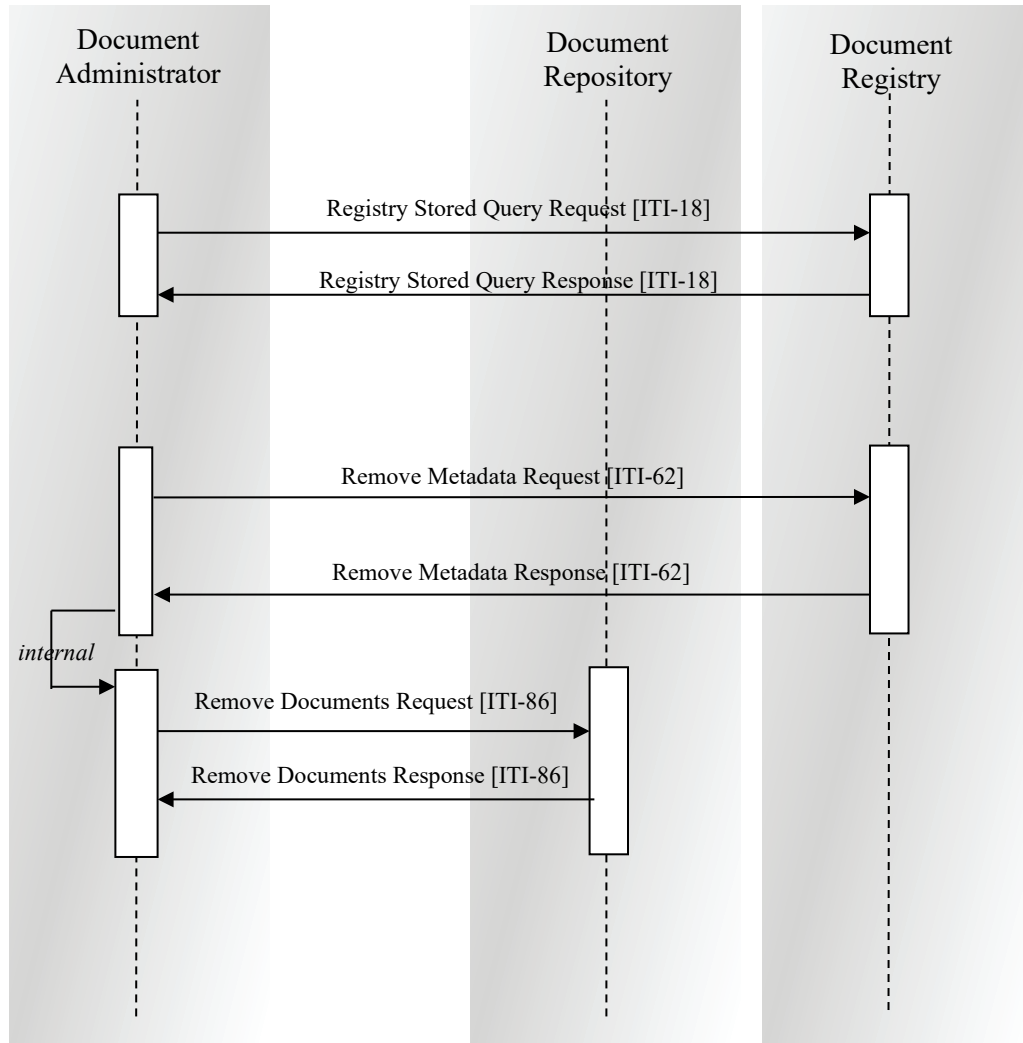


Figure 44.4.2.1.2-1: Basic Process Flow in RMD Profile

435 Based on the local policy of an XDS Affinity Domain, the Document Administrator must ensure that a specific document, in this case the impression document, is neither discoverable nor retrievable by Document Consumers. The Document Administrator performs a series of required steps to successfully complete this process and helps ensure that the Document Registry remains in a consistent state.

440 The Document Administrator first determines which registry objects are affected by querying the Document Registry for the document it wants to remove. Next, a second query is made to the

Document Registry to identify all appended, transformed, and replacement versions of the document. Based on the result, the Document Administrator now knows the list of identifiers that will be used to remove the document metadata object(s) from the Document Registry and to remove the document(s) stored in the Document Repository.

- 445 However, before submitting the Remove Metadata Request, the Document Administrator must perform an additional step to query for Association objects that reference the document(s) previously identified. Then, the Document Administrator must look for Submission Sets that would be left empty. This result is added to the list of identifiers that will be submitted in the request to the Document Registry.
- 450 Now that all the metadata objects have been identified, the Document Administrator requests that these objects be removed from the Document Registry. If successful, the metadata will no longer appear in the query results. The Document Administrator next requests the Document Repository remove the document(s) from its system. If successful, the document is no longer retrievable and the process has been completed.
- 455 The Document Administrator is responsible for the successful completion of both transactions. This profile does not provide guidance for the remediation of errors that may occur during the execution of these transactions or the recovery of removed metadata and/or documents.

44.4.2.2 National/Regional Use Case

- 460 A patient has requested that her records be removed from discovery from a national XDS Affinity Domain where the document metadata is stored. The documents are stored in one or more local Document Repositories where the local retention policies vary. To follow the local jurisdiction's policies for retention, the document must remain in the Document Repository for an extended period.

- 465 The Document Administrator requests the removal of metadata from the Document Registry to remove the patient records from discovery, complying with their request. Based on local policy, the Document Administrator may later request that the associated documents be removed from the Document Repository.

44.5 RMD Security Considerations

44.5.1 General

- 470 For general security considerations, see ITI TF-1: Appendix G - Security Considerations and ITI TF-2x: Appendix K - XDS Security Environment. Transaction specific security considerations are presented in the Security Considerations section of each transaction in Volume 2.

- 475 Since the definition of removal is dependent upon local policies and the sensitivity of the data varies, the XDS Affinity Domain deployment will need to perform its own risk analysis and establish a mitigation strategy for these transactions.

In most cases, appropriate precautions should be taken to restrict use of this profile's transactions to users with sufficient privileges.

Please see the next section and ITI TF-1: Appendix L - XDS Affinity Domain Definition Checklist for more information.

480 **44.5.2 Policy Choices**

Policy decisions need to have been made during the planning phase of an XDS Affinity Domain to determine the suitability of implementing the RMD Profile. Many different laws and regulations apply specifically to the discovery and retention of patient medical records. There are significant ethical considerations and legal ramifications resulting from the mistaken or
485 inappropriate deletion of records. As a result, each deployment, as well as the individual facilities within the deployment, will have a records retention policy that affects the actors in this profile.

Examples of these regulatory variations include:

- Italy requires that patient records be preserved until 20 years after the death of the patient.
- 490 • In the United States, a common rule requires patient records be preserved for only 7 years, but there are exceptions that apply in specific situations. For example, if a physician diagnosed a patient with black lung disease, the 7 year retention period immediately changes to the life of the patient plus 10 years.
- 495 • Anywhere, a legal action may impose a hold on a medical record for an indefinite number of years. This can happen without advanced warning.

Each deployment will need to coordinate actor configuration, authorization rules, behavior, etc. between product vendors and deployment policies to reflect local record retention policy. This might be implemented by having individual actors reject requests that violate local data retention rules.

500 **44.6 RMD Cross Profile Considerations**

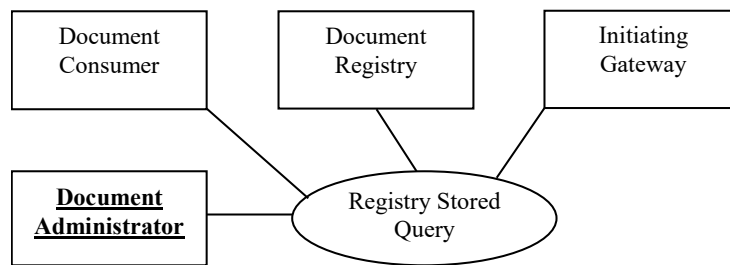
None.

Volume 2a – Transactions Part A

505

Editor: Update Volume 2a-Section 3.18.2 Use Case Roles to add Document Administrator to both text and diagram as shown

3.18.2 Use Case Roles



510 **Actor:** Document Consumer

Role: Requests a query by identifier (UUID) and passes parameters to the query. A parameter controlling the format of the returned data is passed, it selects either object references or full objects.

Actor: Document Administrator

515 **Role:** Requests a query by identifier (UUID) and passes parameters to the query. A parameter controlling the format of the returned data is passed, it selects either object references or full objects.

For this transaction, the Document Administrator shall follow all requirements described for the Document Consumer.

520 **Actor:** Document Registry

Role: Services the query using its stored definitions of the queries defined for XDS.

Actor: Initiating Gateway

Role: Services the stored query by initiating transactions with a selected set of Responding Gateways, Document Registries or other appropriate systems.

525

Volume 2b – Transactions Part B

Add Section 3.62

3.62 Remove Metadata

530 This section corresponds to Remove Metadata [ITI-62] transaction of the IHE ITI Technical Framework. The Remove Metadata transaction is used by a Document Administrator to submit a list of entryUUID attributes identifying metadata objects to be removed from a Document Registry including Submission Set, Document Entry, Folder, and Association objects.

3.62.1 Scope

535 The Remove Metadata [ITI-62] transaction passes a Remove Metadata Request from a Document Administrator to a Document Registry.

3.62.2 Actor Roles

The roles in this transaction are defined in the following table and may be performed by the actors shown here:

540

Table 3.62.2-1: Actor Roles

Actor:	Document Administrator
Role:	Issues a request to remove one or more metadata objects from a system.
Actor:	Document Registry
Role:	Accepts and processes the request for removing one or more metadata objects from its system.

3.62.3 Referenced Standard

Table 3.62.3-1: Referenced Standards

ebRIM	OASIS/ebXML Registry Information Model v3.0 This model defines the types of metadata and content that can be stored in an ebXML Registry and forms the basis for the Document Sharing metadata model.
ebRS	OASIS/ebXML Registry Services Specifications v3.0 This defines the services and protocols for an ebXML Registry, used as the basis for the XDS Document Registry
ITI TF-2x: Appendix V	Web Services for IHE Transactions

ITI TF-3:4	Metadata Used in Document Sharing Profiles
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545 **3.62.4 Messages**

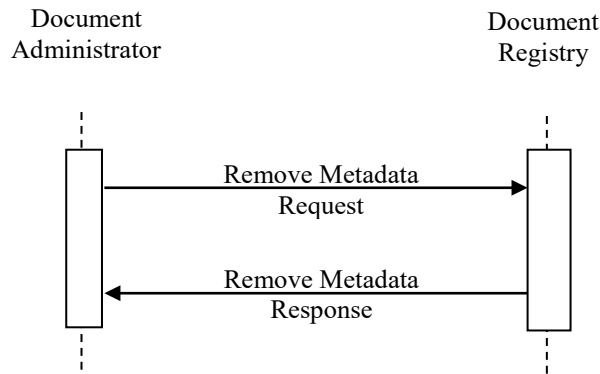


Figure 3.62.4-1: Interaction Diagram

3.62.4.1 Remove Metadata Request

550 The Remove Metadata Request message is used to request the removal of one or more metadata objects from a Document Registry.

3.62.4.1.1 Trigger Events

The Document Administrator has identified a list of metadata objects to be removed from a Document Registry using one or more Registry Stored Query [ITI-18] transactions or other means. This list may contain metadata objects that reference more than one patient identifier.

555 The Document Administrator shall form a request that would leave the Document Registry in a consistent state.

3.62.4.1.2 Message Semantics

560 The Remove Documents Request message shall use SOAP 1.2 and Simple SOAP (see ITI TF-2x: V.8.1). Implementers of this transaction shall comply with all requirements described in ITI TF-2x: Appendix V - Web Services for IHE Transactions.

XML namespace prefixes used in text and examples below are for informational purposes only and documented in ITI TF-2x: Appendix V, Table V.2.4-1.

The requirements for the request message are as follows:

- 565
1. <wsa:Action/> SOAP element shall contain the value urn:ihe:iti:2010:DeleteDocumentSet
 2. <soap12:Body/> SOAP element shall contain one <lcm:RemoveObjectsRequest/> element
 3. <lcm:RemoveObjectsRequest/> element shall contain one <rim:ObjectRefList/> element.
 4. <rim:ObjectRefList/> element shall contain one or more <rim:ObjectRef/> elements, each one containing the entryUUID of an individual metadata object that the Document Administrator wants removed from the Document Registry. The metadata objects may belong to more than one patient.
- 570

Note: The requirement for the SOAP Action element reflects the historical name for this transaction.

The following components of the <lcm:RemoveObjectsRequest/> shall not be used:

- 575
1. <rim:AdhocQuery/> - Object removal is specified only by using <rim:ObjectRefList/>.
 2. <lcm:RemoveObjectsRequest/@deletionScope/> - The behavior specified for this attribute in the ebRS standard is not currently supported in IHE profiles.

A full XML Schema Document for the RMD Profile is available online: see ITI TF-2x: Appendix W - Implementation Material.

580 Below is an example of the SOAP Body for a Remove Metadata Request message:

```
<soap12:Body>
  <lcm:RemoveObjectsRequest xmlns:lcm="urn:oasis:names:tc:ebxml-regrep:xsd:lcm:3.0">
    <rim:ObjectRefList xmlns:rim="urn:oasis:names:tc:ebxml-regrep:xsd:rim:3.0">
      <rim:ObjectRef id="urn:uuid:b2632452-1de7-480d-94b1-c2074d79c871"/>
      <rim:ObjectRef id="urn:uuid:b2632df2-1de7-480d-1045-c2074d79aabd"/>
      <rim:ObjectRef id="urn:uuid:b2632132-1de7-480d-88bd-c2074d79009b"/>
      <rim:ObjectRef id="urn:uuid:b2632cd2-1de7-480d-108c-c2074d797777"/>
    </rim:ObjectRefList>
  </lcm:RemoveObjectsRequest>
</soap12:Body>
```

3.62.4.1.3 Expected Actions

Upon receipt of a Remove Metadata Request message, the Document Registry shall process the request, in accordance with local policy.

585 The Document Registry shall be capable of accepting a request to remove multiple metadata objects.

A Document Registry shall process the received message as follows:

For each <rim:ObjectRef/>, the Document Registry shall:

1. Verify the entryUUID is found. If a received value is not known to the system, the Document Registry shall generate and return an UnresolvedReferenceException error.

- 590 2. Verify that the entryUUID will no longer be referenced by other metadata objects held by the Document Registry at the conclusion of this transaction. If a metadata object contained in the request remains referenced, the Document Registry shall generate and return a ReferencesExistException error.
3. Remove the identified metadata object, in accordance with the local policy.

595 If an error occurs during processing, the Document Registry shall return an error response to the Document Administrator; otherwise, the Document Registry shall return a success response to the Document Administrator. Exception conditions and possible error messages are specified in ITI TF-3: 4.2.4 - Success and Error Reporting.

600 If an error occurs during processing, the Document Registry shall rollback all metadata changes and returns to its state prior to the transaction.

3.62.4.2 Remove Metadata Response

The Document Registry shall send a Remove Metadata Response message when the processing of a Remove Metadata Request is complete.

3.62.4.2.1 Trigger Events

605 The request message has been received and processed by the Document Registry.

3.62.4.2.2 Message Semantics

The Remove Metadata Response message shall use SOAP 1.2 and Simple SOAP (see ITI TF-2x: V.8.1). Implementers of this transaction shall comply with all requirements described in ITI TF-2x: Appendix V - Web Services for IHE Transactions.

610 The Remove Metadata Response message shall carry the status of the requested operation. If the requested operation fails, the response message shall carry at least one error message. Exception conditions and possible error messages are specified in ITI TF-3: 4.2.4 - Success and Error Reporting.

615 XML namespace prefixes used in text and in examples below are for informational purposes only and documented in ITI TF-2x: Appendix V, Table 2.4-1.

The requirements for the response message are as follows:

1. <wsa:Action/> SOAP element shall contain the value urn:ihe:iti:2010:DeleteDocumentSetResponse
2. <soap12:Body/> SOAP element shall contain one <rs:RegistryResponse/> element

620 Note: The requirement for the SOAP Action element reflects the historical name for this transaction.

The rs:RegistryResponse/@status attributes provides the overall status of the request. It shall contain one of two values:

- 625
1. If all metadata in the request was removed successfully, the Document Registry shall set the status equal to `urn:oasis:names:tc:ebxml-regrep:ResponseStatusType:Success`.
 2. If the metadata could not be removed successfully, then the Document Registry shall set the status equal to `urn:oasis:names:tc:ebxml-regrep:ResponseStatusType:Failure`.

630 If an error occurs when removing a metadata object, then a `rs:RegistryResponse/rs:RegistryErrorList/rs:RegistryError` element shall be returned in the response with:

1. `@severity` is `urn:oasis:names:tc:ebxml-regrep:ErrorSeverityType:Error`.
 2. `@errorCode` contains an error code from ITI TF-3: Table 4.2.4.1-2.
 3. `@codeContext` contains the error message and the entryUUID for the object that caused the error.
- 635

See ITI TF-3: 4.2.4.1 for examples of response messages.

3.62.4.2.3 Expected Actions

640 When the Document Administrator receives a success response, the metadata objects were successfully removed and the transaction is complete. The Document Administrator can continue processing normally.

If an error response was received, the Document Administrator may need to perform additional steps to determine the cause and remediation of the error. These steps are not specified by this transaction.

3.62.5 Security Considerations

645 Additional security considerations that may apply are discussed in ITI TF-1: 44.5 - RMD Security Considerations.

3.62.5.1 Security Audit Record Considerations

The Remove Metadata [ITI-62] transaction is a PHI-Patient Record event as defined in ITI TF-2a: Table 3.20.4.1.1.1-1 with exceptions outlined in the following two sections.

650 This transaction is recorded as an individual event for each object contained within the Remove Metadata transaction. In order to reduce the volume of audit records, multiple objects for the same patient may be combined into a single event when the time difference is considered insignificant and both the patient identifier and active participant are the same, or not known.

655 Audit records for this transaction may also contain references to metadata objects that have been associated with more than one patient identifier. The method used for combining these records is not specified by IHE.

3.62.5.1.1 Document Administrator audit message

	Field Name	Opt	Value Constraints
Event AuditMessage/ EventIdentification	EventID	M	EV(110110, DCM, "Patient Record")
	EventActionCode	M	"D" (Delete)
	EventDateTime	U	not specialized
	EventOutcomeIndicator	U	not specialized
	EventTypeCode	M	EV("ITI-62", "IHE Transactions", "Remove Metadata")
Source (Document Administrator) (1)			
Human Requestor (0..n)			
Destination (Document Registry) (1)			
Audit Source (Document Administrator) (1)			
Patient (0..n)			
Document Entry/Submission Set/Folder/Association (1..n) (one for each object removed. See Section 3.62.5.1 for guidance on combining multiple objects into one event.)			

Where:

Source AuditMessage/ ActiveParticipant	UserID	U	not specialized
	AlternativeUserID	M	The process ID as used within the local operating system in the local system logs.
	UserName	U	not specialized
	UserIsRequestor	U	not specialized
	RoleIDCode	M	EV(110153, DCM, "Source")
	NetworkAccessPointTypeCode	M	"1" for machine (DNS) name, "2" for IP address
	NetworkAccessPointID	M	The machine name or IP address.

Human Requestor (if known) AuditMessage/ ActiveParticipant	UserID	M	Identity of the human that initiated the transaction.
	AlternativeUserID	U	not specialized
	UserName	U	not specialized
	UserIsRequestor	U	not specialized
	RoleIDCode	M	Access Control role(s) the user holds that allows this transaction.
	NetworkAccessPointTypeCode	U	not specialized
	NetworkAccessPointID	U	not specialized

660

Destination AuditMessage/ ActiveParticipant	UserID	M	SOAP endpoint URI.
	AlternativeUserID	U	not specialized
	UserName	U	not specialized
	UserIsRequestor	U	not specialized
	RoleIDCode	M	EV(110152, DCM, "Destination")
	NetworkAccessPointTypeCode	M	"1" for machine (DNS) name, "2" for IP address

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	NetworkAccessPointID	M	The machine name or IP address.
--	----------------------	---	---------------------------------

Audit Source <small>AuditMessage/AuditSourceIdentification</small>	<i>AuditSourceID</i>	<i>U</i>	<i>not specialized</i>
	<i>AuditEnterpriseSiteID</i>	<i>U</i>	<i>not specialized</i>
	<i>AuditSourceTypeCode</i>	<i>U</i>	<i>not specialized</i>

Patient (if known) <small>AuditMessage/ParticipantObjectIdentification</small>	ParticipantObjectTypeCode	M	“1” (Person)
	ParticipantObjectTypeCodeRole	M	“1” (Patient)
	<i>ParticipantObjectDataLifeCycle</i>	<i>U</i>	<i>not specialized</i>
	<i>ParticipantObjectIDTypeCode</i>	<i>U</i>	<i>not specialized</i>
	<i>ParticipantObjectSensitivity</i>	<i>U</i>	<i>not specialized</i>
	ParticipantObjectID	M	The patient ID in HL7 CX format.
	<i>ParticipantObjectName</i>	<i>U</i>	<i>not specialized</i>
	<i>ParticipantObjectQuery</i>	<i>U</i>	<i>not specialized</i>
<i>ParticipantObjectDetail</i>	<i>U</i>	<i>not specialized</i>	

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Document Entry Submission Set Folder Association <small>AuditMessage/ParticipantObjectIdentification</small>	ParticipantObjectTypeCode	M	“2” (System object)
	ParticipantObjectTypeCodeRole		
		M	“3” (Report)

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	<i>ParticipantObjectDataLifeCycle</i>		<i>U</i> <i>not specialized</i>
--	---------------------------------------	--	---------------------------------

	ParticipantObjectIDTypeCode	M	<p>The Document Administrator shall include one of these values in accordance with the specific object being removed, if known:</p> <p>EV(“urn:uuid:7edca82f-054d-47f2-a032-9b2a5b5186c1”, “IHE XDS Metadata”, “document entry object type”)</p> <p>EV(“urn:uuid:34268e47-fdf5-41a6-ba33-82133c465248”, “IHE XDS Metadata”, “on-demand document entry object type”)</p> <p>EV(“urn:uuid:a54d6aa5-d40d-43f9-88c5-b4633d873bdd”, “IHE XDS Metadata”, “submission set classification node”)</p> <p>EV(“urn:uuid:d9d542f3-6cc4-48b6-8870-ea235fbc94c2”, “IHE XDS Metadata”, “folder classification node”)</p> <p>EV(“urn:oasis:names:tc:ebxml-regrep:AssociationType:HasMember”, “IHE XDS Metadata”, “has-member association type”)</p> <p>EV(“urn:ihe:iti:2007:AssociationType:RPLC”, “IHE XDS Metadata”, “replacement relationship association type”)</p> <p>EV(“urn:ihe:iti:2007:AssociationType:XFRM”, “IHE XDS Metadata”, “transformation relationship association type”)</p> <p>EV(“urn:ihe:iti:2007:AssociationType:APND”, “IHE XDS Metadata”, “append relationship association type”)</p> <p>EV(“urn:ihe:iti:2007:AssociationType:XFRM_RPLC”, “IHE XDS Metadata”, “replace-transformation relationship association type”)</p> <p>EV(“urn:ihe:iti:2007:AssociationType:signs”, “IHE XDS Metadata”, “digital signature relationship association type”)</p> <p>EV(“urn:ihe:iti:2010:AssociationType:IsSnapshotOf”, “IHE XDS Metadata”, “is-snapshot relationship association type”)</p> <p>Otherwise, the Document Administrator shall use the following value if the specific object type cannot be determined:</p> <p>EV(“urn:ihe:iti:2017:ObjectRef”, “IHE XDS Metadata”, “registry object reference”)</p>
	<i>ParticipantObjectSensitivity</i>	<i>U</i>	<i>not specialized</i>
	ParticipantObjectID	M	The entryUUID of the metadata object being removed.
	<i>ParticipantObjectName</i>	<i>U</i>	<i>not specialized</i>
	<i>ParticipantObjectQuery</i>	<i>U</i>	<i>not specialized</i>
	<i>ParticipantObjectDetail</i>	<i>U</i>	<i>not specialized</i>

3.62.5.1.2 Document Registry audit message

	Field Name	Opt	Value Constraints
Event AuditMessage/ EventIdentification	EventID	M	EV(110110, DCM, “Patient Record”)
	EventActionCode	M	“D” (Delete)
	EventDateTime	U	<i>not specialized</i>
	EventOutcomeIndicator	U	<i>not specialized</i>
	EventTypeCode	M	EV(“ITI-62”, “IHE Transactions”, “Remove Metadata”)
Source (Document Administrator) (1)			
Destination (Document Registry) (1)			
Audit Source (Document Registry) (1)			
Patient (0..n)			
Document Entry/Submission Set/Folder/Association (1..n) (<i>one for each object removed. See Section 3.62.5.1 for guidance on combining multiple objects into one event.</i>)			

Where:

	Field Name	Opt	Value Constraints
Source AuditMessage/ ActiveParticipant	UserID	U	<i>not specialized</i>
	AlternativeUserID	U	<i>not specialized</i>
	UserName	U	<i>not specialized</i>
	UserIsRequestor	U	<i>not specialized</i>
	RoleIDCode	M	EV(110153, DCM, “Source”)
	NetworkAccessPointTypeCode	M	“1” for machine (DNS) name, “2” for IP address
	NetworkAccessPointID	M	The machine name or IP address.

	Field Name	Opt	Value Constraints
Destination AuditMessage/ ActiveParticipant	UserID	M	SOAP endpoint URI
	AlternativeUserID	M	The process ID as used within the local operating system in the local system logs.
	UserName	U	<i>not specialized</i>
	UserIsRequestor	U	<i>not specialized</i>
	RoleIDCode	M	EV(110152, DCM, “Destination”)
	NetworkAccessPointTypeCode	M	“1” for machine (DNS) name, “2” for IP address
	NetworkAccessPointID	M	The machine name or IP address.

	Field Name	Opt	Value Constraints
Audit Source AuditMessage/ AuditSourceIdentification	AuditSourceID	U	<i>not specialized</i>
	AuditEnterpriseSiteID	U	<i>not specialized</i>
	AuditSourceTypeCode	U	<i>not specialized</i>

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Patient (if known) <small>AuditMessage/ ParticipantObjectIdentif ication</small>	ParticipantObjectTypeCode	M	“1” (person)
	ParticipantObjectTypeCodeRole	M	“1” (patient)
	<i>ParticipantObjectDataLifeCycle</i>	<i>U</i>	<i>not specialized</i>
	<i>ParticipantObjectIDTypeCode</i>	<i>U</i>	<i>not specialized</i>
	<i>ParticipantObjectSensitivity</i>	<i>U</i>	<i>not specialized</i>
	ParticipantObjectID	M	The patient ID in HL7 CX format.
	<i>ParticipantObjectName</i>	<i>U</i>	<i>not specialized</i>
	<i>ParticipantObjectQuery</i>	<i>U</i>	<i>not specialized</i>
	<i>ParticipantObjectDetail</i>	<i>U</i>	<i>not specialized</i>

	ParticipantObjectTypeCode	M	“2” (System object)
	ParticipantObjectTypeCodeRole	M	“3” (Report)
	<i>ParticipantObjectDataLifeCycle</i>	<i>M</i>	<i>not specialized</i>

IHE IT Infrastructure Technical Framework Supplement – Remove Metadata and Documents (RMD)

<p>Document Entry Submission Set Folder Association</p> <p><small>AuditMessage/ ParticipantObjectIdentification</small></p>	ParticipantObjectIDTypeCode	M	<p>The Document Registry shall include one of these values in accordance with the specific object being removed, if known:</p> <p>EV(“urn:uuid:7edca82f-054d-47f2-a032-9b2a5b5186c1”, “IHE XDS Metadata”, “document entry object type”)</p> <p>EV(“urn:uuid:34268e47-fdf5-41a6-ba33-82133c465248”, “IHE XDS Metadata”, “on-demand document entry object type”)</p> <p>EV(“urn:uuid:a54d6aa5-d40d-43f9-88c5-b4633d873bdd”, “IHE XDS Metadata”, “submission set classification node”)</p> <p>EV(“urn:uuid:d9d542f3-6cc4-48b6-8870-ea235fbc94c2”, “IHE XDS Metadata”, “folder classification node”)</p> <p>EV(“urn:oasis:names:tc:ebxml-regrep:AssociationType:HasMember”, “IHE XDS Metadata”, “has-member association type”)</p> <p>EV(“urn:ihe:iti:2007:AssociationType:RPLC”, “IHE XDS Metadata”, “replacement relationship association type”)</p> <p>EV(“urn:ihe:iti:2007:AssociationType:XFRM”, “IHE XDS Metadata”, “transformation relationship association type”)</p> <p>EV(“urn:ihe:iti:2007:AssociationType:APND”, “IHE XDS Metadata”, “append relationship association type”)</p> <p>EV(“urn:ihe:iti:2007:AssociationType:XFRM_RPLC”, “IHE XDS Metadata”, “replace-transformation relationship association type”)</p> <p>EV(“urn:ihe:iti:2007:AssociationType:signs”, “IHE XDS Metadata”, “digital signature relationship association type”)</p> <p>EV(“urn:ihe:iti:2010:AssociationType:IsSnapshotOf”, “IHE XDS Metadata”, “is-snapshot relationship association type”)</p> <p>Otherwise, the Document Administrator shall use the following value if the specific object type cannot be determined:</p> <p>EV(“urn:ihe:iti:2017:ObjectRef”, “IHE XDS Metadata”, “registry object reference”)</p>
	<i>ParticipantObjectSensitivity</i>	<i>U</i>	<i>not specialized</i>
	ParticipantObjectID	M	The entryUUID of the metadata object being removed.
	<i>ParticipantObjectName</i>	<i>U</i>	<i>not specialized</i>
	<i>ParticipantObjectQuery</i>	<i>U</i>	<i>not specialized</i>
	<i>ParticipantObjectDetail</i>	<i>U</i>	<i>not specialized</i>

Volume 2c – Transactions Part C

Add new Section 3.86

3.86 Remove Documents

680 This section corresponds to Remove Documents [ITI-86] transaction of the IHE ITI Technical Framework. This transaction is used to remove one or more documents from a Document Repository.

3.86.1 Scope

685 The Remove Documents [ITI-86] transaction passes a Remove Documents Request from a Document Administrator to a Document Repository.

3.86.2 Actor Roles

The roles in this transaction are defined in the following table and may be played by the actors shown here:

Table 3.86.2-1: Actor Roles

Actor(s):	Document Administrator
Role:	Issues the request to remove one or more documents from a system.
Actor(s):	Document Repository
Role:	Accepts and processes the request for removing one or more documents from its system.

690

3.86.3 Referenced Standard

Table 3.86.3-1: Referenced Standards

ITI TF-2x: Appendix V	Web Services for IHE Transactions
ITI TF-3:4	Metadata Used in Document Sharing Profiles

695 **3.86.4 Messages**

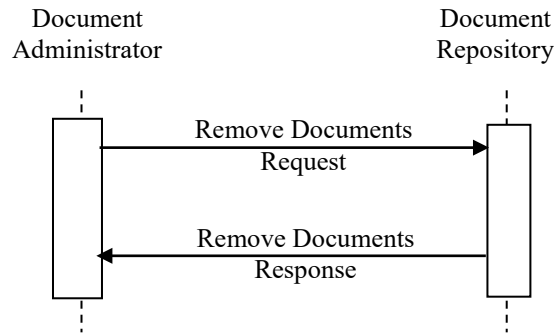


Figure 3.86.4-1: Interaction Diagram

3.86.4.1 Remove Documents Request

700 The Remove Documents Request message is used to request the removal of one or more documents from a Document Repository.

3.86.4.1.1 Trigger Events

The Document Administrator has identified one or more documents to be removed from a Document Repository. Prior to initiating this transaction, the Document Administrator will typically confirm the document's metadata cannot be discovered from the Document Registry.

705 **3.86.4.1.2 Message Semantics**

The Remove Documents Request message shall use SOAP 1.2 and Simple SOAP (see ITI TF-2x: V.8.1). Implementers of this transaction shall comply with all requirements described in ITI TF-2x: Appendix V - Web Services for IHE Transactions.

710 XML namespace prefixes used in text and examples below are for informational purposes only and documented in ITI TF-2x: Appendix V, Table V.2.4-1.

The requirements for the request message are as follows:

1. Content-Type HTTP header shall have an action parameter with the value `urn:ihe:iti:2017:RemoveDocuments`
2. `<wsa:Action/>` SOAP element shall contain the value `urn:ihe:iti:2017:RemoveDocuments`
3. `<soap12:Body/>` SOAP element shall contain one `<rmd:RemoveDocumentsRequest/>` element

- 720 4. <rm:RemoveDocumentsRequest/> element shall contain one or more
<xds:DocumentRequest/> elements, each one representing an individual document that
the Document Administrator wants removed from the Document Repository.
- a. Each <xds:DocumentRequest/> element contains the following required elements:
- 725 i. <xds:RepositoryUniqueId/> element that identifies the Document Repository
from which the document will be removed. This value corresponds to
XSDSDocumentEntry.repositoryUniqueId.
- ii. <xds:DocumentUniqueId/> element that identifies the document within the
Document Repository. This value corresponds to
XSDSDocumentEntry.uniqueId.

The XML Schema Document for the RMD Profile is available online: see ITI TF-2x: Appendix W - Implementation Material.

730 Below is an example of the SOAP Body for a Remove Documents Request message:

```
<soap12:Body>
  <rm:RemoveDocumentsRequest
    xmlns:rm="urn:ihe:iti:rm:2017"
    xmlns:xds="urn:ihe:iti:xds-b:2007">
    <xds:DocumentRequest>
      <xds:RepositoryUniqueId>1.3.6.1.4.1000</xds:RepositoryUniqueId>
      <xds:DocumentUniqueId>1.3.6.1.4.2300</xds:DocumentUniqueId>
    </xds:DocumentRequest>
    <xds:DocumentRequest>
      <xds:RepositoryUniqueId>1.3.6.1.4.1000</xds:RepositoryUniqueId>
      <xds:DocumentUniqueId>1.3.6.1.4.2301</xds:DocumentUniqueId>
    </xds:DocumentRequest>
  </rm:RemoveDocumentsRequest>
</soap12:Body>
```

3.86.4.1.3 Expected Actions

Upon receipt of a Remove Documents Request message, the Document Repository shall process the request, in accordance with local policy.

735 The Document Repository shall be capable of accepting a request to remove multiple documents. A Document Repository shall process the received message as follows:

For each <xds:DocumentRequest/>, the Document Repository shall:

- 740 1. Verify the <xds:RepositoryUniqueId/> element. If a received value differs from the value known by the system, the Document Repository shall generate and return an XDSUnknownRepositoryId error.

2. Locate the document identified by the value received in the <xds:DocumentUniqueId/> element. If the document cannot be located, the Document Repository shall generate and return an XDSDocumentUniqueIdError error.
3. Remove the document identified by the value received in the <xds:DocumentUniqueId/> element, in accordance with local policy. If the document cannot be removed, the Document Repository shall generate and return an XDSRemoveDocumentsError error.

745

If an error occurs during processing, the Document Repository shall return an error response to the Document Administrator; otherwise, the Document Repository shall return either a success or partial success response to the Document Administrator. The various exception conditions and possible error or warning messages are given in ITI TF-3: 4.2.4 - Success and Error Reporting.

750

3.86.4.2 Remove Documents Response

The Document Administrator shall send a Remove Documents Response message when the processing of a Remove Documents Request is complete.

3.86.4.2.1 Trigger Events

755

The request message has been processed by the Document Repository.

3.86.4.2.2 Message Semantics

The Remove Document Response message shall use SOAP 1.2 and Simple SOAP (see ITI TF-2x: V.8.1). Implementers of this transaction shall comply with all requirements described in ITI TF-2x: Appendix V - Web Services for IHE Transactions.

760

The Remove Documents Response message shall carry the status of the requested operation. If the requested operation partially succeeds or fails, the response message shall carry at least one error message. The conditions of failure and possible warning and error messages are given in ITI TF-3: 4.2.4 - Success and Error Reporting.

765

XML namespace prefixes used in the text and examples below are for informational purposes only and documented in ITI TF-2x: Appendix V, Table 2.4-1.

The requirements for the response message are as follows:

1. Content-Type HTTP header shall have an action parameter with the value urn:ihe:iti:2017:RemoveDocumentsResponse
2. <wsa:Action/> SOAP element shall contain the value urn:ihe:iti:2017:RemoveDocumentsResponse
3. <soap12:Body/> SOAP element shall contain one <rs:RegistryResponse/> element

770

The rs:RegistryResponse/@status attributes provides the overall status of the request. It shall contain one of the following values:

- 775
1. If all documents in the request were removed successfully, the Document Repository shall set the status equal to
`urn:oasis:names:tc:ebxml-regrep:ResponseStatusType:Success.`
 2. If only some of the documents in the request were removed successfully, then the Document Repository shall set the status equal to
`urn:ihe:iti:2007:ResponseStatusType:PartialSuccess.`
 - 780 3. If no documents in the request were removed successfully, then the Document Repository shall set the status equal to
`urn:oasis:names:tc:ebxml-regrep:ResponseStatusType:Failure.`

If an error is reported when removing a document, then a
785 `rs:RegistryResponse/rs:RegistryErrorList/rs:RegistryError` element shall be returned in the response with:

1. `@severity` is `urn:oasis:names:tc:ebxml-regrep:ErrorSeverityType:Error.`
2. `@errorCode` contains an error code from ITI TF-3: Table 4.2.4.1-2.
3. `@codeContext` contains the error message with the `DocumentUniqueId` requested for removal.

790 See ITI TF-3: 4.2.4.1 for examples of response messages.

3.86.4.2.3 Expected Actions

If a successful response is received, the documents were successfully removed and the transaction is complete. If an error or partial success response was received, additional steps may be required by the Document Administrator to determine the cause and remediation of the error.
795 These steps are not specified by this transaction.

3.86.5 Security Considerations

Additional security considerations that may apply are discussed in the ITI TF-1: 44.5 - RMD Security Considerations.

3.86.5.1 Audit Record Considerations

800 The Remove Documents [ITI-86] transaction is a PHI-Patient Record event as defined in ITI TF-2a: Table 3.20.4.1.1.1-1 with exceptions outlined in the following two sections.

This transaction is recorded as an individual event for each object contained within the Remove Documents transaction. In order to reduce the volume of audit records, multiple objects for the same patient may be combined into a single event when the time difference is considered
805 insignificant and both the patient identifier and active participant are the same, or not known.

If only some of the documents could be removed, the actors involved shall record a “success” audit event for those documents removed successfully and a “failure” audit event for those documents not removed.

3.86.5.1.1 Document Administrator audit message

	Field Name	Opt	Value Constraints
Event AuditMessage/EventIdentification	EventID	M	EV(110110, DCM, “Patient Record”)
	EventActionCode	M	“D” (Delete)
	EventDateTime	U	<i>not specialized</i>
	EventOutcomeIndicator	U	<i>not specialized</i>
	EventTypeCode	M	EV(“ITI-86”, “IHE Transactions”, “Remove Documents”)
Source (Document Administrator) (1)			
Human Requestor (0..n)			
Destination (Document Repository) (1)			
Audit Source (Document Administrator) (1)			
Patient (0..1)			
Document (1..n) (<i>see Section 3.86.5.1 for guidance on combining multiple objects into one event</i>)			

810 Where:

Source AuditMessage/ActiveParticipant	UserID	U	<i>not specialized</i>
	AlternativeUserID	M	The process ID as used within the local operating system in the local system logs.
	UserName	U	<i>not specialized</i>
	UserIsRequestor	U	<i>not specialized</i>
	RoleIDCode	M	EV(110153, DCM, “Source”)
	NetworkAccessPointTypeCode	M	“1” for machine (DNS) name, “2” for IP address
	NetworkAccessPointID	M	The machine name or IP address.

Human Requestor (if known) AuditMessage/ActiveParticipant	UserID	M	Identity of the human that initiated the transaction.
	AlternativeUserID	U	<i>not specialized</i>
	UserName	U	<i>not specialized</i>
	UserIsRequestor	U	<i>not specialized</i>
	RoleIDCode	M	Access Control role(s) the user holds that allows this transaction.
	NetworkAccessPointTypeCode	U	<i>not specialized</i>
	NetworkAccessPointID	U	<i>not specialized</i>

Destination AuditMessage/ActiveParticipant	UserID	M	SOAP endpoint URI.
	AlternativeUserID	U	<i>not specialized</i>
	UserName	U	<i>not specialized</i>

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	<i>UserIsRequestor</i>	<i>U</i>	<i>not specialized</i>
	<i>RoleIDCode</i>	<i>M</i>	EV(110152, DCM, “Destination”)
	<i>NetworkAccessPointTypeCode</i>	<i>M</i>	“1” for machine (DNS) name, “2” for IP address
	<i>NetworkAccessPointID</i>	<i>M</i>	The machine name or IP address.

Audit Source AuditSourceIdentification	<i>AuditSourceID</i>	<i>U</i>	<i>not specialized</i>
	<i>AuditEnterpriseSiteID</i>	<i>U</i>	<i>not specialized</i>
	<i>AuditSourceTypeCode</i>	<i>U</i>	<i>not specialized</i>

Patient (if known) AuditMessage/ParticipantObjectIdentification	<i>ParticipantObjectTypeCode</i>	<i>M</i>	“1” (Person)
	<i>ParticipantObjectTypeCodeRole</i>	<i>M</i>	“1” (Patient)
	<i>ParticipantObjectDataLifeCycle</i>	<i>U</i>	<i>not specialized</i>
	<i>ParticipantObjectIDTypeCode</i>	<i>U</i>	<i>not specialized</i>
	<i>ParticipantObjectSensitivity</i>	<i>U</i>	<i>not specialized</i>
	<i>ParticipantObjectID</i>	<i>M</i>	The patient ID in HL7 CX format.
	<i>ParticipantObjectName</i>	<i>U</i>	<i>not specialized</i>
	<i>ParticipantObjectQuery</i>	<i>U</i>	<i>not specialized</i>
	<i>ParticipantObjectDetail</i>	<i>U</i>	<i>not specialized</i>

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Document AuditMessage/ParticipantObjectIdentification	<i>ParticipantObjectTypeCode</i>	<i>M</i>	“2” (System object)
	<i>ParticipantObjectTypeCodeRole</i>	<i>M</i>	“3” (Report)
	<i>ParticipantObjectDataLifeCycle</i>	<i>U</i>	<i>not specialized</i>
	<i>ParticipantObjectIDTypeCode</i>	<i>U</i>	<i>not specialized</i>
	<i>ParticipantObjectSensitivity</i>	<i>U</i>	<i>not specialized</i>
	<i>ParticipantObjectID</i>	<i>M</i>	The value of the XSDDocumentEntry.uniqueId.
	<i>ParticipantObjectName</i>	<i>U</i>	<i>not specialized</i>
	<i>ParticipantObjectQuery</i>	<i>U</i>	<i>not specialized</i>
	<i>ParticipantObjectDetail</i>	<i>M</i>	The value of “urn:ihe:iti:xds:2007:repositoryUniqueId” as the value of the attribute type and the value of the repositoryUniqueId as the value of the attribute value.

3.86.5.1.2 Document Repository audit message

	Field Name	Opt	Value Constraints
Event AuditMessage/EventIdentification	EventID	M	EV(110110, DCM, “Patient Record”)
	EventActionCode	M	“D” (Delete)
	EventDateTime	U	not specialized
	EventOutcomeIndicator	U	not specialized
	EventTypeCode	M	EV(“ITI-86”, “IHE Transactions”, “Remove Documents”)
Source (Document Administrator) (1)			
Destination (Document Repository) (1)			
Audit Source (Document Repository) (1)			
Patient (0..1)			
Document (1..n) (see Section 3.86.5.1 for guidance on combining multiple objects into one event)			

Where:

Source AuditMessage/ActiveParticipant	UserID	U	not specialized
	AlternativeUserID	U	not specialized
	UserName	U	not specialized
	UserIsRequestor	U	not specialized
	RoleIDCode	M	EV(110153, DCM, “Source”)
	NetworkAccessPointTypeCode	M	“1” for machine (DNS) name, “2” for IP address
	NetworkAccessPointID	M	The machine name or IP address.

Destination AuditMessage/ActiveParticipant	UserID	M	SOAP endpoint URI.
	AlternativeUserID	M	The process ID as used within the local operating system in the local system logs.
	UserName	U	not specialized
	UserIsRequestor	U	not specialized
	RoleIDCode	M	EV(110152, DCM, “Destination”)
	NetworkAccessPointTypeCode	M	“1” for machine (DNS) name, “2” for IP address
	NetworkAccessPointID	M	The machine name or IP address.

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Audit Source AuditMessage/AuditSourceIdentification	AuditSourceID	U	not specialized
	AuditEnterpriseSiteID	U	not specialized
	AuditSourceTypeCode	U	not specialized

Patient (if known) AuditMessage/ParticipantObjectIdentification	ParticipantObjectTypeCode	M	“1” (Person)
	ParticipantObjectCodeRole	M	“1” (Patient)
	ParticipantObjectDataLifeCycle	U	not specialized
	ParticipantObjectIDTypeCode	U	not specialized

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	<i>ParticipantObjectSensitivity</i>	<i>U</i>	<i>not specialized</i>
	<i>ParticipantObjectID</i>	<i>M</i>	The patient ID in HL7 CX format.
	<i>ParticipantObjectName</i>	<i>U</i>	<i>not specialized</i>
	<i>ParticipantObjectQuery</i>	<i>U</i>	<i>not specialized</i>
	<i>ParticipantObjectDetail</i>	<i>U</i>	<i>not specialized</i>

Document <small>AuditMessage/ParticipantObjectIdentification</small>	<i>ParticipantObjectTypeCode</i>	<i>M</i>	“2” (System object)
	<i>ParticipantObjectTypeCodeRole</i>	<i>M</i>	“3” (Report)
	<i>ParticipantObjectDataLifeCycle</i>	<i>M</i>	<i>not specialized</i>
	<i>ParticipantObjectIDTypeCode</i>	<i>U</i>	<i>not specialized</i>
	<i>ParticipantObjectSensitivity</i>	<i>U</i>	<i>not specialized</i>
	<i>ParticipantObjectID</i>	<i>M</i>	The value of the XDSDocumentEntry.uniqueId.
	<i>ParticipantObjectName</i>	<i>U</i>	<i>not specialized</i>
	<i>ParticipantObjectQuery</i>	<i>U</i>	<i>not specialized</i>
	<i>ParticipantObjectDetail</i>	<i>M</i>	The value of “urn:ihe:iti:xds:2007:repositoryUniqueId” as the value of the attribute type and the value of the repositoryUniqueId as the value of the attribute value.

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Appendix V – Web Services for IHE Transactions

Editor: Update Table V.2.4-1: XML Namespaces and Prefixes as shown.

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Table V.2.4-1: XML Namespaces and Prefixes

Prefix	Namespace	Specification
wsdl (or default)	http://schemas.xmlsoap.org/wsdl/	WSDL 1.1 binding for SOAP 1.1 WSDL 1.1 binding for SOAP 1.2
...		
xop	http://www.w3.org/2004/08/xop/include	
<u>rmd</u>	<u>urn:ihe:iti:rmd:2017</u>	

Volume 3 – Cross-Transaction and Content Specifications

Update ITI TF-3: Table 4.2.4.1-2 Error Codes.

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Note: The footnote is also updated.

4.2.4.1 RegistryError Element

...

Table 4.2.4.1-2: Error Codes (previously Table 4.1-11)

Error Code	Discussion	Transaction (See Note 1)
XSDSDocumentUniqueIdError	The document associated with the uniqueId is not available. This could be because the document is not available, the requestor is not authorized to access that document, or the document is no longer available.	RS, XGR, RD
XDSUnknownRepositoryId	The repositoryUniqueId value could not be resolved to a valid document repository or the value does not match the repositoryUniqueId.	RS, XGR, RD
<u>XDSRemoveDocumentsError</u>	<u>The Document Repository was not able to remove the document. The codeContext shall indicate the DocumentUniqueId of the document that caused the error.</u>	<u>RD</u>
UnresolvedReferenceException	The recipient cannot resolve an entryUUID reference in the transaction	P, R, RM
<u>ReferencesExistException</u>	<u>The recipient was unable to remove the metadata object because the entryUUID is referenced by an Association.</u>	<u>RM</u>

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Error Code	Discussion	Transaction (See Note 1)
<u>XDSUnreferencedObjectException</u>	<u>A metadata object is no longer referenced by any Association. The codeContext shall indicate the entryUUID of the orphaned object.</u>	<u>RM</u>
XDSRegistryError XDSRepositoryError	Internal Error The error codes XDSRegistryError or XDSRepositoryError shall be returned if and only if a more detailed code is not available from this table for the condition being reported. If one of these error codes is returned, the attribute codeContext shall contain details of the error condition that may be implementation-specific	P, R, SQ, XGQ, <u>RM</u> P, RS, XGR, <u>RD</u>
XDSRegistryOutOfResources XDSRepositoryOutOfResources	Resources are low.	P, R, SQ, XGQ, <u>RM</u> P, RS, XGR, <u>RD</u>

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Note 1:

P = Provide and Register-b

R = Register-b

SQ = Stored Query

RS = Retrieve Document Set

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XGQ = Cross Gateway Query

XGR = Cross Gateway Retrieve

RM = Remove Metadata

RD = Remove Documents

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Editor: Add Table 4.2.4.2-5: Remove Metadata Responses [ITI-62]

Table 4.2.4.2-5: Remove Metadata Responses [ITI-62]

RegistryResponse status	RegistryErrorList element	Result
urn:oasis:names:tc:ebxml-regrep:ResponseStatusType:Success	Will not be present.	All metadata was successfully removed.
urn:oasis:names:tc:ebxml-regrep:ResponseStatusType:Failure	Present, contains one or more RegistryError elements with error severity.	Metadata was not removed.

Editor: Add Table 4.2.4.2-6: Remove Documents Responses [ITI-86]

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Table 4.2.4.2-6: Remove Documents Responses [ITI-86]

Registry Response status	RegistryErrorList element	Result
urn:oasis:names:tc:ebxml-regrep:ResponseStatusType:Success	Will not be present.	All documents were successfully removed.
urn:ihe:iti:2007:ResponseStatusType:PartialSuccess	Present, contains one or more RegistryError elements. At least one has error severity.	Some documents were successfully removed.
urn:oasis:names:tc:ebxml-regrep:ResponseStatusType:Failure	Present, contains one or more RegistryError elements. All elements will have error severity.	No documents were successfully removed.