

# IHE IT Infrastructure Framework Cross-Enterprise Document Sharing (XDS.b)

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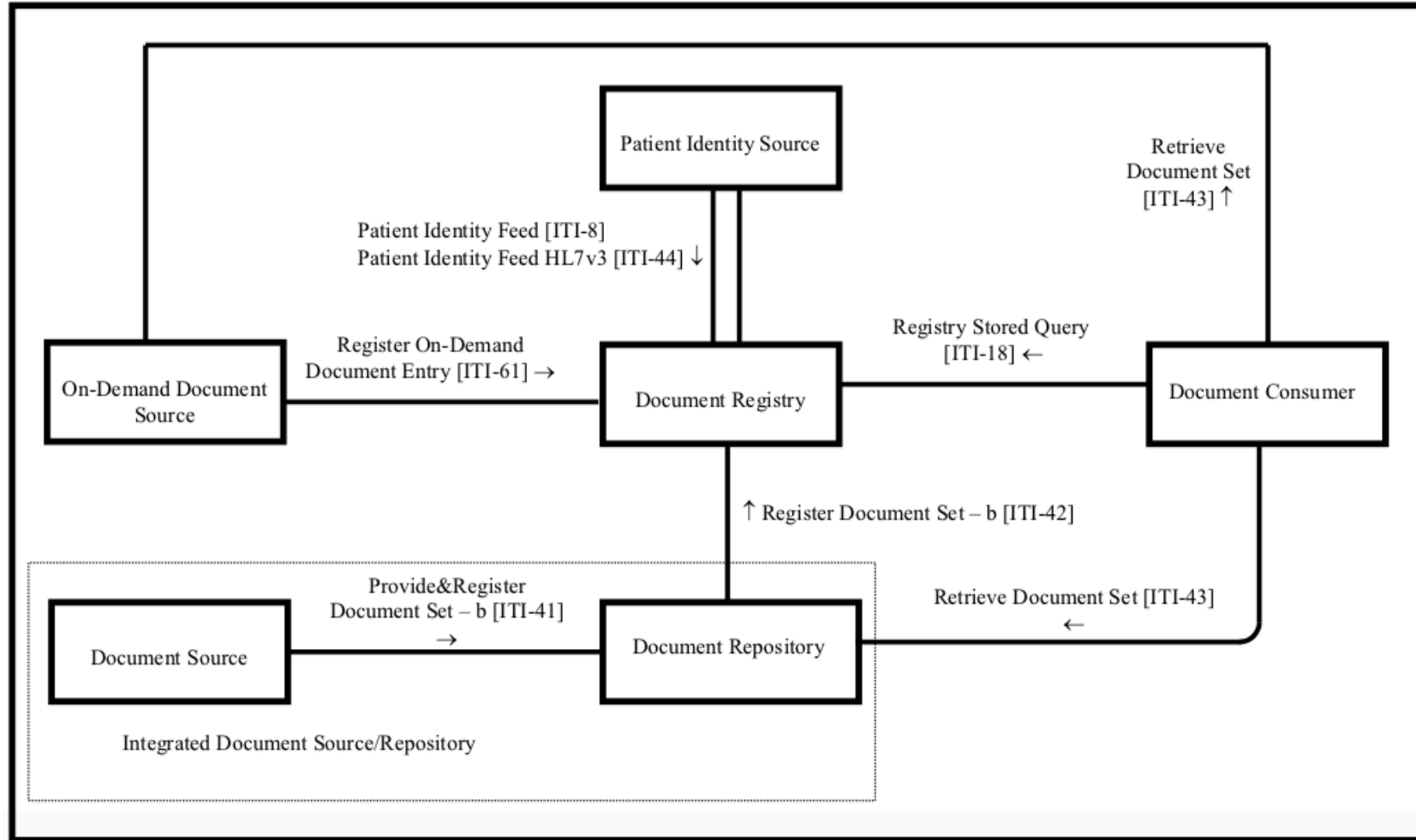


Integrating  
the Healthcare  
Enterprise

# Cross-Enterprise Document Sharing (XDS.b): Definições

- *Profile* de Infraestrutura de TI (IHE IT Infrastructure)
- Facilitar o registro, distribuição, e acesso de documentos de registro eletrônico de saúde do paciente.
- Especificação baseada em padrões para gerenciar o compartilhamento de documentos entre instituições de saúde (do consultório médico até uma rede de hospitais)
- O XDS.b assume que as instituições pertencem a um ou mais Domínios XDS (XDS Affinity Domain).
  - Um domínio XDS (XDS Affinity Domain) é um grupo de instituições de saúde que acordaram trabalhar juntas com um conjunto comum de políticas compartilhando a mesma infraestrutura (Ex. : um EHR Nacional; Centros Especializados – Onco, Diabets, Cardio; Instituições Federais/regionais)

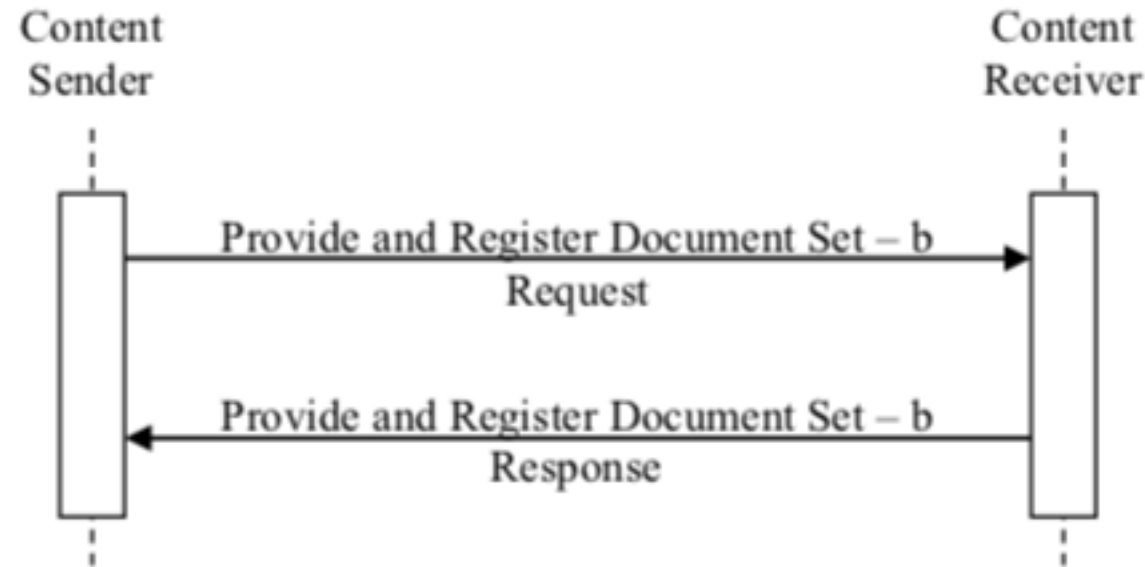
# Cross-Enterprise Document Sharing (XDS.b): Visão Geral - Atores e Transações



# Cross-Enterprise Document Sharing (XDS.b): Transações

Actors	Transactions	Optionality	Section
Document Consumer	Registry Stored Query [ITI-18]	R	ITI TF-2a: 3.18
	Retrieve Document Set [ITI-43]	R	ITI TF-2b: 3.43
Document Source	Provide and Register Document Set-b [ITI-41]	R	ITI TF-2b: 3.41
Document Repository	Provide and Register Document Set-b [ITI-41]	R	ITI TF-2b: 3.41
	Register Document Set-b [ITI-42]	R	ITI TF-2b: 3.42
	Retrieve Document Set [ITI-43]	R	ITI TF-2b: 3.43
Document Registry	Register Document Set-b [ITI-42]	R	ITI TF-2b: 3.42
	Registry Stored Query [ITI-18]	R	ITI TF-2a: 3.18
	Patient Identity Feed [ITI-8]	O (Note 2)	ITI TF-2a: 3.8
	Patient Identity Feed HL7v3 [ITI-44]	O (Note 2)	ITI TF-2b: 3.44
	Register On-Demand Document Entry [ITI-61]	O	ITI TF-2b: 3.61
Integrated Document Source/Repository	Register Document Set-b [ITI-42]	R	ITI TF-2b: 3.42

# Cross-Enterprise Document Sharing (XDS.b): Provide and Register Document Set-b(ITI-41)



Interaction Diagrams – TF- 2b, Pg. 154

# Cross-Enterprise Document Sharing (XDS.b): Provide and Register Document Set-b (ITI-41) Message Semantics

```
<soap12:Body>
  <xds:ProvideAndRegisterDocumentSetRequest>
    <lcm:SubmitObjectsRequest>
      <!-- Submission Request contents - See ITI TF-3: 4.2.1.4 -->
      <rim:RegistryObjectList>

        <!-- Registry Metadata goes here -->

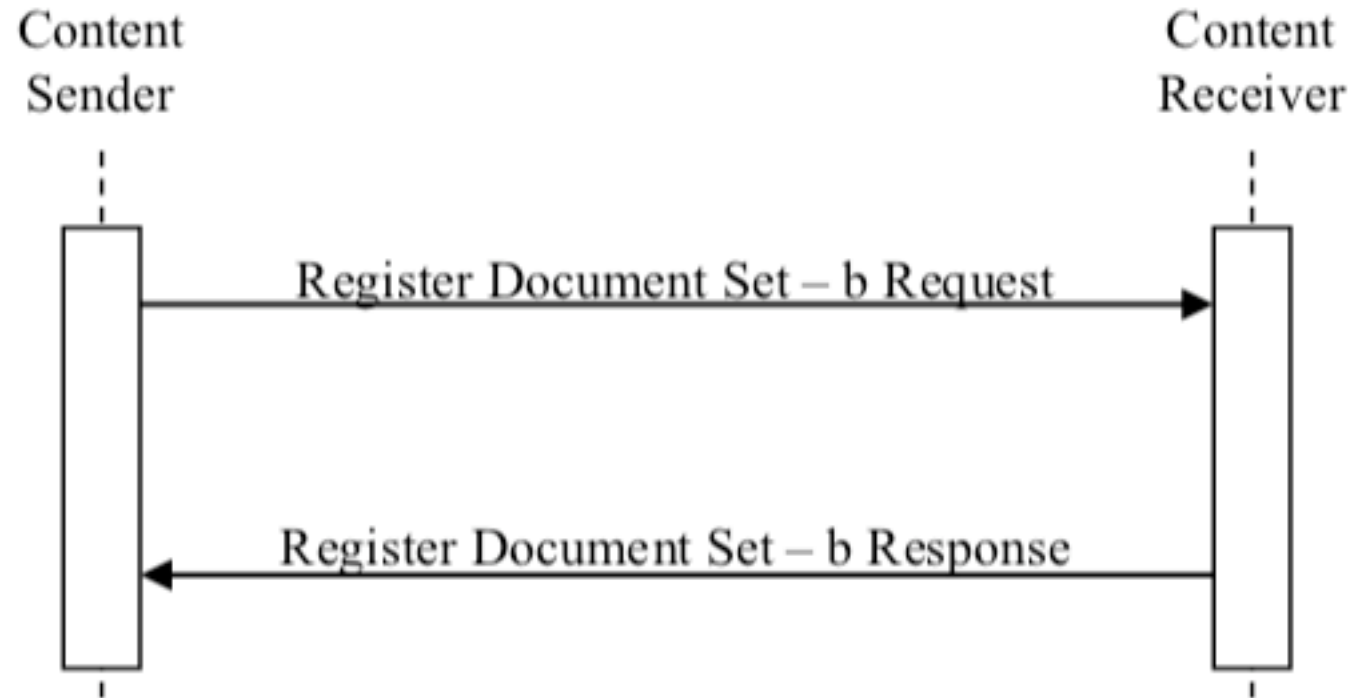
      </rim:RegistryObjectList>
    </lcm:SubmitObjectsRequest>
    <xds:Document id="Document01">SGVyZSBpcyBteSBkb2N1bWVudA==</xds:Document>
  </xds:ProvideAndRegisterDocumentSetRequest>
</soap12:Body>
```

SOAP Body for Provide and Register Document Set-b Request– TF- 2b, Pg. 155

# Cross-Enterprise Document Sharing (XDS.b): Transações

Actors	Transactions	Optionality	Section
Document Consumer	Registry Stored Query [ITI-18]	R	ITI TF-2a: 3.18
	Retrieve Document Set [ITI-43]	R	ITI TF-2b: 3.43
Document Source	Provide and Register Document Set-b [ITI-41]	R	ITI TF-2b: 3.41
Document Repository	Provide and Register Document Set-b [ITI-41]	R	ITI TF-2b: 3.41
	Register Document Set-b [ITI-42]	R	ITI TF-2b: 3.42
	Retrieve Document Set [ITI-43]	R	ITI TF-2b: 3.43
Document Registry	Register Document Set-b [ITI-42]	R	ITI TF-2b: 3.42
	Registry Stored Query [ITI-18]	R	ITI TF-2a: 3.18
	Patient Identity Feed [ITI-8]	O (Note 2)	ITI TF-2a: 3.8
	Patient Identity Feed HL7v3 [ITI-44]	O (Note 2)	ITI TF-2b: 3.44
	Register On-Demand Document Entry [ITI-61]	O	ITI TF-2b: 3.61
Integrated Document Source/Repository	Register Document Set-b [ITI-42]	R	ITI TF-2b: 3.42

# Cross-Enterprise Document Sharing (XDS.b): Register Document Set-b [ITI-42]



Interaction Diagram – TF- 2b, Pg. 165



# Cross-Enterprise Document Sharing (XDS.b): Register Document Set-b (ITI-42) Message Semantics

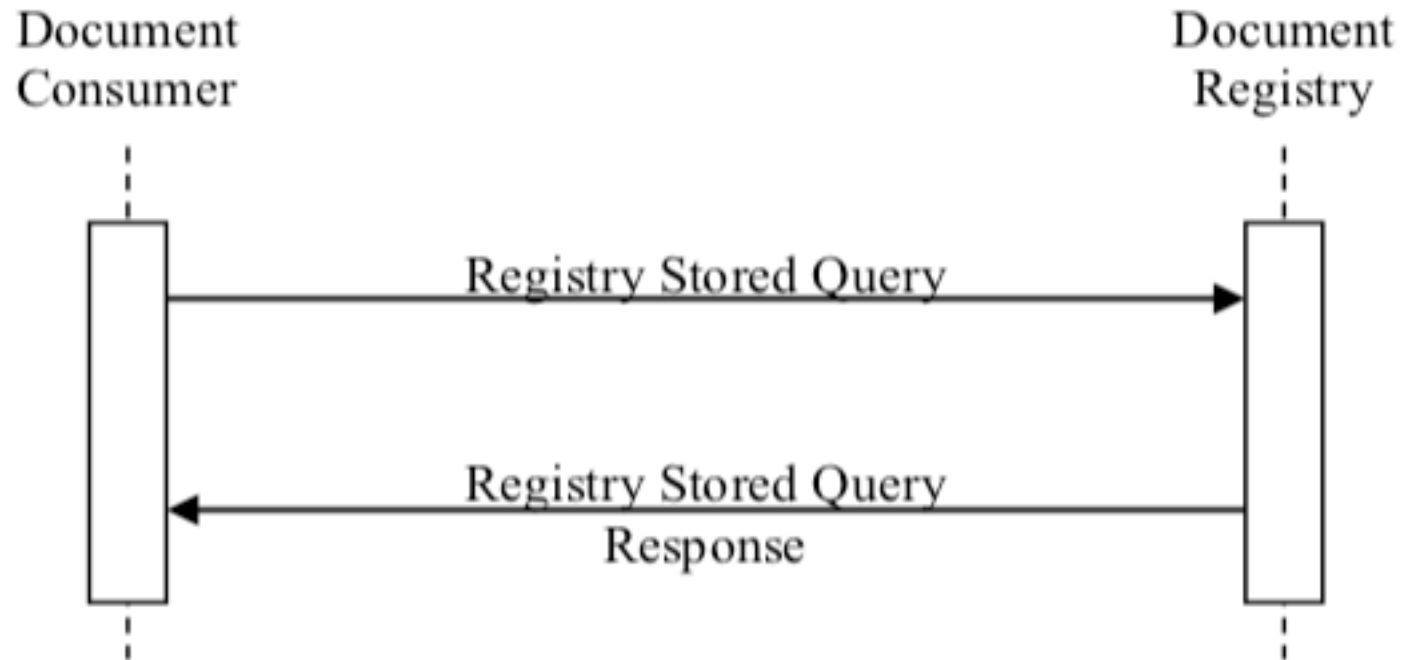
```
<soap12:Body>  
  <lcm:SubmitObjectsRequest>  
    <!-- Submission Request contents - See ITI TF-3: 4.2.1.4 -->  
    <rim:RegistryObjectList>  
  
      <!-- Registry Metadata goes here -->  
  
    </rim:RegistryObjectList>  
  </lcm:SubmitObjectsRequest>  
</soap12:Body>
```

Register Document Set-b Request– TF- 2b, Pg. 166

# Cross-Enterprise Document Sharing (XDS.b): Transações

Actors	Transactions	Optionality	Section
Document Consumer	Registry Stored Query [ITI-18]	R	ITI TF-2a: 3.18
	Retrieve Document Set [ITI-43]	R	ITI TF-2b: 3.43
Document Source	Provide and Register Document Set-b [ITI-41]	R	ITI TF-2b: 3.41
Document Repository	Provide and Register Document Set-b [ITI-41]	R	ITI TF-2b: 3.41
	Register Document Set-b [ITI-42]	R	ITI TF-2b: 3.42
	Retrieve Document Set [ITI-43]	R	ITI TF-2b: 3.43
Document Registry	Register Document Set-b [ITI-42]	R	ITI TF-2b: 3.42
	Registry Stored Query [ITI-18]	R	ITI TF-2a: 3.18
	Patient Identity Feed [ITI-8]	O (Note 2)	ITI TF-2a: 3.8
	Patient Identity Feed HL7v3 [ITI-44]	O (Note 2)	ITI TF-2b: 3.44
	Register On-Demand Document Entry [ITI-61]	O	ITI TF-2b: 3.61
Integrated Document Source/Repository	Register Document Set-b [ITI-42]	R	ITI TF-2b: 3.42

# Cross-Enterprise Document Sharing (XDS.b): Registry Stored Query [ITI-18]



Interaction Diagram – TF- 2a, Pg. 92

# Cross-Enterprise Document Sharing (XDS.b): Registry Stored Query [ITI-18] Stored Queries ID

Query Name	Query ID
FindDocuments	urn:uuid:14d4debf-8f97-4251-9a74-a90016b0af0d
FindSubmissionSets	urn:uuid:f26abbc-b-ac74-4422-8a30-edb644bbc1a9
FindFolders	urn:uuid:958f3006-baad-4929-a4de-ff1114824431
GetAll	urn:uuid:10b545ea-725c-446d-9b95-8aeb44eddf3
GetDocuments	urn:uuid:5c4f972b-d56b-40ac-a5fc-c8ca9b40b9d4
GetFolders	urn:uuid:5737b14c-8a1a-4539-b659-e03a34a5e1e4
GetAssociations	urn:uuid:a7ae438b-4bc2-4642-93e9-be891f7bb155
GetDocumentsAndAssociations	urn:uuid:bab9529a-4a10-40b3-a01f-f68a615d247a
GetSubmissionSets	urn:uuid:51224314-5390-4169-9b91-b1980040715a
GetSubmissionSetAndContents	urn:uuid:e8e3cb2c-e39c-46b9-99e4-c12f57260b83
GetFolderAndContents	urn:uuid:b909a503-523d-4517-8acf-8e5834dfc4c7
GetFoldersForDocument	urn:uuid:10cae35a-c7f9-4cf5-b61e-fc3278ffb578
GetRelatedDocuments	urn:uuid:d90e5407-b356-4d91-a89f-873917b4b0e6
FindDocumentsByReferenceId	urn:uuid:12941a89-e02e-4be5-967c-ce4bfc8fe492

Stored Queries ID – TF- 2a, Pg. 112

# Cross-Enterprise Document Sharing (XDS.b): Registry Stored Query [ITI-18] Sample SOAP Message

```
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
  xmlns:a="http://www.w3.org/2005/08/addressing">
  <s:Header>
    <a:Action s:mustUnderstand="1">urn:ihe:iti:2007:RegistryStoredQuery</a:Action>
    <a:MessageId>urn:uuid:der119ad-dc13-49c1-asc7-e374253119b3</a:MessageId>
    <a:ReplyTo s:mustUnderstand="1">
      <a:Address>http://www.w3.org/2005/08/addressing/anonymous</a:Address>
    </a:ReplyTo>
    <a:To>http://localhost/service/IHExDSRegistry.svc</a:To>
  </s:Header>
  <s:Body>
    <query:AdhocQueryRequest
      xmlns:query="urn:oasis:names:tc:ebxml-regrep:xsd:query:3.0"
      xmlns:rims="urn:oasis:names:tc:ebxml-regrep:xsd:rims:3.0"
      xmlns:rs="urn:oasis:names:tc:ebxml-regrep:xsd:rs:3.0">
      <query:ResponseOption returnComposedObjects="true" returnType="LeafClass"/>
      <rims:AdhocQuery id=" urn:uuid:14d4debf-8f97-4251-9a74-a90016b0af0d ">
        <rims:Slot name="$XDSDocumentEntryPatientId">
          <rims:ValueList>
            <rims:Value>'st3498702^^^&amp;1.3.6.1.4.1.21367.2005.3.7&amp;ISO'</rims:Value>
          </rims:ValueList>
        </rims:Slot>
        <rims:Slot name="$XDSDocumentEntryStatus">
          <rims:ValueList>
            <rims:Value>('urn:oasis:names:tc:ebxml-regrep:ResponseStatusType:Approved')</rims:Value>
          </rims:ValueList>
        </rims:Slot>
        <rims:Slot name="$XDSDocumentEntryCreationTimeFrom">
          <rims:ValueList>
            <rims:Value>200412252300</rims:Value>
          </rims:ValueList>
        </rims:Slot>
        <rims:Slot name="$XDSDocumentEntryCreationTimeTo">
          <rims:ValueList>
            <rims:Value>200501010800</rims:Value>
          </rims:ValueList>
        </rims:Slot>
        <rims:Slot name="$XDSDocumentEntryHealthcareFacilityTypeCode">
          <rims:ValueList>
            <rims:Value>('Emergency Department')</rims:Value>
          </rims:ValueList>
        </rims:Slot>
      </rims:AdhocQuery>
    </query:AdhocQueryRequest>
```

FindDocuments

FROM: 25/12/2004 23:00

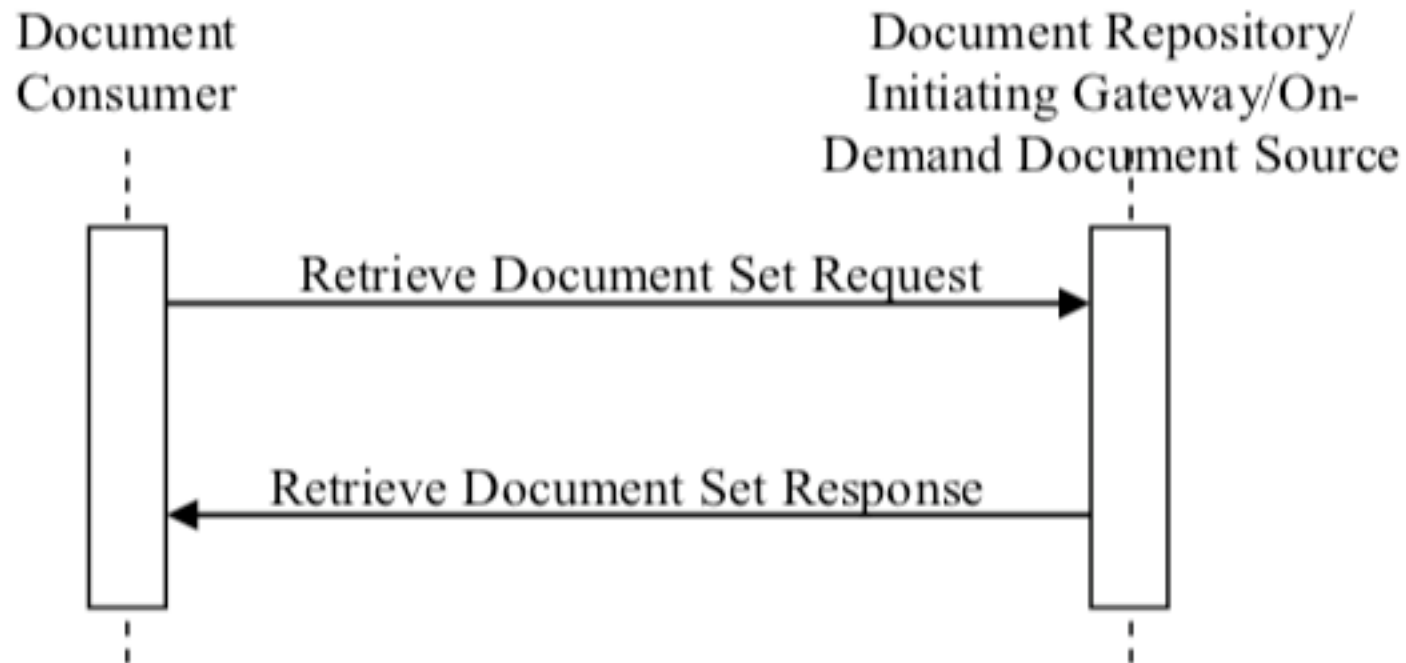
TO: 01/01/2005 8:00

Emergency Dpt

# Cross-Enterprise Document Sharing (XDS.b): Transações

Actors	Transactions	Optionality	Section
Document Consumer	Registry Stored Query [ITI-18]	R	ITI TF-2a: 3.18
	Retrieve Document Set [ITI-43]	R	ITI TF-2b: 3.43
Document Source	Provide and Register Document Set-b [ITI-41]	R	ITI TF-2b: 3.41
Document Repository	Provide and Register Document Set-b [ITI-41]	R	ITI TF-2b: 3.41
	Register Document Set-b [ITI-42]	R	ITI TF-2b: 3.42
	Retrieve Document Set [ITI-43]	R	ITI TF-2b: 3.43
Document Registry	Register Document Set-b [ITI-42]	R	ITI TF-2b: 3.42
	Registry Stored Query [ITI-18]	R	ITI TF-2a: 3.18
	Patient Identity Feed [ITI-8]	O (Note 2)	ITI TF-2a: 3.8
	Patient Identity Feed HL7v3 [ITI-44]	O (Note 2)	ITI TF-2b: 3.44
	Register On-Demand Document Entry [ITI-61]	O	ITI TF-2b: 3.61
Integrated Document Source/Repository	Register Document Set-b [ITI-42]	R	ITI TF-2b: 3.42

# Cross-Enterprise Document Sharing (XDS.b): Retrieve Document Set [ITI-43]



Interaction Diagram – TF- 2b, Pg. 176

# Cross-Enterprise Document Sharing (XDS.b): Retrieve Document Set [ITI-43] Message Semantics

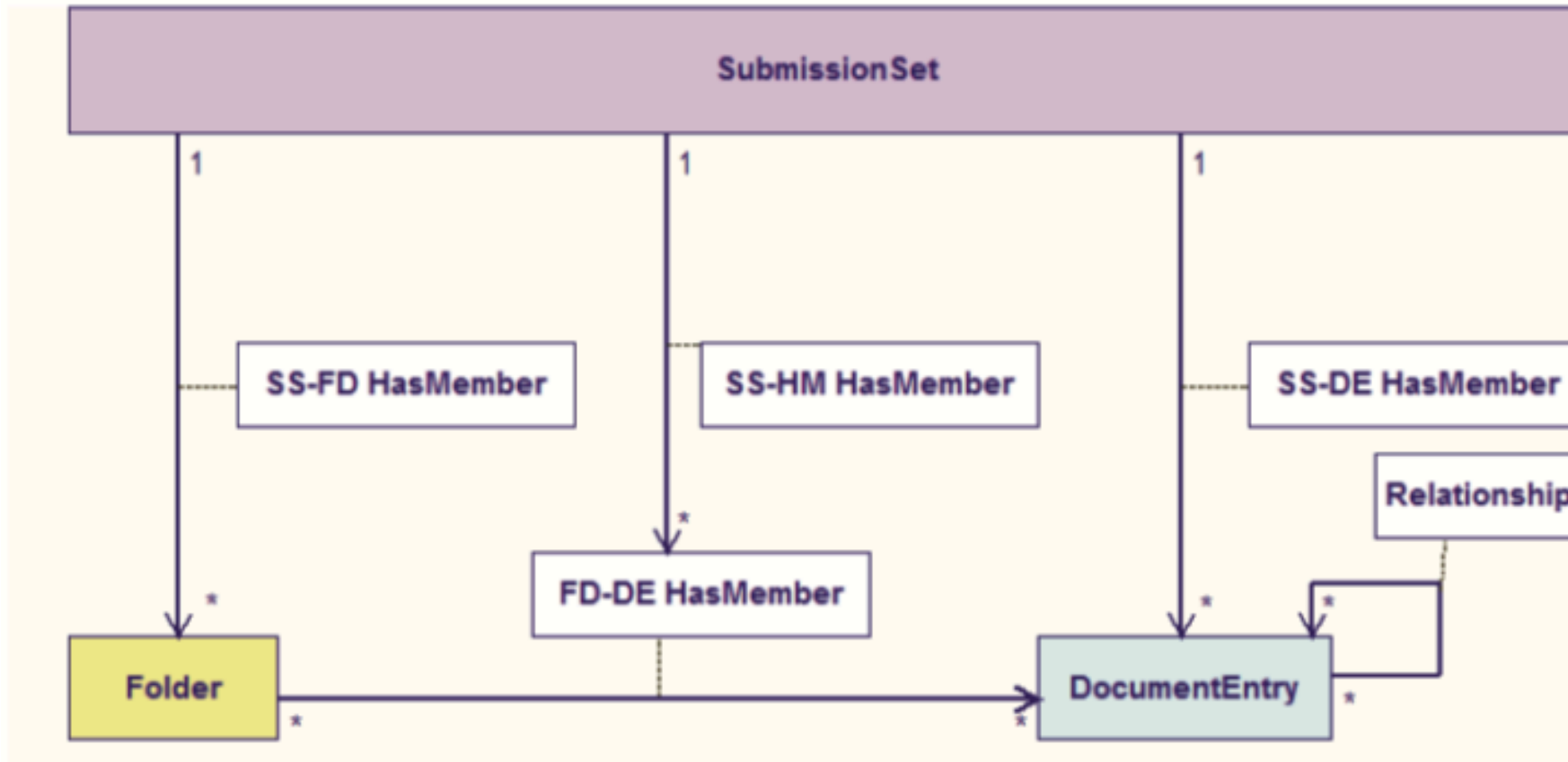
```
POST /tf6/services/xdsrepositoryb HTTP/1.1
Content-Type: multipart/related;
    boundary=MIMEBoundaryurn_uuid_3448B7F8EA6E8B9DFC1289514997517;
    type="application/xop+xml";
    start="<0.urn:uuid:3448B7F8EA6E8B9DFC1289514997518@apache.org>";
    start-info="application/soap+xml"
User-Agent: Axis2
Host: ihexds.nist.gov:5000

--MIMEBoundaryurn_uuid_3448B7F8EA6E8B9DFC1289514997517
Content-Type: application/xop+xml; charset=UTF-8;
    type="application/soap+xml"
Content-Transfer-Encoding: binary
Content-ID: <0.urn:uuid:3448B7F8EA6E8B9DFC1289514997518@apache.org>

<?xml version='1.0' encoding='UTF-8'?>
<soapenv:Envelope xmlns:soapenv="http://www.w3.org/2003/05/soap-envelope">
  <soapenv:Header xmlns:wsa="http://www.w3.org/2005/08/addressing">
    <wsa:To soapenv:mustUnderstand="1">
      >http://localhost:5000/tf6/services/xdsrepositoryb</wsa:To>
    <wsa:MessageID soapenv:mustUnderstand="1">
      >urn:uuid:3448B7F8EA6E8B9DFC1289514997508</wsa:MessageID>
    <wsa:Action soapenv:mustUnderstand="1">
      >urn:ihe:iti:2007:RetrieveDocumentSet</wsa:Action>
  </soapenv:Header>
  <soapenv:Body>
    <RetrieveDocumentSetRequest xmlns="urn:ihe:iti:xds-b:2007">
      <DocumentRequest>
        <RepositoryUniqueId>1.19.6.24.109.42.1.5</RepositoryUniqueId>
        <DocumentUniqueId>1.42.20101110141555.15</DocumentUniqueId>
      </DocumentRequest>
    </RetrieveDocumentSetRequest>
  </soapenv:Body>
</soapenv:Envelope>
--MIMEBoundaryurn_uuid_3448B7F8EA6E8B9DFC1289514997517--
```



# Cross-Enterprise Document Sharing (XDS.b): Metadata Model



# Cross-Enterprise Document Sharing (XDS.b): Metadata Attributes

DocumentEntry Metadata Attribute	Description	Patient identity	Provenance	Security & Privacy	Descriptive	Object Lifecycle	Exchange
author	The humans and/or machines that authored the document. This attribute contains the sub-attributes: authorInstitution, authorPerson, authorRole, authorSpecialty and authorTelecommunication.		X	X	X		X
availabilityStatus	The lifecycle status of the DocumentEntry			X		X	
classCode	The code specifying the high-level use classification of the document type (e.g., Report, Summary, Images, Treatment Plan, Patient Preferences, Workflow).			X	X		
comments	Comments associated with the document.				X		
confidentialityCode	The code specifying the level of confidentiality of the document.			X			
creationTime	The time the author created the document.		X	X	X	X	
entryUUID	A globally unique identifier used to manage the entry.			X	X	X	X
eventCodeList	This list of codes represents the main clinical acts, such as a colonoscopy or an appendectomy, being documented.			X	X		
formatCode	The code specifying the detailed technical format of the document.				X		X
hash	The hash of the contents of the document.			X			
healthcareFacility TypeCode	This code represents the type of organizational setting of the clinical encounter during which the documented act occurred.		X	X	X		
homeCommunityId	A globally unique identifier for a community.						X
languageCode	Specifies the human language of character data in the document.				X		
legalAuthenticator	Represents a participant within an authorInstitution who has legally authenticated or attested the document.		X	X		X	
limitedMetadata	Indicates whether the DocumentEntry was created		X		X	X	X

DocumentEntry Metadata Attributes – TF 3 – Sec4  
Pg. 12

Submission Set Metadata Attribute	Description	Patient identity	Provenance	Security & Privacy	Descriptive	Object Lifecycle	Exchange
author	The humans and/or machines that authored the SubmissionSet. This attribute contains the sub-attributes: authorInstitution, authorPerson, authorRole, authorSpecialty, authorTelecommunication.		X	X	X		
availabilityStatus	The lifecycle status of the SubmissionSet.				X	X	
comments	Comments associated with the SubmissionSet.				X		
contentTypeCode	The code specifying the type of clinical activity that resulted in placing the associated content in the SubmissionSet.		X	X	X		
entryUUID	A globally unique identifier used to manage the entry.			X	X		X
homeCommunityId	A globally unique identifier for a community.						X
intendedRecipient	The organizations or persons for whom the SubmissionSet is intended.			X			X
limitedMetadata	A flag that the associated SubmissionSet was created using the less rigorous metadata requirements as defined for the Metadata-Limited Document Source.		X		X	X	X
patientId	The patientId represents the primary subject of care of the SubmissionSet.	X		X	X		
sourceId	Identifier of the entity that contributed the SubmissionSet.		X	X	X		
submissionTime	Point in time at the creating entity when the SubmissionSet was created.			X	X	X	

SubmissionSet Metadata Attributes – TF 3 – Sec4  
Pg. 14

# Cross-Enterprise Document Sharing (XDS.b): Metadata Attributes

Folder Metadata Attribute	Description	Patient identity	Provenance	Security & Privacy	Descriptive	Object Lifecycle	Exchange
availabilityStatus	The lifecycle status of the Folder.			X	X	X	
codeList	The set of codes specifying the type of clinical activities that resulted in placing DocumentEntry objects in the Folder.		X	X	X		
comments	Comments associated with the Folder.				X		
entryUUID	A globally unique identifier used to manage the entry.			X	X		X
homeCommunityId	A globally unique identifier for a community.						X
lastUpdateTime	Most recent point in time that the Folder has been modified.			X		X	
limitedMetadata	A flag that the associated Folder was created using the less rigorous metadata requirements as defined for the Metadata-Limited Document Source.		X		X	X	X
patientId	The patientId represents the primary subject of care of the Folder.	X		X	X		
title	The title of the Folder.				X		
uniqueId	Globally unique identifier for the Folder.			X			X

Folder Metadata Attributes – TF 3 – Sec4 , Pg. 15

# Cross-Enterprise Document Sharing (XDS.b): ebRIM Representation

Document Sharing Object/Association	ebRIM class
DocumentEntry	rim:ExtrinsicObject
SubmissionSet	rim:RegistryPackage
Folder	
MemberOf	rim:Association
Relationship	

ebRIM / Document Sharing Correspondence – TF 3 – Sec4 , Pg. 17.

<http://docs.oasis-335open.org/regrep/v3.0/regrep-3.0-os.zip>.

# Cross-Enterprise Document Sharing (XDS.b): Conteúdo Suportado por Documentos XDS

IHE Technical Framework Domain	Integration Profile Name	Document Content Supported
IT Infrastructure	An example of an ITI domain content profile defining a document that may be exchanged using XDS is Cross-Enterprise Sharing of Scanned Documents (XDS-SD). Refer to ITI TF-3:5 for other ITI content specifications.	Scanned document, plain text or PDF/A, in HL7 CDA R2 format
Patient Care Coordination	An example of a PCC domain content profile defining a document that may be exchanged using XDS is Cross-Enterprise Sharing of Medical Summaries (XDS-MS). Refer to PCC TF-1 for other document content profiles.	Medical Summary in the HL7 CDA format
Radiology	Cross-Enterprise Document Sharing for Imaging (XDS-I)	Radiology Diagnostic Report in the plain text or PDF formats
		Reference to a collection of DICOM SOP Instances in a manifest document in the DICOM Key Object Selection format

# Cross-Enterprise Document Sharing (XDS.b): Atores Opcionais

Actor	Options	Vol. & Section
Document Source	Document Replacement	ITI TF-1: 10.2.1
	Document Addendum	ITI TF-1: 10.2.2
	Document Transformation	ITI TF-1: 10.2.3
	Folder Management	ITI TF-1: 10.2.4
	Basic Patient Privacy Enforcement	ITI TF-1: 10.2.9
	Asynchronous Web Services Exchange	ITI TF-1: 10.2.5
Document Repository	Asynchronous Web Services Exchange	ITI TF-1: 10.2.5
Document Registry	Patient Identity Feed (Note 1)	ITI TF-2a: 3.8
	Patient Identity Feed HL7v3 (Note 1)	ITI TF-2b: 3.44
	Asynchronous Web Services Exchange	ITI TF-1: 10.2.5
	Reference ID	ITI TF-1: 10.2.6

# Cross-Enterprise Document Sharing (XDS.b): Atores Opcionais

Actor	Options	Vol. & Section
	On-Demand Documents	ITI TF-1: 10.2.7
Integrated Document Source / Repository	Document Replacement	ITI TF-1: 10.2.1
	Document Addendum	ITI TF-1: 10.2.2
	Document Transformation	ITI TF-1: 10.2.3
	Folder Management	ITI TF-1: 10.2.4
	Basic Patient Privacy Enforcement	ITI TF-1: 10.2.9
	Asynchronous Web Services Exchange	ITI TF-1: 10.2.5
	Delayed Document Assembly	ITI TF-1: 10.2.10
Document Consumer	Basic Patient Privacy Enforcement	ITI TF-1: 10.2.9
	Basic Patient Privacy Proof	ITI TF-2a: 3.18.4.1.3.6
	Asynchronous Web Services Exchange	ITI TF-1: 10.2.5
	On-Demand Documents	ITI TF-1: 10.2.7
	Delayed Document Assembly	ITI TF-1: 10.2.10
Patient Identity Source	Patient Identity Feed (Note 1)	ITI TF-2a: 3.8
	Patient Identity Feed HL7v3 (Note 1)	ITI TF-2b: 3.44
On-Demand Document Source	Persistence of Retrieved Documents	ITI TF-1: 10.2.8
	Basic Patient Privacy Enforcement	ITI TF-1: 10.2.9
	Asynchronous Web Services Exchange	ITI TF-1: 10.2.5

# Obrigado!

- IHE Brasil: <http://www.ihe.org.br/siteWP/>
- IHE International: <https://www.ihe.net/>
- IHE Brasil GitHub: <https://github.com/ihebrasil/PROADI-SUS-HAOC>

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