

Integrating the Healthcare Enterprise

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IHE IT Infrastructure (ITI) Technical Framework Supplement

Asynchronous Web Services Exchange

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Draft for Trial Implementation

October 10, 2008

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Foreword

Integrating the Healthcare Enterprise (IHE) is an initiative designed to stimulate the integration of the information systems that support modern healthcare institutions. Its fundamental objective is to ensure that in the care of patients all required information for medical decisions is both
25 correct and available to healthcare professionals. The IHE initiative is both a process and a forum for encouraging integration efforts. It defines a technical framework for the implementation of established messaging standards to achieve specific clinical goals. It includes a rigorous testing process for the implementation of this framework. And it organizes educational sessions and exhibits at major meetings of medical professionals to demonstrate the
30 benefits of this framework and encourage its adoption by industry and users.

The approach employed in the IHE initiative is not to define new integration standards, but rather to support the use of existing standards—HL7, DICOM, IETF, and others—as appropriate in their respective domains in an integrated manner, defining configuration choices when necessary. IHE maintain formal relationships with several standards bodies including HL7, DICOM and
35 refers recommendations to them when clarifications or extensions to existing standards are necessary.

This initiative has numerous sponsors and supporting organizations in different medical specialty domains and geographical regions. In North America the primary sponsors are the Healthcare Information and Management Systems Society (HIMSS) and the Radiological Society of North
40 America (RSNA). IHE Canada has also been formed. IHE Europe (IHE-EUR) is supported by a large coalition of organizations including the European Association of Radiology (EAR) and European Congress of Radiologists (ECR), the Coordination Committee of the Radiological and Electromedical Industries (COCIR), Deutsche Röntgengesellschaft (DRG), the EuroPACS Association, Groupement pour la Modernisation du Système d'Information Hospitalier
45 (GMSIH), Société Française de Radiologie (SFR), Società Italiana di Radiologia Medica (SIRM), the European Institute for health Records (EuroRec), and the European Society of Cardiology (ESC). In Japan IHE-J is sponsored by the Ministry of Economy, Trade, and Industry (METI); the Ministry of Health, Labor, and Welfare; and MEDIS-DC; cooperating organizations include the Japan Industries Association of Radiological Systems (JIRA), the
50 Japan Association of Healthcare Information Systems Industry (JAHIS), Japan Radiological Society (JRS), Japan Society of Radiological Technology (JSRT), and the Japan Association of Medical Informatics (JAMI). Other organizations representing healthcare professionals are invited to join in the expansion of the IHE process across disciplinary and geographic boundaries.

The IHE Technical Frameworks for the various domains (IT Infrastructure, Cardiology, Laboratory, Radiology, etc.) defines specific implementations of established standards to achieve integration goals that promote appropriate sharing of medical information to support optimal patient care. It is expanded annually, after a period of public review, and maintained regularly through the identification and correction of errata. The current version for these Technical
60 Frameworks may be found at www.ihe.net/Technical_Framework.

The IHE Technical Framework identifies a subset of the functional components of the healthcare enterprise, called IHE Actors, and specifies their interactions in terms of a set of coordinated,

standards-based transactions. It describes this body of transactions in progressively greater depth. The volume I provides a high-level view of IHE functionality, showing the transactions organized into functional units called Integration Profiles that highlight their capacity to address specific clinical needs. The subsequent volumes provide detailed technical descriptions of each IHE transaction.

This IHE IT Infrastructure Technical Framework Supplement is issued for Trial Implementation through May 2009.

70 **Comments and change proposals arising from Trial Implementation may be submitted to <http://forums.rsna.org> under the forum:**
“Integrating the Healthcare Enterprise”
Select the sub-forum:
“IHE IT Infrastructure 2008-2009 Supplements for Trial Implementation”

75 The IHE IT Infrastructure Technical Committee will address these comments resulting from implementation, Connectathon testing, and demonstrations. Final text is expected to be published in June 2009, dependent upon results of IHE validation process.

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1 Introduction

This supplement provides support for Asynchronous Web Services Exchange for Cross-Enterprise Document Sharing (XDS.b) Integration Profile Actors. The update accomplishes the following:

- 105 • **XDS**
 - Updates the XDS.b Integration Profile to provide the XDS.b Actors with an option to use Asynchronous Web Services Exchange
 - Provides WSDL fragments for XDS.b Document Repository and Registry Actors describing the Asynchronous Web Services Exchange option
 - 110 • Provides new WSDL files for XDS.b Document Source and Document Consumer Actors to support the Asynchronous Web Services Exchange option
- **Web Services Appendix V**
 - Updates the Web Services Appendix to provide an overview, guidance and samples around use of Asynchronous Web Services Exchange

1.1 Background

The IHE XDS.b Integration Profile introduced support for Web Services using synchronous Web Services Exchange. This supplement offers additional support for using Asynchronous Web Services Exchange.

Asynchronous Web Services Exchange enables support for network infrastructures where:

- 120 • Transports are unreliable
- Systems are not always available
- Variable or high communication latency is present

Asynchronous Web Services Exchange opens the option for using intermediaries for store and forward or offline communication modes, and leveraging reliable messaging mechanisms to address the reliability and availability challenges that these types of network infrastructures present.

1.2 Scope of Supplement

The new support for Asynchronous Web Services Exchange affects primarily the technical implementation of the integration profiles referenced above. The XDS.b Integration Profile Actors will be required to implement Synchronous Web Services Exchange and will have an option to implement Asynchronous Web Services Exchange.

1.3 Security Considerations

The security and privacy assessment has identified some reliability concerns associated with the return path of the Response. These have been outlined as can be seen in V.5.2. Beyond these

135 issues the Asynchronous Web Services Exchange will continue to leverage the security and privacy mitigations in place such as ATNA secure communications and audit messaging.

1.4 Open Issues and Questions

1. A012: Should we define use of ws-addressing ReplyTo and MessageID attributes in asynchronous replies.

140 1.5 Closed Issues

1. A001: How will asynchronous support be integrated into XDS.b, as a named option or required?

Proposed Resolution:

- 145
 - Named option for XDS.b: Volume I will give it a name and will list it and describe it.
 - Required for XCA Responding Gateway, optional for XCA Initiating Gateway.
 - XDS.b Actors shall support Sync and optionally Async
2. A002: Should this be documented in the web services appendix and referenced from transactions which can use it?

150 **Proposed Resolution:** The Web Services Appendix will be referenced from XDS.b transactions that will support this and will include language on the following:

- 155
 - Explain Async and Sync concepts
 - Explain potential issues when moving from Sync to Async
 - The fact that Async is not available for a transaction unless documented specifically within that transaction and associated Actors
3. A003: Should this apply to PIX, PDQ, QED, RFD, XDR?

Proposed Resolution:

- 160
 - XCA (XCA Responding Gateway shall implement Sync and Async, XCA Initiating will be optional)
 - XDR: Hold for now.
 - No for: RFD (no change needed to documentation)
 - Should notify owners: QED
 - Requires further analysis and out of scope for this year: PIX and PDQ
- 165 4. A004: Should this add new transactions for the async mode or follow the XDS.a practice of having two modes in one transaction?

Proposed Resolution: Use existing transactions

5. **A005:** If using new transactions for async mode, what is the naming convention? Currently using XAsync prefix added to existing (XDS.b) transactions as a temporary solution.

170 **Proposed Resolution:** Use Sync

6. **A007:** Is there a place for Reliable Messaging, in XDS.b? Do we need to restrict its use?

Proposed Resolution: IHE will not profile reliable messaging this year.

7. **A008:** Should combine updates to XDS, XCA, and ITI TF-2:Appendix V for async mode in one single supplement

175

Proposed Resolution: Combine in one single supplement.

8. **A010:** Risk assessment needed. Should WS-I Basic Security be referenced? What other security/privacy concerns need to be considered

Proposed Resolution:

180

- Risk assessment needed
- Issue deferred to ATNA CP Reference WSI CP-ITI-335

9. **A009:** Should an Actor have an option to implement Asynchronous Web Services Exchange for subset of it's transactions?

Proposed Resolution:

185

- Volume II transaction specifications will identify whether asynchronous support is required or optional on the transaction level.

10. **A010:** Should we provide more guidance to users about behavior expectations of actors under asynchronous web services exchange?

Proposed Resolution:

190

- Updated ITI TF-2:Appendix V to provide more guidance. Additional guidance would be added to implementation guide as needed..

11. **A011:** In Web Services ITI TF-2:Appendix V, should update attribute naming nomenclature based on transaction number instead of transaction name. Add examples of how the nomenclature can be used using the new/updated nomenclature.

195

Proposed Resolution:

- This was dependant on CP363 that was rejected.

Volume 1 – Integration Profiles

<This section describes the changes required in Volume I of the Technical Framework that result from including asynchronous web services exchange>

200 Note to the editor: Changes to the XDS.b transactions are based on ‘Cross-Enterprise Document Sharing-b (XDS.b) Supplement, Draft For Trial Implementation August 15, 2007 version and CP 288.

10 Cross-Enterprise Document Sharing

In Section ‘10 Cross-Enterprise Document Sharing’, update the following section:

- 205 The integration profile XDS.b is based on a use of the **Synchronous and Asynchronous** Web Services **Exchange** and ebXML Reg/Reg standards that is consistent with the current developments and best practices in the industry. **ITI TF-2:Appendix V** section 5 provides an overview of Web Services **Exchange**. The changes in XDS.b can be summarized as:
- Change in the XDS metadata format from ebXML Reg/Rep RIM 2.1 to version 3.0
 - 210 • A new repositoryUniqueId attribute added to the XDS metadata
 - Definition of a new transaction “Retrieve Document Set” as a new binding for the XDS.a Retrieve Document [ITI-17] transaction
 - Definition of updated bindings for existing transactions to reflect changes in the web services specifications
 - 215 • In the rest of the ITI Technical Framework the term XDS refers generically to both XDS.a and XDS.b.

End of Section update.

10.2 Integration Profile Options

In section 10.2, update Table 10.2-1b XDS.b - Actors and Options as follows:

220 **Table 10.2-1b XDS.b - Actors and Options**

Actor	Options	Vol & Section
Document Source	Multiple Document Submission	ITI TF-1:10.2.1
	Document Life Cycle Management	ITI TF-1:10.2.2
	Folder Management	ITI TF-1:10.2.3
	<u>Asynchronous Web Services Exchange</u>	<u>ITI TF-1:10.2.4</u>
Document Repository	No options defined <u>Asynchronous Web Services Exchange</u>	<u>ITI TF-1:10.2.4</u>
Document Registry	Patient Identity Feed (Note 1)	ITI TF-2:3.8
	Patient Identity Feed HL7v3 (Note 1)	ITI TF-2:3.44
	<u>Asynchronous Web Services Exchange</u>	<u>ITI TF-1:10.2.4</u>

Actor	Options	Vol & Section
Integrated Document Source / Repository	Multiple Document Submission	ITI TF-1:10.2.1
	Document Life Cycle Management	ITI TF-1:10.2.2
	Folder Management	ITI TF-1:10.2.3
	<u>Asynchronous Web Services Exchange</u>	<u>ITI TF-1:10.2.4</u>
Document Consumer	<u>Asynchronous Web Services Exchange</u>	<u>ITI TF-1:10.2.4</u>
Patient Identity Source	Patient Identity Feed (Note 1)	ITI TF-2:3.8
	Patient Identity Feed HL7v3 (Note 1)	ITI TF-2:3.44

Note 1: Document Registry and Patient Identify Source shall implement at least one of Patient Identity Feed or Patient Identity Feed HL7v3.

End of Section update.

225 At the end of Section 10.2 add the following section:

10.2.4 Asynchronous Web Services Exchange Option

Actors that support this option shall support the following:

- Document Source Actor shall support Asynchronous Web Services Exchange for the Provide & Register Document Set – b [ITI-41] transaction
- 230 • Document Consumer Actor shall support Asynchronous Web Services Exchange for the Registry Stored Query [ITI-18] and Retrieve Document Set [ITI-43] transactions
- Document Repository Actor shall support Asynchronous Web Services Exchange for the Provide & Register Document Set – b [ITI-41] and Register Document Set – b [ITI-42], and Retrieve Document Set [ITI-43] transactions
- 235 • Document Registry Actor shall support Asynchronous Web Services Exchange for the Registry Stored Query [ITI-18] and Register Document Set – b [ITI-42] transactions

240 Use of Synchronous or Asynchronous Web Services Exchange is dictated by the individual install environment and affinity domain policy. Refer to section ITI TF-2:V.5 Synchronous and Asynchronous Web Services Exchange for an explanation of Asynchronous Web Services Exchange.

End of Section addition

Update section 10.4.12 as follows:

10.4.12 Transport Modes

245 The XDS Integration Profile defines an on-line mode of transport for both XDS.a and XDS.b transactions. In addition to that, XDS also defines an off-line mode option for the XDS.a Provide

and Register Document Set transaction for both for the Document Source and the Document Repository **and an Asynchronous Web Services Exchange Option for all XDS.b actors**. In the “on-line mode” the transaction between two actors (computer applications) requires their simultaneous presence (e.g. an HTTP GET). In the “off-line“ **or “asynchronous”** mode” the transaction between the two actors (computer applications) does not require their simultaneous presence (e.g. a store and forward e-mail exchange).

1. ~~A Web Services or HTTP-based protocol shall be used for on-line operation.~~
2. ~~The SMTP protocol shall be used for off line operation.~~

255 End of Section update.

Update section 10.7.1 as follows:

10.7.1 Example of Migration from XDS.a to XDS.b Interfaces

260 An XDS.a environment (Document Sources and Consumers, Document Registries and Repositories all support XDS.a transactions) wants to support new Document Sources and Consumers that only support XDS.b transactions. In this case a possible coexistence strategy would encompass the following steps:

- 265 • **Upgrade the Document Repositories** to support the XDS.b transactions and maintain support for the XDS.a transactions. The Document Repository will have an assigned repositoryUniqueId. Since the Document Repository still supports XDS.a transactions, it shall populate the document URI attribute in accordance with the rules for XDS.a in the Register Document Set transaction. This allows existing XDS.a Document Consumers to continue retrieve documents using the Retrieve Document transaction.
- 270 • **Upgrade the Document Registry** to support the XDS.b transactions and maintain support for the XDS.a transactions. The upgrade process will have to go though the existing registered documents and add the repositoryUniqueId metadata attribute based on the document URI value and a configuration table that would allow it to positively resolve the Document Repository associated with that URI. This environment now supports XDS.b Document Consumers in addition to XDS.b Document Sources.

275 The resulting environment has a Document Registry and Document Repositories that support both XDS.a and XDS.b transactions. This allows for coexistence of both XDS.a and XDS.b Document Sources and Consumers. Eventually the remaining XDS.a actors could be phased out and support for XDS.a transactions dropped from the Document Registry and Repositories.

280 ~~XDS.b does not support XDS.a “off-line” mode; therefore if that kind of support is needed for XDS.a Document Sources, the Document Repository shall continue to support that part of XDS.a as well.~~

End of Section update.

Appendix V: Web Services for IHE Transactions

285 Note to the editor: Changes to ITI TF-2:Appendix V are based on Web Services for IHE Transactions Supplement, Draft For Trial Implementation August 15, 2007 version.

V.3.1.1: HL7 WS Basic Profile Constraints

V.3.2: Requirements for Transactions which don't use HL7 V3 Messages

290 In V3.2, update the requirements table by adding a title in bold text '**3.2.a Requirements**' as shown below:

3.2.a Requirements

Requirement Identifier	Requirement text	SOAP message format affected?
IHE-WSP200	Example WSDL documents shall implement a specific IHE Actor within a specific IHE Integration Profile.	No

End of add title to requirements table

295 In Table '**3.2.a Requirements**', insert the following new row immediately after row IHE-WSP2008

IHE-WSP209	Asynchronous WSDL operations SHALL use wsdl:operation/wsdl:input/@wsaw:Action = "urn:ihe:{Domain}:{Year}:{Transaction_Name}[OperationID]Async" and wsdl:operation/wsdl:output/@wsaw:Action = "urn:ihe:{Domain}:{Year}:{Transaction_Name}[OperationID]AsyncResponse "	<u>Determines the SOAP header content for wsaw:Action</u>
-------------------	---	--

End of row insertion.

300 **V.3.2.1.1. Naming conventions and namespaces**

In V3.2.1.1 section IHE-WSP201) update the table as follows:

WSDL Artifact	Proposed Naming
message <u>request</u>	{Transaction_Name}_Message
<u>message response</u>	{Transaction Name}Response Message
portType	{NAME}_PortType
Operation (<u>for synchronous request-response</u>)	{NAME}_{Transaction_Name}[_OperationID]
<u>Operation (for asynchronous request)</u>	{NAME} {Transaction Name}[_ OperationID]Async
<u>Operation (for asynchronous response)</u>	{NAME} {Transaction Name}[_ OperationID]AsyncResponse
SOAP 1.1 binding	{NAME}_Binding_Soap11
SOAP 1.1 port	{NAME}_Port_Soap11
SOAP 1.2 binding	{NAME}_Binding_Soap12
SOAP 1.2 port	{NAME}_Port_Soap12

End of Section update.

V.3.2.1.2: Message and portType Definitions

305 In V3.2.1.2, update section IHE-WSP208) as follows:

Note to Editor:

IHE-WSP208) is to remain in bold.

IHE-WSP208) Synchronous WSDL operations SHALL use

End of Section update.

310 In V3.2.1.2, at the end of section IHE-WSP208) insert the following section:

IHE-WSP209) Asynchronous WSDL operations SHALL use

wsdl:operation/wsdl:input/@wsaw:Action="urn:ihe:{Domain}:{Year}:{Transaction_Name}[_ OperationID]Async" and

315 **wsdl:operation/wsdl:output/@wsaw:Action="urn:ihe:{Domain}:{Year}:{Transaction_Name}[_ OperationID]AsyncResponse"**

For example, the wsaw:Action value for the Registry Stored Query (ITI-18) transaction is specified as "urn:ihe:iti:2007:RegistryStoredQueryAsync" and "urn:ihe:iti:2007:RegistryStoredQueryAsyncResponse".

320 The optional [Operation] component is used when the same message in the same transaction is used in different operations, and requires a different response. An example of that are the two operations that can be achieved using the HL7 V3 Query Continuation message: query continuation, and query cancel (which are handled via the HL7 WS Profile rules).

End of Section insertion.

V.3.2.1.3: Binding

325 Example 2: Request Message

In Section V.3.2.1.3, insert the following between Example 2 title above and the sample xml message:

Example 2.a: Request Message using Synchronous Web Services Exchange

End of Section insertion.

330

Insert the following section at the end of Example 2.a sample xml message

Example 2.b: Request Message using Asynchronous Web Services Exchange

Note to the editor: please keep the following format for the sample text – no hyperlinks, color black, courier new, 8pt, no spacing before and after the paragraph, tab stops every 1/8 of an inch for the first inch.

335

```
<soap12:Envelope xmlns:soap12="http://www.w3.org/2003/05/soap-envelope"
xmlns:wsa="http://www.w3.org/2005/08/addressing">
  <soap12:Header>
    <wsa:Action
soap12:mustUnderstand="1">urn:ihe:iti:2007:ProvideAndRegisterDocumentSet-bAsync</wsa:Action>
    <wsa:MessageID>urn:uuid:1600bcla-10fd-4c3a-b41b-7a15f4f46fb9</wsa:MessageID>
    <wsa:ReplyTo>
    <wsa:Address>http://localhost:2647/XdsService/DocumentSourceReceiver.svc</wsa:Address>
    </wsa:ReplyTo>
    <wsa:To soap12:mustUnderstand="1">
http://localhost:2647/XdsService/DocumentRepositoryReceiver.svc
    </wsa:To>
  </soap12:Header>
  <soap12:Body>
    <ProvideAndRegisterDocumentSetRequest xmlns="urn:ihe:iti:xds-b:2007"/>
  </soap12:Body>
</soap12:Envelope>
```

340

345

350

End of Section insertion.

355

Example 3: Response Message

Insert the following between Example 3 title above and the sample xml message:

Example 3.a: Response Message using Synchronous Web Services Exchange

End of Section insertion.

360

Insert the following new section at the end of Example 3.a sample xml message

Note to the editor: please keep the following format for the sample text – no hyperlinks, color black, courier new, 8pt, no spacing before and after the paragraph, tab stops every 1/8 of an inch for the first inch.

365

Example 3.b: Response Message using Asynchronous Web Services Exchange

```

370 <soap12:Envelope xmlns:soap12="http://www.w3.org/2003/05/soap-envelope"
      xmlns:wsa="http://www.w3.org/2005/08/addressing">
      <soap:Header>
        <wsa:Action
soap12:mustUnderstand="1">urn:ihe:iti:2007:ProvideAndRegisterDocumentSet-
bAsyncResponse</wsa:Action>
375         <wsa:MessageID>urn:uuid:D6C21225-8E7B-454E-9750-821622C099DB</wsa:MessageID>
         <wsa:RelatesTo>urn:uuid:1600bc1a-10fd-4c3a-b41b-7a15f4f46fb9</wsa:RelatesTo>
           <a:To
s:mustUnderstand="1">http://localhost:2647/XdsService/DocumentSourceReceiver.svc</a:To>
         </soap12:Header>
380       <soap12:Body>
         <rs:RegistryResponse xmlns:rs="urn:oasis:names:tc:ebxml-regrep:xsd:rs:3.0"/>
       </soap12:Body>
     </soap12:Envelope>

```

End of Section insertion.

385 V.4: Web Services for specific IHE Transactions

Insert the following sections at the end of section ‘V.4: Web Services for specific IHE Transactions’:

V.5: Synchronous and Asynchronous Web Services Exchange

V.5.1: Overview

390 When two actors, later referred to as Requestor and Provider, need to exchange web services messages using a request-response message exchange pattern, they can do so synchronously or asynchronously.

With synchronous message exchange, the Requestor sends a request and blocks waiting for a response from the Provider. The Requestor receives the response on the same connection that the Requestor initially established to send the request. Synchronous exchange is usually easier to
395 implement and requires that the Provider be available when the Requestor needs to send a request.

With asynchronous message exchange, the Requestor is only concerned with sending the request, knowing that it will ‘eventually’ receive a response. The Provider may not be available at the
400 time the request is sent. When the Provider receives and processes the message it sends a response back to the Requestor over a new connection. Asynchronous Web Services Exchange enables support for network infrastructures where:

- Transports are unreliable
- Systems are not always available

- 405 • Variable or high communication latency is present

Asynchronous Web Services Exchange opens the option for using intermediaries for store and forward or offline communication modes, and leveraging reliable messaging mechanisms to address the reliability and availability challenges that these types of network infrastructures present. Asynchronous Web Services Exchange enables support for clinical use cases that can benefit from asynchronous infrastructure capabilities such as offline mode.

410

V.5.2: Considerations for using Asynchronous Web Services Exchange

Adding support for asynchronous exchange should take into consideration the fact that:

- The request and response messages are decoupled and transmitted on separate connections as shown in Figure V.5.2-1 below.
- 415 • The Requestor will ‘unblock’ before it receives the response. The response will be received asynchronously at a later time. Having decoupled request/response exchange should draw attention to the following:
 - The Requestor should have response timeout capability to handle the case when a response has not been received within expected time interval
 - 420 • The Requestor should be able to match request/response pairs

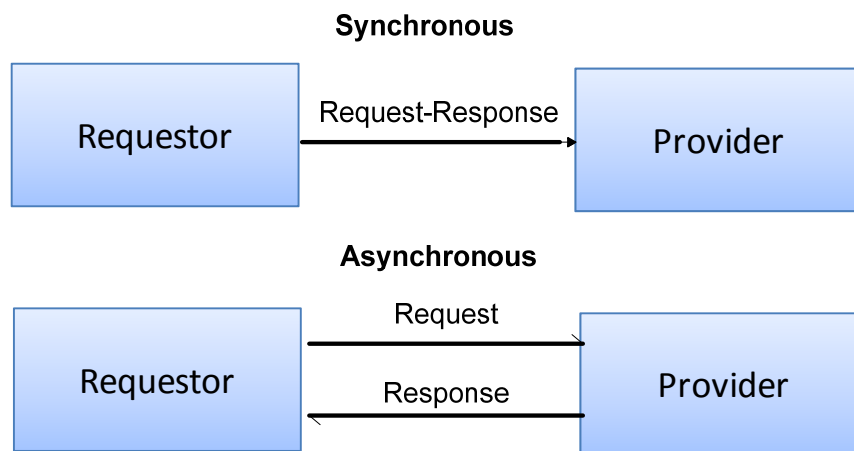


Figure V.5.2-1

V.5.3: Specification of the use of Asynchronous Web Services Exchange

425 Volume II transaction specifications will identify whether asynchronous support is required or optional on the transaction level. If nothing is specified in Volume II only synchronous exchange is expected. When optional asynchronous support is applicable to a transaction, the Volume I profile specification will identify that support as required for actors in that profile or as a named option.

430

End of Section insertion.

In Section 'V.5: Web Services Standards Evolution', update the section title as follows:

V.56: Web Services Standards Evolution

End of Section update.

435

Volume 2 – Transactions

<This section describes the changes required in Volume II of the Technical Framework that result from including asynchronous web services exchange>

Cross-Enterprise Document Sharing

440 Note to the editor: Changes to the XDS.b transactions are based on ‘Cross-Enterprise Document Sharing-b (XDS.b) Supplement, Draft For Trial Implementation August 15, 2007 version and CP 288

3.18 Registry Stored Query

Insert the following section at the end of 3.18 and before 3.18.1

445 Actors that support the Asynchronous Web Services Exchange option and implement the Registry Stored Query transaction shall support the following:

- Document Consumer Actor shall support Asynchronous Web Services Exchange for the Registry Stored Query [ITI-18] and Retrieve Document Set [ITI-43] transactions
- Document Registry Actor shall support Asynchronous Web Services Exchange for the Registry Stored Query [ITI-18] and Register Document Set – b [ITI-42] transactions

450

Refer to section ITI TF-2:V.5 Synchronous and Asynchronous Web Services Exchange for an explanation of Asynchronous Web Services Exchange.

End of Section insertion.

455 3.18.4.1.2.7 Web Services Transport

Update the following section in 3.18.4.1.2.7 as shown below:

The query request and response will be transmitted using Web Services, according to the requirements specified in **ITI TF-2:Appendix V**. The specific values for the Document Consumer and Document Repository WSDLs describing the Stored Query Service are described in this section.

460

IHE-WSP201) The attribute /wsdl:definitions/@name shall be “DocumentRegistry”.

The following WSDL naming conventions shall apply:

465

```
wsdl:definitions/@name="DocumentRegistry":
query message      -> "RegistryStoredQuery_Message"
query response     -> "RegistryStoredQueryResponse_Message"
portType           -> "DocumentRegistry_PortType"
operation(sync)    -> "DocumentRegistry_RegistryStoredQuery"
operation(async)   -> "DocumentRegistry_RegistryStoredQueryAsync"
SOAP 1.2 binding   -> "DocumentRegistry_Binding_Soap12"
SOAP 1.2 port      -> "DocumentRegistry_Port_Soap12"
SOAP 1.1 binding   -> "DocumentRegistry_Binding_Soap11"
SOAP 1.1 port      -> "DocumentRegistry_Port_Soap11"
```

470

IHE-WSP202) The targetNamespace of the WSDL shall be “urn:ihe:iti:xds-b:2007”

End of update

475

Insert the following at the end of the section above

Document Consumer: These are the requirements for the Registry Stored Query transaction presented in the order in which they would appear in the Document Consumer WSDL definition:

- The following types shall be imported (xsd:import) in the /definitions/types section:
 - namespace=" urn:oasis:names:tc:ebxml-regrep:xsd:query:3.0",
schema="query.xsd"
- The /definitions/message/part/@element attribute of the Registry Stored Query Request message shall be defined as “query:AdhocQueryRequest”
- The /definitions/message/part/@element attribute of the Registry Stored Query Response message shall be defined as “query:AdhocQueryResponse”
- Refer to table 3.18.4.1.2.7.a below for additional attribute requirements

3.18.4.1.2.7.a Additional Attribute Requirements

Attribute	Synchronous Web Services Exchange	Asynchronous Web Services Exchange
/definitions/portType/operation@name	Not applicable	urn:ihe:iti:2007:DocumentConsumer_RegistryStoredQueryAsyncResponse
/definitions/portType/operation/input/@wsaw:Action	Not applicable	urn:ihe:iti:2007:RegistryStoredQueryAsyncResponse
/definitions/binding/operation/soap12:operation/@soapAction	Not applicable	urn:ihe:iti:2007:RegistryStoredQueryAsyncResponse

490 For informative WSDL for the Document Consumer actor see Appendix W.

End of Section insertion.

Update the following section in 3.18.4.1.2.7 as shown below:

495 **Document Registry:** These are the requirements for the Registry Stored Query transaction presented in the order in which they would appear in the **Document Registry** WSDL definition:

- The following types shall be imported (xsd:import) in the /definitions/types section:
 - namespace=" urn:oasis:names:tc:ebxml-regrep:xsd:query:3.0",
schema="query.xsd"
- The /definitions/message/part/@element attribute of the Registry Stored Query Request message shall be defined as “query:AdhocQueryRequest”
- The /definitions/message/part/@element attribute of the Registry Stored Query Response message shall be defined as “query:AdhocQueryResponse”

500

- 505 ~~• The /definitions/portType/operation/input/@wsaw:Action attribute for the Registry Stored Query Request message shall be defined as “urn:ihe:iti:2007:RegistryStoredQuery”~~
- ~~• The /definitions/portType/operation/output/@wsaw:Action attribute for the Registry Stored Query Response message shall be defined as “urn:ihe:iti:2007:RegistryStoredQueryResponse”~~
- 510 ~~• The /definitions/binding/operation/soap12:operation/@soapAction attribute shall be defined as “urn:ihe:iti:2007:RegistryStoredQuery”~~
- **Refer to table 3.18.4.1.2.7.b below for additional attribute requirements**

End of Section update

Insert the following table in Section 3.18.4.1.2.7 after the last bullet point above:

515

3.18.4.1.2.7.b Additional Attribute Requirements

Attribute	Synchronous Web Services Exchange	Asynchronous Web Services Exchange
/definitions/portType/operation@name	urn:ihe:iti:2007:DocumentRegistry_RegistryStoredQuery	urn:ihe:iti:2007:DocumentRegistry_RegistryStoredQueryAsync
/definitions/portType/operation/input/@wsaw:Action	urn:ihe:iti:2007: RegistryStoredQuery	urn:ihe:iti:2007:RegistryStoredQueryAsync
/definitions/portType/operation/output/@wsaw:Action	urn:ihe:iti:2007: RegistryStoredQuery Response	Not applicable
/definitions/binding/operation/soap12:operation/@soapAction	Urn:ihe:iti:2007: RegistryStoredQuery	urn:ihe:iti:2007:RegistryStoredQueryAsync

End of table insertion.

520 **3.18.4.1.2.7.1.1 Sample Registry Stored Query SOAP Request**

Insert the following sub-section title after 3.18.4.1.2.7.1.1

3.18.4.1.2.7.1.1.1 Synchronous Web Services Exchange

End of sub-section title insertion

525 Insert the following 3.18.4.1.2.7.1.1.2 section at the end of 3.18.4.1.2.7.1.1

3.18.4.1.2.7.1.1.2 Asynchronous Web Services Exchange

Note to the editor: please keep the following format for the sample text – courier new, 8pt, no spacing before and after the paragraph, tab stops every 1/8 of an inch for the first inch.

```

530 <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
535 s:mustUnderstand="1">urn:ihe:iti:2007:RegistryStoredQueryAsync</a:Action>
        <a:MessageID>urn:uuid:a02ca8cd-86fa-4afc-a27c-616c183b2055</a:MessageID>
        <a:ReplyTo>
          <a:Address> http://192.168.2.4:9080/XDS/DocumentConsumerReceiver.svc
540 </a:Address>
        </a:ReplyTo>
        <a:To
s:mustUnderstand="1">http://localhost:2647/XdsService/DocumentRegistryReceiver.svc</a:To>
        </s:Header>
        <s:Body>
545 <query:AdhocQueryRequest
          xmlns:query="urn:oasis:names:tc:ebxml-regrep:xsd:query:3.0"
          xmlns:rim="urn:oasis:names:tc:ebxml-regrep:xsd:rim:3.0"
          xmlns:rs="urn:oasis:names:tc:ebxml-regrep:xsd:rs:3.0">
550 <query:ResponseOption returnComposedObjects="true" returnType="LeafClass"/>
          <rim:AdhocQuery id=" urn:uuid:14d4debf-8f97-4251-9a74-a90016b0af0d ">
            <rim:Slot name="$XSDSDocumentEntryPatientId">
              <rim:ValueList>
555 <rim:Value>st3498702^^^&amp;1.3.6.1.4.1.21367.2005.3.7&amp;ISO</rim:Value>
              </rim:ValueList>
            </rim:Slot>
            <rim:Slot name="$XSDSDocumentEntryStatus">
              <rim:ValueList>
560 <rim:Value>('urn:oasis:names:tc:ebxml-
              regrep:ResponseStatusType:Approved')</rim:Value>
              </rim:ValueList>
            </rim:Slot>
            <rim:Slot name="$XSDSDocumentEntryCreationTimeFrom">
              <rim:ValueList>
565 <rim:Value>200412252300</rim:Value>
              </rim:ValueList>
            </rim:Slot>
            <rim:Slot name="$XSDSDocumentEntryCreationTimeTo">
              <rim:ValueList>
570 <rim:Value>200501010800</rim:Value>
              </rim:ValueList>
            </rim:Slot>
            <rim:Slot name="$XSDSDocumentEntryHealthcareFacilityTypeCode">
              <rim:ValueList>
575 <rim:Value>('Emergency Department')</rim:Value>
              </rim:ValueList>
            </rim:Slot>
          </rim:AdhocQuery>
        </query:AdhocQueryRequest>
580 </s:Body>
      </s:Envelope>

```

End of Section 3.18.4.1.2.7.1.1.2 insertion

585 Insert the following sub-section title after 3.18.4.1.2.7.1.2

3.18.4.1.2.7.1.2.1 Synchronous Web Services Exchange

End of sub-section 3.18.4.1.2.7.1.2 insertion

Insert the following 3.18.4.1.2.7.1.2.2 section at the end of 3.18.4.1.2.7.1.2.1

590 3.18.4.1.2.7.1.2.2 Asynchronous Web Services Exchange

Note to the editor: please keep the following format for the sample text – courier new, 8pt, no spacing before and after the paragraph, tab stops every 1/8 of an inch for the first inch.

```
595 <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:RegistryStoredQueryAsyncResponse</a:Action>
          <a:MessageID>urn:uuid:D6C21225-8E7B-454E-9750-821622C099DB</a:MessageID>
          <a:RelatesTo>urn:uuid:a02ca8cd-86fa-4afc-a27c-616c183b2055</a:RelatesTo>
600         <a:To
          s:mustUnderstand="1">http://localhost:2647/XdsService/DocumentConsumerReceiver.svc</a:To>
        </s:Header>
        <s:Body>
605         <query:AdhocQueryResponse status="Success"
          xmlns:query="urn:oasis:names:tc:ebxml-regrep:xsd:query:3.0"
          xmlns:rjm="urn:oasis:names:tc:ebxml-regrep:xsd:rjm:3.0">
          <!--Rest of AdhocQueryResponse message goes here -->
610         </query:AdhocQueryResponse>
        </s:Body>
      </s:Envelope>
```

End of Insertion

615 **3.41 Provide and Register Document Set-b**

Insert the following Section at the end of 3.41 and before 3.41.1

620 Actors that support the Asynchronous Web Services Exchange option and implement the Provide and Register Document Set-b [ITI-41] transaction shall support Asynchronous Web Services Exchange on all XDS.b transactions they implement. Refer to section ITI TF-2:V.5 Synchronous and Asynchronous Web Services Exchange for an explanation of Asynchronous Web Services Exchange.

End of Section insertion.

3.41.5 Protocol Requirements

625 In Section 3.41.5, insert the following Section at the end of the WSDL Namespace Definitions table

Document Source: These are the requirements for the Provide and Register Document Set-b transaction presented in the order in which they would appear in the Document Source WSDL definition:

- 630
- The following types shall be imported (xsd:import) in the /definitions/types section:
 - namespace="urn:oasis:names:tc:ebxml-regrep:xsd:rs:3.0", schema="rs.xsd"
 - namespace="urn:ihe:iti:xds-b:2007", schemaLocation="IHEXDS.xsd"
 - The /definitions/message/part/@element attribute of the Provide and Register Document Set-b Request message shall be defined as

635 "ihe:ProvideAndRegisterDocumentSetRequest"

 - The /definitions/message/part/@element attribute of the Provide and Register Document Set-b Response message shall be defined as "rs:RegistryResponse"
 - Refer to table 3.41.5.b below for additional attribute requirements

640

3.41.5.b Additional Attribute Requirements

Attribute	Synchronous Web Services Exchange	Asynchronous Web Services Exchange
/definitions/portType/operation@name	Not applicable	urn:ihe:iti:2007:DocumentSource_ProvideAndRegisterDocumentSet-bAsyncResponse
/definitions/portType/operation/input/@wsaw:Action	Not applicable	urn:ihe:iti:2007:ProvideAndRegisterDocumentSet-bAsyncResponse
/definitions/binding/operation/soap12:operation/@soapAction	Not applicable	urn:ihe:iti:2007:ProvideAndRegisterDocumentSet-bAsyncResponse

For informative WSDL for the Document Consumer actor see Appendix W.

End of Section insertion.

Update the following Section in 3.41.5 as shown below:

645 **Document Repository:** These are the requirements for the Provide and Register Document Set-b transaction presented in the order in which they would appear in the **Document Repository** WSDL definition:

- The following types shall be imported (xsd:import) in the /definitions/types section:
 - namespace="urn:oasis:names:tc:ebxml-regrep:xsd:rs:3.0", schema="rs.xsd"
 - namespace="urn:ihe:iti:xds-b:2007", schemaLocation="IHEXDS.xsd"
- The /definitions/message/part/@element attribute of the Provide and Register Document Set-b Request message shall be defined as “ihe:ProvideAndRegisterDocumentSetRequest”
- The /definitions/message/part/@element attribute of the Provide and Register Document Set-b Response message shall be defined as “rs:RegistryResponse”
- ~~The /definitions/portType/operation/input/@wsaw:Action attribute for the Provide and Register Document Set b Request message shall be defined as “urn:ihe:iti:2007:ProvideAndRegisterDocumentSet-b”~~
- ~~The /definitions/portType/operation/output/@wsaw:Action attribute for the Provide and Register Document Set b Response message shall be defined as “urn:ihe:iti:2007:ProvideAndRegisterDocumentSet-bResponse”~~
- ~~The /definitions/binding/operation/soap12:operation/@soapAction attribute shall be defined as “urn:ihe:iti:2007:ProvideAndRegisterDocumentSet-b”~~
- **Refer to table 3.41.5.c below for additional attribute requirements**

665 End of Section update

Insert the following table in Section 3.41.5 after the last bullet point above:

3.41.5.c Additional Attribute Requirements

Attribute	Synchronous Web Services Exchange	Asynchronous Web Services Exchange
/definitions/portType/operation/@name	urn:ihe:iti:2007:DocumentRepository_ProvideAndRegisterDocumentSet-b	urn:ihe:iti:2007:DocumentRepository_ProvideAndRegisterDocumentSet-bAsync
/definitions/portType/operation/input/@wsaw:Action	urn:ihe:iti:2007:ProvideAndRegisterDocumentSet-b	urn:ihe:iti:2007:ProvideAndRegisterDocumentSet-bAsync
/definitions/portType/operation/output/@wsaw:Action	urn:ihe:iti:2007:ProvideAndRegisterDocumentSet-bResponse	Not applicable
/definitions/binding/operation/soap12:operation/@soapAction	urn:ihe:iti:2007:CrossGatewayQuery	urn:ihe:iti:2007:CrossGatewayQueryAsync

670

End of table insertion.

3.41.5.1.1 Sample Provide and Register Document Set-b SOAP Request

Insert the following sub-section title after 3.41.5.1.1:

675 3.41.5.1.1.1 Synchronous Web Services Exchange

End of sub-section title insertion

Insert the following 3.41.5.1.1.2 section at the end of 3.41.5.1.1.1:

3.41.5.1.1.2 Asynchronous Web Services Exchange

680 Note to the editor: please keep the following format for the sample text – courier new, 8pt, no spacing before and after the paragraph, tab stops every 1/8 of an inch for the first inch.

```

685 <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:ProvideAndRegisterDocumentSet-
bAsync</a:Action>
    <a:MessageID>urn:uuid:6d296e90-e5dc-43d0-b455-7c1f3eb35d83</a:MessageID>
    <a:ReplyTo>
690     <a:Address>-http://192.168.2.4:9080/XdsService
/DocumentSourceReceiver.svc</a:Address>
    </a:ReplyTo>
    <a:To
695 s:mustUnderstand="1">http://localhost:2647/XdsService/DocumentRepositoryReceiver.svc</a:To>
  </s:Header>
  <s:Body>
    <ProvideAndRegisterDocumentSetRequest
      xmlns="urn:ihe:iti:xds-b:2007"
      xmlns:lcm="urn:oasis:names:tc:ebxml-regrep:xsd:lcm:3.0"
      xmlns:rjm="urn:oasis:names:tc:ebxml-regrep:xsd:rjm:3.0"
      xmlns:rs="urn:oasis:names:tc:ebxml-regrep:xsd:rs:3.0">

```

700

```

705         <lcm:SubmitObjectsRequest>
                <!--Rest of SubmitObjectsRequest message goes here -->
                </lcm:SubmitObjectsRequest>
                <Document
id="Document01">UjBsR09EbGhjZ0dTQUxNQUFBUUNBRU1tQ1p0dU1GUXhEUzhi</Document>
710         </ProvideAndRegisterDocumentSetRequest>
                </s:Body>
        </s:Envelope>

```

End of section 3.41.5.1.1.2 insertion

3.41.5.1.2 Sample Provide and Register Document Set-b SOAP Response

715 Insert the following sub-section title after 3.41.5.1.2:

3.41.5.1.2.1 Synchronous Web Services Exchange

End of sub-section 3.41.5.1.2.1 insertion

720 Insert the following new Section 3.41.5.1.2.2 at the end of 3.41.5.1.2.1:

3.41.5.1.2.2 Asynchronous Web Services Exchange

Note to the editor: please keep the following format for the sample text – courier new, 8pt, no spacing before and after the paragraph, tab stops every 1/8 of an inch for the first inch.

```

725 <s:Envelope
                xmlns:s="http://www.w3.org/2003/05/soap-envelope"
                xmlns:a="http://www.w3.org/2005/08/addressing">
        <s:Header>
730         <a:Action s:mustUnderstand="1">
                urn:ihe:iti:2007:ProvideAndRegisterDocumentSet-bAsyncResponse
        </a:Action>
        <a:MessageID>urn:uuid:D6C21225-8E7B-454E-9750-821622C099DB</a:MessageID>
        <a:RelatesTo>urn:uuid:6d296e90-e5dc-43d0-b455-7c1f3eb35d83</a:RelatesTo>
        <a:To
735 s:mustUnderstand="1">http://localhost:2647/XdsService/DocumentSourceReceiver.svc</a:To>
        </s:Header>
        <s:Body>
                <rs:RegistryResponse
740                 status="urn:oasis:names:tc:ebxml-regrep:ResponseStatusType:Success"
                xmlns:rs="urn:oasis:names:tc:ebxml-regrep:xsd:rs:3.0" />
        </s:Body>
        </s:Envelope>

```

End of Section 3.41.5.1.2.2 insertion

3.42 Register Document Set-b

745 Insert the following Section at the end of 3.42 and before 3.42.1

Actors that support the Asynchronous Web Services Exchange option and implement the Register Document Set-b transaction shall support the following:

- 750 • Document Repository Actor shall support Asynchronous Web Services Exchange for the Provide & Register Document Set – b [ITI-41] and Register Document Set – b [ITI-42], and Retrieve Document Set [ITI-43] transactions
- Document Registry Actor shall support Asynchronous Web Services Exchange for the Registry Stored Query [ITI-18] and Register Document Set – b [ITI-42] transactions

Refer to section ITI TF-2:V.5 Synchronous and Asynchronous Web Services Exchange for an explanation of Asynchronous Web Services Exchange.

755 End of Section insertion.

3.42.5 Protocol Requirements

In section 3.42.5, insert the following Section after the WSDL Namespace Definitions table

760 **Document Repository:** These are the requirements for the Register Document Set-b transaction presented in the order in which they would appear in the Document Repository WSDL definition:

- The following types shall be imported (xsd:import) in the /definitions/types section:
 - namespace="urn:oasis:names:tc:ebxml-regrep:xsd:rs:3.0", schema=" rs.xsd"
 - namespace="urn:oasis:names:tc:ebxml-regrep:xsd:lcm:3.0", schema=" lcm.xsd"
- 765 • The /definitions/message/part/@element attribute of the Register Document Set-b Request message shall be defined as “lcm:SubmitObjectsRequest”
- The /definitions/message/part/@element attribute of the Register Document Set-b Response message shall be defined as “rs:RegistryResponse”
- Refer to table 3.42.5.b below for additional attribute requirements

770

3.42.5.b Additional Attribute Requirements

Attribute	Synchronou s Web Services Exchange	Asynchronous Web Services Exchange
/definitions/portType/operation@name	Not applicable	urn:ihe:iti:2007:DocumentRepository_RegisterDocumentSet-bAsyncResponse
/definitions/portType/operation/input/@wsaw:	Not applicable	urn:ihe:iti:2007:RegisterDocumentSe

Action		t-bAsyncResponse
/definitions/binding/operation/soap12:operation/@soapAction	Not applicable	urn:ihe:iti:2007:RegisterDocumentSet-bAsyncResponse

For informative WSDL for the Document Consumer actor see Appendix W.

End of Section insertion.

775 Update the following Section in 3.42.5 as shown below:

Document Registry: These are the requirements for the Register Document Set-b transaction presented in the order in which they would appear in the **Document Registry** WSDL definition:

- The following types shall be imported (xsd:import) in the /definitions/types section:
 - namespace="urn:oasis:names:tc:ebxml-regrep:xsd:rs:3.0", schema=" rs.xsd"
 - namespace="urn:oasis:names:tc:ebxml-regrep:xsd:lcm:3.0", schema=" lcm.xsd"
- The /definitions/message/part/@element attribute of the Register Document Set-b Request message shall be defined as “lcm:SubmitObjectsRequest”
- The /definitions/message/part/@element attribute of the Register Document Set-b Response message shall be defined as “rs:RegistryResponse”
- 785 ~~• The /definitions/portType/operation/input/@wsaw:Action attribute for the Register Document Set b Request message shall be defined as “urn:ihe:iti:2007:RegisterDocumentSet b”~~
- 790 ~~• The /definitions/portType/operation/output/@wsaw:Action attribute for the Register Document Set b Response message shall be defined as “urn:ihe:iti:2007:RegisterDocumentSet bResponse”~~
- ~~• The /definitions/binding/operation/soap12:operation/@soapAction attribute shall be defined as “urn:ihe:iti:2007:RegisterDocumentSet b”~~
- **Refer to table 3.42.5.c below for additional attribute requirements**

795 End of Section update

Insert the following table in Section 3.42.5 after the last bullet point above:

3.42.5.c Additional Attribute Requirements

Attribute	Synchronous Web Services Exchange	Asynchronous Web Services Exchange
/definitions/portType/operation@name	urn:ihe:iti:2007: DocumentRepository _RegisterDocumentSet-b	urn:ihe:iti:2007:DocumentRepository _RegisterDocumentSet-bAsync
/definitions/portType/operation/input/@wsaw:Action	urn:ihe:iti:2007:RegisterDocumentSet-b	urn:ihe:iti:2007:RegisterDocumentSet-bAsync

/definitions/portType/operation/output/@wsaw:Action	urn:ihe:iti:2007:ProvideAndRegisterDocumentSet-bResponse	Not applicable
/definitions/binding/operation/soap12:operation/@soapAction	urn:ihe:iti:2007: RegisterDocumentSet-b	urn:ihe:iti:2007:RegisterDocumentSet-bAsync

800

End of table insertion.

3.42.5.1.1 Sample Register Document Set-b SOAP Request

Insert the following sub-section title after 3.42.5.1.1:

805 3.42.5.1.1.1 Synchronous Web Services Exchange

End of sub-section title insertion

3.42.5.1.1.2 Asynchronous Web Services Exchange

810

Note to the editor: please keep the following format for the sample text – courier new, 8pt, no spacing before and after the paragraph, tab stops every 1/8 of an inch for the first inch.

815

```
<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:RegisterDocumentSet-
bAsync</a:Action>
    <a:MessageID>urn:uuid:1ec52e14-4aad-4ba1-b7d3-fc9812a21340</a:MessageID>
    <a:ReplyTo>
      <a:Address>
http://192.168.2.4:9080/XdsService/DocumentRepositoryReceiver.svc</a:Address>
      </a:ReplyTo>
      <a:To
s:mustUnderstand="1">http://localhost:2647/XdsService/DocumentRegistryReceiver.svc</a:To>
    </s:Header>
    <s:Body>
      <lcm:SubmitObjectsRequest
xmlns:lcm="urn:oasis:names:tc:ebxml-regrep:xsd:lcm:3.0"
xmlns:rjm="urn:oasis:names:tc:ebxml-regrep:xsd:rjm:3.0"
xmlns:rs="urn:oasis:names:tc:ebxml-regrep:xsd:rs:3.0">
        <!--Rest of SubmitObjectsRequest message goes here -->
      </lcm:SubmitObjectsRequest>
    </s:Body>
  </s:Envelope>
```

820

825

830

835

End of Section 3.42.5.1.1.2 insertion

840 3.42.5.1.2 Sample Register Document Set-b SOAP Response

Insert the following sub-section title after 3.42.5.1.2:

3.42.5.1.2.1 Synchronous Web Services Exchange

End of sub-section 3.42.5.1.2.1 insertion

845

Insert the following new Section 3.42.5.1.2.2 at the end of 3.42.5.1.2.1:

3.42.5.1.2.2 Asynchronous Web Services Exchange

Note to the editor: please keep the following format for the sample text – courier new, 8pt, no spacing before and after the paragraph, tab stops every 1/8 of an inch for the first inch.

850

```
<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:RegisterDocumentSet-
855 bAsyncResponse</a:Action>
    <a:MessageID>urn:uuid:D6C21225-8E7B-454E-9750-821622C099DB</a:MessageID>
    <a:RelatesTo>urn:uuid:1ec52e14-4aad-4ba1-b7d3-fc9812a21340</a:RelatesTo>
    <a:To
860 s:mustUnderstand="1">http://localhost:2647/XdsService/DocumentRepositoryReceiver.svc</a:To>
  </s:Header>
  <s:Body>
    <rs:RegistryResponse
865 status="urn:oasis:names:tc:ebxml-regrep:ResponseStatusType:Success"
    xmlns:rs="urn:oasis:names:tc:ebxml-regrep:xsd:rs:3.0"/>
  </s:Body>
</s:Envelope>
```

End of Section 3.42.5.1.2.2 insertion

870 **3.43 Retrieve Document Set**

Insert the following Section at the end of 3.43 and before 3.43.1

Actors that support the Asynchronous Web Services Exchange option shall support Asynchronous Web Services Exchange on all XDS.b transactions they implement. Refer to section ITI TF-2:V.5 Synchronous and Asynchronous Web Services Exchange for an explanation of Asynchronous Web Services Exchange.

875

End of Section insertion.

3.43.5 Protocol Requirements

880 In section 3.43.5, insert the following Section at the end of the WSDL Namespace Definitions table

Document Consumer: These are the requirements for the Retrieve Document Set transaction presented in the order in which they would appear in the Document Consumer WSDL definition:

- The following types shall be imported (xsd:import) in the /definitions/types section:
 - namespace="urn:ihe:iti:xds-b:2007", schema="IHEXDS.xsd"
- The /definitions/message/part/@element attribute of the Retrieve Document Set Request message shall be defined as “ihe:RetrieveDocumentSetRequest”
- The /definitions/message/part/@element attribute of the Retrieve Document Set Response message shall be defined as “ihe:RetrieveDocumentSetResponse”
- Refer to table 3.43.5.b below for additional attribute requirements

885

890

3.43.5.b Additional Attribute Requirements

Attribute	Synchronous Web Services Exchange	Asynchronous Web Services Exchange
/definitions/portType/operation@name	Not applicable	urn:ihe:iti:2007:DocumentConsumer_RetrieveDocumentSetAsyncResponse
/definitions/portType/operation/input/@wsaw:Action	Not applicable	urn:ihe:iti:2007:RetrieveDocumentSetAsyncResponse
/definitions/binding/operation/soap12:operation/@soapAction	Not applicable	urn:ihe:iti:2007:RetrieveDocumentSetAsyncResponse

For informative WSDL for the Document Consumer actor see Appendix W.

End of Section insertion.

895 Update the following section in 3.43.5 as shown below:

Document Repository: These are the requirements for the Retrieve Document Set transaction presented in the order in which they would appear in the **Document Repository** WSDL definition:

- 900 • The following types shall be imported (xsd:import) in the /definitions/types section:
 - namespace="urn:ihe:iti:xds-b:2007", schema="IHEXDS.xsd"
- The /definitions/message/part/@element attribute of the Retrieve Document Set Request message shall be defined as “ihe:RetrieveDocumentSetRequest”
- The /definitions/message/part/@element attribute of the Retrieve Document Set Response message shall be defined as “ihe:RetrieveDocumentSetResponse”
- 905 • ~~The /definitions/portType/operation/input/@wsaw:Action attribute for the Retrieve Document Set Request message shall be defined as “urn:ihe:iti:2007:RetrieveDocumentSet”~~
- ~~The /definitions/portType/operation/output/@wsaw:Action attribute for the Retrieve Document Set Response message shall be defined as “urn:ihe:iti:2007:RetrieveDocumentSetResponse”~~
- 910 • ~~The /definitions/binding/operation/soap12:operation/@soapAction attribute shall be defined as “urn:ihe:iti:2007:RetrieveDocumentSet”~~
- Refer to table 3.43.5.b below for additional attribute requirements

915 End of Section update

Insert the following table in Section 3.43.5 after the last bullet point above:

3.43.5.c Additional Attribute Requirements

Attribute	Synchronous Web Services Exchange	Asynchronous Web Services Exchange
/definitions/portType/operation@name	urn:ihe:iti:2007:DocumentConsumer_RetrieveDocumentSet	urn:ihe:iti:2007:DocumentConsumer_RetrieveDocumentSet-bAsync
/definitions/portType/operation/input/@wsaw:Action	urn:ihe:iti:2007:RetrieveDocumentSet	urn:ihe:iti:2007:RetrieveDocumentSetAsync
/definitions/portType/operation/output/@wsaw:Action	urn:ihe:iti:2007:RetrieveDocumentSetResponse	Not applicable
/definitions/binding/operation/soap12:operation/@soapAction	urn:ihe:iti:2007:RetrieveDocumentSet	urn:ihe:iti:2007:RetrieveDocumentSetAsync

920 End of table insertion.

3.43.5.1.1 Sample Retrieve Document Set SOAP Request

Insert the following sub-section title after 3.43.5.1.1:

3.43.5.1.1.1 Synchronous Web Services Exchange

925 End of sub-section title insertion

Insert the following 3.43.5.1.1.2 Section at the end of 3.43.5.1.1.1:

3.43.5.1.1.2 Asynchronous Web Services Exchange

930 Note to the editor: please keep the following format for the sample text – courier new, 8pt, no spacing before and after the paragraph, tab stops every 1/8 of an inch for the first inch.

```
<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:RetrieveDocumentSetAsync</a:Action>
    <a:MessageID>urn:uuid:0fbfdced-6c01-4d09-a110-2201afedaa02</a:MessageID>
    <a:ReplyTo>
      <a:Address>
        http://192.168.2.4:9080/XdsService/DocumentConsumerReceiver.svc</a:Address>
      </a:ReplyTo>
      <a:To
        s:mustUnderstand="1">http://localhost:2647/XdsService/DocumentRepositoryReceiver.svc</a:To>
      </s:Header>
    <s:Body>
      <RetrieveDocumentSetRequest xmlns="urn:ihe:iti:xds-b:2007">
        <DocumentRequest>
          <RepositoryUniqueId>1.3.6.1.4...1000</RepositoryUniqueId>
          <DocumentUniqueId>1.3.6.1.4...2300</DocumentUniqueId>
        </DocumentRequest>
        <DocumentRequest>
          <RepositoryUniqueId>1.3.6.1.4...1000</RepositoryUniqueId>
          <DocumentUniqueId>1.3.6.1.4...2301</DocumentUniqueId>
        </DocumentRequest>
      </RetrieveDocumentSetRequest>
    </s:Body>
  </s:Envelope>
```

960 End of Section 3.43.5.1.1.2 insertion

3.43.5.1.2 Sample Retrieve Document Set SOAP Response

Insert the following sub-section title after 3.43.5.1.2:

3.43.5.1.2.1 Synchronous Web Services Exchange

End of sub-section 3.43.5.1.2.1 insertion

965

Insert the following new section 3.43.5.1.2.2 at the end of 3.43.5.1.2.1:

3.43.5.1.2.2 Asynchronous Web Services Exchange

Note to the editor: please keep the following format for the sample text – courier new, 8pt, no spacing before and after the paragraph, tab stops every 1/8 of an inch for the first inch.

```

970 <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
975 s:mustUnderstand="1">urn:ihe:iti:2007:RetrieveDocumentSetAsyncResponse</a:Action>
    <a:MessageID>urn:uuid:D6C21225-8E7B-454E-9750-821622C099DB</a:MessageID>
    <a:RelatesTo>urn:uuid:0fbfdced-6c01-4d09-a110-2201afedaa02</a:RelatesTo>
    <a:To
980 s:mustUnderstand="1">http://localhost:2647/XdsService/DocumentConsumerReceiver.svc</a:To>
    </s:Header>
    <s:Body>
    <RetrieveDocumentSetResponse
    xmlns="urn:ihe:iti:xds-b:2007"
985 xmlns:lcm="urn:oasis:names:tc:ebxml-regrep:xsd:lcm:3.0"
    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">
    <rs:RegistryResponse status="urn:oasis:names:tc:ebxml-
990 regrep:ResponseStatusType:Success"/>
    <DocumentResponse>
    <RepositoryUniqueId>1.3.6.1.4...1000</RepositoryUniqueId>
    <DocumentUniqueId>1.3.6.1.4...2300</DocumentUniqueId>
    <mimeType>text/xml</mimeType>
995 <Document>UjBsR09EbGhjZ0dTQUxNQFBUUNBRU1tQ1p0dU1GUXhEUzhi</Document>
    </DocumentResponse>
    <DocumentResponse>
    <RepositoryUniqueId>1.3.6.1.4...1000</RepositoryUniqueId>
    <DocumentUniqueId>1.3.6.1.4...2300</DocumentUniqueId>
    <mimeType>text/xml</mimeType>
1000 <Document>UjBsR09EbGhjZ0dTQUxNQFBUUNBRU1tQ1p0dU1GUXhEUzhi</Document>
    </DocumentResponse>
    </RetrieveDocumentSetResponse>
1005 </s:Body>
</s:Envelope>
    
```

End of section 3.43.5.1.2.2 insertion

1010