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2 **ebBP Profile for Integrating Healthcare Enterprise**
3 **(IHE)**

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11 **Abstract:**

12 This document defines the ebBP profile for Integrating Healthcare Enterprise (IHE) Profiles. The aim is
13 to facilitate the configuration of electronic relationship among IHE Actors by replacing manual
14 configuration issues with standard based semi-automatic configuration.

15 **Status:**

16 This document is an OASIS ebBP Profile for IHE Profiles and it is realized within the scope of the IST
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20 [en.htm](http://ec.europa.eu/information_society/activities/health/index_en.htm)).

21 Committee members should send comments on this specification to the ebxml-
22 bp@lists.oasisopen.org list. Others should subscribe to and send comments to the ebxml-
23 bpcomment@lists.oasis-open.org list. To subscribe, send an email message to ebxml-bp-
24 commentrequest@lists.oasis-open.org with the word "subscribe" as the body of the message.

25 For information on whether any patents have been disclosed that may be essential to implementing
26 this specification, and any offers of patent licensing terms, please refer to the Intellectual Property Rights
27 section of the ebXML Business Process TC web page ([http://www.oasis-open.org/committees/ebxml-](http://www.oasis-open.org/committees/ebxml-bp/ipr.php)
28 [bp/ipr.php](http://www.oasis-open.org/committees/ebxml-bp/ipr.php)). The IPR policy in effect as of 28 April 2006 is the Legacy IPR policy.

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70 1. Introduction

71 This document describes how to express the IHE Profiles through ebBP language to facilitate the
72 configuration of electronic relationships among IHE Actors and to provide an automated environment to help
73 IHE users and vendors to exchange configuration information electronically and in a standard way.

74 The eBusiness eXtensible Markup Language (ebXML) Business Process Specification Schema
75 (BPSS) technical specification [ebBP] defines a standard language by which business systems MAY be
76 configured. ebBP defines generic *Business Transactions* between the *Roles* (the Requesting Role and the
77 Responding Role) which exchange documents. ebBP re-uses these transactions by specializing them in
78 *Business Collaborations*.

79 IHE Profiles [IHE], on the other hand, define IHE Actors (which correspond to ebBP *Roles*) and IHE
80 Transactions (which correspond to ebBP *Business Collaborations*) and organizes them into IHE Profiles
81 (which correspond to ebBP *Business Processes*) specific to the healthcare domain.

82 The profile described in this document is not proposing any change to existing IHE Profiles or its
83 existing implementations. Note that ebBP Processes are not executable meaning that you cannot execute
84 them to cause some action; but they are machine processable meaning that you can use the information
85 content by executing a software. The profile described in this document is proposing to document the already
86 existing information in IHE profiles in a machine processable way to help with configuration issues.

87 There are several benefits to be gained in defining IHE Profiles [IHE-ITI-1] through ebBP since ebBP
88 provides standard, concise and machine processable configuration information which can be used in an
89 automated way:

- 90 1. **Re-usability:** When an IHE Transaction is defined as a generic ebBP Transaction, its re-usability is
91 increased. For example, when we define a generic "Patient Identity Feed" Transaction [IHE-ITI-2]
92 between two generic roles such as "Patient Identity Supplier" and "Patient Identity Receiver"; this
93 transaction can be specialized to "Patient Identity Feed Transaction in IHE XDS" by setting the
94 "Patient Identity Supplier" to "Patient Identity Source" and the "Patient Identity Receiver" to "XDS
95 Registry". The same generic "Patient Identity Feed" Transaction can be specialized to "Patient
96 Identity Feed Transaction in IHE PIX" by setting the "Patient Identity Supplier" to "Patient Identity
97 Source" and the "Patient Identity Receiver" to "PIX Manager". As a summary, when IHE defines a
98 new profile which uses an already defined generic transaction, this transaction can be specialized to
99 the new profile to be re-used. This mechanism is ready in ebBP to be used in a standard way.
- 100 2. **Configuration Management:** The focus of ebXML is on building a framework that makes it possible
101 to automate the creation and the configuration of electronic relationship. To achieve this goal,
102 ebXML describes business processes through ebBP and the actors through CPPs (Collaboration-
103 Protocol Profiles) [ebCPPA]. An IHE Actor, on the other hand, is in need of the configuration of its
104 electronic relationship with other IHE Actors. Each IHE Actor needs to discover the other IHE Actors,
105 the other Actor's supported IHE Transactions, the other Actor's role in the Transaction, and the
106 configuration details about how the other Actor sends and receives Messages. For example, in an
107 IHE connectivity marathon (connect-a-thon), the IHE Actors obtain network configuration parameters
108 from an online database quite sometime before the connect-a-thon. ebBP provides all this
109 configuration information needed by the IHE Profiles and helps this information to be discovered and
110 used at run time in real life cases without human intervention.
- 111 3. **Discovery of Configuration Information:** The configuration information, independent of how it is
112 defined, need to be discovered by the involved IHE Actors. When the configuration information is
113 defined through ebBP and CPPAs, ebXML Registry mechanism can be used for discovery.
114 Furthermore, there should be a machine processable mechanism to automatically find out the
115 optional IHE Transactions a specific IHE Actor supports. When IHE Profiles are expressed through
116 ebBP, it becomes possible to specify this by referring to the business process which includes the
117 optional transactions.
- 118 4. **Facilitating the grouping of the IHE Actors:** Since IHE Profiles describe specific use cases, there
119 is a need to combine several IHE Profiles to achieve the required functionality in realizing a real
120 world scenario in the healthcare domain. When IHE Profiles are combined by grouping the relevant
121 IHE Actors, the sequence of the transactions coming from different profiles must be decided. For
122 example, when ATNA Secure Node is grouped with XDS Document Source, Document Repository
123 and Document Registry Actors, the "Record Audit Event" Transaction (IHE-ITI-20) of ATNA appears
124 between "Provide and Register Document Set" Transaction (IHE-ITI-15) and "Register Document
125 Set" Transaction (IHE-ITI-14) of XDS. It is clear that, given the large number of IHE Profiles,
126 determining the order of all the involved transaction manually for every real life scenario is a tedious
127 task. However it is possible to automate this task by developing software tools to allow users to
128 graphically group the Actors involved, and generating the overall process automatically by using the

- 129 precedence information among IHE Transactions.
130 5. **Software Tool Support for Configuration:** In order to make the process described in this
131 document user friendly, we support it by software tools. We provide public domain software tools to
132 support the following:
- 133 • The ebBP Editor to graphically define IHE Transactions and Profiles. This software is
134 available from [freebXMLBP].
 - 135 • The IHE-AGT (Actor Grouping Tool) to group IHE Actors graphically and produce the
136 resulting business processes automatically available at [IHE-AGT].
 - 137 • The IHE Configuration Management Tool (IHE-CMT) available from [IHE-CMT] which
138 consists of the IHE-CPP Editor and the IHE-CPA Editor.

139 The document is organized as follows:

- 140 • Chapter 1 provides an introduction to the rest of this document.
- 141 • Chapter 2 provides a brief overview of the ebBP Business Process Specification and the
142 Collaboration-Protocol Profile (CPP) and Agreement Specification (CPA).
- 143 • Chapter 3 provides a brief overview of the Integrating Healthcare Enterprise (IHE) Transactions and
144 Profiles.
- 145 • Chapter 4 specifies how to represent IHE profiles in ebBP.
- 146 • Chapter 5 briefly summarizes the public domain ebBP Editor previously developed by the METU-
147 SRDC Team.
- 148 • Chapter 6 describes how IHE Actors can be grouped using ebBP.
- 149 • Chapter 7 describes how to facilitate the configuration of IHE Profiles by Using ebBP and CPP.
- 150 • Chapter 8 addresses the metadata configuration issues in IHE XDS.
- 151 • Chapter 9 describes IHE Configuration Management Tool.
- 152 • Chapter 10 summarizes how configuration issues are currently handled in IHE XDS connect-a-thon
153 and provides the envisioned situation.
- 154 • Chapter 11 provides normative and informative references that are used within or relevant to this
155 document.

156 1.1. Terminology

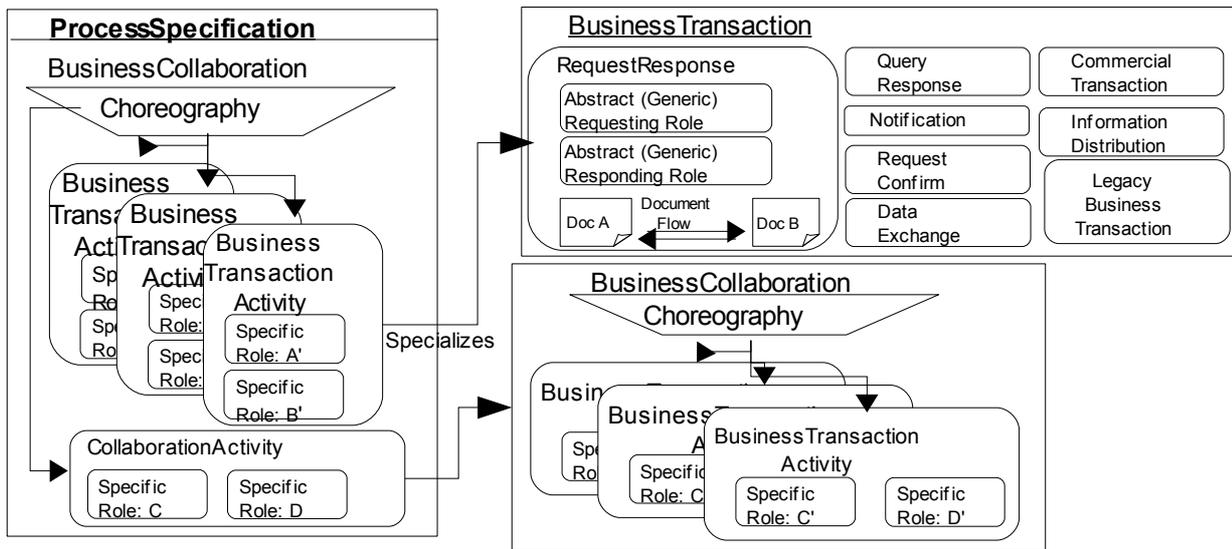
157 1.2. Conventions

158 1.3. Recommended Enhancements

159 **2. A Brief Overview of ebBP**

160 The eBusiness eXtensible Markup Language (ebXML) Business Process Specification Schema (BPSS)
 161 technical specification defines a standard language by which business systems MAY be configured to
 162 support execution of *Business Collaborations* consisting of *Business Transactions* [ebBP]. It is based upon
 163 prior UN/CEFACT work, specifically the metamodel behind the UN/CEFACT Modeling Methodology (UMM)
 164 defined in the "UN/CEFACT Modeling Methodology - Meta Model - Revision 10.

165 The overall view of ebBP Business Process Specification is shown in Figure 1.



166 Figure 1: The Overall View of ebBP Business Process Specification

167 As shown in Figure 1, *Business Collaboration* consists of a set of specific roles collaborating through
 168 a set of choreographed *Business Transactions*. Each *Business Transaction* is conducted between two
 169 parties playing complementary abstract roles namely, the Requesting Role and the Responding Role. For
 170 example, a "Patient Identity Feed" ebBP Business Transaction may define one generic role as "Patient
 171 Identity Supplier" and the other as "Patient Identity Receiver". These roles perform *Requesting Business
 172 Activity* and *Responding Business Activity* respectively and collaborate by exchanging *Business Documents*.
 173 For example, "Patient Identity Source" role through *Requesting Business Activity* may send an "HL7 v2.3.1
 174 ADT Message" document to the "Patient Identity Receiver" role which performs the *Responding Business
 175 Activity*. As it is clear from the example, a *Business Transaction* defines generic roles. When a *Business
 176 Transaction* is used in a specific *Business Transaction Activity* as a part of a *Business Collaboration
 177 Activity*, the generic roles that are defined in the *Business Transaction* are specialized. For example, when the
 178 "Patient Identity Feed" ebBP *Business Transaction* is used in "IHE XDS Patient Identity Feed" *Business
 179 Collaboration Activity*, the "Patient Identity Supplier" role is specialized to IHE "Patient Identity Source" Actor
 180 and "Patient Identity Receiver" role is specialized to IHE "XDS Registry" Actor. Typically, a *Business
 181 Transaction* is defined once and used in several *Business Transaction Activities*. For example, "Patient
 182 Identity Feed" ebBP *Business Transaction* defined above is also used in "IHE PIX Patient Identity Feed"
 183 *Business Collaboration Activity* where "Patient Identity Supplier" role is specialized to IHE "Patient Identity
 184 Source" Actor and "Patient Identity Receiver" role is specialized to IHE "PIX Manager" Actor.

185 A *Choreography* is an ordering of *Business Activities* within a *Business Collaboration*. The purpose
 186 of a *Choreography* is to specify which *Business Transaction Activity* and/or *Collaboration Activity* should (are
 187 expected to) happen.

188 A *Business Transaction* is atomic; it cannot be decomposed into lower level message exchanges
 189 that could be reused independently unlike a *Business Collaboration*. Furthermore, one or more *Business
 190 Signals* may additionally be exchanged as part of a *Business Transaction* to ensure state alignment of the
 191 involved parties. There are a number of States that facilitate the choreographing of *Business Activities*.
 192 These include a Start state and a Completion state (which comes in a Success and Failure flavor) as well as
 193 a series of gateways: a Fork gateway, a Join gateway and a Decision gateway. There are two types of Fork
 194 gateway: OR and XOR [ebBP].

195 In ebBP, the *Business Transactions* are defined as an abstract super class with eight concrete
 196 business patterns as follows:

- 197 ● *Commercial Transaction (or Business Transaction)*: Typically this pattern defines a formal obligation
198 between parties. The semantics defined by commercial transaction is as follows:
199
 - 200 ● A response is required.
 - 201 ● Either a request receipt acknowledgment or exception is required.
 - 202 ● Either response receipt acknowledgment or exception is required.
- 203 ● *Notification*: Used for business notifications such as a *Notification* of Failure. It represents a formal
204 exchange between parties.
- 205 ● *Information Distribution*: Represents an informal information exchange between parties.
- 206 ● *Query / Response*: Used by a requester for an information query of which the responding party
207 already has.
- 208 ● *Request / Confirm*: Used where an initiating party requests confirmation about their status with
209 respect to previous obligations or a responder's business rules.
- 210 ● *Request / Response*: Used when an initiating party requests information that a responding party
211 already has and when the request for business information requires a complex interdependent set of
212 results.
- 213 ● *Data Exchange*: Allows a partner, industry or community to define a specific *Business Transaction*
214 pattern that are not in the concrete set. The semantics used for data exchange are partner-specific.
- 215 ● *Legacy Business Transaction*: Retained in v2.0 and v2.0.1 technical specifications for conversion
216 purposes only to enable the user community to migrate to the concrete patterns. This pattern is not
recommended for use for the concrete *Business Transaction* patterns.

217 An ebBP definition references, but does not define, a set of logical Business Documents. It is important to
218 note that the ebBP technical specification focuses on the logical Business Document not a wire format and
219 hence has nothing to do with the ebXML Messaging Service (ebMS) message envelope (SOAP with
220 Attachments) which is wire format.

221 2.1. Collaboration-Protocol Profile and Agreement Specification (CPPA)

222 The objective of Collaboration-Protocol Profile (CPP) and Agreement (CPA) Specification is to ensure
223 interoperability between two Parties even though they may have heterogeneous application software and
224 run-time support.

225 The CPP is a machine processable description of what an organization can do. As such, it can be
226 used to define all the roles an organization can play in different business processes. However, within scope
227 of this document, for the sake of simplicity, a CPP is restricted to only one IHE Actor. CPP contains the
228 following information:

- 229 ● The IHE Actor's name
- 230 ● The transport and security protocols it recognizes
- 231 ● The messaging protocols that it recognizes
- 232 ● The business processes that the Actor recognizes
- 233 ● All of the technical information such as URLs, time-out, certificates to establish electronic
234 relationships

235 In other words, the CPP defines a Actor's Message-exchange capabilities and the Business
236 Collaborations that it supports. A Collaboration Protocol Agreement (CPA) between two IHE Actors
237 describes the messaging and the business process requirements that are agreed upon by both Actors. The
238 intent of the CPA is to provide a high-level specification that can be easily comprehended by humans and yet
239 is precise enough for enforcement by computers. A CPA can be created by computing the intersection of the
240 two Actors' CPPs and the configuration process can be automated by means of a suitable tool that reads the
241 CPA and performs the configuration process.

242 ebXML provides the guidelines to generate a Collaboration Protocol Agreement (CPA) from given
243 Collaboration Protocol Profiles (CPPs) which involves the following:

- 244 ● Matching business processes and the roles
- 245 ● Matching transport and transport security
- 246 ● Matching document packaging and document security

247

3. Integrating Healthcare Enterprise (IHE) Overview

248 This chapter provides a brief overview of “Integrating Healthcare Enterprise” (IHE) Initiative [IHE].

249 Integrating the Healthcare Enterprise (IHE) is a non-for-profit initiative that was founded in 1998 in
 250 the USA by the Radiological Society of North America (RSNA) and the Healthcare Information and
 251 Management Systems Society (HIMSS). IHE specifies an implementation framework to facilitate the
 252 integration of healthcare information resources.

253 The IHE IT Infrastructure Technical Framework [IHE-ITI-1, IHE-ITI-2] identifies a subset of the
 254 functional components of the healthcare enterprise, called “IHE Actors” (which correspond to ebBP Roles),
 255 and specifies their interactions in terms of a set of coordinated, standards-based transactions (which
 256 corresponds to ebBP Collaborations). More specifically, IHE transactions define how IT systems
 257 communicate by using existing standards such as HL7 or DICOM to accomplish a specific task. Table 1
 258 depicts some example “IHE transactions”.

Table 1: Some Example IHE Transactions

IHE Transaction	Requesting Actor	Responding Actor	IHE Message
Patient Identity Feed (ITI-8)	Patient Identity Supplier	Patient Identity Consumer	HL7-v2.3.1-ADT
Placer Order Management (RAD-2)	Oder Placer	Order Filler	HL7 ORM
Authenticate Node (ITI-19)	Local Secure Node	Remote Secure Node	X.509-Certificate, X.509-Certificate
Provide/Register Document Set (ITI-15)	Document Source	Document Repository	ebRS-v2.0-SubmitObjectsRequest, ebRS-v2.0-RegistryResponse

259 These transactions are then choreographed into “IHE Integration Profiles” (ebBP *Business Processes*) which
 260 are use cases describing selected real-world scenarios. Table 2 depicts some example “IHE Profiles”.

261 **Table 2: Some Example IHE Profiles**

IHE Profile	IHE Actors Involved	IHE Transactions Involved
Cross Enterprise Document Sharing (XDS)	Document Source, Document Repository, Document Registry, Patient Identity Supplier	Patient Identity Feed (ITI-8), Provide/Register Document Set (ITI-15),
Audit Trail and Node Authentication (ATNA)	Time Server, Secure Node, Audit Repository	Record Audit Event (ITI-20), Node Authentication (ITI-19), Maintain Time (ITI-1)
Scheduled Workflow (SWF)	ADT Patient Registration, Order Placer, Department System Scheduler/Order Filler, Acquisition Modality, Image Manager/ Image Archive, Performed Procedure Step Manager, Image Display, Evidence Creator	Patient Registration (RAD-1), Placer Order Management (RAD-2), Filler Order Management (RAD-3), Procedure Scheduled (RAD-4), Query Modality Worklist (RAD-5), Modality Procedure Step In Progress (RAD-6), Modality Procedure Step Completed (RAD-7), Modality Images Stored (RAD-8), Storage Commitment (RAD-10), Images Availability Query (RAD-11), Patient Update (RAD-12), Procedure Updated (RAD-13), Query Images (RAD-14), Retrieve Images (RAD-16), Creator Images Stored (RAD-

IHE Profile	IHE Actors Involved	IHE Transactions Involved
		18), Creator Procedure Step in Progress (RAD-20), Creator Procedure Step Completed (RAD-21), Performed Work Status Update (RAD-42), Appointment Notification (RAD-48), Instance Availability Notification (RAD-49)
Patient Identifier Cross Referencing (PIX)	Patient Identity Source, Patient Identifier Cross-reference Consumer, Patient Identifier Cross-reference Manager	Patient Identity Feed (ITI-8), PIX Query (ITI-9), PIX Update Notification (ITI-10)

262 In this way, "IHE Integration Profiles" define a collection of real world functionality and choreograph the
263 necessary "Actors" and "Transactions" to make it work.

264 **4. Representing IHE Profiles through ebBP**

265 ebBP defines generic business transaction patterns and describes how to organize them into business
 266 processes in a standard way. "IHE Profiles", on the other hand, define healthcare domain specific business
 267 transactions and specify some of the business processes in the healthcare domain. The correspondence
 268 between the ebBP concepts and the IHE concepts are shown in Table 3.

Table 3: Correspondence Between IHE Concepts and ebBP Concepts

IHE Concepts	ebBP Concepts
IHE Actor	ebBP Role
IHE Transaction (generic)	ebBP Business Transaction
IHE Transaction (specific to a Profile)	ebBP Business Transaction Activity + ebBP Business Collaboration Activity
IHE Message, Document	ebBP Business Document
IHE Sequence Diagram	ebBP Choreography
IHE Profile	ebBP Business Process + ebCPPA

269 IHE Actors SHOULD correspond to ebBP Roles. A "generic" IHE Transaction, that is, an IHE Transaction
 270 that is not bound to an IHE Profile yet, SHOULD BE represented through ebBP Business Transaction. When
 271 an IHE Transactions is bound to an IHE Profile, the concrete "Requesting" and "Responding Role" as well as
 272 the choreography of the transactions are determined. Therefore, an IHE Transaction used in a Profile
 273 SHOULD BE represented through ebBP *Business Collaboration Activity*. The IHE messages and the
 274 documents used in a Business Transaction SHOULD correspond to ebBP Business Documents. IHE Profile
 275 Sequence Diagrams SHOULD determine the choreography of the related *Business Collaboration Activity*.
 276 IHE Profiles SHOULD be represented through ebBP Business Processes and Collaborative Partner Profiles
 277 and Agreements.

278 **4.1. Specializing ebBP Transaction Patterns to IHE Transactions**

279 "IHE Transactions" SHOULD be the specialization of ebBP *Transaction Patterns*. For example,
 280 "Provide/Register Document Set" is a specialization of ebBP *Business Transaction Pattern* since this "IHE
 281 Transaction" requires a response. As another example, "IHE Query Registry Transaction" is a specialization
 282 of ebBP *Query/Response* since the "Document Consumer" is in need of information that the Registry may
 283 have. In Table 4, the correspondences between some of the "IHE Transactions" and ebBP patterns are
 284 given.

Table 4: Correspondence Between IHE Transactions and ebBP Patterns

IHE Transaction	Corresponding ebBP Pattern	Requesting Role	Responding Role	Business Document
Provide/Register Document Set (IHE-ITI-15)	Business Transaction	Document Source	Document Repository	Document and Document Metadata
Query Registry (IHE-ITI-16)	Query/Response	Document Consumer	Document Registry	XDS Query
Retrieve Document (IHE-ITI-17)	Query/Response	Document Consumer	Document Repository	URI
Register Document Set (IHE-ITI-14)	Business Transaction	Document Repository	Document Registry	Document Metadata
Patient Identity Feed (Admit/Register or Update Patient)	Notification	Patient Identity Supplier	Document Registry/ Patient Identity Cross Reference Manager	HL7 ADT A01, A04, A05, A08, A40

IHE Transaction	Corresponding ebBP Pattern	Requesting Role	Responding Role	Business Document
Patient Identity Feed (IHE-ITI-8)	Notification	Patient Identity Supplier	Patient Identity Cross Reference Manager	HL7 ADT A01, A04, A05, A08, A40
Authenticate Node (IHE-ITI-19)	Request/Response	Any IHE Actor or PHI Application to be secured	Any IHE Actor or PHI Application to be secured	X.509 Certificate

285 4.2. Defining IHE Transactions through ebBP Business Transactions

286 The benefits of defining an IHE Transaction through ebBP are as follows:

- 287 • Such a definition is machine processable; an application can process such a file and extract and
- 288 reuse its information content.
- 289 • The Transaction is defined through a standard and in a generic way. It can be specialized differently,
- 290 (for example, by specializing the Requesting and Responding Roles to different roles) in different
- 291 profiles.
- 292 • The message exchanged is also defined, again in a machine processable way.

293 In this section, some example IHE Transactions are defined in ebBP Language. It should be noted

294 that such transactions can easily be defined through an ebBP Editor as described in Section 5.

295 In this section, we define some example IHE Transactions and IHE Business Collaborations (that is,

296 IHE Transactions specialized to a given IHE Profile) through ebBP just to give some idea on what their ebBP

297 definitions may look like. Later, we use these IHE Business Collaborations in defining IHE Profiles through

298 ebBP. Since XML is verbose, we recommend to use ebBP Editor in defining IHE Profiles as explained in

299 Section 5. Furthermore, we recommend the use of ebBP Packages and XML XInclude mechanism for

300 producing compact ebBP definitions of IHE Profiles as explained in Section 4.6.

301 4.2.1. Patient Identity Feed Transaction (IHE-ITI-8)

302 This transaction communicates patient information, including corroborating demographic data, after a

303 patient's identity is established, modified or merged or after the key corroborating demographic data has

304 been modified. The IHE Sequence Diagram for "Patient Identity Feed Transaction (IHE-ITI-8)" is shown in

305 Figure 2.

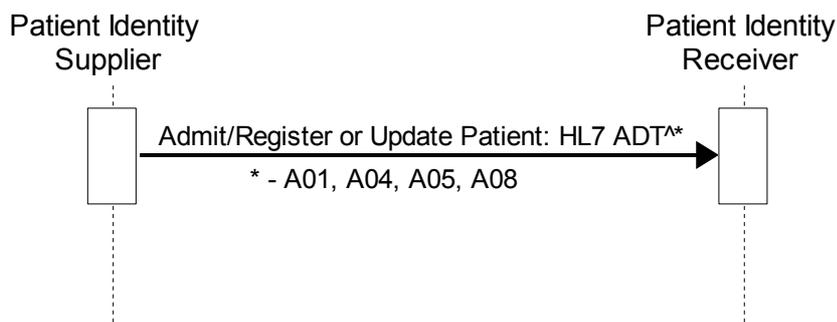


Figure 2: "Patient Identity Feed" Sequence Diagram

306 Figure 3 presents the ebBP representation of the "IHE Patient Identity Feed" transaction. This

307 transaction is a specialization of ebBP Notification pattern as shown in Figure 3 since it does not require a

308 response. This ebBP Notification Transaction defines the generic Requesting Role and Responding Role as

309 "PIDFeedBT-Initiator" and "PIDFeedBT-Responder" respectively. The *RequestingBusinessActivity* defines

310 the business document reference as "HL7-2.3.1-ADT-Document". Furthermore, the necessary signals for

311 state alignment are defined.

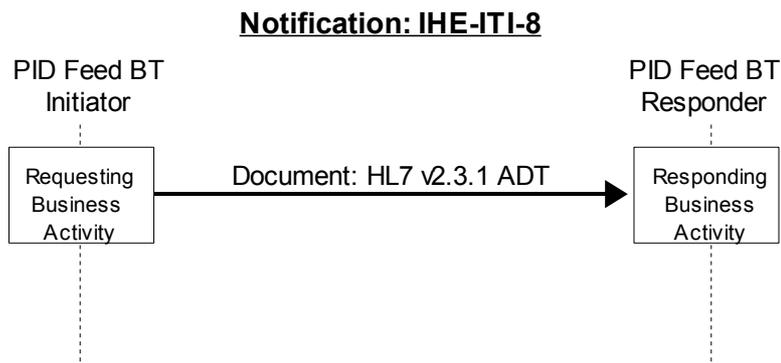


Figure 3: ebBP Representation of "IHE Patient Identity Feed" Transaction

312 The ebBP code segment defining this IHE Transaction is given in Listing 1.

```

313 <!-- IHE PIX Transaction: Patient Identity Feed -->
314 <Notification nameID="IHE-ITI-8" name="Patient Identity Feed Business
315 Transaction" isGuaranteedDeliveryRequired="true">
316   <RequestingRole nameID="PIDFeedBT-Initiator" name="Initiator"/>
317   <RespondingRole nameID="PIDFeedBT-Responder" name="Responder"/>
318   <RequestingBusinessActivity
319     nameID="PIDFeedBT-RBA"
320     name="Patient Identity Feed Requesting Business Activity"
321     isAuthorizationRequired="true"
322     isNonRepudiationRequired="true">
323     <DocumentEnvelope
324       nameID="HL7-v2.3.1-ADT"
325       businessDocumentRef="HL7-2.3.1-ADT-Document"
326       name="HL7 v2.3.1 ADT Message"
327       isAuthenticated="persistent"
328       isConfidential="persistent"/>
329     <ReceiptAcknowledgement name="ra2" nameID="PIDFeedBT-RBA-RA"
330 signalDefinitionRef="ra2"/>
331     <ReceiptAcknowledgementException name="rae2"
332 nameID="PIDFeedBT-RBA-RAE" signalDefinitionRef="rae2"/>
333     <AcceptanceAcknowledgement name="aa2" nameID="PIDFeedBT-RBA-
334 AA" signalDefinitionRef="aa2"/>
335     <AcceptanceAcknowledgementException name="aae2"
336 nameID="PIDFeedBT-RBA-AAE" signalDefinitionRef="aae2"/>
337   </RequestingBusinessActivity>
338   <RespondingBusinessActivity nameID="PIDFeedBT-ResBA"
339     name="Patient Identity Feed Responding Business Activity">
340   </RespondingBusinessActivity>
341 </Notification>

```

342 Listing 1: The Code Segment Defining IHE-ITI-8 through ebBP Notification Pattern

343 It is important to note that the ebBP technical specification focuses on the logical Business Document not a
344 wire format and hence the "DocumentEnvelope" mentioned in Listing 1, has nothing to do with the ebXML
345 Messaging Service (ebMS) message envelope (SOAP with Attachments) which is wire format. Listing 1 only
346 states that an "HL7-2.3.1-ADT-Document" will be sent. In other words, the IHE interfaces implemented by
347 commercial systems will be used as they are without any change.

348 4.2.2. Provide/Register Document Set Business Transaction (IHE-ITI-15)

349 IHE "Provide and Register Document Set" Transaction is used by the IHE Document Source Actor to provide
350 a set of documents to the Document Repository, and to request that the repository stores these documents
351 and then registers them with the Document Registry. Figure 4 shows the the IHE sequence diagram for this
352 transaction.



353 Figure 4: "IHE Provide/Register Document Set" Transaction Sequence Diagram

354 The Code Segment Defining IHE-ITI-15 through ebBP "Business Transaction" Pattern is given in Listing 2.

```

355 <BusinessTransaction nameID="IHE-ITI-15" name="Provide/Register Document
356 Set Business Transaction"
357     isGuaranteedDeliveryRequired="true">
358     <RequestingRole nameID="PRDS-BT-Initiator" name="Initiator"/>
359     <RespondingRole nameID="PRDS-BT-Responder" name="Responder"/>
360     <RequestingBusinessActivity
361         nameID="PRDS-BT-RBA"
362         name="Provide/Register Document Set Requesting Business
363 Activity"
364         isAuthorizationRequired="true"
365         isNonRepudiationRequired="true">
366         <DocumentEnvelope
367             nameID="PRDS-ebRS-v2.0-SubmitObjectsRequest"
368             businessDocumentRef="PRDS-ebRS-v2.0-
369 SubmitObjectsRequest-Document"
370             name="ebRS v2.0 SubmitObjectsRequest Message"
371             isAuthenticated="persistent"
372             isConfidential="persistent"/>
373         <ReceiptAcknowledgement name="ra2" nameID="PRDS-BT-RBA-RA"
374 signalDefinitionRef="ra2"/>
375         <ReceiptAcknowledgementException name="rae2" nameID="PRDS-BT-
376 RBA-RAE" signalDefinitionRef="rae2"/>
377         <AcceptanceAcknowledgement name="aa2" nameID="PRDS-BT-RBA-AA"
378 signalDefinitionRef="aa2"/>
379         <AcceptanceAcknowledgementException name="aae2" nameID="PRDS-
380 BT-RBA-AAE" signalDefinitionRef="aae2"/>
381     </RequestingBusinessActivity>
382     <RespondingBusinessActivity
383         nameID="PRDS-BT-ResBA"
384         name="Provide/Register Document Set Responding Business
385 Activity"
386         isAuthorizationRequired="true"
387         isNonRepudiationRequired="true">
388         <DocumentEnvelope
389             nameID="PRDS-ebRS-v2.0-RegistryResponse"
390             businessDocumentRef="PRDS-ebRS-v2.0-RegistryResponse-
391 Document"
392             name="ebRS v2.0 RegistryResponse Message"
393             isAuthenticated="persistent"
394             isConfidential="persistent"/>
395         <ReceiptAcknowledgement name="ra2" nameID="PRDS-BT-ResBA-RA"
396 signalDefinitionRef="ra2"/>
397         <ReceiptAcknowledgementException name="rae2" nameID="PRDS-BT-
398 ResBA-RAE" signalDefinitionRef="rae2"/>
399         <AcceptanceAcknowledgement name="aa2" nameID="PRDS-BT-ResBA-
400 AA" signalDefinitionRef="aa2"/>
401         <AcceptanceAcknowledgementException name="aae2" nameID="PRDS-
402 BT-ResBA-AAE" signalDefinitionRef="aae2"/>
403     </RespondingBusinessActivity>
404 </BusinessTransaction>
  
```

405

Listing 2: The Code Segment Defining IHE-ITI-15 through ebBP Business Transaction Pattern

406 4.3. Defining IHE Business Collaborations through ebBP Business 407 Collaborations

408 A Business Collaboration is a set of Business Activities executing Business Transactions between business
409 partners or collaborating parties. ebBP Business Collaborations correspond to IHE Transactions specialized
410 to an IHE Profile. Furthermore, the choreography (the ordering and transitions between Business
411 Transactions) of the collaboration is described through ebBP standard choreography constructs such as
412 “Start”, “Transition”, “ToLink” and “FromLink”. In this section, an IHE Transaction, namely, “Patient Identity
413 Feed” is specialized to IHE PIX and IHE XDS Profiles.

414 The benefits of defining an IHE collaboration through ebBP are as follows:

- 415 • The definition is machine processable; an application can process such a file and extract and reuse
416 its information content.
- 417 • It becomes possible to reuse the IHE transactions defined previously by specializing them to specific
418 profiles.
- 419 • The choreography is defined in a standard way.

420 4.3.1. “Patient Identity Feed” Business Collaboration in IHE PIX

421 When IHE “Patient Identity Feed” Transaction is specialized to the IHE PIX Profile, the “PIDFeedBT-Initiator”
422 role defined in “Patient Identity Feed” Transaction (Listing 1) is specialized to “PIDSource” and the
423 “PIDFeedBT-Responder” role is specialized to “PIXManager” as shown in Listing 3. As already mentioned,
424 the choreography (the ordering and transitions between Business Transactions) of the collaboration is
425 described through ebBP standard choreography constructs such as “Start”, “Transition”, “ToLink” and
426 “FromLink”. For example, in Listing 3, the start state is “PIDFeedBTA” and the transitions from this state to
427 the two possible states (Success and Failure) are stated. Failure state is omitted from the listing for the sake
428 of simplicity.

```
429 <BusinessCollaboration name="PIX Patient Identity Feed" nameID="PIX-IHE-  
430 ITI-8">  
431   <Role name="Patient Identity Source" nameID="PIDSource"/>  
432   <Role name="Patient Identifier Cross-reference Manager"  
433 nameID="PIXManager"/><TimeToPerform/>  
434   <Start>  
435     <ToLink toBusinessStateRef="PIDFeedBTA"/>  
436   </Start>  
437   <BusinessTransactionActivity name="Patient Identity Feed BTA"  
438     nameID="PIDFeedBTA"  
439     businessTransactionRef="IHE-ITI-8" ><TimeToPerform/>  
440     <Performs currentRoleRef="PIDSource"  
441 performsRoleRef="PIDFeedBT-Initiator"/>  
442     <Performs currentRoleRef="PIXManager"  
443 performsRoleRef="PIDFeedBT-Responder"/>  
444   </BusinessTransactionActivity>  
445   <Transition>  
446     <FromLink fromBusinessStateRef="PIDFeedBTA"/>  
447     <ToLink toBusinessStateRef="PIDFeedSuccess"/>  
448   </Transition>  
449   <Success name="Success" nameID="PIDFeedSuccess"/>  
450 </BusinessCollaboration>
```

451 Listing 3: The ebBP Code Segment Defining Business Collaboration through IHE-ITI-8 for IHE
452 PIX

453 4.3.2. “Patient Identity Feed” Business Collaboration in IHE XDS

454 When IHE “Patient Identity Feed” Transaction is specialized to the IHE XDS Profile, the “PIDFeedBT-
455 Initiator” role defined in “Patient Identity Feed” Transaction (Listing 1) is specialized to “PIDSource” and the
456 “PIDFeedBT-Responder” role is specialized to “XDSRegistry” as shown in Listing 4. Furthermore, the
457 choreography (the ordering and transitions between Business Transactions) of the collaboration is described
458 through ebBP standard choreography constructs such as “Start”, “Transition”, “ToLink” and “FromLink”. For
459 example, in Listing 4, the start state is “XDSPIDFeedBTA” and the transitions from this state to the two

460 possible states (Success and Failure) are stated. Failure state is omitted from the listing for the sake of
461 simplicity.

```
462 <BusinessCollaboration name="XDS Patient Identity Feed" nameID="XDS-IHE-  
463 ITI-8">  
464   <Role name="Patient Identity Source" nameID="PIDSource"/>  
465   <Role name="Document Registry" nameID="XDSRegistry"/><TimeToPerform/>  
466   <Start>  
467     <ToLink toBusinessStateRef="XDSPIDFeedBTA"/>  
468   </Start>  
469   <BusinessTransactionActivity name="Patient Identity Feed BTA"  
470     nameID="XDSPIDFeedBTA"  
471     businessTransactionRef="IHE-ITI-8" ><TimeToPerform/>  
472     <Performs currentRoleRef="PIDSource"  
473 performsRoleRef="PIDFeedBT-Initiator"/>  
474     <Performs currentRoleRef="XDSRegistry"  
475 performsRoleRef="PIDFeedBT-Responder"/>  
476   </BusinessTransactionActivity>  
477   <Transition>  
478     <FromLink fromBusinessStateRef="XDSPIDFeedBTA"/>  
479     <ToLink toBusinessStateRef="XDSPIDFeedSuccess"/>  
480   </Transition>  
481   <Success name="Success" nameID="XDSPIDFeedSuccess"/>  
482 </BusinessCollaboration>
```

483 Listing 4: The ebBP Code Segment Defining Business Collaboration through IHE-ITI-8 for IHE
484 XDS

485 4.3.3. “Provide/Register Document Set” Collaboration in IHE XDS

486 When IHE “Provide/Register Document Set” Transaction is specialized to the IHE XDS Profile (in fact,
487 currently this transaction is used only by the IHE XDS Profile), the "PRDS-BT-Initiator" role defined in
488 “Provide/Register Document Set” Transaction (Listing 2) is specialized to “XDSSource” and the "PRDS-BT-
489 Responder" role is specialized to "XDSRepository" as shown in Listing 5. Furthermore, the choreography
490 (the ordering and transitions between Business Transactions) of the collaboration is described through ebBP
491 standard choreography constructs such as “Start”, “Transition”, “ToLink” and “FromLink”. For example, in
492 Listing 5, the start state is “PDRS-BTA” and the transitions from this state to the two possible states
493 (Success and Failure) are stated. Failure state is omitted from the listing for the sake of simplicity.

```
494 <BusinessCollaboration name="IHE XDS Provide/Register Document Set"  
495 nameID="XDS-IHE-ITI-15">  
496   <Role name="Document Source" nameID="PRDSXDSSource"/>  
497   <Role name="Document Repository"  
498 nameID="PRDSXDSRepository"/><TimeToPerform/>  
499   <Start>  
500     <ToLink toBusinessStateRef="PRDS-BTA"/>  
501   </Start>  
502   <BusinessTransactionActivity name="IHE XDS Provide/Register Document  
503 Set BTA"  
504     nameID="PRDS-BTA"  
505     businessTransactionRef="IHE-ITI-15" ><TimeToPerform/>  
506     <Performs currentRoleRef="PRDSXDSSource"  
507 performsRoleRef="PRDS-BT-Initiator"/>  
508     <Performs currentRoleRef="PRDSXDSRepository"  
509 performsRoleRef="PRDS-BT-Responder"/>  
510   </BusinessTransactionActivity>  
511   <Transition>  
512     <FromLink fromBusinessStateRef="PRDS-BTA"/>  
513     <ToLink toBusinessStateRef="PRDS-Success"/>  
514   </Transition>  
515   <Success name="Success" nameID="PRDS-Success"/>  
516 </BusinessCollaboration>
```

517 Listing 5: The ebBP Code Segment Defining Business Collaboration through IHE-ITI-15 for IHE
518 XDS

519 4.4. Defining IHE Profiles through ebBP Business Processes

520 After defining transactions and specializing them to Business Collaborations, these Business Collaborations
521 are used to define the complete Business Process for each IHE Profile.

522 The advantages of defining IHE Profiles through ebBP specifications are as follows:

- 523 • The definition is machine processable; an application can process such a file and extract and reuse
524 its information content.
- 525 • It becomes possible to reuse the IHE collaborations defined previously.

526 4.5. IHE Cross-Enterprise Document Sharing (XDS) Profile

527 In IHE XDS, the ebXML repository is used for storing the clinical documents in folders in a persistent manner
528 and the related metadata stored at the ebXML registry is used to facilitate the discovery of the documents.

529 In the IHE XDS Profile, healthcare enterprises that agree to work together for clinical document
530 sharing is called a "Clinical Affinity Domain". Such institutes agree on a common set of policies such as how
531 the patients are identified, the consent is obtained, the access is controlled, and the common set of coding
532 terms to represent the metadata of the documents. The metadata defined is used for searching the ebXML
533 registry to locate the documents in the repository.

534 An XDS document, stored in the repository, is represented as an ebXML ExtrinsicObject in the
535 registry. ExtrinsicObjects in ebXML are used to provide metadata that describes submitted content whose
536 type is not intrinsically known to the registry.

537 IHE XDS introduces five Actors, namely, "Document Consumer", "Document Source", "Document
538 Repository", "Document Registry", and "Patient Identity Source" and five Transactions, namely, "Provide and
539 Register Document Set", "Register Document Set", "Query Registry", "Retrieve Document" and "Patient
540 Identity Feed" transactions.

541 An IHE XDS Profile diagram showing the Actors and transactions is depicted in Figure 5.

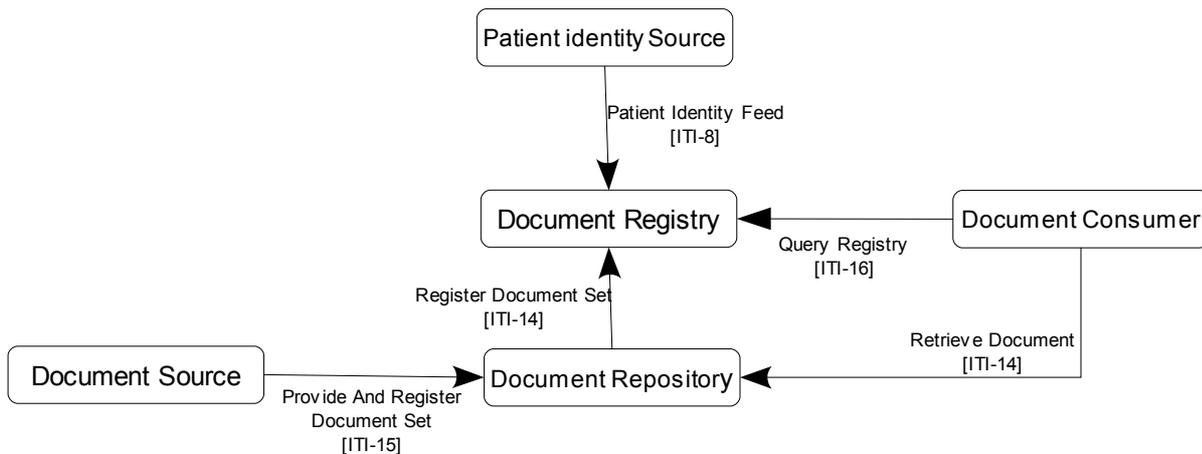


Figure 5: IHE XDS Actors and Transactions Diagram

542 The choreography of the transactions in IHE XDS Profile is as follows:

- 543 • "Patient Identity Source" provides the patient identifier to the "Document Registry".
- 544 • The "Document Source" Actor, by using Provide and Register Document Set Transaction, sends the
545 documents to the "Document Repository".
- 546 • The "Document Repository" Actor stores these documents at the persistent storage and sends the
547 metadata of these documents to appropriate "Document Registry" by using Register Document Set
548 transaction.
- 549 • The "Document Registry" Actor maintains metadata about each registered document in a document
550 entry. This includes a link to the document in the Repository where it is stored.
- 551 • The "Document Consumer" Actor queries a "Document Registry" Actor for documents meeting
552 certain criteria on metadata by using Query Registry transaction, and retrieves selected documents
553 from one or more "Document Repository" Actors.

554 In defining the IHE XDS Profile through ebBP, previously defined collaborations are reused and new
555 collaborations are introduced as needed. For example, there is a collaboration between "Document Source",
556 "Document Repository" and "Document Registry" Actors: when a "Document Repository" Actor receives a
557 "Document" set from a "Document Source", it stores these documents at the persistent storage and sends

558 the metadata of these documents to appropriate "Document Registry" by using Register Document Set
559 transaction. In order to express this choreography between three IHE Actors, it is necessary to introduce a
560 new business collaboration by using the previously defined Business Collaborations as Business
561 Collaboration Activity and introduce the choreography as shown in Listing 6. The previously defined Business
562 Collaborations are re-used by providing collaboration references to them (for example,
563 collaborationRef="XDS-IHE-ITI-15" refers to the Business Collaboration Activity defined in Listing 5 and
564 collaborationRef="XDS-IHE-ITI-14" refers to another Business Collaboration available at [ebBP-IHE-
565 Packages]) and the choreography is defined by stating the transitions, first from "CA-IHE-ITI-15" to "CA-IHE-
566 ITI-14", and then from "CA-IHE-ITI-14" to "ITI14-15-Success". Failure state is omitted from the listing for the
567 sake of simplicity.

```

568 <BusinessCollaboration name="Collaboration of IHE ITI 14 and IHE ITI 15"
569 nameID="IHE-ITI-14-15">
570     <Role name="Document Source" nameID="ITI14-15-XDSSource"/>
571     <Role name="Document Repository" nameID="ITI14-15-XDSRepository"/>
572     <Role name="Document Registry" nameID="ITI14-15-XDSRegistry"/>
573     <TimeToPerform/>
574     <Start>
575         <ToLink toBusinessStateRef="CA-IHE-ITI-15"/>
576     </Start>
577     <CollaborationActivity name="IHE ITI 15" nameID="CA-IHE-ITI-15"
578 collaborationRef="XDS-IHE-ITI-15">
579         <Documentation>
580             IHE ITI 15 is Provide and Register Document Set
581 Transaction specialized to XDS
582         </Documentation>
583         <Performs currentRoleRef="ITI14-15-XDSSource"
584 performsRoleRef="PRDSXDSSource"/>
585         <Performs currentRoleRef="ITI14-15-XDSRepository"
586 performsRoleRef="PRDSXDSRepository"/>
587     </CollaborationActivity>
588     <Transition>
589         <FromLink fromBusinessStateRef="CA-IHE-ITI-15"/>
590         <ToLink toBusinessStateRef="CA-IHE-ITI-14"/>
591     </Transition>
592     <CollaborationActivity name="IHE ITI 14" nameID="CA-IHE-ITI-14"
593 collaborationRef="XDS-IHE-ITI-14">
594         <Documentation>
595             IHE ITI 14 is Register Document Set Transaction
596 specialized to XDS
597         </Documentation>
598         <Performs currentRoleRef="ITI14-15-XDSRepository"
599 performsRoleRef="RDSXDSRepository"/>
600         <Performs currentRoleRef="ITI14-15-XDSRegistry"
601 performsRoleRef="RDSXDSRegistry"/>
602     </CollaborationActivity>
603     <Transition>
604         <FromLink fromBusinessStateRef="CA-IHE-ITI-14"/>
605         <ToLink toBusinessStateRef="ITI14-15-Success"/>
606     </Transition>
607     <Success name="Success" nameID="ITI14-15-Success"/>
608 </BusinessCollaboration>

```

609 **Listing 6: Business Collaboration between IHE-ITI-14 and IHE-ITI-15**

610 The complete ebBP definition of IHE XDS Profile is presented in Listing 7.

```

611 <ProcessSpecification
612     xmlns:xi="http://www.w3.org/2001/XInclude"
613     xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
614     nameID="IHE-XDS-Profile"
615     uuid="urn:metu-srdc:names:specification:ihexdsprofile:schema"
616     name="IHE-XDS Profile">
617
618     <xi:include
619 href="http://www.srdc.metu.edu.tr/ihe/ebBP/packages/signals/ebBP-Example-
619 Signals.xml" parse="xml"
620     xpointer="element(/1/1)"/>

```

```

621     <xi:include
622 href="http://www.srdc.metu.edu.tr/ihe/ebBP/packages/businessCollaborations/
623 IHE-IndividualBC-IHE-ITI-14-25052006-v1.xml" parse="xml"
624     xpointer="element(/1/2)"/>
625     <xi:include
626 href="http://www.srdc.metu.edu.tr/ihe/ebBP/packages/businessCollaborations/
627 IHE-IndividualBC-IHE-ITI-15-25052006-v1.xml" parse="xml"
628     xpointer="element(/1/2)"/>
629     <xi:include
630 href="http://www.srdc.metu.edu.tr/ihe/ebBP/packages/businessCollaborations/
631 IHE-IndividualBC-IHE-ITI-16-25052006-v1.xml" parse="xml"
632     xpointer="element(/1/2)"/>
633     <xi:include
634 href="http://www.srdc.metu.edu.tr/ihe/ebBP/packages/businessCollaborations/
635 IHE-IndividualBC-IHE-ITI-17-25052006-v1.xml" parse="xml"
636     xpointer="element(/1/2)"/>
637     <xi:include
638 href="http://www.srdc.metu.edu.tr/ihe/ebBP/packages/businessCollaborations/
639 IHE-IndividualBC-PIX-IHE-ITI-8-25052006-v1.xml" parse="xml"
640     xpointer="element(/1/2)"/>

641     <BusinessCollaboration name="Collaboration of IHE ITI 14 and IHE ITI
642 15" nameID="IHE-ITI-14-15">
643         <Role name="Document Source" nameID="ITI14-15-XDSSource"/>
644         <Role name="Document Repository" nameID="ITI14-15-
645 XDSRepository"/>
646         <Role name="Document Registry" nameID="ITI14-15-XDSRegistry"/>
647         <TimeToPerform/>
648         <Start>
649             <ToLink toBusinessStateRef="CA-IHE-ITI-15"/>
650         </Start>
651         <CollaborationActivity name="IHE ITI 15" nameID="CA-IHE-ITI-
652 15" collaborationRef="XDS-IHE-ITI-15">
653             <Documentation>
654                 IHE ITI 15 is Provide and Register Document Set
655 Transaction specialized to XDS
656             </Documentation>
657             <Performs currentRoleRef="ITI14-15-XDSSource"
658 performsRoleRef="PRDSXDSSource"/>
659             <Performs currentRoleRef="ITI14-15-XDSRepository"
660 performsRoleRef="PRDSXDSRepository"/>
661             </CollaborationActivity>
662             <Transition>
663                 <FromLink fromBusinessStateRef="CA-IHE-ITI-15"/>
664                 <ToLink toBusinessStateRef="CA-IHE-ITI-14"/>
665             </Transition>
666             <CollaborationActivity name="IHE ITI 14" nameID="CA-IHE-ITI-
667 14" collaborationRef="XDS-IHE-ITI-14">
668                 <Documentation>
669                     IHE ITI 14 is Register Document Set Transaction
670 specialized to XDS
671                 </Documentation>
672                 <Performs currentRoleRef="ITI14-15-XDSRepository"
673 performsRoleRef="RDSXDSRepository"/>
674                 <Performs currentRoleRef="ITI14-15-XDSRegistry"
675 performsRoleRef="RDSXDSRegistry"/>
676                 </CollaborationActivity>
677             <Transition>
678                 <FromLink fromBusinessStateRef="CA-IHE-ITI-14"/>
679                 <ToLink toBusinessStateRef="ITI14-15-Success"/>
680             </Transition>
681             <Success name="Success" nameID="ITI14-15-Success"/>
682         </BusinessCollaboration>

683     <BusinessCollaboration name="Collaboration of IHE ITI 16 and IHE ITI
684 17" nameID="IHE-ITI-16-17">
685         <Role name="Document Consumer" nameID="ITI16-17-XDSConsumer"/>
686         <Role name="Document Repository" nameID="ITI16-17-
687 XDSRepository"/>
688         <Role name="Document Registry" nameID="ITI16-17-XDSRegistry"/>
689         <TimeToPerform/>

```

```

690         <Start>
691             <ToLink toBusinessStateRef="CA-IHE-ITI-16"/>
692         </Start>
693         <CollaborationActivity name="IHE ITI 16" nameID="CA-IHE-ITI-
694 16" collaborationRef="XDS-IHE-ITI-16">
695             <Documentation>
696                 IHE ITI 16 is Query Registry Transaction
697 specialized to XDS
698             </Documentation>
699             <Performs currentRoleRef="ITI16-17-XDSConsumer"
700 performsRoleRef="QRXDSConsumer"/>
701             <Performs currentRoleRef="ITI16-17-XDSRegistry"
702 performsRoleRef="QRXDSRegistry"/>
703         </CollaborationActivity>
704         <Transition>
705             <FromLink fromBusinessStateRef="CA-IHE-ITI-16"/>
706             <ToLink toBusinessStateRef="CA-IHE-ITI-17"/>
707         </Transition>
708         <CollaborationActivity name="IHE ITI 17" nameID="CA-IHE-ITI-
709 17" collaborationRef="XDS-IHE-ITI-17">
710             <Documentation>
711                 IHE ITI 17 is Retrieve Document Set Transaction
712 specialized to XDS
713             </Documentation>
714             <Performs currentRoleRef="ITI16-17-XDSConsumer"
715 performsRoleRef="RDXDSConsumer"/>
716             <Performs currentRoleRef="ITI16-17-XDSRepository"
717 performsRoleRef="RDXDSRepository"/>
718         </CollaborationActivity>
719         <Transition>
720             <FromLink fromBusinessStateRef="CA-IHE-ITI-17"/>
721             <ToLink toBusinessStateRef="ITI16-17-Success"/>
722         </Transition>
723         <Success name="Success" nameID="ITI16-17-Success"/>
724     </BusinessCollaboration>
725 </ProcessSpecification>

```

726 Listing 7: Business Process Definition of IHE XDS through ebBP

727 4.6. ebBP Packages and XInclude Mechanism for More Compact IHE 728 Profiles

729 The re-usability of ebXML constructs makes it possible to have more compact business process definitions
730 by the use of ebBP Packages and XInclude mechanism of XML. Before we proceed, we briefly introduce
731 these mechanisms and describe how we have used them in defining IHE Profiles. In the remaining IHE
732 Profiles these mechanisms are used.

733 A package supports the inclusion and substitution mechanism in the ebBP Schema. Packages may
734 contain other packages, therefore defining a hierarchy of packages. In defining IHE Profiles we have created
735 packages in a layered architecture to increase their re-usability:

- 736 ● Packages for Signals used
- 737 ● A Package for each document used
- 738 ● A Package for each IHE Transaction
- 739 ● A Package for each IHE Collaborations
- 740 ● A Package for each IHE Profile

741 The listings of the packages are provided in the [ebBP-IHE-Packages] and are used through XInclude
742 mechanism of XML. The processes defined in the rest of this document make use of these packages.

743 4.7. IHE Patient Identifier Cross Referencing (PIX) Profile

744 IHE PIX Profile supports the cross-referencing of patient identifiers from multiple Patient Identifier Domains
745 via the following interactions:

- 746 ● The transmission of patient identity information from an identity source to the Patient Identifier Cross-
747 reference Manager.
- 748 ● The ability to access the list(s) of cross-referenced patient identifiers either via a query/ response or
749 via update notification.

750 The PIX Profile Actors and Transactions are shown in Figure 6.

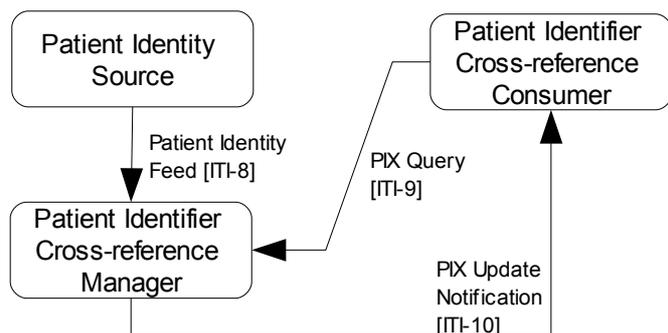


Figure 6: IHE PIX Actors and Transactions Diagram

751 It should be noted that “PIX Update Notification (IHE-ITI-10)” is an optional transaction for the Patient
 752 Identifier Cross-reference Consumer Actor. The complete ebBP definition of IHE PIX Profile is presented in
 753 Listing 8 excluding the optional IHE-ITI-10 Transaction.

```

754 <ProcessSpecification
755     xmlns:xi="http://www.w3.org/2001/XInclude"
756     xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
757     nameID="IHE-PIX-Profile"
758     uuid="urn:metu-srdc:names:specification:ihepixprofile:schema"
759     name="IHE-PIX Profile">
760     <xi:include
761 href="http://www.srdc.metu.edu.tr/ihe/ebBP/packages/signals/ebBP-Example-
762 Signals.xml" parse="xml"
763     xpointer="element(/1/1)"/>
764     <xi:include
765 href="http://www.srdc.metu.edu.tr/ihe/ebBP/packages/businessCollaborations/
766 IHE-IndividualBC-PIX-IHE-ITI-8-25052006-v1.xml" parse="xml"
767     xpointer="element(/1/2)"/>
768     <xi:include
769 href="http://www.srdc.metu.edu.tr/ihe/ebBP/packages/businessCollaborations/
770 IHE-IndividualBC-IHE-ITI-9-25052006-v1.xml" parse="xml"
771     xpointer="element(/1/2)"/>
772 </ProcessSpecification>
  
```

773 Listing 8: Business Process Definition of IHE PIX through ebBP

774 4.8. Handling Optional Transactions in IHE

775 If an IHE Actor supports an optional transaction, there should be a machine processable mechanism to
 776 indicate this fact. In other words, it should be possible to automatically find out the optional IHE Transactions
 777 a specific IHE Actor supports. When IHE Profiles are expressed through ebBP, it becomes possible to
 778 specify this by referring to the business process which includes the optional transactions. For example, the
 779 IHE PIX business process definition including the optional IHE-ITI-10 transaction is given in Listing 9. If a
 780 “Patient Identifier Cross-Reference Consumer” is supporting the optional IHE-ITI-10 transaction, then this
 781 Actor should reference the business process that includes this transaction as given in Listing 9 not the
 782 business process definition given in Listing 8.

```

783 <ProcessSpecification
784     xmlns:xi="http://www.w3.org/2001/XInclude"
785     xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
786     nameID="IHE-PIX-Profile"
787     uuid="urn:metu-srdc:names:specification:ihepixprofile:schema"
788     name="IHE-PIX Profile">
789     <xi:include
790 href="http://www.srdc.metu.edu.tr/ihe/ebBP/packages/signals/ebBP-Example-
791 Signals.xml" parse="xml"
792     xpointer="element(/1/1)"/>
793     <xi:include
794 href="http://www.srdc.metu.edu.tr/ihe/ebBP/packages/businessCollaborations/
795 IHE-IndividualBC-PIX-IHE-ITI-8-25052006-v1.xml" parse="xml"
  
```

```

796         xpointer="element(/1/2)"/>
797     <xi:include
798 href="http://www.srdc.metu.edu.tr/ihe/ebBP/packages/businessCollaborations/
799 IHE-IndividualBC-IHE-ITI-9-25052006-v1.xml" parse="xml"
800         xpointer="element(/1/2)"/>
801     <xi:include
802 href="http://www.srdc.metu.edu.tr/ihe/ebBP/packages/businessCollaborations/
803 IHE-IndividualBC-IHE-ITI-10-25052006-v1.xml" parse="xml"
804         xpointer="element(/1/2)"/>
805 </ProcessSpecification>

```

806 **Listing 9: Business Process Definition of IHE PIX through ebBP Including the Optional HE-ITI-10**
807 **Transaction**

808 4.8.1. IHE PIX Update Notification (IHE-ITI-10)

809 This transaction involves the Patient Identifier Cross-reference Manager Actor providing notification of
810 updates to patient identifier cross-reference associations to Patient Identifier Cross-reference Consumers
811 that have registered (by configuration on the Cross-reference Manager) their interest in receiving such
812 notifications.

```

813 <Notification nameID="IHE-ITI-10" name="PIX Update Notification Business
814 Transaction"
815     isGuaranteedDeliveryRequired="true">
816     <RequestingRole nameID="PIXUpdateBT-Initiator" name="Initiator"/>
817     <RespondingRole nameID="PIXUpdateBT-Responder" name="Responder"/>
818     <RequestingBusinessActivity
819         nameID="PIXUpdateBT-RBA"
820         name="PIX Update Notification Requesting Business Activity"
821         isAuthorizationRequired="true"
822         isNonRepudiationRequired="true">
823         <DocumentEnvelope
824             nameID="HL7-v2.5-ADT-A31"
825             businessDocumentRef="HL7-2.5-ADT-A31-Document"
826             name="HL7 v2.5 ADT A31 Message"
827             isAuthenticated="persistent"
828             isConfidential="persistent"/>
829         <ReceiptAcknowledgement name="ra2" nameID="PIXUpdateBT-RBA-RA"
830 signalDefinitionRef="ra2"/>
831         <ReceiptAcknowledgementException name="rae2"
832 nameID="PIXUpdateBT-RBA-RAE" signalDefinitionRef="rae2"/>
833         <AcceptanceAcknowledgement name="aa2" nameID="PIXUpdateBT-RBA-
834 AA" signalDefinitionRef="aa2"/>
835         <AcceptanceAcknowledgementException name="aae2"
836 nameID="PIXUpdateBT-RBA-AAE" signalDefinitionRef="aae2"/>
837     </RequestingBusinessActivity>
838     <RespondingBusinessActivity nameID="PIXUpdateBT-ResBA"
839         name="PIX Update Notification Responding Business Activity">
840     </RespondingBusinessActivity>
841 </Notification>

```

842 **Listing 10: The Code Segment Defining IHE-ITI-10 through ebBP Notification Pattern**

843 4.8.2. Update Notification Collaboration in IHE PIX

844 The Business Collaboration corresponding to IHE-ITI-10 is given in Listing 11.

```

845 <BusinessCollaboration name="PIX Update Notification" nameID="PIX-IHE-ITI-
846 10">
847     <Role name="Patient Identifier Cross-reference Manager"
848 nameID="PIXManager10"/>
849     <Role name="Patient Identifier Cross-reference Consumer"
850 nameID="PIXConsumer10"/><TimeToPerform/>
851     <Start><ToLink toBusinessStateRef="PIXUpdateBTA"/>
852 </Start>
853     <BusinessTransactionActivity name="Patient Identity Feed BTA"
854         nameID="PIXUpdateBTA"
855         businessTransactionRef="IHE-ITI-10" ><TimeToPerform/>

```

```

856         <Performs currentRoleRef="PIXManager10"
857 performsRoleRef="PIXUpdateBT-Initiator"/>
858         <Performs currentRoleRef="PIXConsumer10"
859 performsRoleRef="PIXUpdateBT-Responder"/>
860     </BusinessTransactionActivity><Transition>
861         <FromLink fromBusinessStateRef="PIXUpdateBTA"/>
862         <ToLink toBusinessStateRef="PIXUpdateSuccess"/>
863     </Transition>
864     <Success name="Success" nameID="PIXUpdateSuccess"/>
865 </BusinessCollaboration>

```

866 Listing 11: The Code Segment Defining IHE-ITI-10 Collaboration in PIX

867 4.9. IHE Audit Trail and Node Authentication (ATNA) Profile

868 The Audit Trail and Node Authentication (ATNA) Integration Profile, together with the security measures of
869 the enterprise, provide patient information confidentiality, data integrity and user accountability. The ATNA
870 profile provides the following:

- 871 ○ Authentication of the user: For this profile the user authentication may utilize any technology.
- 872 ○ Audit record generation: This profile requires that events concerning Protected Health
873 Information (PHI) use are recorded and transmitted to a repository where they can be monitored
874 to detect indications of inappropriate activity.
- 875 ○ Authentication of the node during communications: This profile requires that the nodes are
876 authorized and authenticated nodes for all data communications transferring PHI. It does not
877 convey user identification. By using the user authentication and access control selected for each
878 node, user accountability can be assured.

879 The ATNA Profile Actors and Transactions are shown in Figure 7.

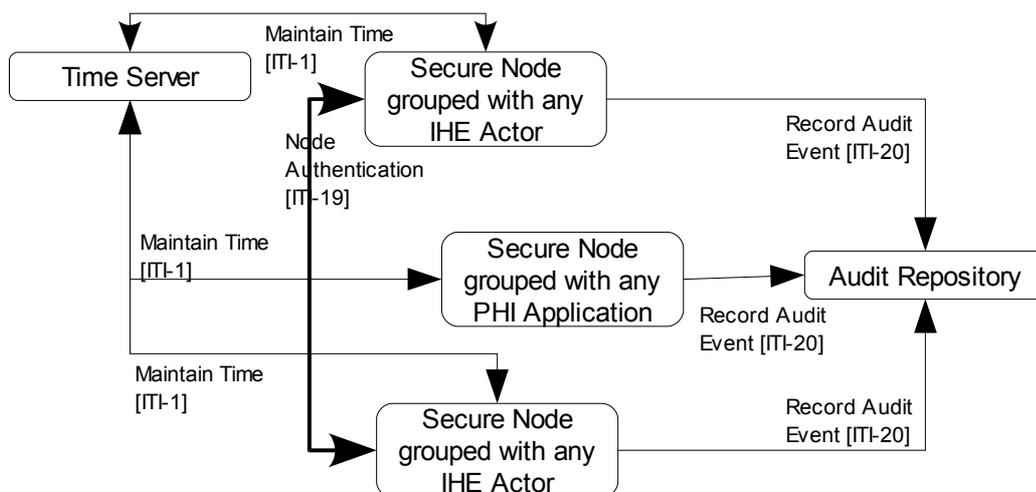


Figure 7: IHE ATNA Profile Actors and Transactions Diagram

880 The complete ebBP definition of IHE ATNA Profile is presented in Listing 12.

```

881 <ProcessSpecification
882     xmlns:xi="http://www.w3.org/2001/XInclude"
883     xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
884     nameID="IHE-ATNA-Profile"
885     uuid="urn:metu-srdc:names:specification:iheatnaprofile:schema"
886     name="IHE-ATNA Profile">
887     <xi:include
888 href="http://www.srdc.metu.edu.tr/ihe/ebBP/packages/signals/ebBP-Example-
889 Signals.xml" parse="xml" xpointer="element(/1/1)"/>
890     <xi:include
891 href="http://www.srdc.metu.edu.tr/ihe/ebBP/packages/businessCollaborations/
892 IHE-IndividualBC-IHE-ITI-1-25052006-v1.xml" parse="xml"
893     xpointer="element(/1/2)"/>
894     <xi:include
895 href="http://www.srdc.metu.edu.tr/ihe/ebBP/packages/businessCollaborations/
896 IHE-IndividualBC-IHE-ITI-19-25052006-v1.xml" parse="xml"
897     xpointer="element(/1/2)"/>

```

```
898     <xi:include
899 href="http://www.srdc.metu.edu.tr/ihe/ebBP/packages/businessCollaborations/
900 IHE-IndividualBC-IHE-ITI-20-25052006-v1.xml" parse="xml"
901     xpointer="element(/1/2)"/>
902 </ProcessSpecification>
```

903 **Listing 12: Business Process Definition of IHE ATNA through ebBP**

904 **5. ebBP Editor**

905 The ebBP Editor is an open source tool designed to help the users in creating generic as well as domain
906 specific Business Process Specifications based on ebBP Version 2.0.3 by using semantic mechanisms and
907 the source code as well as a User's Manual is available at [freebXMLBP] . The editor lets the user to create
908 ebBP instances from scratch or use the existing ones.

909 The ebBP Editor consists of two main components, XmlStylist and Graphical Component Pane. The
910 general view of the Graphical Component Pane is depicted in Figure 8. The first window, titled "Visual
911 Components" on the top right panel gives the widgets. Each of these widgets references to an ebBP
912 element. The window below it, titled "Transaction Specialization" presents the ebBP Transaction Patterns
913 specialized to IHE Transactions. The user can drag and drop the selected business transactions as well as
914 the visual components to the main window to prepare the content of a Business Collaborations and organize
915 these components into IHE Profiles. Once an instance of these constructs is created, XmlStylist GUI is
916 displayed for expert modifications. Graphical Component Pane can display the choreography in a Business
917 Collaboration automatically after a valid Process Specification is generated.

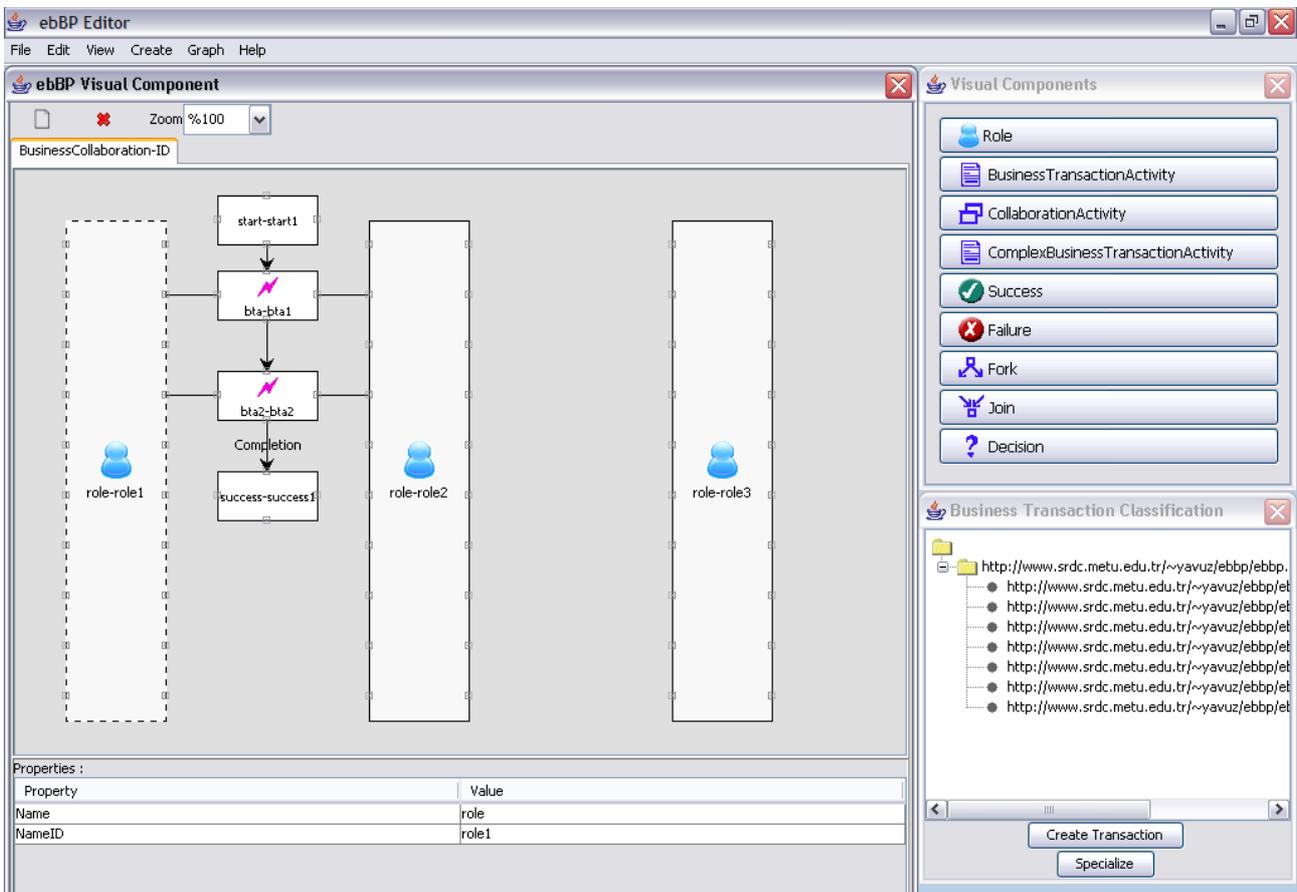


Figure 8: A Screen Shot from ebBP Editor

918 As a part of ebBP Editor, users can create, modify and also validate ebBP instances in XML format
919 by using XmlStylist. XmlStylist GUI displays process specifications, business transactions, packages and the
920 corresponding specification document in tree structures. XmlStylist GUI dynamically updates itself by tree
921 node selections allowing users to fill in the attributes of the selected node, add new child nodes or remove
922 the selected ones. To avoid generating invalid instances, after each modification, a validation of the
923 document is done. Problematic actions are not allowed and users are notified in these cases. Moreover, one
924 can import packages to existing document through XmlStylist. A snapshot of the XmlStylist is given in Figure
925 9.

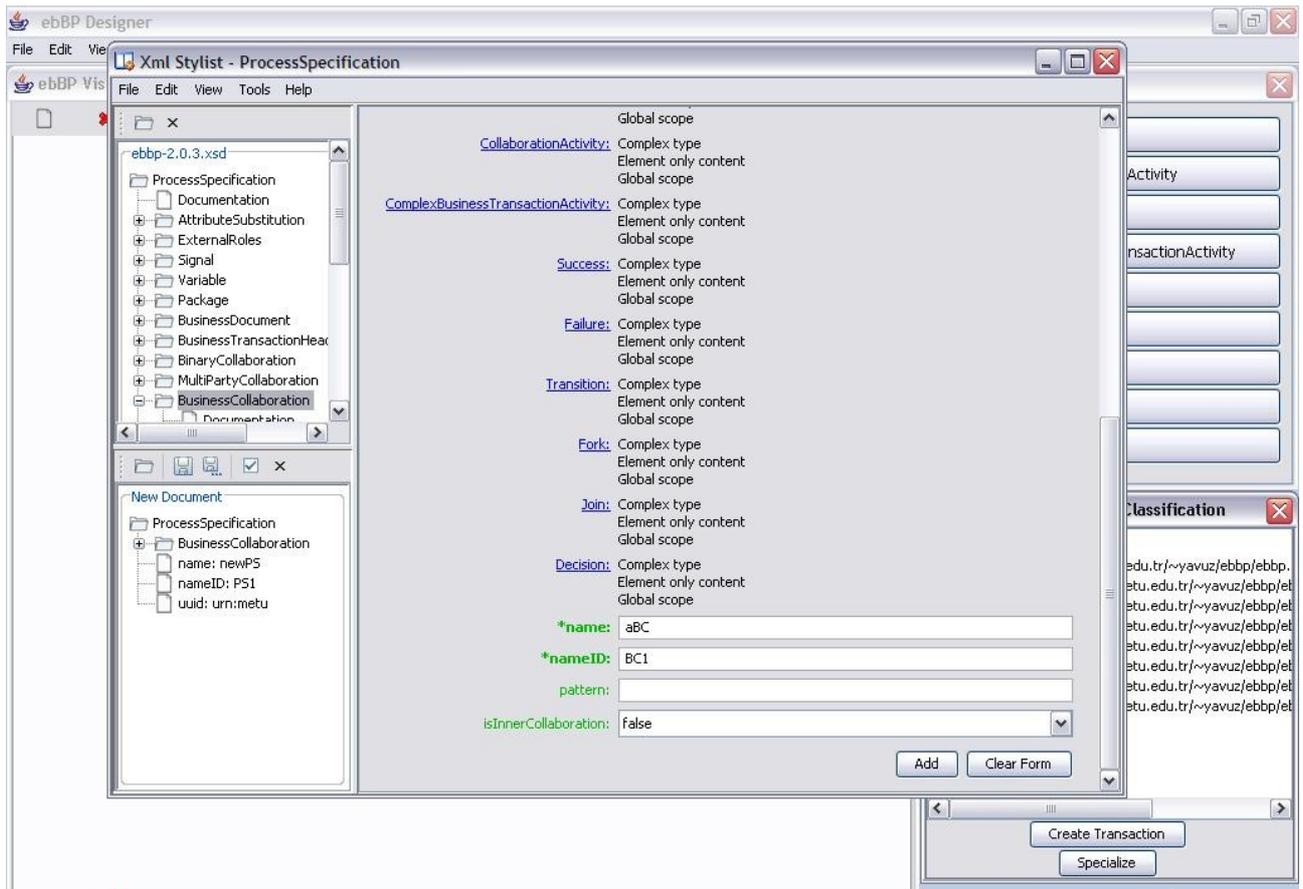


Figure 9: XmlStylist

926 The user can specialize any of the generic ebBP (Business Transaction) patterns by specifying
 927 properties, or the document to be exchanged. When the user finishes the specialization of a transaction
 928 template, the new transaction (template) is automatically annotated by a name given by the user.

6. Grouping IHE Actors through ebBP

930 Since IHE Profiles describe specific use cases, there is a need to combine several profiles to achieve the
 931 required functionality in realizing a real world scenario. The IHE solution for this is grouping the relevant
 932 Actors. As an example, IHE Cross-Enterprise Document Sharing (XDS) Profile allows Electronic Healthcare
 933 Records (EHRs) to be shared through a common ebXML Registry/Repository architecture. In IHE XDS, there
 934 is a need for node authentication and audit trail to provide patient information confidentiality, data integrity
 935 and user accountability. To achieve this, IHE Audit Trail and Node Authentication (ATNA) Integration Profile
 936 is used together with IHE XDS. To make these two profiles to work together, ATNA Secure Node Actor is
 937 grouped with the XDS Document Source, XDS Document Repository, XDS Document Registry and XDS
 938 Document Consumer Actors as shown in Figure 10.

939 The advantage of grouping IHE Profiles through ebBP specifications is that it becomes possible to
 940 automate this process as described in Section 6.1.

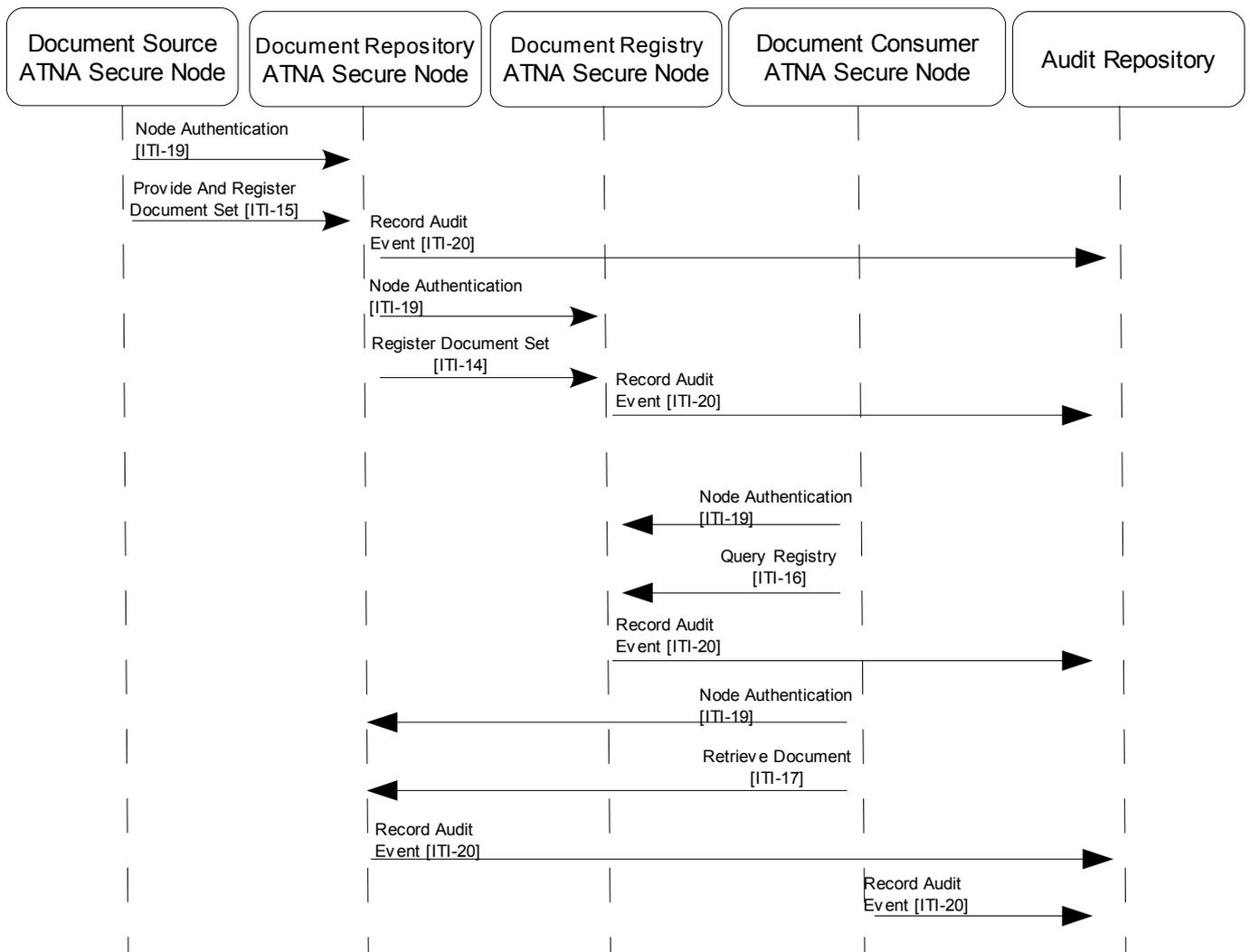


Figure 10: The Sequence Diagram Showing the Ordering of Transactions after Combining IHE XDS and IHE ATNA Profiles

941 It is clear from the example presented in Figure 10 that grouping the Actors implies developing a
 942 collaborative healthcare process combining the transactions of the grouped Actors. An important issue over
 943 here is determining the sequence of transactions of different Profiles in the combined process. For example,
 944 in Figure 10, “Record Audit Event” Transaction (IHE-ITI-20) of ATNA appears between “Provide and Register
 945 Document Set” Transaction (IHE-ITI-15) and “Register Document Set” (IHE-ITI-14) of XDS. Note that any
 946 number of Actors may be grouped to realize a real life scenario. As an example, in an XDS domain, if
 947 different Actors are using different patient identifiers for the same patient, it is necessary to map the patient
 948 identifiers used by different applications to each other. To achieve this, Patient Identifier Cross-referencing

949 Integration (PIX) Profile is used together with IHE XDS and IHE ATNA Profiles. Figure 11 demonstrates the
 950 business process flow after grouping the Actors of IHE XDS, IHE ATNA and IHE PIX.

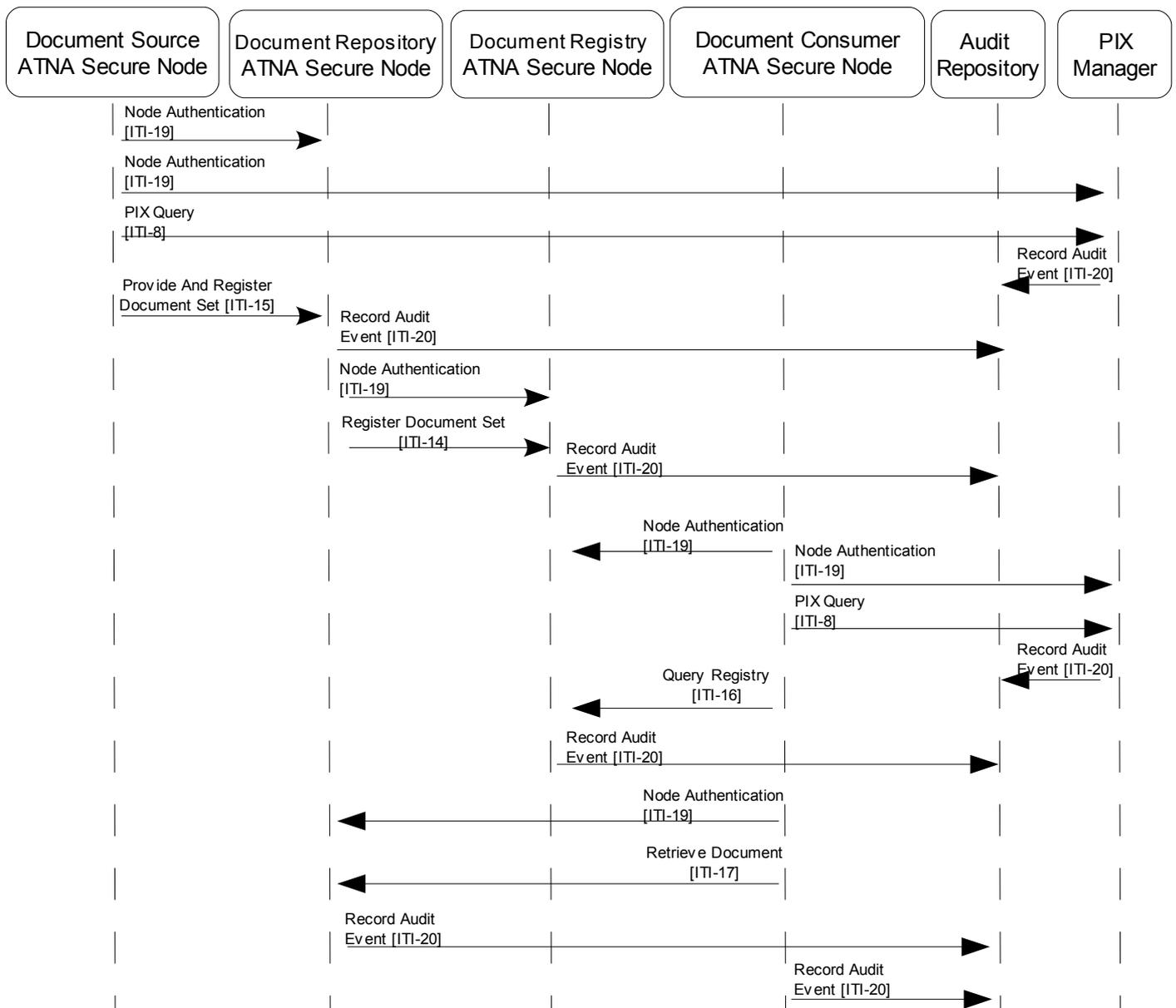


Figure 11: The Sequence Diagram Showing the Ordering of Transactions after Combining IHE XDS, IHE ATNA and IHE PIX Profiles

951 6.1. Automating Actor Grouping in IHE – IHE-Actor Grouping Tool

952 There are already many profiles in IHE and more profiles are being defined. It is up to to the
 953 enterprises to implement the profiles they choose; in other words, there is no fixed combination of the IHE
 954 Profiles. On the contrary, each user or vendor may support a different set of IHE Profiles as they choose and
 955 hence the overall business process for each user or vendor may be different. In order to automatically
 956 generate “custom” design the business process, integrating any possible existing or forthcoming profiles, we
 957 have developed a graphical tool, called IHE-AGT (IHE Actor Grouping Tool).

958 IHE-AGT uses the precedence rules in IHE Profiles. There are two types of precedence rules in IHE
 959 Profiles: first, there is a precedence among transactions within an IHE Profile, for example, XDS-ITI-15
 960 “XDSProvide/RegisterDocumentSet” must precede XDS-ITI-14 “XDSRegisterDocumentSet”. Secondly, when
 961 two Actors are grouped, there is a precedence among their transactions, for example, when
 962 XDSDocumentSource” is grouped with “ATNATNA Secure Node”, ATNA-ITI-19 precedes XDS-ITI-15. It is clear
 963 that, given the large number of IHE Profiles, determining the precedence of all the involved transactions

964 manually for every real life scenario is a very a tedious task. In this section, we describe how to automate
 965 this task by developing directed graph representations of IHE Profiles and using the precedence relation
 966 among the transactions of any two IHE Profiles to determine the ordering of transactions among the grouped
 967 IHE Actors.

968 For expressing the rules, we have developed the following notation:
 969 <InitiatingActor1, RespondingActor1, "IHE-Transaction1">
 970 precedes
 971 <InitiatingActor2, RespondingActor2, "IHE-Transaction2">
 972 which expresses the fact that the "IHE-Transaction1" between InitiatingActor1, and RespondingActor1
 973 precedes "IHE-Transaction2" between InitiatingActor2 and RespondingActor2.

974 This process is explained through an example: Assume that a healthcare enterprise wishes to
 975 implement IHE XDS Profile together with IHE ATNA Profile. The Actors of these profiles are given in Table 5.

IHE XDS Actors	IHE ATNA Actors	IHE PIX Actors
<ul style="list-style-type: none"> • XDS Registry • XDS Repository • XDS Document Consumer • XDS Document Source • XDS Patient Identity Source 	<ul style="list-style-type: none"> • ATNA Secure Node • ATNA Audit Repository • CT Time Server 	<ul style="list-style-type: none"> • PIX Patient Identity Source • PIX Patient Identifier Cross Reference Consumer • PIX Patient Identifier Cross Reference Manager

Table 5: Actors of IHE XDS, IHE ATNA and IHE PIX

976 First the precedence rules of transactions within the profiles must be given. For example, in IHE
 977 XDS, the following precedence rules hold:

- 978 1. <XSDDocumentSource, XSDDocumentRepository, "XDS-ITI-15"> precedes
 979 <XSDDocumentRepository, XSDDocumentRegistry, "XDS-ITI-14"> meaning "XDS
 980 Provide/RegisterDocumentSet" must precede "XDSRegisterDocumentSet".
- 981 2. <XSDDocumentConsumer, XSDDocumentRegistry, "XDS-ITI-16"> precedes
 982 <XSDDocumentConsumer, XSDDocumentRepository, "XDS-ITI-17"> meaning "XDSQueryRegistry"
 983 must precede "XDSRetrieveDocument".

984 Furthermore, the precedence rules among the grouped Actors must be given. Note that this is done only for
 985 once for each IHE Profile. Some example rules for Actor groupings are as follows:

- 986 • When "XSDDocumentSource" is grouped with "ATNASecureNode"
 - 987 • <XSDDocumentSource, XSDDocumentRepository, "ATNA-ITI-19"> precedes
 988 <XSDDocumentSource, XSDDocumentRepository, "XDS-ITI-15">.
- 989 • When "XSDDocumentRepository" is grouped with "ATNASecureNode":
 - 990 • <XSDDocumentSource, XSDDocumentRepository, "XDS-ITI-15"> precedes
 991 <XSDDocumentRepository, AuditRepository, "ATNA-ITI-20">
 - 992 • <XSDDocumentRepository, XSDDocumentRegistry, "ATNA-ITI-19"> precedes
 993 <XSDDocumentRepository, XSDDocumentRegistry, "XDS-ITI-14">
- 994 • When "XSDDocumentRegistry" is grouped with "ATNASecureNode"
 - 995 • <XSDDocumentRepository, XSDDocumentRegistry, "XDS-ITI-14"> precedes
 996 <XSDDocumentRegistry, AuditRepository, "ATNA-ITI-20">
 - 997 • <XSDDocumentConsumer, XSDDocumentRegistry, "XDS-ITI-16"> precedes
 998 <XSDDocumentRegistry, AuditRepository, "ATNA-ITI-20">
- 999 • When "XSDDocumentConsumer" is grouped with "ATNASecureNode"
 - 1000 • <XSDDocumentConsumer, XSDDocumentRegistry, "ATNA-ITI-19"> precedes
 1001 <XSDDocumentConsumer, XSDDocumentRegistry, "XDS-ITI-16">
 - 1002 • <XSDDocumentConsumer, XSDDocumentRepository, "ATNA-ITI-19"> precedes
 1003 <XSDDocumentConsumer, XSDDocumentRepository, "XDS-ITI-17">
 - 1004 • <XSDDocumentConsumer, XSDDocumentRepository, "XDS-ITI-17"> precedes
 1005 <XSDDocumentRepository, AuditRepository, "ATNA-ITI-20">
- 1006 • When "XSDDocumentConsumer" is grouped with "PIXConsumer"
 - 1007 ■ <XSDDocumentConsumer, PIXManager, "PIX-ITI-9"> precedes <XSDDocumentConsumer,
 1008 XSDDocumentRegistry, "XDS-ITI-16">
- 1009 • When "XSDDocumentSource" is grouped with "PIXConsumer"
 - 1010 ■ <XSDDocumentSource, PIXManager, "PIX-ITI-9"> precedes <XSDDocumentSource,
 1011 XSDDocumentRepository, "XDS-ITI-15">
- 1012 • When "PIXConsumer" is grouped with "ATNASecureNode"
 - 1013 ■ <PIXConsumer, PIXManager, "ATNA-ITI-19"> precedes <PIXConsumer, PIXManager, "PIX-

- 1014 ITI-9">
- 1015 • When "PIXManager" is grouped with "ATNATransactionNode"
- 1016 ▪ <PIXConsumer, PIXManager, "PIX-ITI-9"> precedes <PIXManager, AuditRepository,
- 1017 "ATNA-ITI-20">

1018 The algorithm for ordering transactions for grouped IHE Actors works as follows:

- 1019 • First, each IHE Profile is represented through a directed graph where nodes are the IHE Actors in
- 1020 the profile and the directed edges are the IHE Transactions involved. The precedence rules are used
- 1021 to build the graph as follows: the rule <InitiatingActor1, RespondingActor1, "IHE-Transaction1">
- 1022 produces a directed edge from the "InitiatingActor" (the source node) to the "RespondingActor" (the
- 1023 target node) labeled as "IHE-Transaction1". As an example IHE XDS Profile is represented as a
- 1024 directed graph in Figure 12. The logic behind forming this graph is to obtain the sequence of
- 1025 transactions among the Actors in an IHE Profile.
- 1026 • The edges have an extra label indicating the execution sequence of the edge. For example, in Figure
- 1027 12, XDS-ITI-15 has another label "1" and XDS-ITI-14 has label "2".
- 1028 • Once the graph is constructed, connected subcomponents of the graph is formed. This algorithm
- 1029 works as follows: find a node in the graph without any incoming edges. By following the outgoing
- 1030 edges from this graph, build a subgraph. For example, the subgraph in Figure 13 is obtained by
- 1031 following the outgoing edges from "XSDDocumentSource". The logic behind this step is to find out
- 1032 the transactions whose sequence depend one another. As another example, if you take
- 1033 "XSDDocumentConsumer" as a starting node (it also does not have any incoming edges meaning
- 1034 that it is an actor to start a transaction), you obtain the graph shown in Figure 14.
- 1035 • Take the node without any incoming edges in the subgraph formed. For example, consider
- 1036 "XSDDocumentSource" in the subgraph in Figure 13.
- 1037 • In each subgraph, merge the nodes of the grouped IHE Actors. For example, in Figure 15,
- 1038 "XSDDocumentSource" is grouped with "ATNATransactionNode" and "XSDDocumentRepository" is
- 1039 grouped with "ATNATransactionNode". Figure 16 shows the result of this grouping where
- 1040 XSDDocumentSource and ATNATransactionNode are merged and XSDDocumentRepository is merged
- 1041 with ATNATransactionNode. From the rule: "When "XSDDocumentSource" is grouped with
- 1042 "ATNATransactionNode", <XSDDocumentSource, XSDDocumentRepository, "ATNA-ITI-19"> precedes
- 1043 <XSDDocumentSource, XSDDocumentRepository, "XDS-ITI-15">"; it follows that ATNA-ITI-19 must
- 1044 precede XDS-ITI-15 and hence the label on the graph are adjusted as shown in Figure 16.
- 1045 • The algorithm terminates for a subgraph after processing all the rules for the involved Actor
- 1046 groupings.
- 1047 • The algorithm continues by finding another node without any incoming edges (if any) to form another
- 1048 subgraph and repeating the steps for this subgraph too.

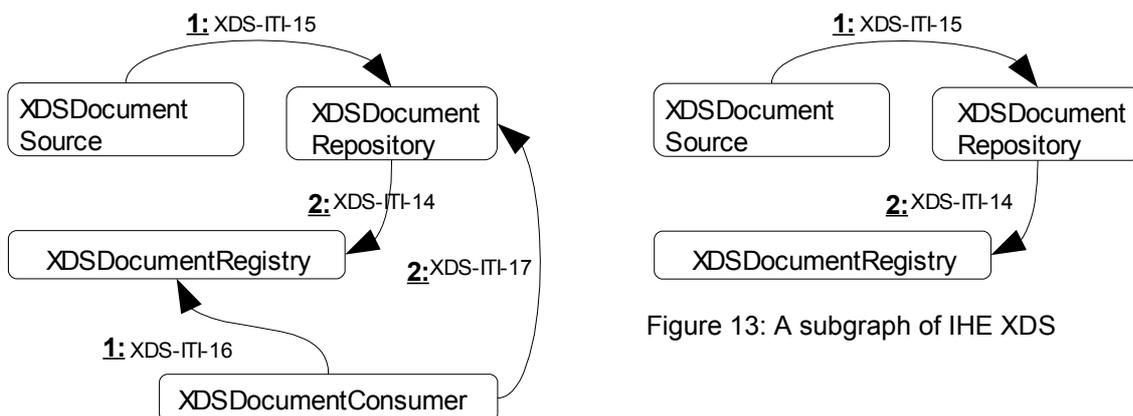


Figure 12: The Graph showing IHE XDS Transactions

Figure 13: A subgraph of IHE XDS

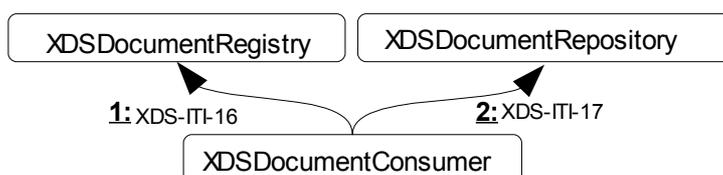


Figure 14: Another Subgraph of IHE XDS

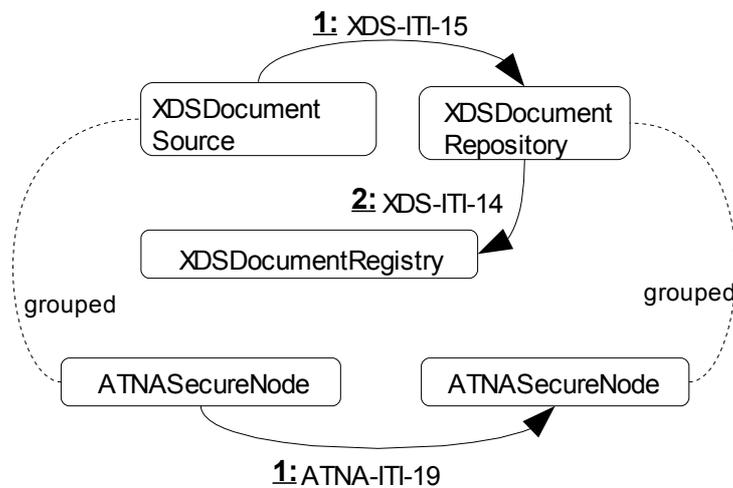


Figure 15: An Example of Grouping IHE Actors

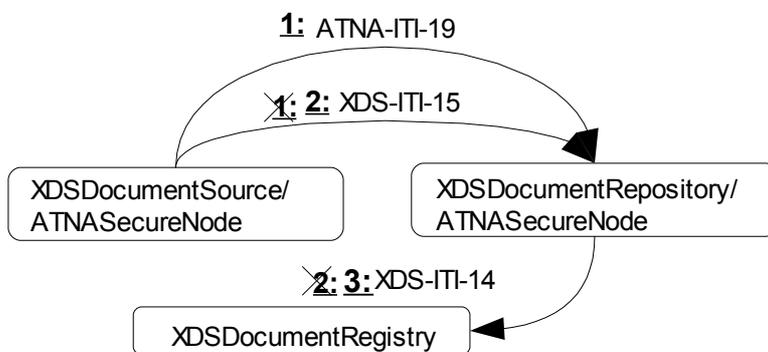


Figure 16: An Example of IHE Actor Merging Process

1049 Continuing with our example: note that the user may specify further Actor groupings: For example,
 1050 "XDSDocumentRepository" may be grouped with "AnyIHEActor" as shown in Figure 17. For this case, the
 1051 following rule holds:

- 1052 • <XDSDocumentSource, XDSDocumentRepository, "XDS-ITI-15"> precedes
- 1053 <XDSDocumentRepository, AuditRepository, "ATNA-ITI-20">

1054 The merged IHE Actors and the transaction sequences are depicted in Figure 18.

1055 The final sequence of transactions when the Actors in IHE XDS subgraph in Figure 13 is grouped with the
 1056 corresponding IHE ATNA Actors are as follows:

- 1057 1- <XDSDocumentSource, XDSDocumentRepository, "ATNA-ITI-19">
- 1058 2- <XDSDocumentSource, XDSDocumentRepository, "XDS-ITI-15">
- 1059 3- <XDSDocumentRepository, AuditRepository, "ATNA-ITI-20">
- 1060 4- <XDSDocumentRepository, XDSDocumentRegistry, "ATNA-ITI-19">
- 1061 5- <XDSDocumentRepository, XDSDocumentRegistry, "XDS-ITI-14">
- 1062 6- <XDSDocumentRegistry, AuditRepository, "ATNA-ITI-20">

1063 Assume further that we wish to integrate IHE XDS, IHE ATNA and IHE PIX business processes by grouping
 1064 the related Actors of these profiles. The same algorithm is used again until all Actor groupings are processed
 1065 with the following rules:

- 1066 • When "XDSDocumentSource" is grouped with "PIXConsumer"
 - 1067 ■ <XDSDocumentSource, PIXManager, "PIX-ITI-9"> precedes <XDSDocumentSource,
 - 1068 XDSDocumentRepository, "XDS-ITI-15">
- 1069 • When "PIXConsumer" is grouped with "ATNATransactionActor"
 - 1070 ■ <PIXConsumer, PIXManager, "ATNA-ITI-19"> precedes <PIXConsumer, PIXManager, "PIX-
 - 1071 ITI-9">
- 1072 • When "PIXManager" is grouped with "ATNATransactionActor"

1073
1074

- <PIXConsumer, PIXManager, "PIX-ITI-9"> precedes <PIXManager, AuditRepository, "ATNA-ITI-20">

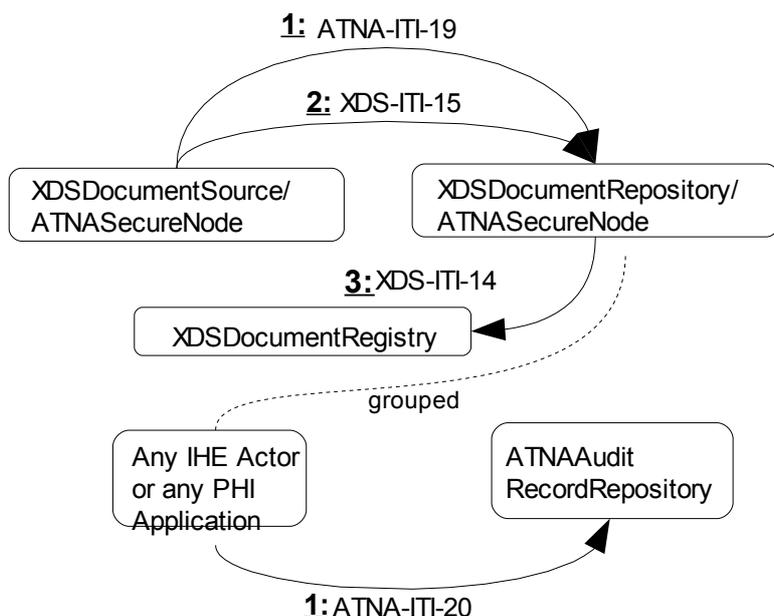


Figure 17: An Example for Further Grouping of IHE Actors

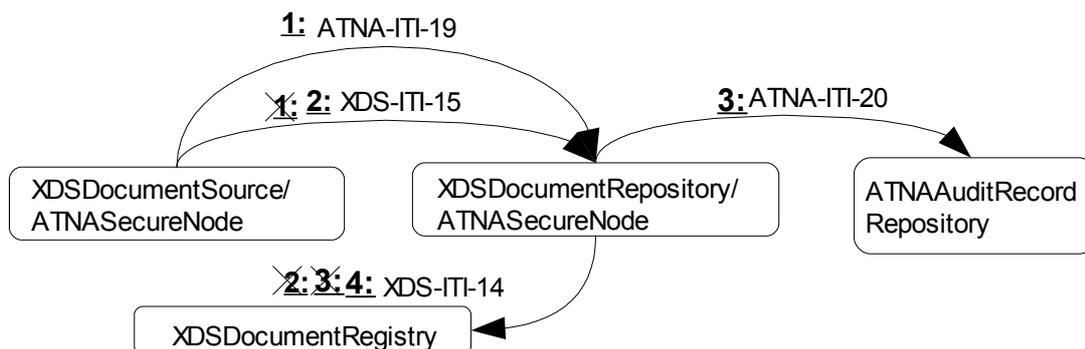


Figure 18: Merging the Grouped IHE Actors of Figure 17

1075 The final sequence of transactions when the Actors in IHE XDS subgraph in Figure 13 is grouped with the
1076 corresponding IHE ATNA and IHE PIX Actors are as follows:

- 1077 1- <XDSDocumentSource, PIXManager, "ATNA-ITI-19">
- 1078 2- <XDSDocumentSource, PIXManager, "PIX-ITI-9">
- 1079 3- <PIXManager, AuditRepository, "ATNA-ITI-20">
- 1080 4- <XDSDocumentSource, XDSDocumentRepository, "ATNA-ITI-19">
- 1081 5- <XDSDocumentSource, XDSDocumentRepository, "XDS-ITI-15">
- 1082 6- <XDSDocumentRepository, AuditRepository, "ATNA-ITI-20">
- 1083 7- <XDSDocumentRepository, XDSDocumentRegistry, "ATNA-ITI-19">
- 1084 8- <XDSDocumentRepository, XDSDocumentRegistry, "XDS-ITI-14">
- 1085 9- <XDSDocumentRegistry, AuditRepository, "ATNA-ITI-20">

1086 6.1.1. Facilitating Actor Grouping within an IHE Profile

1087 One further benefit of automated Actor grouping is the following: In some IHE Profiles, it is also
1088 possible to group Actors within the profile. As an example, in IHE XDS, three different strategies have been
1089 identified for grouping Actors within the profile. The business processes corresponding to these strategies
1090 are different and can be automatically obtained by indicating the necessary changes on the profile graph and
1091 running the grouping algorithm:

- Strategy 1 - Repository at the Source: In this strategy, a single information system act as both

1093 Document Source and Document Repository for the documents it registers to the Document
 1094 Registry. For this case, XDSDocumentSource and XDSDocumentRegistry Actors are merged as
 1095 shown in the graph in Figure 19. In other words, the Document Source Actor maintains the
 1096 Document Repository in its local system. The Provide/Register Document Set Business Transaction
 1097 (IHE-ITI-15) is not required in implementations where the Document Registry Actor is grouped
 1098 with the Document Repository Actor. However, it is strongly recommended that these transactions be
 1099 supported to allow for future configuration with multiple Repositories.

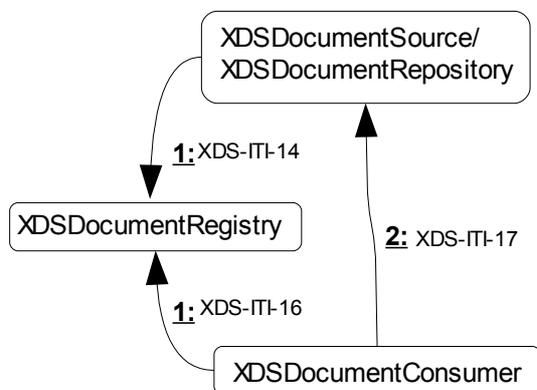


Figure 19: IHE XDS Implementation Strategy 1: Grouping Document Source and Document Repository

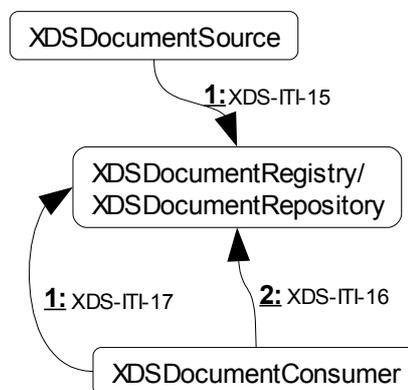


Figure 20: IHE XDS Implementation Strategy 2: Grouping Document Registry and Document Repository

- 1100 • Strategy 2 - Third party Repository: In this case, the Document Source Actor uses the services of a
 1101 third party Document Repository to which it entrusts its documents. In this strategy, the Document
 1102 Registry and the Document Repository can be located together in a central system. For this case,
 1103 XDSDocumentRegistry and XDSDocumentRepository can be merged as shown in the graph in
 1104 Figure 20 or they can be in separate systems as shown in the graph in Figure 12.
- 1105 • Strategy 3 - Direct Patient Transfer, Referral: In this strategy, the Document Consumer Actor is
 1106 grouped along with the Document Repository and Document Registry Actors. In other words, the
 1107 Document Consumer, the Document Registry and the Document Repository operates in the same
 1108 system. For this case, XDSDocumentConsumer, XDSDocumentRepository and
 1109 XDSDocumentRegistry can be merged as shown in the graph in Figure 21. The Document Source
 1110 Actors provide and register their documents to the Document Repository at the Document
 1111 Consumer's system.

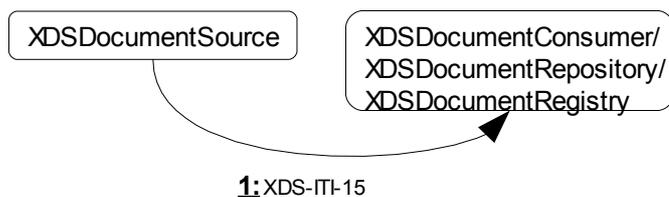


Figure 21: IHE XDS Implementation Strategy 3: Grouping Document Consumer/ XDSDocumentRepository/XDSDocumentRegistry

1112 As a result of these IHE Actor groupings within a profile, the corresponding Business Collaborations must be
 1113 modified to reflect this change. The IHE-AGT described in Section 6.1.2, handles this automatically.

1114 6.1.2. Automated Generation of Customized Business Processes through 1115 IHE-AGT

1116 In order to facilitate Actor grouping in IHE, we have developed the IHE-AGT which depicts the existing
 1117 profiles; shows the Actors of the existing profiles and allows a user to graphically group the Actors and by
 1118 using the algorithm described in Section 6.1 produces the resulting over all business process. Figure 22
 1119 shows a snapshot from the tool where XDS Document Source, PIX Patient Identifier Cross-reference

1120 Consumer and ATNA Secure Node have been grouped.

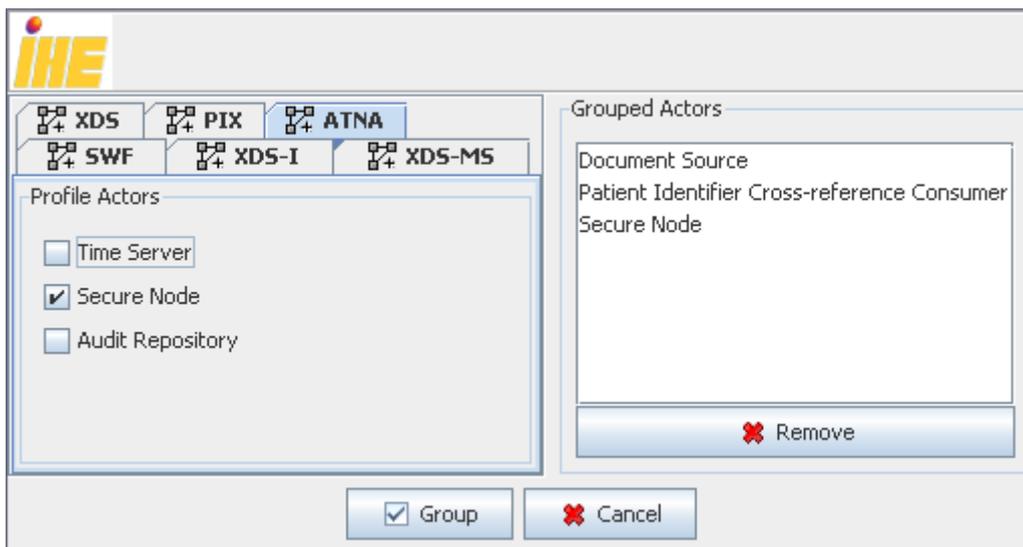


Figure 22: A Snapshot from IHE Actor Grouping Tool

1121 The business process describing combined IHE XDS, ATNA and PIX Profiles as generated by the tool is
1122 given in Listing 13.

```
1123 <ProcessSpecification
1124     xmlns:xi="http://www.w3.org/2001/XInclude"
1125     xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
1126     nameID="IHE-XDS-ATNA-PIX"
1127     uuid="urn:metu-srdc:names:specification:ihexdsatnapixprocess:schema"
1128     name="IHE-XDS-ATNA-PIX">
1129
1130     <!-- xincludes to be used where supported by software -->
1131     <xi:include
1132 href="http://www.srdc.metu.edu.tr/ihe/ebBP/packages/signals/ebBP-Example-
1133 Signals.xml" parse="xml"
1134     xpointer="element(/1/1)"/>
1135     <xi:include
1136 href="http://www.srdc.metu.edu.tr/ihe/ebBP/packages/businessCollaborations/
1137 IHE-IndividualBC-IHE-ITI-14-25052006-v1.xml" parse="xml"
1138     xpointer="element(/1/2)"/>
1139     <xi:include
1140 href="http://www.srdc.metu.edu.tr/ihe/ebBP/packages/businessCollaborations/
1141 IHE-IndividualBC-IHE-ITI-15-25052006-v1.xml" parse="xml"
1142     xpointer="element(/1/2)"/>
1143     <xi:include
1144 href="http://www.srdc.metu.edu.tr/ihe/ebBP/packages/businessCollaborations/
1145 IHE-IndividualBC-IHE-ITI-16-25052006-v1.xml" parse="xml"
1146     xpointer="element(/1/2)"/>
1147     <xi:include
1148 href="http://www.srdc.metu.edu.tr/ihe/ebBP/packages/businessCollaborations/
1149 IHE-IndividualBC-IHE-ITI-17-25052006-v1.xml" parse="xml"
1150     xpointer="element(/1/2)"/>
1151     <xi:include
1152 href="http://www.srdc.metu.edu.tr/ihe/ebBP/packages/businessCollaborations/
1153 IHE-IndividualBC-XDS-IHE-ITI-8-25052006-v1.xml" parse="xml"
1154     xpointer="element(/1/2)"/>
1155     <xi:include
1156 href="http://www.srdc.metu.edu.tr/ihe/ebBP/packages/businessCollaborations/
1157 IHE-IndividualBC-IHE-ITI-1-25052006-v1.xml" parse="xml"
1158     xpointer="element(/1/2)"/>
1159     <xi:include
1160 href="http://www.srdc.metu.edu.tr/ihe/ebBP/packages/businessCollaborations/
1161 IHE-IndividualBC-IHE-ITI-19-25052006-v1.xml" parse="xml"
1162     xpointer="element(/1/2)"/>
```

```

1162     <xi:include
1163 href="http://www.srdc.metu.edu.tr/ihe/ebBP/packages/businessCollaborations/
1164 IHE-IndividualBC-IHE-ITI-20-25052006-v1.xml" parse="xml"
1165     xpointer="element(/1/2)"/>
1165     <xi:include
1166 href="http://www.srdc.metu.edu.tr/ihe/ebBP/packages/businessCollaborations/
1167 IHE-IndividualBC-IHE-ITI-9-25052006-v1.xml" parse="xml"
1165     xpointer="element(/1/2)"/>
1165     <xi:include
1166 href="http://www.srdc.metu.edu.tr/ihe/ebBP/packages/businessCollaborations/
1167 IHE-IndividualBC-IHE-ITI-10-25052006-v1.xml" parse="xml"
1165     xpointer="element(/1/2)"/>

1165     <BusinessCollaboration name="Collaboration of XDS ATNA" nameID="IHE-
1166 XDS-ATNA-PIX-1">
1165     <Role name="Document Repository" nameID="IHE-XDS-ATNA-PIX-1-
1166 XDSRepository"/>
1165     <Role name="Document Registry" nameID="IHE-XDS-ATNA-PIX-1-
1166 XDSRegistry"/>
1165     <Role name="Document Source" nameID="IHE-XDS-ATNA-PIX-1-
1166 XDSSource"/>
1165     <Role name="Audit Repository" nameID="IHE-XDS-ATNA-PIX-1-
1166 AuditRecordRepository"/>
1165     <Role name="PIX Manager" nameID="IHE-XDS-ATNA-PIX-1-
1166 PIXManager"/>
1165     <TimeToPerform/>
1165     <Start>
1165     <ToLink toBusinessStateRef="IHE-XDS-ATNA-PIX-1-AN1"/>
1165     </Start>
1165     <CollaborationActivity name="IHE-XDS-ATNA-PIX-1-
1166 AuthenticateSourceAndRepository" nameID="IHE-XDS-ATNA-PIX-1-AN1"
1167 collaborationRef="ATNA-IHE-ITI-19">
1165     <Documentation>
1165     IHE ITI 19 is Authenticate Node Transaction
1166 specialized to ATNA
1165     </Documentation>
1165     <Performs currentRoleRef="IHE-XDS-ATNA-PIX-1-XDSSource"
1166 performsRoleRef="ATNALocalSecureNode"/>
1165     <Performs currentRoleRef="IHE-XDS-ATNA-PIX-1-
1166 XDSRepository" performsRoleRef="ATNARemoteSecureNode"/>
1165     </CollaborationActivity>
1165     <Transition>
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1165     <ToLink toBusinessStateRef="IHE-XDS-ATNA-PIX-1-AN2"/>
1165     </Transition>
1165     <CollaborationActivity name="IHE-XDS-ATNA-PIX-1-
1166 AuthenticateSourceAndPIXManager" nameID="IHE-XDS-ATNA-PIX-1-AN2"
1167 collaborationRef="ATNA-IHE-ITI-19">
1165     <Documentation>
1165     IHE ITI 19 is Authenticate Node Transaction
1166 specialized to ATNA
1165     </Documentation>
1165     <Performs currentRoleRef="IHE-XDS-ATNA-PIX-1-XDSSource"
1166 performsRoleRef="ATNALocalSecureNode"/>
1165     <Performs currentRoleRef="IHE-XDS-ATNA-PIX-1-PIXManager"
1166 performsRoleRef="ATNARemoteSecureNode"/>
1165     </CollaborationActivity>
1165     <Transition>
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1166 AN2"/>
1165     <ToLink toBusinessStateRef="IHE-XDS-ATNA-PIX-1-PQ"/>
1165     </Transition>
1165     <CollaborationActivity name="IHE-XDS-ATNA-PIX-1-PIXQuery"
1166 nameID="IHE-XDS-ATNA-PIX-1-PQ" collaborationRef="PIX-IHE-ITI-9">
1165     <Documentation>
1165     IHE ITI 9 is PIX Query specialized to PIX
1165     </Documentation>
1165     <Performs currentRoleRef="IHE-XDS-ATNA-PIX-1-XDSSource"
1166 performsRoleRef="PIXConsumer9"/>

```

```

1165         <Performs currentRoleRef="IHE-XDS-ATNA-PIX-1-PIXManager"
1166 performsRoleRef="PIXManager9"/>
1165     </CollaborationActivity>
1165     <Transition>
1165         <FromLink fromBusinessStateRef="IHE-XDS-ATNA-PIX-1-PQ"/>
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1165     </Transition>
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1167 20">
1165         <Documentation>
1165             IHE ITI 20 is Record Audit Event Transaction
1166 specialized to ATNA
1165         </Documentation>
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1165         <Performs currentRoleRef="IHE-XDS-ATNA-PIX-1-
1166 AuditRecordRepository" performsRoleRef="AuditRecordRepository"/>
1165     </CollaborationActivity>
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1165     </Transition>
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1166 ProvideAndRegisterDocumentSet" nameID="IHE-XDS-ATNA-PIX-1-PRDS"
1167 collaborationRef="XDS-IHE-ITI-15">
1165         <Documentation>
1165             IHE ITI 15 is Provide and Register Document Set
1166 Transaction specialized to XDS
1167         </Documentation>
1168         <Performs currentRoleRef="IHE-XDS-ATNA-PIX-1-XDSSource"
1169 performsRoleRef="PRDSXDSSource"/>
1170         <Performs currentRoleRef="IHE-XDS-ATNA-PIX-1-
1171 XDSRepository" performsRoleRef="PRDSXDSRepository"/>
1172     </CollaborationActivity>
1173     <Transition>
1174         <FromLink fromBusinessStateRef="IHE-XDS-ATNA-PIX-1-
1175 PRDS"/>
1176         <ToLink toBusinessStateRef="IHE-XDS-ATNA-PIX-1-RAE-1"/>
1177     </Transition>
1178     <CollaborationActivity name="IHE-XDS-ATNA-PIX-1-Record Audit
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1180 20">
1181         <Documentation>
1182             IHE ITI 20 is Record Audit Event Transaction
1183 specialized to ATNA
1184         </Documentation>
1185         <Performs currentRoleRef="IHE-XDS-ATNA-PIX-1-
1186 XDSRepository" performsRoleRef="IHEActorORPHIApplication"/>
1187         <Performs currentRoleRef="IHE-XDS-ATNA-PIX-1-
1188 AuditRecordRepository" performsRoleRef="AuditRecordRepository"/>
1189     </CollaborationActivity>
1190     <Transition>
1191         <FromLink fromBusinessStateRef="IHE-XDS-ATNA-PIX-1-RAE-
1192 1"/>
1193         <ToLink toBusinessStateRef="IHE-XDS-ATNA-PIX-1-AN3"/>
1194     </Transition>
1195     <CollaborationActivity name="IHE-XDS-ATNA-PIX-1-
1196 AuthenticateRepositoryAndRegistry" nameID="IHE-XDS-ATNA-PIX-1-AN3"
1197 collaborationRef="ATNA-IHE-ITI-19">
1198         <Documentation>
1199             IHE ITI 19 is Authenticate Node Transaction
1200 specialized to ATNA
1201         </Documentation>
1202         <Performs currentRoleRef="IHE-XDS-ATNA-PIX-1-
1203 XDSRepository" performsRoleRef="ATNALocalSecureNode"/>
1204         <Performs currentRoleRef="IHE-XDS-ATNA-PIX-1-
1205 XDSRegistry" performsRoleRef="ATNARemoteSecureNode"/>
1206     </CollaborationActivity>
1207     <Transition>

```

```

1208         <FromLink fromBusinessStateRef="IHE-XDS-ATNA-PIX-1-
1209 AN3"/>
1210         <ToLink toBusinessStateRef="IHE-XDS-ATNA-PIX-1-RDS"/>
1210     </Transition>
1210     <CollaborationActivity name="IHE-XDS-ATNA-PIX-1-
1211 RegisterDocumentSet" nameID="IHE-XDS-ATNA-PIX-1-RDS" collaborationRef="XDS-
1212 IHE-ITI-14">
1210         <Documentation>
1211             IHE ITI 14 is Register Document Set Transaction
1211 specialized to XDS
1210         </Documentation>
1210         <Performs currentRoleRef="IHE-XDS-ATNA-PIX-1-
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1211 XDSRegistry" performsRoleRef="RDSXDSRegistry"/>
1210     </CollaborationActivity>
1210     <Transition>
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1210     <CollaborationActivity name="IHE-XDS-ATNA-PIX-1-Record Audit
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1210         <Documentation>
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1211 specialized to ATNA
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1210         <ToLink toBusinessStateRef="IHE-XDS-ATNA-PIX-1-
1211 Success"/>
1210     </Transition>
1210     <Success name="Success" nameID="IHE-XDS-ATNA-PIX-1-Success"/>
1210 </BusinessCollaboration>
1210 <BusinessCollaboration name="Collaboration of XDS ATNA" nameID="IHE-
1211 XDS-ATNA-PIX-2">
1210     <Role name="Document Consumer" nameID="IHE-XDS-ATNA-PIX-2-
1211 XDSConsumer"/>
1210     <Role name="Document Repository" nameID="IHE-XDS-ATNA-PIX-2-
1211 XDSRepository"/>
1210     <Role name="Document Registry" nameID="IHE-XDS-ATNA-PIX-2-
1211 XDSRegistry"/>
1210     <Role name="Audit Repository" nameID="IHE-XDS-ATNA-PIX-2-
1211 AuditRecordRepository"/>
1210     <Role name="PIX Manager" nameID="IHE-XDS-ATNA-PIX-2-
1211 PIXManager"/>
1210     <TimeToPerform/>
1210     <Start>
1210         <ToLink toBusinessStateRef="IHE-XDS-ATNA-PIX-2-AN1"/>
1210     </Start>
1210     <CollaborationActivity name="IHE-XDS-ATNA-PIX-2-
1211 AuthenticateSourceAndRepository" nameID="IHE-XDS-ATNA-PIX-2-AN1"
1212 collaborationRef="ATNA-IHE-ITI-19">
1210         <Documentation>
1211             IHE ITI 19 is Authenticate Node Transaction
1211 specialized to ATNA
1210         </Documentation>
1210         <Performs currentRoleRef="IHE-XDS-ATNA-PIX-2-
1211 XDSConsumer" performsRoleRef="ATNALocalSecureNode"/>
1210         <Performs currentRoleRef="IHE-XDS-ATNA-PIX-2-
1211 XDSRegistry" performsRoleRef="ATNARemoteSecureNode"/>
1210     </CollaborationActivity>
1210     <Transition>

```

```

1210         <FromLink fromBusinessStateRef="IHE-XDS-ATNA-PIX-2-
1211 AN1"/>
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1210     </Transition>
1210     <CollaborationActivity name="IHE-XDS-ATNA-PIX-2-
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1212 collaborationRef="ATNA-IHE-ITI-19">
1210         <Documentation>
1211             IHE ITI 19 is Authenticate Node Transaction
1210 specialized to ATNA
1210         </Documentation>
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1211 performsRoleRef="ATNARemoteSecureNode"/>
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1210     </Transition>
1210     <CollaborationActivity name="IHE-XDS-ATNA-PIX-2-PIXQuery"
1211 nameID="IHE-XDS-ATNA-PIX-2-PQ" collaborationRef="PIX-IHE-ITI-9">
1210         <Documentation>
1211             IHE ITI 9 is PIX Query specialized to PIX
1210         </Documentation>
1210         <Performs currentRoleRef="IHE-XDS-ATNA-PIX-2-
1211 XDSConsumer" performsRoleRef="PIXConsumer9"/>
1210         <Performs currentRoleRef="IHE-XDS-ATNA-PIX-2-PIXManager"
1211 performsRoleRef="PIXManager9"/>
1210     </CollaborationActivity>
1210     <Transition>
1210         <FromLink fromBusinessStateRef="IHE-XDS-ATNA-PIX-2-PQ"/>
1210         <ToLink toBusinessStateRef="IHE-XDS-ATNA-PIX-2-RAE-0"/>
1210     </Transition>
1210     <CollaborationActivity name="IHE-XDS-ATNA-PIX-2-Record Audit
1211 Event" nameID="IHE-XDS-ATNA-PIX-2-RAE-0" collaborationRef="ATNA-IHE-ITI-
1212 20">
1210         <Documentation>
1211             IHE ITI 20 is Record Audit Event Transaction
1210 specialized to ATNA
1210         </Documentation>
1210         <Performs currentRoleRef="IHE-XDS-ATNA-PIX-2-PIXManager"
1211 performsRoleRef="IHEActorORPHIApplication"/>
1210         <Performs currentRoleRef="IHE-XDS-ATNA-PIX-2-
1211 AuditRecordRepository" performsRoleRef="AuditRecordRepository"/>
1210     </CollaborationActivity>
1210     <Transition>
1210         <FromLink fromBusinessStateRef="IHE-XDS-ATNA-PIX-2-RAE-
1211 0"/>
1210         <ToLink toBusinessStateRef="IHE-XDS-ATNA-PIX-2-QR"/>
1210     </Transition>
1210     <CollaborationActivity name="IHE-XDS-ATNA-PIX-2-QueryRegistry"
1211 nameID="IHE-XDS-ATNA-PIX-2-QR" collaborationRef="XDS-IHE-ITI-16">
1210         <Documentation>
1211             IHE ITI 16 is Query Registry Transaction
1210 specialized to XDS
1210         </Documentation>
1210         <Performs currentRoleRef="IHE-XDS-ATNA-PIX-2-
1211 XDSConsumer" performsRoleRef="QRXDSConsumer"/>
1210         <Performs currentRoleRef="IHE-XDS-ATNA-PIX-2-
1211 XDSRegistry" performsRoleRef="QRXDSRegistry"/>
1210     </CollaborationActivity>
1210     <Transition>
1210         <FromLink fromBusinessStateRef="IHE-XDS-ATNA-PIX-2-QR"/>
1210         <ToLink toBusinessStateRef="IHE-XDS-ATNA-PIX-2-RAE-1"/>
1210     </Transition>
1210     <CollaborationActivity name="IHE-XDS-ATNA-PIX-2-Record Audit
1211 Event" nameID="IHE-XDS-ATNA-PIX-2-RAE-1" collaborationRef="ATNA-IHE-ITI-
1212 20">
1210         <Documentation>

```



```

1210         <Performs currentRoleRef="IHE-XDS-ATNA-PIX-2-
1211 XDSConsumer" performsRoleRef="IHEActorORPHIApplication"/>
1210         <Performs currentRoleRef="IHE-XDS-ATNA-PIX-2-
1211 AuditRecordRepository" performsRoleRef="AuditRecordRepository"/>
1210         </CollaborationActivity>
1210         <Transition>
1210             <FromLink fromBusinessStateRef="IHE-XDS-ATNA-PIX-2-RAE-
1211 3"/>
1210             <ToLink toBusinessStateRef="IHE-XDS-ATNA-PIX-2-
1211 Success"/>
1210         </Transition>
1210         <Success name="Success" nameID="IHE-XDS-ATNA-PIX-2-Success"/>
1210     </BusinessCollaboration>
1210 </ProcessSpecification>

```

1210 **Listing 13: Combined Business Process Definition of the IHE XDS, IHE ATNA and IHE PIX through**
1211 **ebBP**

1210 As mentioned in Section 6.1.1, the Actors within a profile may also be grouped. Figure 23 shows a screen
1211 shot from IHE-AGT where Document Registry and Document Repository Actors are grouped in IHE XDS
1212 which corresponds to implementation strategy 2.

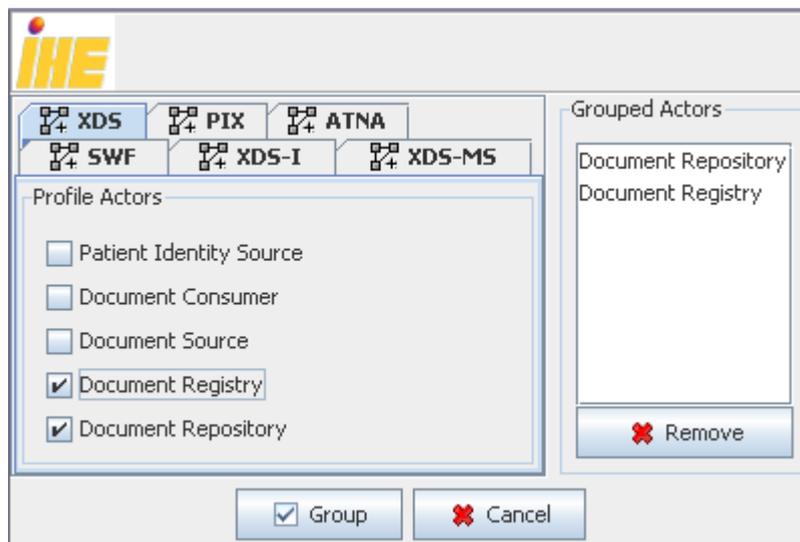


Figure 23: Grouping Document Registry and Document Repository Actors in IHE XDS

1213 The business process describing IHE XDS Profile where Document Repository is grouped with Document
1214 Registry as generated by the tool is given in Listing 14.

```

1215 <?xml version="1.0" encoding="UTF-8"?>
1216 <ProcessSpecification name="IHE XDS Profile" nameID="IHE-XDS-Profile"
1217   uuid="urn:metu-srdc:names:specification:iheXDSprofile:schema"
1218   xmlns:xi="http://www.w3.org/2001/XInclude"
1219   xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
1220   <xi:include
1221     href="http://www.srdc.metu.edu.tr/ihe/ebBP/packages/signals/ebBP-Example-
1222     Signals.xml"
1223     parse="xml" xpointer="element (/1/1)"/>
1224   <xi:include
1225     href="http://www.srdc.metu.edu.tr/ihe/ebBP/packages/businessCollaboration
1226     s/IHE-IndividualBC-XDS-IHE-ITI-8-25052006-v1.xml"
1227     parse="xml" xpointer="element (/1/2)"/>
1228   <xi:include
1229     href="http://www.srdc.metu.edu.tr/ihe/ebBP/packages/businessCollaboration
1230     s/IHE-IndividualBC-IHE-ITI-14-25052006-v1.xml"
1229     parse="xml" xpointer="element (/1/2)"/>
1229   <xi:include

```

```

1229 href="http://www.srdc.metu.edu.tr/ihe/ebBP/packages/businessCollaboration
1230 s/IHE-IndividualBC-IHE-ITI-16-25052006-v1.xml"
1229 parse="xml" xpointer="element(/1/2)"/>
1229 <xi:include
1229 href="http://www.srdc.metu.edu.tr/ihe/ebBP/packages/businessCollaboration
1230 s/IHE-IndividualBC-IHE-ITI-15-25052006-v1.xml"
1229 parse="xml" xpointer="element(/1/2)"/>
1229 <xi:include
1229 href="http://www.srdc.metu.edu.tr/ihe/ebBP/packages/businessCollaboration
1230 s/IHE-IndividualBC-IHE-ITI-17-25052006-v1.xml"
1229 parse="xml" xpointer="element(/1/2)"/>
1229 <BusinessCollaboration name="Collaboration of XDS-ITI-15-XDS-ITI-14"
1230 nameID="XDS-ITI-15-XDS-ITI-14">
1229 <Role name="XSDocumentRegistry XSDocumentRepository" nameID="XDS-ITI-
1230 15-XDS-ITI-14XSDocumentRegistry-XSDocumentRepository"/>
1229 <Role name="XSDocumentSource" nameID="XDS-ITI-15-XDS-ITI-
1230 14XSDocumentSource"/>
1229 <TimeToPerform/>
1229 <Start>
1229 <ToLink toBusinessStateRef="CA-XDS-ITI-15"/>
1229 </Start>
1229 <CollaborationActivity collaborationRef="XDS-IHE-ITI-15"
1229 name="Provide and Register Document Set" nameID="CA-XDS-ITI-15">
1229 <Performs
1229 currentRoleRef="XDS-ITI-15-XDS-ITI-14XSDocumentSource"
1230 performsRoleRef="PRDSXDSSource"/>
1229 <Performs
1229 currentRoleRef="XDS-ITI-15-XDS-ITI-14XSDocumentRegistry-
1230 XSDocumentRepository" performsRoleRef="PRDSXDSRepository"/>
1229 </CollaborationActivity>
1229 <Transition>
1229 <FromLink fromBusinessStateRef="CA-XDS-ITI-15"/>
1229 <ToLink toBusinessStateRef="CA-XDS-ITI-15-XDS-ITI-14-Success"/>
1229 </Transition>
1229 <Success name="Success" nameID="CA-XDS-ITI-15-XDS-ITI-14-Success"/>
1229 </BusinessCollaboration>
1229 <BusinessCollaboration name="Collaboration of XDS-ITI-16-XDS-ITI-17"
1230 nameID="XDS-ITI-16-XDS-ITI-17">
1229 <Role name="XSDocumentRegistry XSDocumentRepository" nameID="XDS-ITI-
1230 16-XDS-ITI-17XSDocumentRegistry-XSDocumentRepository"/>
1229 <Role name="XSDocumentConsumer" nameID="XDS-ITI-16-XDS-ITI-
1230 17XSDocumentConsumer"/>
1229 <TimeToPerform/>
1229 <Start>
1229 <ToLink toBusinessStateRef="CA-XDS-ITI-16"/>
1229 </Start>
1229 <CollaborationActivity collaborationRef="XDS-IHE-ITI-16"
1229 name="Query Registry" nameID="CA-XDS-ITI-16">
1229 <Performs
1229 currentRoleRef="XDS-ITI-16-XDS-ITI-17XSDocumentConsumer"
1230 performsRoleRef="QRXDSConsumer"/>
1229 <Performs
1229 currentRoleRef="XDS-ITI-16-XDS-ITI-17XSDocumentRegistry-
1230 XSDocumentRepository" performsRoleRef="QRXDSRegistry"/>
1229 </CollaborationActivity>
1229 <Transition>
1229 <FromLink fromBusinessStateRef="CA-XDS-ITI-16"/>
1229 <ToLink toBusinessStateRef="CA-XDS-ITI-17"/>
1229 </Transition>
1229 <CollaborationActivity collaborationRef="XDS-IHE-ITI-17"
1229 name="Retrieve Document" nameID="CA-XDS-ITI-17">
1229 <Performs
1229 currentRoleRef="XDS-ITI-16-XDS-ITI-17XSDocumentConsumer"
1230 performsRoleRef="RDXDSConsumer"/>
1229 <Performs
1229 currentRoleRef="XDS-ITI-16-XDS-ITI-17XSDocumentRegistry-
1230 XSDocumentRepository" performsRoleRef="RDXDSRepository"/>
1229 </CollaborationActivity>
1229 <Transition>
1229 <FromLink fromBusinessStateRef="CA-XDS-ITI-17"/>
1229 <ToLink toBusinessStateRef="CA-XDS-ITI-16-XDS-ITI-17-Success"/>

```

```
1229 </Transition>
1229 <Success name="Success" nameID="CA-XDS-ITI-16-XDS-ITI-17-Success"/>
1229 </BusinessCollaboration>
1229 </ProcessSpecification>
```

1229 Listing 14: Business Process Definition of the IHE XDS through ebBP where Document Registry
1230 and Document Repository Actors are grouped

1229 7. Facilitating the Configuration of IHE Profiles through 1230 ebBP and the CPP

1229 The exchange of information between two IHE Actors requires each Actor to know the other Actor's
1230 supported IHE Transactions, the other Actor's role in the Transaction, and the configuration details about how
1231 the other Actor sends and receives Messages. In some cases, it is necessary for the two Actors to reach
1232 agreement on some of the details.

1229 The advantages of defining CPPs and CPAs for IHE Actors are as follows:

- 1229 - As already mentioned, the CPP and CPA provide details of configuration parameters between two
1230 parties such as transport, messaging, security constraints, and bindings to a Business-Process-
1231 Specification.
- 1229 - The definition is machine processable; an application can process such a file and extract and reuse its
1230 information content.

1229 7.1. Network Configuration Parameters

1229 The network parameters mainly involve the network addresses and certificates of the involved IHE Actors in
1230 the process specification. As an example, when IHE XDS, ATNA and PIX profiles are used together, the
1231 network parameters that must be known by the involved IHE Actors are as follows:

- 1229 • Document Source: Network addresses and certificates of the Document Registry, the Document
1230 Repository and the Audit Repository.
- 1229 • Document Consumer: Network addresses and certificates of the Document Registry, the Document
1230 Repository and the Audit Repository.
- 1229 • Document Registry: Certificates of the Document Repository, the Document Consumer, the
1230 Document Source, the Patient Identity Source and the Audit Repository.
- 1229 • Document Repository: Certificates of Document Registry, Document Consumer, Document Source
1230 and the Audit Repository. The network address of the Document Registry.
- 1229 • Patient Identity Source: The network address and the certificate of Document Registry.

1229 The network addresses and the certificates used for security can be described through “Transport” elements
1230 in CPP. A “Transport” element defines a party's network communication capabilities. It consists of zero or
1231 one TransportSender element and zero or one TransportReceiver element. The “TransportSender” element
1232 describes the party's sending mechanism and TransportReceiver element describes the end point of the
1233 party to receive messages.

1229 Listing 15 illustrates an example “Transport” element in the CPP document of a “Document Source IHE
1230 Actor”. As it is clear from the listing, the “Transport element” includes the network address (end point) of this
1231 Actor. Other protocols such as FTP and SMTP could be described using the “Transport” element as well.

```
1229 <ns1:Transport ns1:transportId="DocSrc_1_XA_Transport1">  
1229   <ns1:TransportSender>  
1229     <ns1:TransportProtocol ns1:version="1.1">HTTP</ns1:TransportProtocol>  
1229   </ns1:TransportSender>  
1229   <ns1:TransportReceiver>  
1229     <ns1:TransportProtocol ns1:version="1.1">HTTP</ns1:TransportProtocol>  
1229     <ns1:Endpoint ns1:type="allPurpose"  
1229       ns1:uri="http://144.122.230.79:8080/xds/registerdocument"/>  
1229   </ns1:TransportReceiver>  
1229 </ns1:Transport>
```

1229 Listing 15: An Example “Transport” Element of a in the CPP document of a “Document Registry
1230 IHE Actor”

1229 It is also possible to give the certificates used in business process and application layer as shown in Listing
1230 16.

1229

```
1229 <ns1:Certificate ns1:certId="DocSrc_AppCert">  
1229   <ns6:KeyInfo Id="" xmlns:ns6="http://www.w3.org/2000/09/xmldsig#">  
1229     <ns6:KeyName>DocSrc_AppCertKey</ns6:KeyName>  
1229   </ns6:KeyInfo>  
1229 </ns1:Certificate>
```

1229 Listing 16: An Example Certificate Definition in CPP

1229 The MIME types used are also defined as a part of a CPP. It should be noted that the MIME Types are also
1230 defined for documents in the Repository as metadata in the ebXML Registry [ref] as shown in Listing 17.

```
1229 <rim:ExtrinsicObject mimeType="application/pdf" id="theDocument"  
1230 objectType="urn:uuid:7edca82f-054d-47f2-a032-9b2a5b5186c1">...
```

1229 Listing 17: An Example Certificate Definition in CPP

1229 However, there is a need to define the MIME Types during transmission of messages among IHE Actors
1230 since the message constituents are packed and are placed into packaging element of CPP. In order to reflect
1231 the MIME composite types of a message such as multipart/related, the CPP specification must be used to
1232 describe the MIME parts of the message constituents. Furthermore, CPP expresses multiple documents
1233 used in different transactions whose MIME Types could be different. An Example MIME Type definition is
1234 given in Listing 18.

```
1229 <ns1:SimplePart ns1:id="DocSrc_MsgHdr" ns1:mimetype="text/xml">  
1229   <ns1:NamespaceSupported ns1:location="http://www.oasis-  
1230   open.org/committees/ebxml-msg/schema/msg-header-2_0.xsd"  
1231   ns1:version="2.0">http://www.oasis-open.org/committees/ebxml-  
1233   msg/schema/msg-header-2\_0.xsd</ns1:NamespaceSupported>  
1229 </ns1:SimplePart>
```

1229 Listing 18: An Example MIME Type Definition in CPP

1229 An Example CPP Definition for IHE Document Source Actor is given in Listing 19.

```
1229 <?xml version="1.0" encoding="UTF-8" standalone="yes"?>  
1229 <ns1:CollaborationProtocolProfile ns1:cupid="uri:IHE-XDS-  
1230 DocumentSource_1_XA-CPP" ns1:version="2_0b" xmlns:ns1="http://www.oasis-  
1231 open.org/committees/ebxml-cppa/schema/cpp-cpa-2_0.xsd">  
1229   <ns1:PartyInfo ns1:defaultMshChannelId="DocSrc_1_XA_SyncChannel1"  
1230   ns1:defaultMshPackageId="DocSrc_MshSignalPackage" ns1:partyName="Document  
1231   Source">  
1229     <ns1:PartyId ns1:type="urn:oasis:names:tc:ebxml-cppa:partyid-  
1230     type:duns">DocSrc_1_XA</ns1:PartyId>  
1229     <ns1:PartyRef  
1230     ns2:href="http://www.srdc.metu.edu.tr/webpage/projects/ride/"  
1231     ns2:type="simple" xmlns:ns2="http://www.w3.org/1999/xlink"/>  
1229     <ns1:CollaborationRole>  
1229       <ns1:ProcessSpecification  
1230       ns3:href="http://144.122.230.177:8080/ride/ebbp/IHE-XDS-Example-24052006-  
1231       v2.xml" ns3:type="simple" ns1:name="IHE-XDS Example" ns1:uuid="urn:metu-  
1232       srdc:names:specification:ihexdsprocess:schema" ns1:version="2.0"  
1233       xmlns:ns3="http://www.w3.org/1999/xlink"/>  
1229       <ns1:Role ns4:href="http://144.122.230.177:8080/ride/ebbp/IHE-XDS-  
1230       Example-24052006-v2.xml#XDSSource" ns4:type="simple" ns1:name="Document  
1231       Source" xmlns:ns4="http://www.w3.org/1999/xlink"/>  
1229       <ns1:ApplicationCertificateRef ns1:certId="DocSrc_AppCert"/>  
1229       <ns1:ApplicationSecurityDetailsRef  
1230       ns1:securityId="DocSrc_TransportSecurity"/>  
1229       <ns1:ServiceBinding>  
1229       <ns1:Service>urn:metu-  
1230       srdc:names:specification:ihexdsprocess:schema</ns1:Service>  
1229       <ns1:CanSend>  
1229       <ns1:ThisPartyActionBinding ns1:action="IHE XDS Provide/Register  
1230       Document Set BTA Action" ns1:id="DocSrc_1_XA_ABID1"  
1231       ns1:packageId="DocSrc_RequestPackage"  
1232       ns5:href="http://144.122.230.177:8080/ride/ebbp/IHE-XDS-Example-24052006-  
1233       v2.xml#xpointer(//BusinessTransaction[@nameID='PRDS-  
1234       BT']/RequestingBusinessActivity)" ns5:type="simple"  
1235       xmlns:ns5="http://www.w3.org/1999/xlink">  
1229       <ns1:BusinessTransactionCharacteristics  
1230       ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"  
1231       ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"  
1232       ns1:isNonRepudiationReceiptRequired="true"  
1233       ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
```

```
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS
1230 Provide/Register Document Set" ns1:businessTransactionActivity="IHE XDS
1231 Provide/Register Document Set BTA"
1232 ns1:requestOrResponseAction="Provide/Register Document Set Requesting
1233 Business Activity"/>
1229         <ns1:ChannelId>DocSrc_1_XA_SyncChannel1</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
1229         </ns1:CanSend>
1229         </ns1:ServiceBinding>
1229         </ns1:CollaborationRole>
1229         <ns1:Certificate ns1:certId="DocSrc_AppCert">
1229         <ns6:KeyInfo Id="" xmlns:ns6="http://www.w3.org/2000/09/xmldsig#">
1229         <ns6:KeyName>DocSrc_AppCertKey</ns6:KeyName>
1229         </ns6:KeyInfo>
1229         </ns1:Certificate>
1229         <ns1:Certificate ns1:certId="DocSrcTrustedRootCert">
1229         <ns7:KeyInfo Id="" xmlns:ns7="http://www.w3.org/2000/09/xmldsig#">
1229         <ns7:KeyName>TrustedRootCert1</ns7:KeyName>
1229         </ns7:KeyInfo>
1229         </ns1:Certificate>
1229         <ns1:SecurityDetails ns1:securityId="DocSrc_TransportSecurity">
1229         <ns1:TrustAnchors>
1229         <ns1:AnchorCertificateRef ns1:certId="DocSrcTrustedRootCert"/>
1229         </ns1:TrustAnchors>
1229         </ns1:SecurityDetails>
1229         <ns1:DeliveryChannel ns1:channelId="DocSrc_1_XA_SyncChannel1"
1230 ns1:docExchangeId="DocSrc_1_XA_DocExchange1"
1231 ns1:transportId="DocSrc_1_XA_Transport1">
1229         <ns1:MessagingCharacteristics ns1:ackRequested="perMessage"
1230 ns1:ackSignatureRequested="always" ns1:duplicateElimination="always"
1231 ns1:syncReplyMode="signalsAndResponse"/>
1229         </ns1:DeliveryChannel>
1229         <ns1:Transport ns1:transportId="DocSrc_1_XA_Transport1">
1229         <ns1:TransportSender>
1229         <ns1:TransportProtocol ns1:version="1.1">HTTP</ns1:TransportProtocol>
1229         </ns1:TransportSender>
1229         <ns1:TransportReceiver>
1229         <ns1:TransportProtocol ns1:version="1.1">HTTP</ns1:TransportProtocol>
1229         <ns1:Endpoint ns1:type="allPurpose"
1230 ns1:uri="http://144.122.230.79:8080/xds/registerdocument"/>
1229         </ns1:TransportReceiver>
1229         </ns1:Transport>
1229         <ns1:DocExchange ns1:docExchangeId="DocSrc_1_XA_DocExchange1">
1229         <ns1:ebXMLSenderBinding ns1:version="2.0"/>
1229         <ns1:ebXMLReceiverBinding ns1:version="2.0"/>
1229         </ns1:DocExchange>
1229         </ns1:PartyInfo>
1229         <ns1:SimplePart ns1:id="DocSrc_MsgHdr" ns1:mimetype="text/xml">
1229         <ns1:NamespaceSupported ns1:location="http://www.oasis-
1230 open.org/committees/ebxml-msg/schema/msg-header-2_0.xsd"
1231 ns1:version="2.0">http://www.oasis-open.org/committees/ebxml-
1232 msg/schema/msg-header-2_0.xsd</ns1:NamespaceSupported>
1229         </ns1:SimplePart>
1229         <ns1:SimplePart ns1:id="DocSrc_ReceiptAcknowledgment"
1230 ns1:mimetype="application/xml">
1229         <ns1:NamespaceSupported ns1:location="http://docs.oasis-
1230 open.org/ebxmlbp/ebbp-signals-2.0" ns1:version="2.0">http://docs.oasis-
1231 open.org/ebxmlbp/ebbp-signals-2.0</ns1:NamespaceSupported>
1229         </ns1:SimplePart>
1229         <ns1:SimplePart ns1:id="DocSrc_ReceiptAcknowledgmentException"
1230 ns1:mimetype="application/xml">
1229         <ns1:NamespaceSupported ns1:location="http://docs.oasis-
1230 open.org/ebxmlbp/ebbp-signals-2.0" ns1:version="2.0">http://docs.oasis-
1231 open.org/ebxmlbp/ebbp-signals-2.0</ns1:NamespaceSupported>
1229         </ns1:SimplePart>
1229         <ns1:SimplePart ns1:id="DocSrc_Request" ns1:mimetype="application/xml">
1229         <ns1:NamespaceSupported ns1:location="http://www.oasis-
1230 open.org/committees/repreg/documents/2.0/schema/rs.xsd"
1231 ns1:version="2.0">urn:oasis:names:tc:ebxml-
1232 repreg:registry:xsd:2.0</ns1:NamespaceSupported>
1229         </ns1:SimplePart>
```

```
1229 <ns1:SimplePart ns1:id="DocSrc_Response" ns1:mimetype="application/xml">
1229 <ns1:NamespaceSupported ns1:location="http://www.oasis-
1230 open.org/committees/regrep/documents/2.0/schema/rs.xsd"
1230 ns1:version="2.0">urn:oasis:names:tc:ebxml-
1231 regrep:registry:xsd:2.0</ns1:NamespaceSupported>
1229 </ns1:SimplePart>
1229 <ns1:SimplePart ns1:id="DocSrc_AcceptanceAcknowledgement"
1230 ns1:mimetype="application/xml">
1229 <ns1:NamespaceSupported ns1:location="http://docs.oasis-
1230 open.org/ebxmlbp/ebbp-signals-2.0" ns1:version="2.0">http://docs.oasis-
1231 open.org/ebxmlbp/ebbp-signals-2.0</ns1:NamespaceSupported>
1229 </ns1:SimplePart>
1229 <ns1:SimplePart ns1:id="DocSrc_AcceptanceAcknowledgementException"
1230 ns1:mimetype="application/xml">
1229 <ns1:NamespaceSupported ns1:location="http://docs.oasis-
1230 open.org/ebxmlbp/ebbp-signals-2.0" ns1:version="2.0">http://docs.oasis-
1231 open.org/ebxmlbp/ebbp-signals-2.0</ns1:NamespaceSupported>
1229 </ns1:SimplePart>
1229 <ns1:Packaging ns1:id="DocSrc_MshSignalPackage">
1229 <ns1:ProcessingCapabilities ns1:generate="true" ns1:parse="true"/>
1229 <ns1:CompositeList>
1229 <ns1:Composite ns1:id="DocSrc_MshSignal"
1230 ns1:mimeparameters="type=text/xml" ns1:mimetype="multipart/related">
1229 <ns1:Constituent ns1:idref="DocSrc_MsgHdr"/>
1229 </ns1:Composite>
1229 </ns1:CompositeList>
1229 </ns1:Packaging>
1229 <ns1:Packaging ns1:id="DocSrc_RequestPackage">
1229 <ns1:ProcessingCapabilities ns1:generate="true" ns1:parse="true"/>
1229 <ns1:CompositeList>
1229 <ns1:Composite ns1:id="DocSrc_RequestMsg"
1230 ns1:mimeparameters="type=text/xml" ns1:mimetype="multipart/related">
1229 <ns1:Constituent ns1:idref="DocSrc_MsgHdr"/>
1229 <ns1:Constituent ns1:idref="DocSrc_Request"/>
1229 </ns1:Composite>
1229 </ns1:CompositeList>
1229 </ns1:Packaging>
1229 <ns1:Packaging ns1:id="DocSrc_ResponsePackage">
1229 <ns1:ProcessingCapabilities ns1:generate="true" ns1:parse="true"/>
1229 <ns1:CompositeList>
1229 <ns1:Composite ns1:id="DocSrc_ResponseMsg"
1230 ns1:mimeparameters="type=text/xml" ns1:mimetype="multipart/related">
1229 <ns1:Constituent ns1:idref="DocSrc_MsgHdr" ns1:excludedFromSignature="false"
1230 ns1:idref="DocSrc_MsgHdr"/>
1229 <ns1:Constituent ns1:excludedFromSignature="false"
1230 ns1:idref="DocSrc_Response"/>
1229 </ns1:Composite>
1229 </ns1:CompositeList>
1229 </ns1:Packaging>
1229 <ns1:Packaging ns1:id="DocSrc_ReceiptAckResponsePackage">
1229 <ns1:ProcessingCapabilities ns1:generate="true" ns1:parse="true"/>
1229 <ns1:CompositeList>
1229 <ns1:Composite ns1:id="DocSrc_SignalAndResponseMsg"
1230 ns1:mimeparameters="type=text/xml" ns1:mimetype="multipart/related">
1229 <ns1:Constituent ns1:idref="DocSrc_MsgHdr"/>
1229 <ns1:Constituent ns1:idref="DocSrc_ReceiptAcknowledgment"/>
1229 <ns1:Constituent ns1:idref="DocSrc_Response"/>
1229 </ns1:Composite>
1229 </ns1:CompositeList>
1229 </ns1:Packaging>
1229 <ns1:Packaging ns1:id="DocSrc_ReceiptAckPackage">
1229 <ns1:ProcessingCapabilities ns1:generate="true" ns1:parse="true"/>
1229 <ns1:CompositeList>
1229 <ns1:Composite ns1:id="DocSrc_ReceiptAckMsg"
1230 ns1:mimeparameters="type=text/xml" ns1:mimetype="multipart/related">
1229 <ns1:Constituent ns1:idref="DocSrc_MsgHdr"/>
1229 <ns1:Constituent ns1:idref="DocSrc_ReceiptAcknowledgment"/>
1229 </ns1:Composite>
1229 </ns1:CompositeList>
1229 </ns1:Packaging>
1229 <ns1:Packaging ns1:id="DocSrc_ReceiptAckExceptionPackage">
```

```
1229     <ns1:ProcessingCapabilities ns1:generate="true" ns1:parse="true"/>
1229     <ns1:CompositeList>
1229         <ns1:Composite ns1:id="DocSrc_ReceiptAckExceptionMsg"
1230 ns1:mimeparameters="type=text/xml" ns1:mimetype="multipart/related">
1229             <ns1:Constituent ns1:idref="DocSrc_MsgHdr"/>
1229             <ns1:Constituent ns1:idref="DocSrc_ReceiptAcknowledgementException"/>
1229         </ns1:Composite>
1229     </ns1:CompositeList>
1229 </ns1:Packaging>
1229 <ns1:Packaging ns1:id="DocSrc_AcceptanceAckPackage">
1229     <ns1:ProcessingCapabilities ns1:generate="true" ns1:parse="true"/>
1229     <ns1:CompositeList>
1229         <ns1:Composite ns1:id="DocSrc_AcceptanceAckMsg"
1230 ns1:mimeparameters="multipart/related" ns1:mimetype="multipart/related">
1229             <ns1:Constituent ns1:excludedFromSignature="false"
1230 ns1:idref="DocSrc_MsgHdr"/>
1229             <ns1:Constituent ns1:excludedFromSignature="false"
1230 ns1:idref="DocSrc_AcceptanceAcknowledgement"/>
1229         </ns1:Composite>
1229     </ns1:CompositeList>
1229 </ns1:Packaging>
1229 </ns1:CollaborationProtocolProfile>
```

1229 **Listing 19: An Example CPP Definition for IHE Source Actor**

1229 8. Metadata Configuration Issues in IHE XDS

1229 IHE XDS defines fixed sets of metadata elements for the Documents in the Registry, for SubmissionSets and
1230 for Folders. We restrict the discussion in this section to XDS Documents; however the proposed approach
1231 can be applied for storing and processing the metadata of SubmissionSets and Folders.

1229 An XDS document, stored in the repository, is represented as an ExtrinsicObject [ebRIM] in the ebXML
1230 registry of type XDSDocumentEntry. The XDSDocumentEntry object type is created in ebXML Registry by
1231 extending the ebXML Registry ObjectType Classification Scheme as shown in Figure 24. ExtrinsicObjects in
1232 ebXML are used to provide metadata that describes submitted content whose type is not intrinsically known
1233 to the registry. In order to group the related documents, the XDS documents are organized into folders (e.g.
1234 an episode of care, a problem, immunizations, etc.). In this way a document consumer can find all the entries
1235 placed in the same folder. XDS document folders are constructed in the ebXML registry using ebXML
1236 RegistryPackage. ebXML RegistryPackage is used to group logically related RegistryObject instances
1237 together.

1229 XDS specifies a set of predefined metadata elements to be associated with XDS documents, submission
1230 sets and folders to facilitate their discovery. Some of the metadata elements are straightforward document
1231 attributes such as "authorDepartment" or "creationTime" which are defined as slots of the ExtrinsicObject
1232 representing an XDS Document in the registry. Some of the attributes such as "formatCode" or "typeCode"
1233 refer to coded lists and the types of such attributes are defined to be "External Classification" in the ebXML
1234 registry.

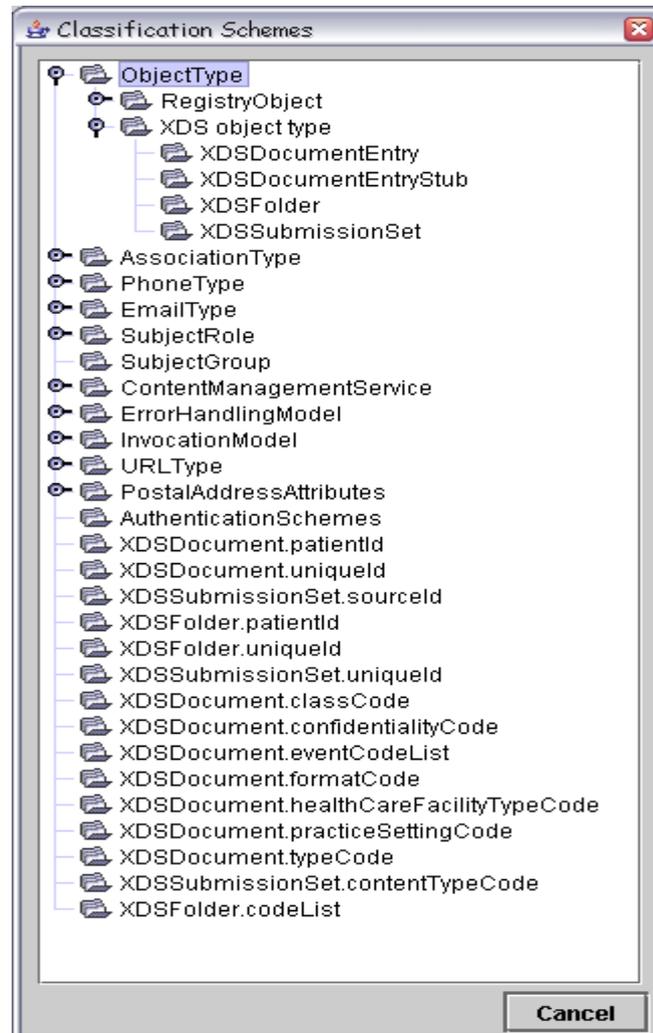


Figure 24: XDS Classification Schemes in ebXML Registry

1229 Table 6 gives some example metadata attributes for XDS Documents such as "authorDepartment",
 1230 formatCode" and "typeCode".

1229 **Table 6: Some Example XDSDocumentEntry Attributes**

XDSDocumentEntry Attribute	Definition
authorDepartment	<p>Represents a specific healthcare facility under which the human and/or machines authored the document. A specific case is that of homecare. It is defined as a slot in ebXML Registry.</p> <pre data-bbox="395 479 1433 539"><rim:Slot name="authorInstitution"> <rim:ValueList> <rim:Value>Fairview Hospital</rim:Value> </rim:ValueList> </rim:Slot></pre>
formatCode	<p>Code globally uniquely specifying the format of the document. Along with the typeCode, it should provide sufficient information to allow any potential XDS Document Consumer to know if it will be able to process the document. The formatCode shall be sufficiently specific to ensure processing/display by identifying a document encoding, structure and template (e.g. for a CDA Document, the fact that it complies with a CDA schema, possibly a template and the choice of a content-specific style sheet). It is defined as an External Classification in RIM as follows:</p> <pre data-bbox="395 801 1422 1010"><rim:Classification classificationScheme= "urn:uuid:a09d5840-386c-46f2-b5ad-9c3699a4309d" classifiedObject="theDocument" nodeRepresentation="formatCode" > <rim:Name> <rim:LocalizedString value="name"/> </rim:Name> <rim:Slot name="codingScheme"> <rim:ValueList> <rim:Value>Affinity Domain Specific Value</rim:Value> </rim:ValueList> </rim:Slot> </rim:Classification></pre>
typeCode	<p>The code specifying the precise kind of document (e.g. Pulmonary History and Physical, Discharge Summary, Ultrasound Report). It is suggested that the XDS Affinity Domain draw these values from a coding scheme providing a fine level of granularity. It is defined as an External Classification in RIM as follows:</p> <pre data-bbox="395 1182 1433 1359"><rim:Classification classificationScheme="urn:uuid:41a5887f-8865-4c09-adf7-e362475b143a" classifiedObject="theDocument" nodeRepresentation="typeCode" > <rim:Name> <rim:LocalizedString value="typeCodeDisplayName" /> </rim:Name> <rim:Slot name="codingScheme"> <rim:ValueList> <rim:Value>Affinity Domain Specific Value</rim:Value> </rim:ValueList> </rim:Slot> </rim:Classification></pre>

1229 IHE requires that the coded fields in the submitted metadata contain valid XDS specified values or where the
 1230 Affinity Domain constraints code values, they should be verified. It is the responsibility of the XDS Registry
 1231 Adaptor to verify coded values. In one of the public implementations of XDS [IHE-OS], the coded values are
 1232 stored in XML documents and the metadata is validated against these documents. Validation checks whether
 1233 the coded attributes in the metadata exist in the corresponding XML document.

1229 An alternative approach we propose is to define internal classifications schemes for the coded terms. In
 1230 this approach, for each acceptable value a classification node is created under the related classification
 1231 scheme.

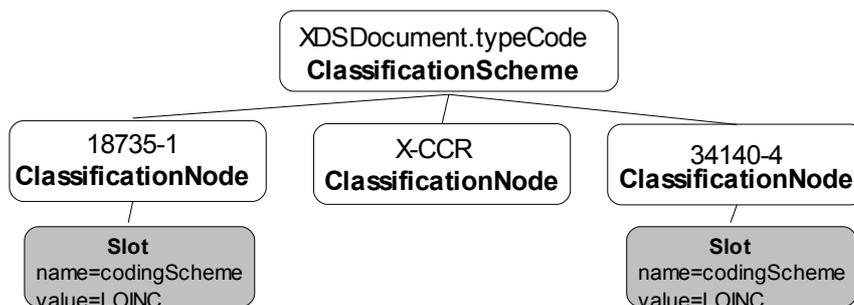


Figure 25: An Example Internal Classification Scheme for Document typeCode Attribute

1229 Figure 25 depicts an example internal classification for the Document "typeCode" attribute. Two classification
 1230 nodes have values from the LOINC coding scheme [LOINC] and a classification node has a value "X-CCR"
 1231 which does not exist in a coding scheme. Furthermore, through "slot" values, it is possible to indicate the
 1232 codingScheme such as "LOINC" as shown in Figure 25. When a classification scheme is defined internally,
 1233 the hierarchy can be queried by clients prior to its usage and there is no need for a validation on the values
 1234 of the coding scheme, since uuids of classification nodes are referenced rather than the values of an external
 1235 coding scheme during the classification of a registry entry.

1229 Furthermore, some of the coded values, such as "formatCode", may not have values defined through
 1230 external classification schemes. Therefore classification schemes of such coded values may also be defined
 1231 internally. In Figure 26, internal classification scheme for "formatCode" attribute is depicted. Document
 1232 formats and templates used in the affinity domain are described with this classification scheme. As shown in
 1233 the figure, it is also possible to associate new properties with the classification nodes. For example,
 1234 CDAR2/IHE 1.0 is a format code value indicating that the document is a CDAR2 document. Schema of
 1235 CDAR2 documents can be associated to this classification node as well. Such an information can then be
 1236 used for validating a document against its schema. XDS-MS-2005 is a template which further specializes a
 1237 CDA document, therefore the classification node of this format is described as a child of CDAR2/IHE 1.0
 1238 format code as shown in Figure 26. The URI of the template can be associated to this classification node
 1239 which can be used for validating the document against the template.

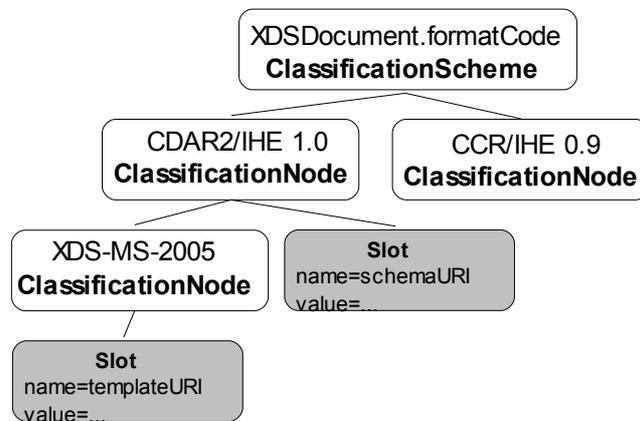


Figure 26: An Example Internal Classification Scheme for Document formatCode Attribute

1229 Another advantage of using internal classification scheme is that, it is possible to construct an ontology
 1230 of coded terms using ebXML semantic constructs which are extended to Web Ontology Language (OWL) as
 1231 proposed in [ebXMLRP-OWL] . Figure 27 depicts an example of such an ontology. When ontologies are
 1232 used to define the coded terms, it becomes possible to map the coded terms of different affinity domains
 1233 which is needed to establish federated clinical affinity domains.

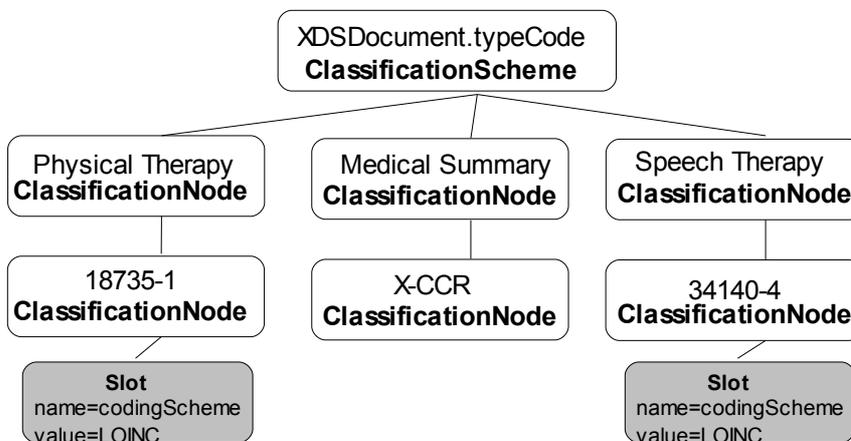


Figure 27: An Example typeCode Ontology

1229 As an example, the code listing provided in Listing 20, creates classification nodes corresponding to the
 1230 typeCode classification scheme "urn:uuid:e35fcd5c-f891-41eb-a05f-8d8a01fa8f12" through a
 1231 "SubmitObjectRequest". The unique codes assigned to these classification nodes, which can be obtained by

1229 querying the ebXML Registry, are given in Listing 21. Now, when submitting document metadata, these
 1230 codes can directly be used as shown in Listing 22. It is clear that this approach eliminates the need to
 1231 validate metadata; if the mentioned UUID is not in the registry; the registry throws an exception indicating
 1232 this fact. In this way, the validation of metadata phase is realized by the registry rather than by the registry
 1233 adaptor facilitating the development of registry adaptors. However in [IHE-ITI-2], metadata is defined only
 1234 through external classifications. This mechanism will work if internal classifications are also allowed. It should
 1235 also be noted that this mechanism works in [IHE-OS] since in [IHE-OS], the validation is done off-line.

```

1229 <?xml version = '1.0' encoding = 'UTF-8'?>
1229 <SubmitObjectsRequest
1229   xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
1229   xsi:schemaLocation="urn:oasis:names:tc:ebxml-regrep:registry:xsd:2.1
1230 file:/usr/local/jakarta-tomcat-
1231 5.0.19/webapps/xdsServices2/xds/validationService/rs.xsd"
1229   xmlns:rim="urn:oasis:names:tc:ebxml-regrep:rim:xsd:2.1"
1229   xmlns:rs="urn:oasis:names:tc:ebxml-regrep:registry:xsd:2.1"
1229   xmlns="urn:oasis:names:tc:ebxml-regrep:rim:xsd:2.1"
1229   >
1229   <rim:LeafRegistryObjectList>
1229
1230     <rim:ClassificationScheme id = 'Connect-a-thon-typeCodes'
1229 isInternal='true' nodeType='UniqueCode' >
1229       <rim:Name>
1229         <rim:LocalizedString value = 'Connect-a-thon typeCodes' />
1229       </rim:Name>
1229     </rim:ClassificationScheme>
1229
1230     <rim:ClassificationNode id = 'Physical-Therapy-Initial-Evaluation-Note'
1229 parent= 'Connect-a-thon-typeCodes' >
1229       <rim:Name> <rim:LocalizedString value = 'Physical Therapy Initial
1229 Evaluation Note' /> </rim:Name>
1229       <rim:Slot name="codingScheme">
1229         <rim:ValueList>
1229           <rim:Value>LOINC</rim:Value>
1230         </rim:ValueList>
1229       </rim:Slot>
1229     </rim:ClassificationNode>
1229
1230     <rim:ClassificationNode id = 'Transfer-of-Care-Referral-Note' parent=
1229 'Connect-a-thon-typeCodes' >
1229       <rim:Name> <rim:LocalizedString value = 'Transfer of Care Referral
1229 Note' /> </rim:Name>
1229       <rim:Slot name="codingScheme">
1229         <rim:ValueList>
1229           <rim:Value>LOINC</rim:Value>
1230         </rim:ValueList>
1229       </rim:Slot>
1229     </rim:ClassificationNode>
1229   </rim:LeafRegistryObjectList>
1229 </SubmitObjectsRequest>
  
```

1229 Listing 20: SubmitObjectsRequest for Defining an Internal Classification Scheme for typeCode
 1230 XDS DocumentEntry Attribute

```

1229 FOR THE CLASSIFICATION SCHEME: urn:uuid:e35fcd5c-f891-41eb-a05f-
1230 8d8a01fa8f12
1229   urn:uuid:2a121451-9923-4d11-9065-da676d2b03d3 | Transfer of Care Referral
1230 Note
1229   urn:uuid:ae580de2-453d-4b4a-961e-f3ce7e2378e3 | Physical Therapy Initial
1230 Evaluation Note
  
```

1229 Listing 21: The UUIDs of the Classification Nodes corresponding to the Internal Classification
 1230 Scheme for typeCode XDS DocumentEntry Attribute

```

1229 <?xml version="1.0" encoding="UTF-8"?>
  
```

```

1229 <rs:SubmitObjectsRequest xmlns:xsi="http://www.w3.org/2001/XMLSchema-
1230 instance"
1229   xsi:schemaLocation="urn:oasis:names:tc:ebxml-regrep:registry:xsd:2.1
1230 file:/usr/local/jakarta-tomcat-
1231 5.0.19/webapps/xdsServices2/xds/validationService/rs.xsd"
1229   xmlns:rim="urn:oasis:names:tc:ebxml-regrep:rim:xsd:2.1"
1229   xmlns:rs="urn:oasis:names:tc:ebxml-regrep:registry:xsd:2.1"
1229   xmlns="urn:oasis:names:tc:ebxml-regrep:rim:xsd:2.1">
1229     <LeafRegistryObjectList>
1229       <!-- Reference to the ClassificationNode -->
1229       <ObjectRef id="urn:uuid:2a121451-9923-4d11-9065-da676d2b03d3"/>
1229
1229       <Classification classifiedObject="theDocument"
1229         classificationNode="urn:uuid:2a121451-9923-4d11-9065-
1230 da676d2b03d3">
1229         <Name>
1229           <LocalizedString value="Transfer of Care Referral Note"/>
1229         </Name>
1229         <Slot name="codingScheme">
1229           <ValueList>
1229             <Value>Connect-a-thon typeCodes</Value>
1229           </ValueList>
1229         </Slot>
1229       </Classification>
1229
1229     </LeafRegistryObjectList>
1229 </rs:SubmitObjectsRequest>

```

1229 Listing 22: An Example SubmitObjectsRequest Using UUID of the Classification Node “Transfer of
1230 Care Referral Note” in the Internal Classification Scheme for typeCode XDS DocumentEntry
1231 Attribute

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9. IHE Configuration Management Tool – IHE-CMT

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We developed an IHE Configuration Management Tool, called IHE-CMT, based on OASIS ebXML ebBP, CPP and CPA specifications. The intention behind developing such a tool is to automate the exchange of configuration information between IHE Actors. Figure 28 depicts the tool's startup window. A generic CPA Editor can also work for IHE however since IHE fixes many of the parameters, customizing CPP Editor and CPA Editors to IHE, facilitates and speeds up the usage of these editors in real life scenarios. For example, the communication between XDS Actors, Document Registry and Document Repository is fixed and it is SOAP with attachments [ebRS, ebMS]. This parameter can be fixed as such in the related CPPs and re-used in the CPA automatically.

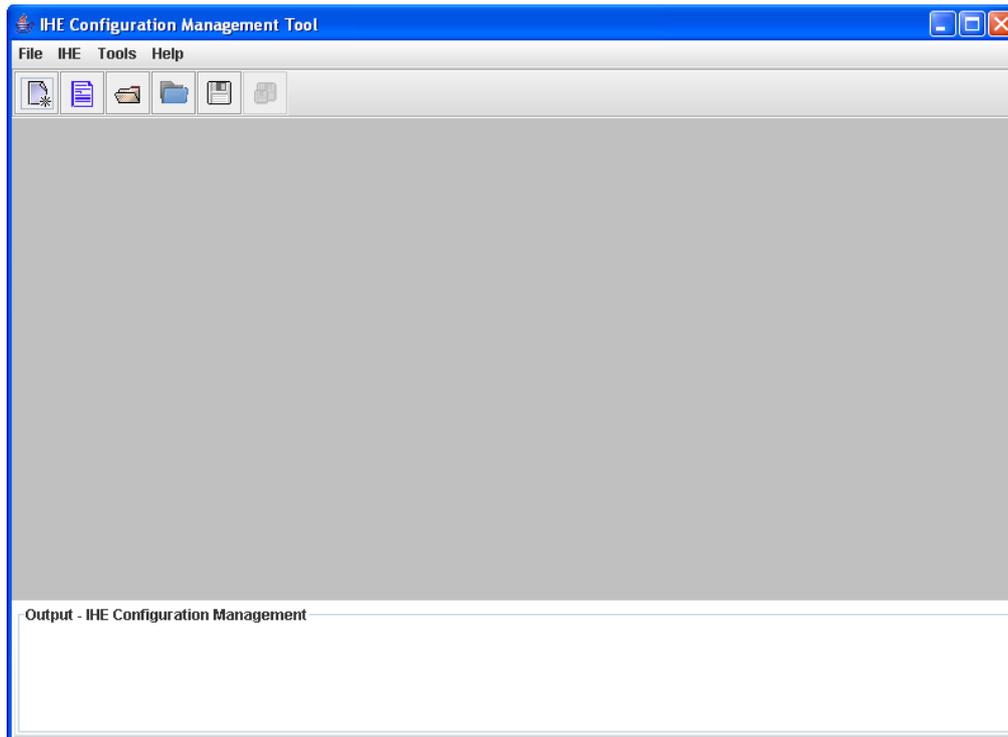


Figure 28: IHE Configuration Management Tool Application

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IHE-CMT consists of two complementary tools: IHE-CPP Editor and IHE-CPA Editor. Through the graphical user interfaces provided by IHE-CPP Editor, each IHE Actor can define its CPP according to its configuration specification and according to the business specifications it is involved in. Note that, in this document, PartyInfo is restricted to one IHE Actor for the sake of simplicity. And through the IHE-CPA Editor, a valid CPA specification can be formed by incorporating the CPPs of the involved Actors such that:

- The roles of the Actors referred in the corresponding CPPs must be complementary in the business processes referred. For example, in the CPP of the IHE “Document Repository” Actor, IHE XDS business process is referred. One of the complementary roles in IHE XDS business process for the “Document Repository” Actor is “Document Source” Actor and this information is already available from the Business Collaboration as defined in Listing 5 (“XDS-IHE-ITI-15”) hence is automatically obtained and processed.
- The communication means must be compatible. For example, in “Provide and Register Document Set” Collaboration in IHE XDS Business Process, there are two types of network relationships between the Document Source and the Document Repository:
 - On-line – the Document Source constructs a direct connection (i.e, socket) to the Document Repository.
 - Off-line – the Document Source connects to the Document Repository via SMTP.

In order to generate a valid CPA, these options must match. This information is already available from the respective CPPs of the Actors and hence is automatically obtained and processed.

- Certificates: The “PartyInfo”s in the corresponding CPPs already contain certificate information which is automatically incorporated into the CPA.
- MIME Types: The respective CPPs already define the valid MIME Types for each Business

- 1229 Document which is automatically checked and incorporated into the CPA.
- 1229 • The identifier conflicts across the CPPs must be resolved which are automatically achieved.
- 1229 • The starting and ending date of the CPA which define the validity time interval for the CPA are
- 1230 entered through Configuration Management Tool. Also, conversation constraints defining maximum
- 1231 number of conversations and maximum concurrent conversation limit are set through this tool.
- 1229 The CPA Configuration Tool is currently being improved to also handle the following issues:
- 1229 • Signature: The generated CPA definition need to be digitally signed by one or both parties. This
- 1230 signing process is to ensure the agreement reached. XML digital signature specification must be
- 1231 used in the CPA definition. The validity tests will be done through the signatures provided by the
- 1232 Actors.
- 1229 • CPA definition and Process Specification referred in CPPs contain attributes which are
- 1230 complementary. When a CPA is generated from the corresponding CPPs, the attributes present in
- 1231 the CPA must override the corresponding attributes defined in the ProcessSpecification. The
- 1232 information in the process specification can be updated after the generation of an agreement through
- 1233 CPA and the new process specification can be provided as a new version.

1229 Since IHE-CMT is IHE specific, one of the menu items directly lists all the IHE business process

1230 specifications. Note that an IHE process specification can be IHE Profiles or a business process describing a

1231 set of combined IHE Profiles obtained through IHE Actor Grouping (output of IHE-AGT). IHE-CMT displays

1232 all the deployed IHE business process specifications as shown in Figure 29.

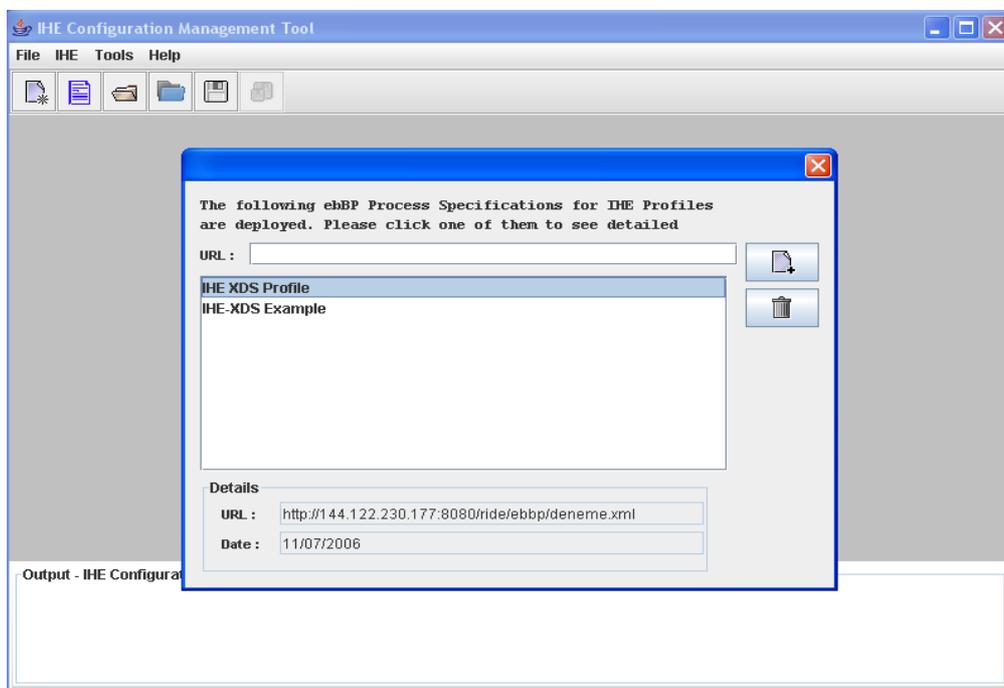


Figure 29: Introducing the ebBP definition of IHE profiles

1229 9.1. IHE-CPP Editor

1229 An IHE CPP defines an IHE Actor's message exchange capabilities and the Business Collaborations that it

1230 supports. In order to define a CPP for an IHE Actor, the first step is to identify the IHE business process and

1231 the role of this Actor in this process as shown in Figure 30. Through this step, a system or application

1232 identifies which IHE Actor role it will play and also refers to the concrete IHE business process in which it will

1233 play this role.

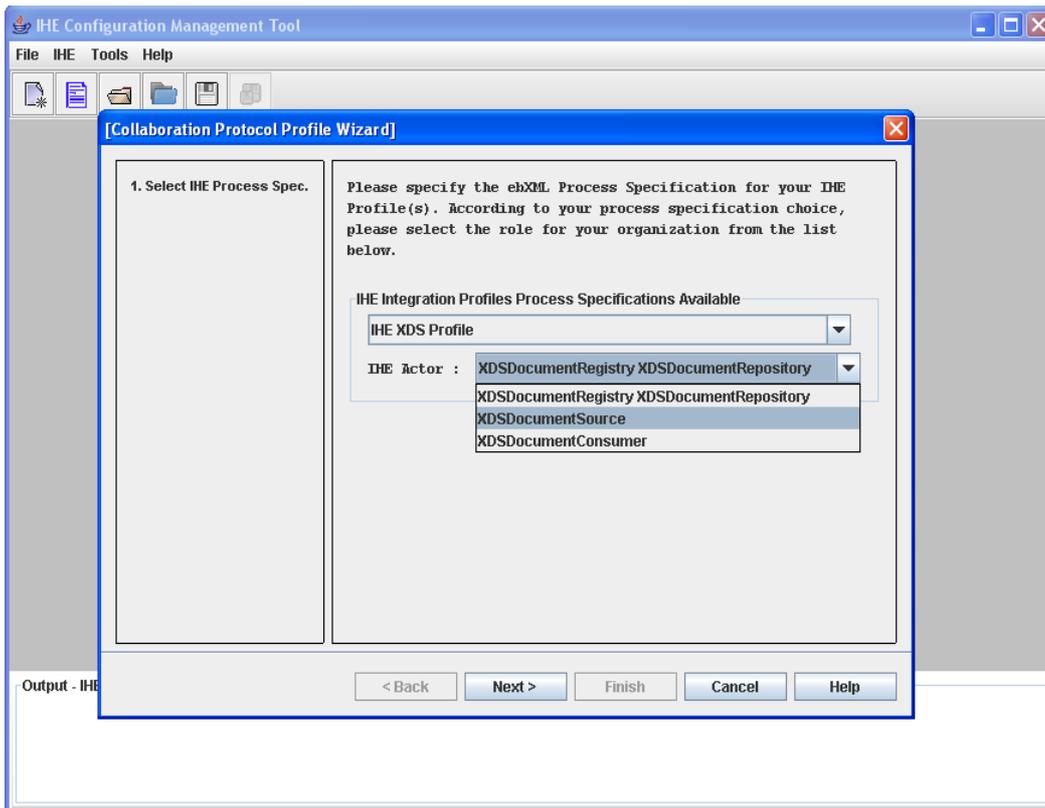


Figure 30: Selecting IHE Business Process and IHE Actor for Creating a CPP

1229 When the user click the “Next” button, the screen shown in Figure 31 is displayed where organizational
 1230 information about the IHE Actor is provided. The Actor is assigned a unique identifier which cannot be
 1231 modified.

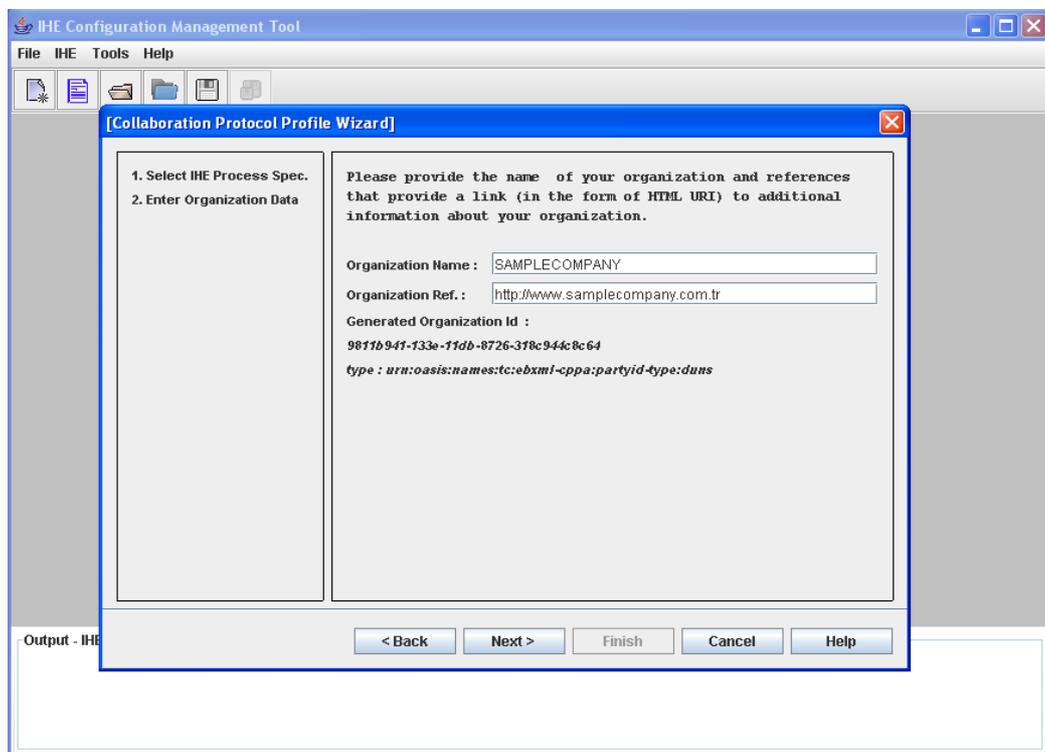


Figure 31: Providing organization information for CPP

1229 When the user moves to the next step as shown in Figure 32, IHE-CPP Editor reads the selected process
 1230 specification and validates it as follows: The process specification name, its URL, its Unique identifier and
 1231 the Actor's role are displayed to the user for confirmation. Since these values will be used further down the
 1232 process, this validation phase is just a double-check.

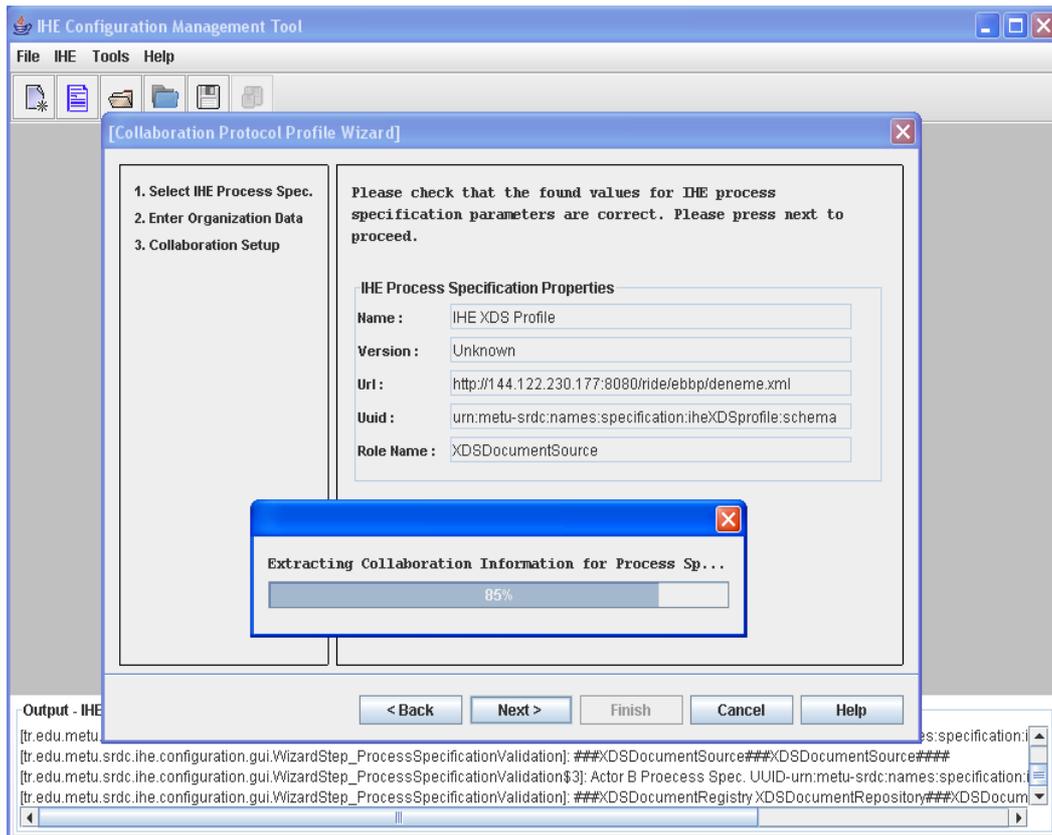


Figure 32: Validation of the IHE Process Specification Parameter Values (Collaboration Setup)

1229 In the next step as shown in Figure 33, the IHE Transactions that this IHE Actor plays in the selected IHE
 1230 business process is displayed to the user. The configuration parameters related with each displayed
 1231 Transaction, e.g. Business Collaboration parameter values such as Actor's sending and receiving
 1232 capabilities are extracted from the IHE Business Process and are automatically inserted into the Actor's
 1233 CPP.

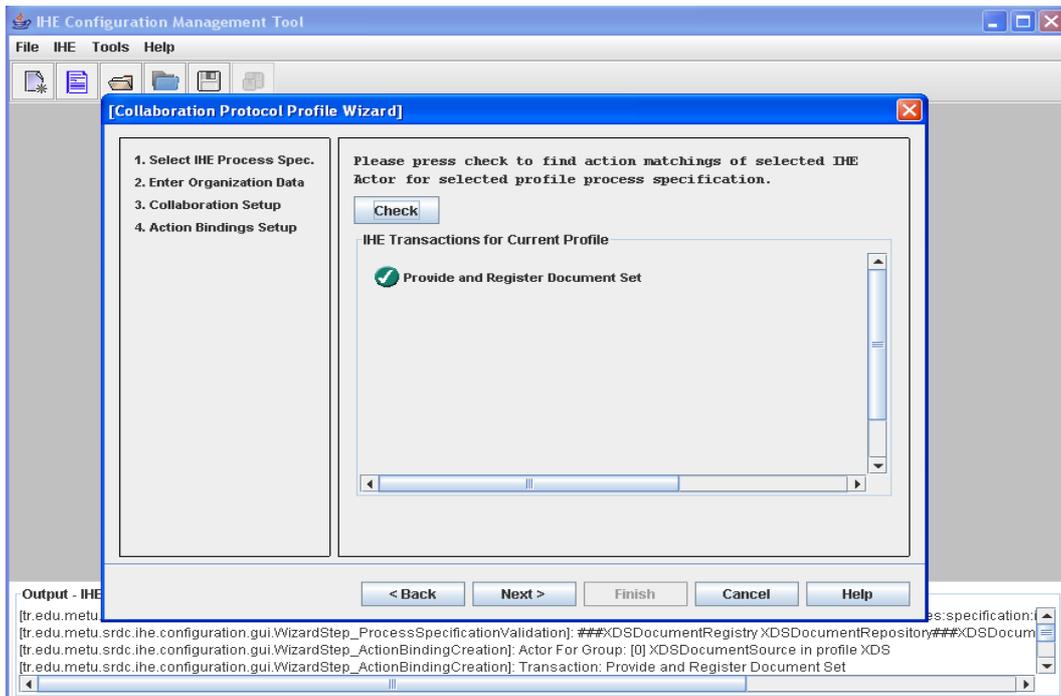


Figure 33: Extracting the Actor's CPP Messaging Information from related IHE Business Process (Action Binding Setup)

1229 In the next screen, the transport protocols for sending and receiving messages are set. For the selected
1230 protocol an end point address should be provided as shown in Figure 34.

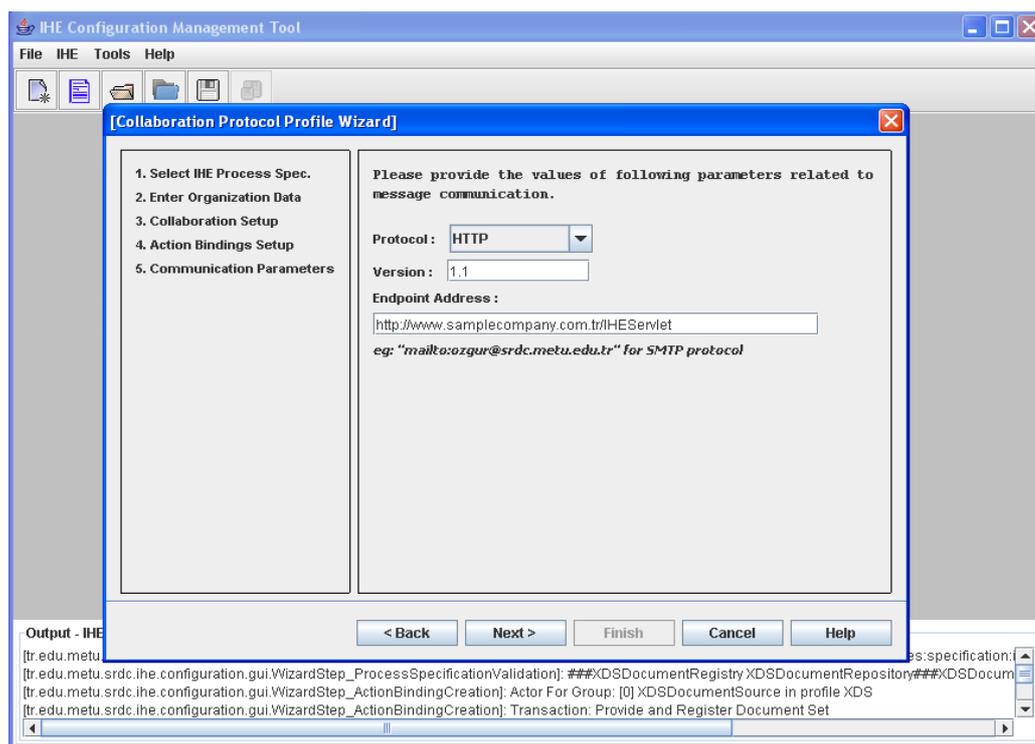


Figure 34: Setting the Communication Parameters for the Actor

1229 As a result of this step the CPP for the IHE Actor is created and can now be saved as shown in Figure 35.

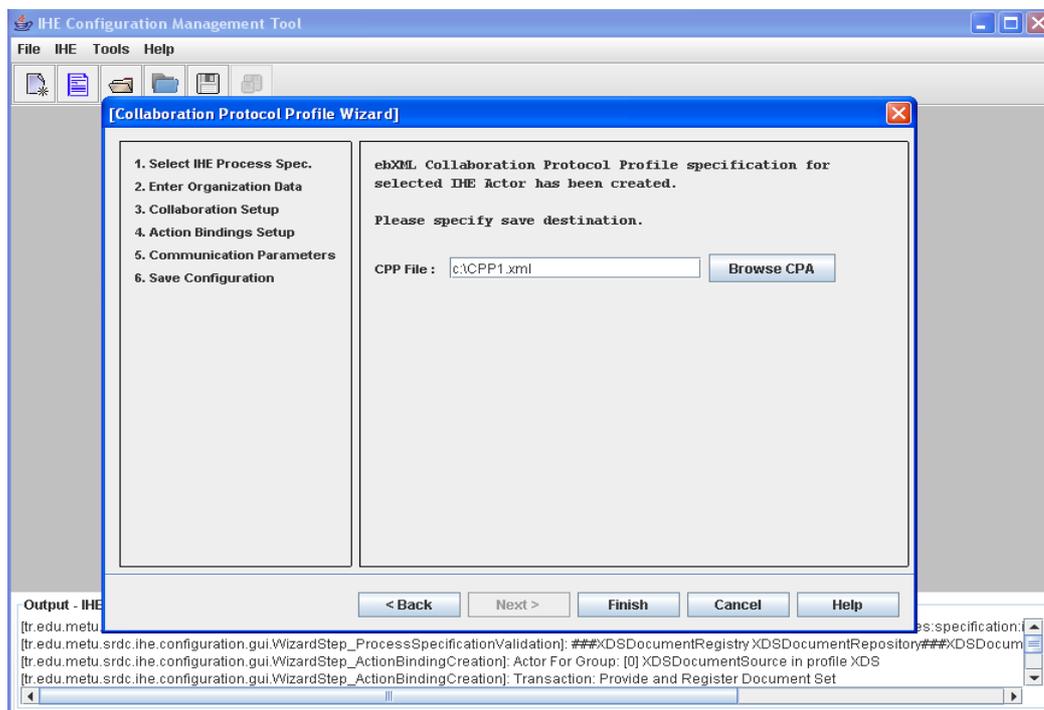


Figure 35: Saving the CPP Generated for the IHE Actor

1229 An example CPP generated through IHE-CPP Editor is given in Listing 23.

```
1229 <?xml version="1.0" encoding="UTF-8" standalone="yes"?>  
1229 <ns1:CollaborationProtocolProfile ns1:cupid="89410a67-133f-11db-8726-  
1230 318c944c8c64" ns1:version="2_0b" xmlns:ns1="http://www.oasis-  
1231 open.org/committees/ebxml-cppa/schema/cpp-cpa-2_0.xsd">
```

```
1229 <ns1:PartyInfo ns1:defaultMshChannelId="SyncChannel1"
1230 ns1:defaultMshPackageId="MshSignalPackage" ns1:partyName="SAMPLECOMPANY">
1229 <ns1:PartyId>Dummy</ns1:PartyId>
1229 <ns1:PartyId ns1:type="urn:oasis:names:tc:ebxml-cppa:partyid-
1230 type:duns">d5bb6612-133e-11db-8726-318c944c8c64</ns1:PartyId>
1229 <ns1:PartyId ns1:type="urn:oasis:names:tc:ebxml-cppa:partyid-
1230 type:duns">d5bb6612-133e-11db-8726-318c944c8c64</ns1:PartyId>
1229 <ns1:PartyId ns1:type="urn:oasis:names:tc:ebxml-cppa:partyid-
1230 type:duns">d5bb6612-133e-11db-8726-318c944c8c64</ns1:PartyId>
1229 <ns1:PartyRef ns2:href="http://www.srdc.metu.edu.tr" ns2:type="simple"
1230 xmlns:ns2="http://www.w3.org/1999/xlink"/>
1229 <ns1:PartyRef ns3:href="http://www.samplecompany.com.tr"
1230 ns3:type="simple" xmlns:ns3="http://www.w3.org/1999/xlink"/>
1229 <ns1:PartyRef ns4:href="http://www.samplecompany.com.tr"
1230 ns4:type="simple" xmlns:ns4="http://www.w3.org/1999/xlink"/>
1229 <ns1:PartyRef ns5:href="http://www.samplecompany.com.tr"
1230 ns5:type="simple" xmlns:ns5="http://www.w3.org/1999/xlink"/>
1229 <ns1:CollaborationRole>
1229 <ns1:ProcessSpecification
1230 ns6:href="http://144.122.230.177:8080/ride/ebbp/deneme.xml"
1231 ns6:type="simple" ns1:name="IHE XDS Profile" ns1:uuid="urn:metu-
1232 srdc:names:specification:iheXDSprofile:schema" ns1:version="Unknown"
1233 xmlns:ns6="http://www.w3.org/1999/xlink"/>
1229 <ns1:Role
1230 ns7:href="http://144.122.230.177:8080/ride/ebbp/deneme.xml#XDSDocumentSourc
1231 e" ns7:type="simple" ns1:name="XDSDocumentSource"
1232 xmlns:ns7="http://www.w3.org/1999/xlink"/>
1229 <ns1:ServiceBinding>
1229 <ns1:Service>urn:metu-
1230 srdc:names:specification:iheXDSprofile:schema</ns1:Service>
1229 <ns1:CanSend>
1229 <ns1:ThisPartyActionBinding ns1:action="IHE XDS Provide/Register
1230 Document Set BTA Action" ns1:id="1324d593-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="RequestPackage" ns8:type="simple"
1232 xmlns:ns8="http://www.w3.org/1999/xlink">
1229 <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229 <ns1:ActionContext ns1:binaryCollaboration="IHE XDS
1230 Provide/Register Document Set" ns1:businessTransactionActivity="IHE XDS
1231 Provide/Register Document Set BTA"
1232 ns1:requestOrResponseAction="Provide/Register Document Set Requesting
1233 Business Activity"/>
1229 <ns1:ChannelId>SyncChannel1</ns1:ChannelId>
1229 </ns1:ThisPartyActionBinding>
1229 <ns1:CanReceive>
1229 <ns1:ThisPartyActionBinding ns1:action="IHE XDS Provide/Register
1230 Document Set BTA Action" ns1:id="13271f84-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="RequestPackage" ns9:type="simple"
1232 xmlns:ns9="http://www.w3.org/1999/xlink">
1229 <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229 <ns1:ActionContext ns1:binaryCollaboration="IHE XDS
1230 Provide/Register Document Set" ns1:businessTransactionActivity="IHE XDS
1231 Provide/Register Document Set BTA"
1232 ns1:requestOrResponseAction="Provide/Register Document Set Responding
1233 Business Activity"/>
1229 <ns1:ChannelId>SyncChannel1</ns1:ChannelId>
1229 </ns1:ThisPartyActionBinding>
1229 </ns1:CanReceive>
1229 <ns1:CanReceive>
1229 <ns1:ThisPartyActionBinding ns1:action="IHE XDS Provide/Register
1230 Document Set BTA Action" ns1:id="13330665-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckPackage" ns10:type="simple"
1232 xmlns:ns10="http://www.w3.org/1999/xlink">
```

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1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS
1230 Provide/Register Document Set" ns1:businessTransactionActivity="IHE XDS
1231 Provide/Register Document Set BTA"
1232 ns1:requestOrResponseAction="Provide/Register Document Set Responding
1233 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel1</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
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1229         <ns1:CanReceive>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Provide/Register
1230 Document Set BTA Action" ns1:id="1337e866-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckExceptionPackage" ns1:type="simple"
1232 xmlns:ns11="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS
1230 Provide/Register Document Set" ns1:businessTransactionActivity="IHE XDS
1231 Provide/Register Document Set BTA"
1232 ns1:requestOrResponseAction="Provide/Register Document Set Responding
1233 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel1</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
1229         </ns1:CanReceive>
1229         <ns1:CanReceive>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Provide/Register
1230 Document Set BTA Action" ns1:id="133ca357-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="AcceptanceAckPackage" ns12:type="simple"
1232 xmlns:ns12="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS
1230 Provide/Register Document Set" ns1:businessTransactionActivity="IHE XDS
1231 Provide/Register Document Set BTA"
1232 ns1:requestOrResponseAction="Provide/Register Document Set Responding
1233 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel1</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
1229         </ns1:CanReceive>
1229         <ns1:CanSend>
1229         <ns1:CanSend>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Provide/Register
1230 Document Set BTA Action" ns1:id="13415e48-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckPackage" ns13:type="simple"
1232 xmlns:ns13="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS
1230 Provide/Register Document Set" ns1:businessTransactionActivity="IHE XDS
1231 Provide/Register Document Set BTA"
1232 ns1:requestOrResponseAction="Provide/Register Document Set Requesting
1233 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel1</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
1229         <ns1:CanReceive>
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1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Provide/Register
1230 Document Set BTA Action" ns1:id="13488a39-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="RequestPackage" ns14:type="simple"
1232 xmlns:ns14="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS
1230 Provide/Register Document Set" ns1:businessTransactionActivity="IHE XDS
1231 Provide/Register Document Set BTA"
1232 ns1:requestOrResponseAction="Provide/Register Document Set Responding
1233 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel1</ns1:ChannelId>
1229     </ns1:ThisPartyActionBinding>
1229 </ns1:CanReceive>
1229 <ns1:CanReceive>
1229     <ns1:ThisPartyActionBinding ns1:action="IHE XDS Provide/Register
1230 Document Set BTA Action" ns1:id="134fb62a-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckPackage" ns15:type="simple"
1232 xmlns:ns15="http://www.w3.org/1999/xlink">
1229     <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229     <ns1:ActionContext ns1:binaryCollaboration="IHE XDS
1230 Provide/Register Document Set" ns1:businessTransactionActivity="IHE XDS
1231 Provide/Register Document Set BTA"
1232 ns1:requestOrResponseAction="Provide/Register Document Set Responding
1233 Business Activity"/>
1229     <ns1:ChannelId>SyncChannel1</ns1:ChannelId>
1229 </ns1:ThisPartyActionBinding>
1229 </ns1:CanReceive>
1229 <ns1:CanReceive>
1229     <ns1:ThisPartyActionBinding ns1:action="IHE XDS Provide/Register
1230 Document Set BTA Action" ns1:id="1354711b-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckExceptionPackage" ns16:type="simple"
1232 xmlns:ns16="http://www.w3.org/1999/xlink">
1229     <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229     <ns1:ActionContext ns1:binaryCollaboration="IHE XDS
1230 Provide/Register Document Set" ns1:businessTransactionActivity="IHE XDS
1231 Provide/Register Document Set BTA"
1232 ns1:requestOrResponseAction="Provide/Register Document Set Responding
1233 Business Activity"/>
1229     <ns1:ChannelId>SyncChannel1</ns1:ChannelId>
1229 </ns1:ThisPartyActionBinding>
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1229     <ns1:ThisPartyActionBinding ns1:action="IHE XDS Provide/Register
1230 Document Set BTA Action" ns1:id="13592c0c-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="AcceptanceAckPackage" ns17:type="simple"
1232 xmlns:ns17="http://www.w3.org/1999/xlink">
1229     <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229     <ns1:ActionContext ns1:binaryCollaboration="IHE XDS
1230 Provide/Register Document Set" ns1:businessTransactionActivity="IHE XDS
1231 Provide/Register Document Set BTA"
1232 ns1:requestOrResponseAction="Provide/Register Document Set Responding
1233 Business Activity"/>
1229     <ns1:ChannelId>SyncChannel1</ns1:ChannelId>
1229 </ns1:ThisPartyActionBinding>
1229 </ns1:CanReceive>
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1229     </ns1:CanReceive>
1229     <ns1:CanReceive>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Provide/Register
1230 Document Set BTA Action" ns1:id="13974681-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="AcceptanceAckPackage" ns22:type="simple"
1232 xmlns:ns22="http://www.w3.org/1999/xlink">
1229             <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229             <ns1:ActionContext ns1:binaryCollaboration="IHE XDS
1230 Provide/Register Document Set" ns1:businessTransactionActivity="IHE XDS
1231 Provide/Register Document Set BTA"
1232 ns1:requestOrResponseAction="Provide/Register Document Set Responding
1233 Business Activity"/>
1229             <ns1:ChannelId>SyncChannel1</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
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1229 <ns1:CanSend>
1229     <ns1:ThisPartyActionBinding ns1:action="IHE XDS Provide/Register
1230 Document Set BTA Action" ns1:id="139e4b62-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="AcceptanceAckPackage" ns23:type="simple"
1232 xmlns:ns23="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS
1230 Provide/Register Document Set" ns1:businessTransactionActivity="IHE XDS
1231 Provide/Register Document Set BTA"
1232 ns1:requestOrResponseAction="Provide/Register Document Set Requesting
1233 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel1</ns1:ChannelId>
1229     </ns1:ThisPartyActionBinding>
1229 <ns1:CanReceive>
1229     <ns1:ThisPartyActionBinding ns1:action="IHE XDS Provide/Register
1230 Document Set BTA Action" ns1:id="13a7e853-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="RequestPackage" ns24:type="simple"
1232 xmlns:ns24="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS
1230 Provide/Register Document Set" ns1:businessTransactionActivity="IHE XDS
1231 Provide/Register Document Set BTA"
1232 ns1:requestOrResponseAction="Provide/Register Document Set Responding
1233 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel1</ns1:ChannelId>
1229     </ns1:ThisPartyActionBinding>
1229 </ns1:CanReceive>
1229 <ns1:CanReceive>
1229     <ns1:ThisPartyActionBinding ns1:action="IHE XDS Provide/Register
1230 Document Set BTA Action" ns1:id="13b15e34-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckPackage" ns25:type="simple"
1232 xmlns:ns25="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS
1230 Provide/Register Document Set" ns1:businessTransactionActivity="IHE XDS
1231 Provide/Register Document Set BTA"
1232 ns1:requestOrResponseAction="Provide/Register Document Set Responding
1233 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel1</ns1:ChannelId>
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1229     </ns1:ThisPartyActionBinding>
1229     </ns1:CanReceive>
1229     <ns1:CanReceive>
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1230 Document Set BTA Action" ns1:id="13d07ef5-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckExceptionPackage" ns26:type="simple"
1232 xmlns:ns26="http://www.w3.org/1999/xlink">
1229             <ns1:BusinessTransactionCharacteristics
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1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229             <ns1:ActionContext ns1:binaryCollaboration="IHE XDS
1230 Provide/Register Document Set" ns1:businessTransactionActivity="IHE XDS
1231 Provide/Register Document Set BTA"
1232 ns1:requestOrResponseAction="Provide/Register Document Set Responding
1233 Business Activity"/>
1229             <ns1:ChannelId>SyncChannel1</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
1229     </ns1:CanReceive>
1229     <ns1:CanReceive>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Provide/Register
1230 Document Set BTA Action" ns1:id="13dc65d6-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="AcceptanceAckPackage" ns27:type="simple"
1232 xmlns:ns27="http://www.w3.org/1999/xlink">
1229             <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229             <ns1:ActionContext ns1:binaryCollaboration="IHE XDS
1230 Provide/Register Document Set" ns1:businessTransactionActivity="IHE XDS
1231 Provide/Register Document Set BTA"
1232 ns1:requestOrResponseAction="Provide/Register Document Set Responding
1233 Business Activity"/>
1229             <ns1:ChannelId>SyncChannel1</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
1229     </ns1:CanReceive>
1229     </ns1:CanSend>
1229 </ns1:ServiceBinding>
1229 </ns1:CollaborationRole>
1229 <ns1:DeliveryChannel ns1:channelId="SyncChannel1"
1230 ns1:docExchangeId="DocExchange1" ns1:transportId="Transport1">
1229     <ns1:MessagingCharacteristics ns1:ackRequested="perMessage"
1230 ns1:ackSignatureRequested="always" ns1:duplicateElimination="always"
1231 ns1:syncReplyMode="signalsAndResponse"/>
1229 </ns1:DeliveryChannel>
1229 <ns1:Transport ns1:transportId="Transport1">
1229     <ns1:TransportSender>
1229         <ns1:TransportProtocol ns1:version="1.1">HTTP</ns1:TransportProtocol>
1229     </ns1:TransportSender>
1229     <ns1:TransportReceiver>
1229         <ns1:TransportProtocol ns1:version="1.1">HTTP</ns1:TransportProtocol>
1229         <ns1:Endpoint ns1:uri="http://www.samplecompany.com.tr/IHEServlet"/>
1229     </ns1:TransportReceiver>
1229 </ns1:Transport>
1229 <ns1:DocExchange ns1:docExchangeId="DocExchange1">
1229     <ns1:ebXMLSenderBinding ns1:version="2.0"/>
1229     <ns1:ebXMLReceiverBinding ns1:version="2.0"/>
1229 </ns1:DocExchange>
1229 </ns1:PartyInfo>
1229 <ns1:SimplePart ns1:id="MsgHdr" ns1:mimetype="text/xml">
1229     <ns1:NamespaceSupported ns1:location="http://www.oasis-
1230 open.org/committees/ebxml-msg/schema/msg-header-2_0.xsd"
1231 ns1:version="2.0">http://www.oasis-open.org/committees/ebxml-
1232 msg/schema/msg-header-2_0.xsd</ns1:NamespaceSupported>
1229 </ns1:SimplePart>
1229 <ns1:SimplePart ns1:id="ReceiptAcknowledgment"
1230 ns1:mimetype="application/xml">
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1229     <ns1:NamespaceSupported ns1:location="http://docs.oasis-
1230 open.org/ebxmlbp/ebbp-signals-2.0" ns1:version="2.0">http://docs.oasis-
1231 open.org/ebxmlbp/ebbp-signals-2.0</ns1:NamespaceSupported>
1229   </ns1:SimplePart>
1229   <ns1:SimplePart ns1:id="ReceiptAcknowledgmentException"
1230 ns1:mimetype="application/xml">
1229     <ns1:NamespaceSupported ns1:location="http://docs.oasis-
1230 open.org/ebxmlbp/ebbp-signals-2.0" ns1:version="2.0">http://docs.oasis-
1231 open.org/ebxmlbp/ebbp-signals-2.0</ns1:NamespaceSupported>
1229     </ns1:SimplePart>
1229     <ns1:SimplePart ns1:id="Request" ns1:mimetype="application/xml">
1229       <ns1:NamespaceSupported ns1:location="http://www.oasis-
1230 open.org/committees/regrep/documents/2.0/schema/rs.xsd"
1231 ns1:version="2.0">urn:oasis:names:tc:ebxml-
1232 regrep:registry:xsd:2.0</ns1:NamespaceSupported>
1229       </ns1:SimplePart>
1229       <ns1:SimplePart ns1:id="Response" ns1:mimetype="application/xml">
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1230 open.org/committees/regrep/documents/2.0/schema/rs.xsd"
1231 ns1:version="2.0">urn:oasis:names:tc:ebxml-
1232 regrep:registry:xsd:2.0</ns1:NamespaceSupported>
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1229         <ns1:SimplePart ns1:id="AcceptanceAcknowledgement"
1230 ns1:mimetype="application/xml">
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1230 open.org/ebxmlbp/ebbp-signals-2.0" ns1:version="2.0">http://docs.oasis-
1231 open.org/ebxmlbp/ebbp-signals-2.0</ns1:NamespaceSupported>
1229           </ns1:SimplePart>
1229           <ns1:SimplePart ns1:id="AcceptanceAcknowledgementException"
1230 ns1:mimetype="application/xml">
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1230 open.org/ebxmlbp/ebbp-signals-2.0" ns1:version="2.0">http://docs.oasis-
1231 open.org/ebxmlbp/ebbp-signals-2.0</ns1:NamespaceSupported>
1229             </ns1:SimplePart>
1229             <ns1:Packaging ns1:id="MshSignalPackage">
1229               <ns1:ProcessingCapabilities ns1:generate="true" ns1:parse="true"/>
1229               <ns1:CompositeList>
1229                 <ns1:Composite ns1:id="MshSignal" ns1:mimeparameters="type=text/xml"
1230 ns1:mimetype="multipart/related">
1229                   <ns1:Constituent ns1:idref="MsgHdr"/>
1229                   </ns1:Composite>
1229                 </ns1:CompositeList>
1229               </ns1:Packaging>
1229               <ns1:Packaging ns1:id="RequestPackage">
1229                 <ns1:ProcessingCapabilities ns1:generate="true" ns1:parse="true"/>
1229                 <ns1:CompositeList>
1229                   <ns1:Composite ns1:id="RequestMsg" ns1:mimeparameters="type=text/xml"
1230 ns1:mimetype="multipart/related">
1229                     <ns1:Constituent ns1:idref="MsgHdr"/>
1229                     <ns1:Constituent ns1:idref="Request"/>
1229                     </ns1:Composite>
1229                   </ns1:CompositeList>
1229                 </ns1:Packaging>
1229                 <ns1:Packaging ns1:id="ResponsePackage">
1229                   <ns1:ProcessingCapabilities ns1:generate="true" ns1:parse="true"/>
1229                   <ns1:CompositeList>
1229                     <ns1:Composite ns1:id="ResponseMsg"
1230 ns1:mimeparameters="type=text/xml" ns1:mimetype="multipart/related">
1229                       <ns1:Constituent ns1:excludedFromSignature="false"
1230 ns1:idref="MsgHdr"/>
1229                       <ns1:Constituent ns1:excludedFromSignature="false"
1230 ns1:idref="Response"/>
1229                       </ns1:Composite>
1229                     </ns1:CompositeList>
1229                   </ns1:Packaging>
1229                 <ns1:Packaging ns1:id="ReceiptAckResponsePackage">
1229                   <ns1:ProcessingCapabilities ns1:generate="true" ns1:parse="true"/>
1229                   <ns1:CompositeList>
1229                     <ns1:Composite ns1:id="SignalAndResponseMsg"
1230 ns1:mimeparameters="type=text/xml" ns1:mimetype="multipart/related">
1229                       <ns1:Constituent ns1:idref="MsgHdr"/>
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1229     <ns1:Constituent ns1:idref="ReceiptAcknowledgment"/>
1229     <ns1:Constituent ns1:idref="Response"/>
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1229 </ns1:CompositeList>
1229 </ns1:Packaging>
1229 <ns1:Packaging ns1:id="ReceiptAckPackage">
1229   <ns1:ProcessingCapabilities ns1:generate="true" ns1:parse="true"/>
1229   <ns1:CompositeList>
1229     <ns1:Composite ns1:id="ReceiptAckMsg"
1230 ns1:mimeparameters="type=text/xml" ns1:mimetype="multipart/related">
1229     <ns1:Constituent ns1:idref="MsgHdr"/>
1229     <ns1:Constituent ns1:idref="ReceiptAcknowledgment"/>
1229   </ns1:Composite>
1229 </ns1:CompositeList>
1229 </ns1:Packaging>
1229 <ns1:Packaging ns1:id="ReceiptAckExceptionPackage">
1229   <ns1:ProcessingCapabilities ns1:generate="true" ns1:parse="true"/>
1229   <ns1:CompositeList>
1229     <ns1:Composite ns1:id="ReceiptAckExceptionMsg"
1230 ns1:mimeparameters="type=text/xml" ns1:mimetype="multipart/related">
1229     <ns1:Constituent ns1:idref="MsgHdr"/>
1229     <ns1:Constituent ns1:idref="ReceiptAcknowledgmentException"/>
1229   </ns1:Composite>
1229 </ns1:CompositeList>
1229 </ns1:Packaging>
1229 <ns1:Packaging ns1:id="AcceptanceAckPackage">
1229   <ns1:ProcessingCapabilities ns1:generate="true" ns1:parse="true"/>
1229   <ns1:CompositeList>
1229     <ns1:Composite ns1:id="AcceptanceAckMsg"
1230 ns1:mimeparameters="multipart/related" ns1:mimetype="multipart/related">
1229     <ns1:Constituent ns1:excludedFromSignature="false"
1230 ns1:idref="MsgHdr"/>
1229     <ns1:Constituent ns1:excludedFromSignature="false"
1230 ns1:idref="AcceptanceAcknowledgement"/>
1229   </ns1:Composite>
1229 </ns1:CompositeList>
1229 </ns1:Packaging>
1229 </ns1:CollaborationProtocolProfile>

```

1229 **Listing 23: An Example CPP Generated by the IHE-CPP Editor**

1229 The interfaces described above are the steps of the IHE CPP Editor Wizard developed to facilitate IHE CPP
1230 creation. The IHE-CMT can also be used in the expert mode to edit in detail the created CPP if a need arises
1231 as shown in Figure 36.

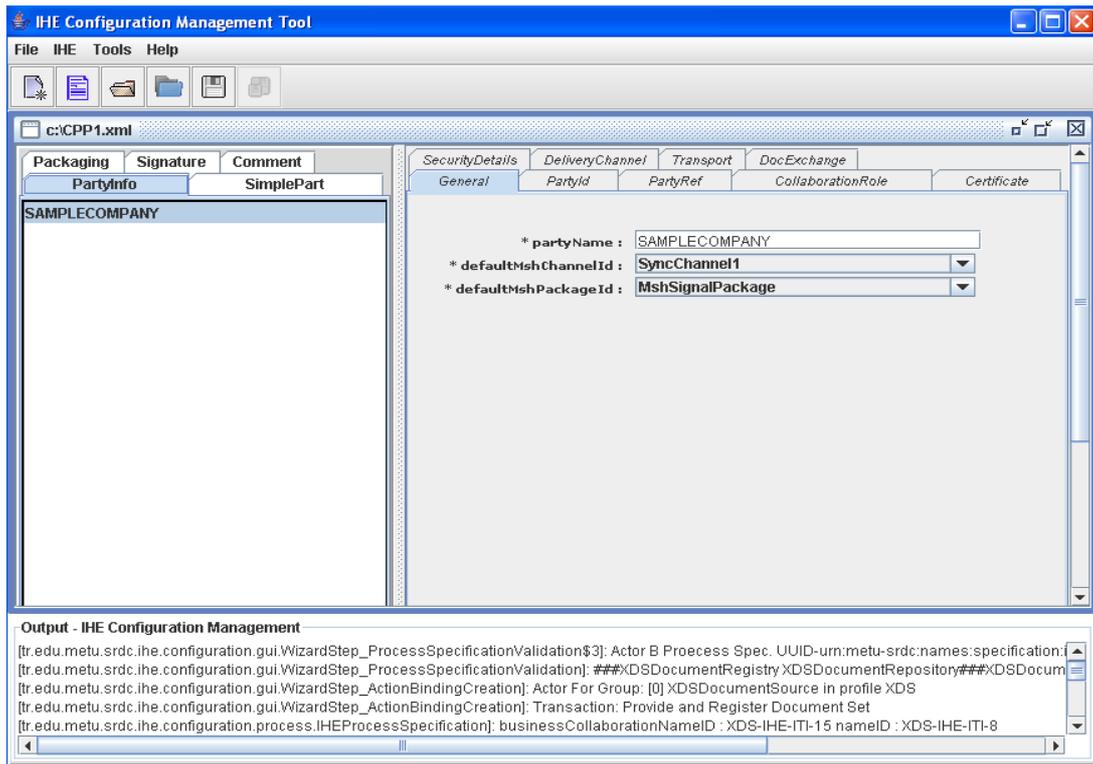


Figure 36: IHE-CPP Editor in Expert Mode

1229 9.2. IHE-CPA Editor

1229 Since IHE fixes many of the parameters which are already stated in the eBP definitions, which are imported
 1230 to CPP definitions by the IHE-CPP Editor, these are reused by the IHE-CPA Editor. For example, the IHE
 1231 Actor roles, the transactions, and the data exchanged among this set of choreographed IHE transactions are
 1232 automatically reused by the CPA Editor.

1229 In order to facilitate the CPA formation process, a wizard, which guides the IHE Actors through this
 1230 process, is incorporated into the CPA configuration tool. The wizard is shown in Figure 37.

1229 The CPA defines the configuration parameters for establishing an electronic relationship between
 1230 two Actors in an IHE process specification (which can be a single IHE Profile or a business process
 1231 describing a set of combined IHE Profiles obtained through Actor Grouping). The first step in CPA
 1232 configuration tool wizard is selecting IHE process specification and the Actors involved. Figure 37 depicts the
 1233 corresponding step of the CPA configuration tool wizard. The list of available process specifications is
 1234 populated from the data repository of the CPA configuration tool which contains the IHE process
 1235 specifications. The IHE Actors involved are also displayed to the user. The user takes on the particular role
 1236 that he is playing corresponding to an IHE Actor such as “XSDDocumentConsumer” from the Actor list
 1237 displayed. As an example, in Figure 37, “XSDDocumentSource” is selected as IHE Actor A and
 1238 “XSDDocumentRegistryXSDDocumentRepository” is selected as IHE Actor B. Note that
 1239 “XSDDocumentRegistry XSDDocumentRepository” represents the grouped IHE Actors.

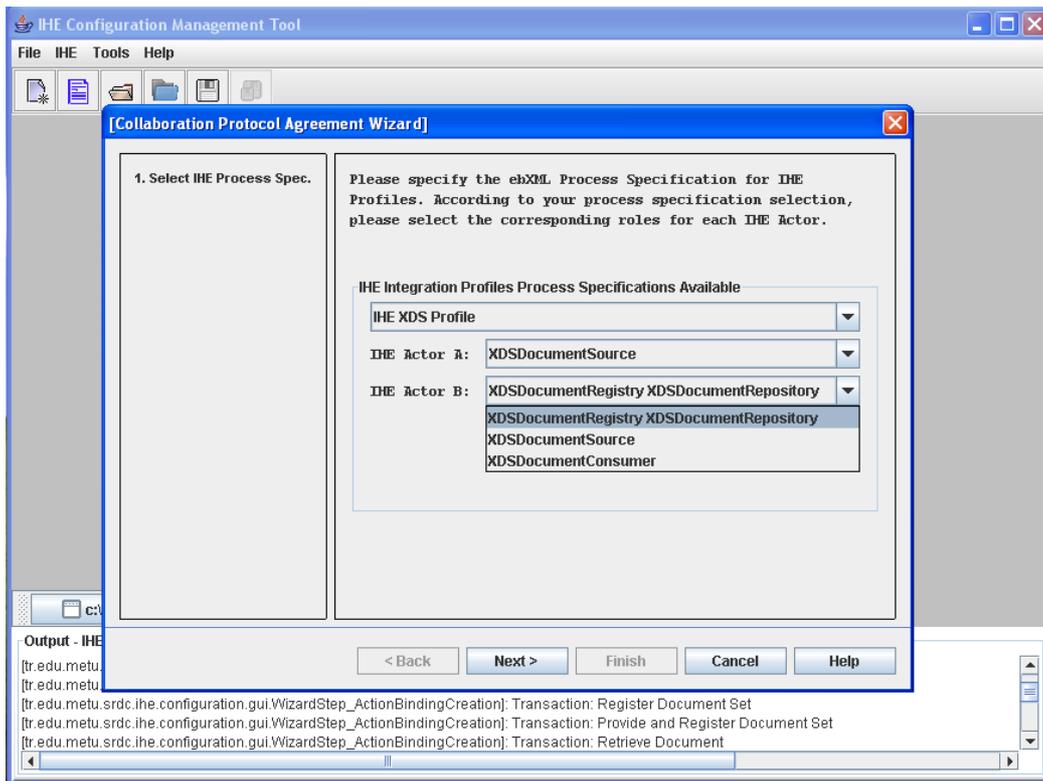


Figure 37: Selecting IHE Process Specification and roles

After this step, Wizard asks the user to enter or browse the CPP documents. Figure 38 shows how the CPP URLs are entered into the wizard. These CPP documents which are created by the CPP tool, contain information about capabilities of IHE Actors performing particular IHE transactions.

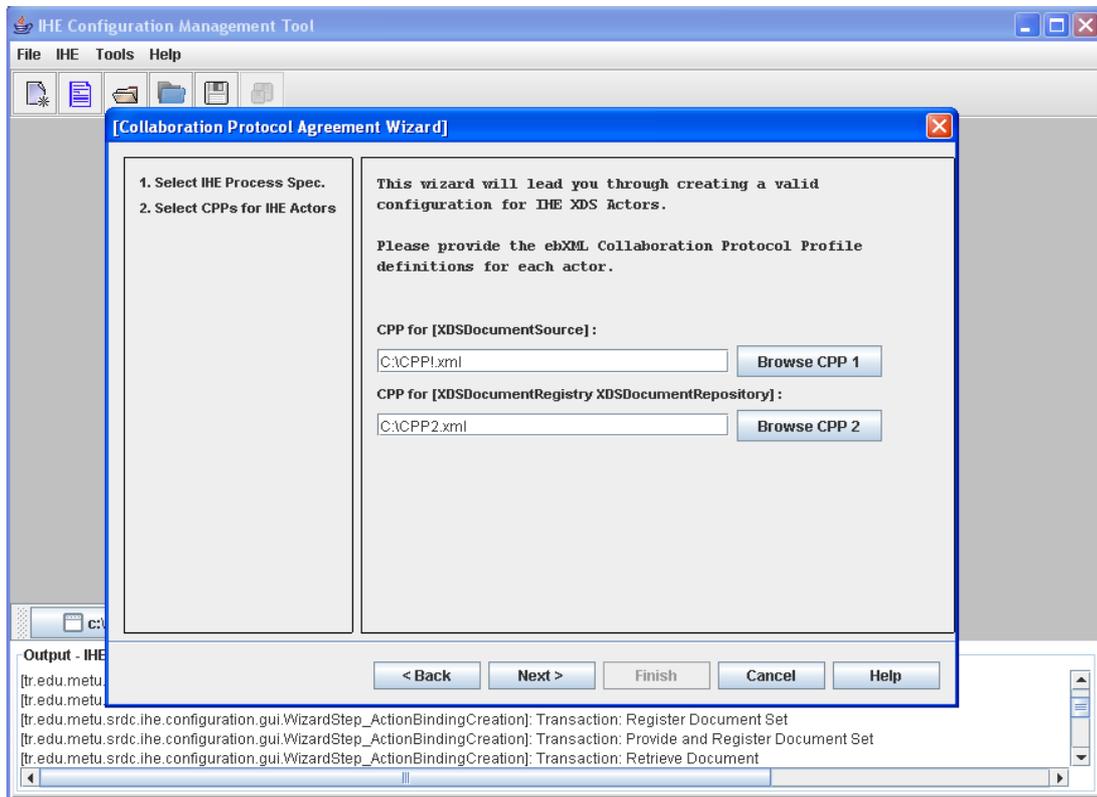


Figure 38: Selecting CPPs for IHE Actors

1229 The tool reads the CPP specifications of each Actor and validates them. The validation test checks
 1230 the syntax of document and the constraints of CPP schema such as availability of "PartyInfo" element. Also,
 1231 CPAs need to guarantee that ID values in one CPP are distinct from the ID values in the other CPP so that
 1232 no ID references collide when CPPs are merged. Therefore the CPA Tool checks the ID fields in two CPPs

1229 and updates the ID fields to prevent conflicts. This step is illustrated in Figure 39.

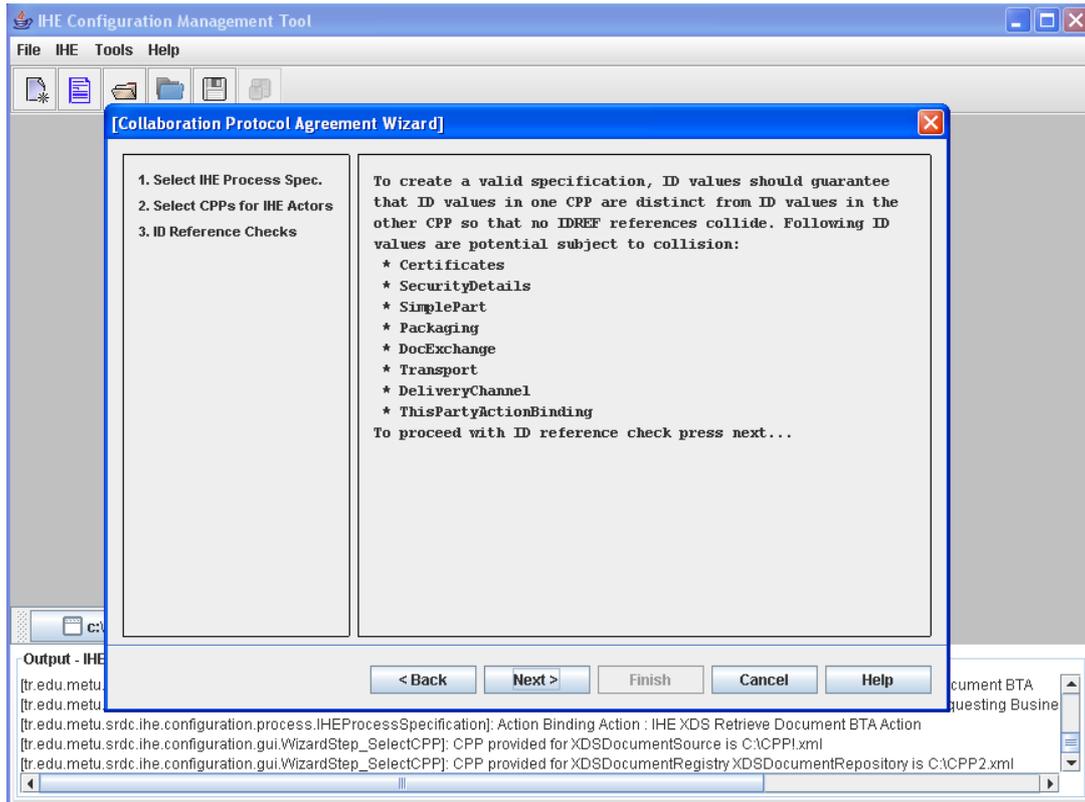


Figure 39: ID Reference Checking

1229 The tool further validates the selected IHE ebBP process specification and the Actors with the provided CPP
1230 specifications for each Actor. During validation, the tool checks whether the appropriate roles specified in the
1231 CPP exits in the ebBP definition. The validation process result is shown in Figure 40.

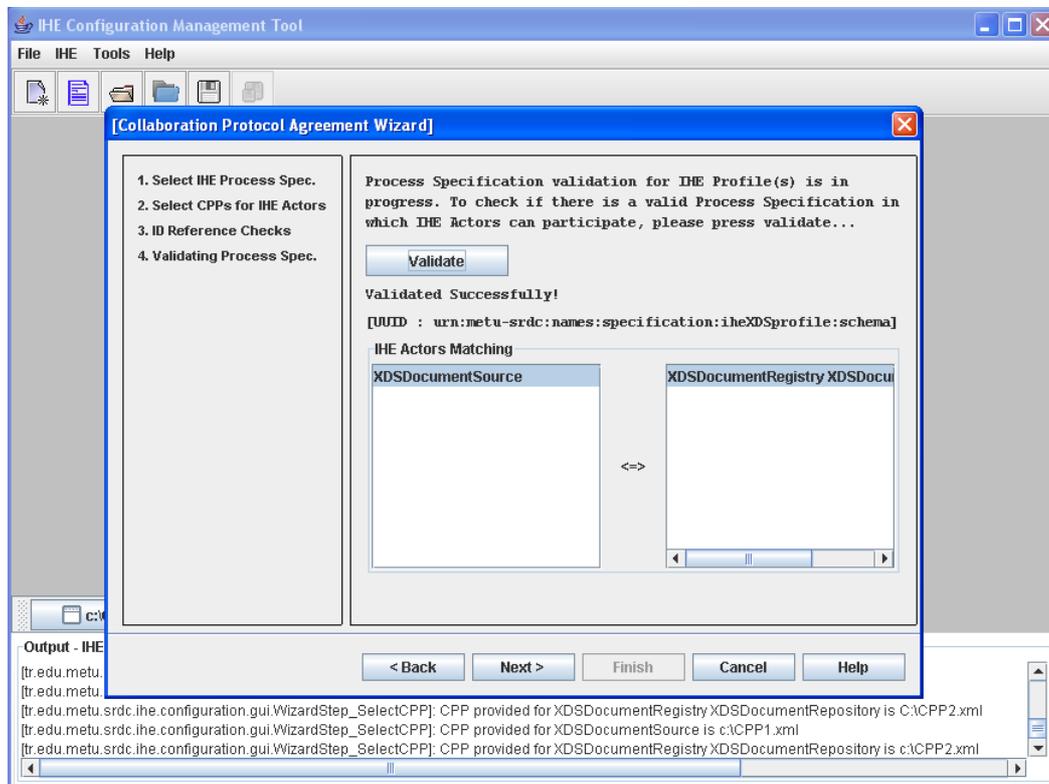


Figure 40: Validated Roles

1229 The matching roles are depicted to the user as shown in Figure 40; if there are more than one
1230 possible role, the user selects the appropriate one.

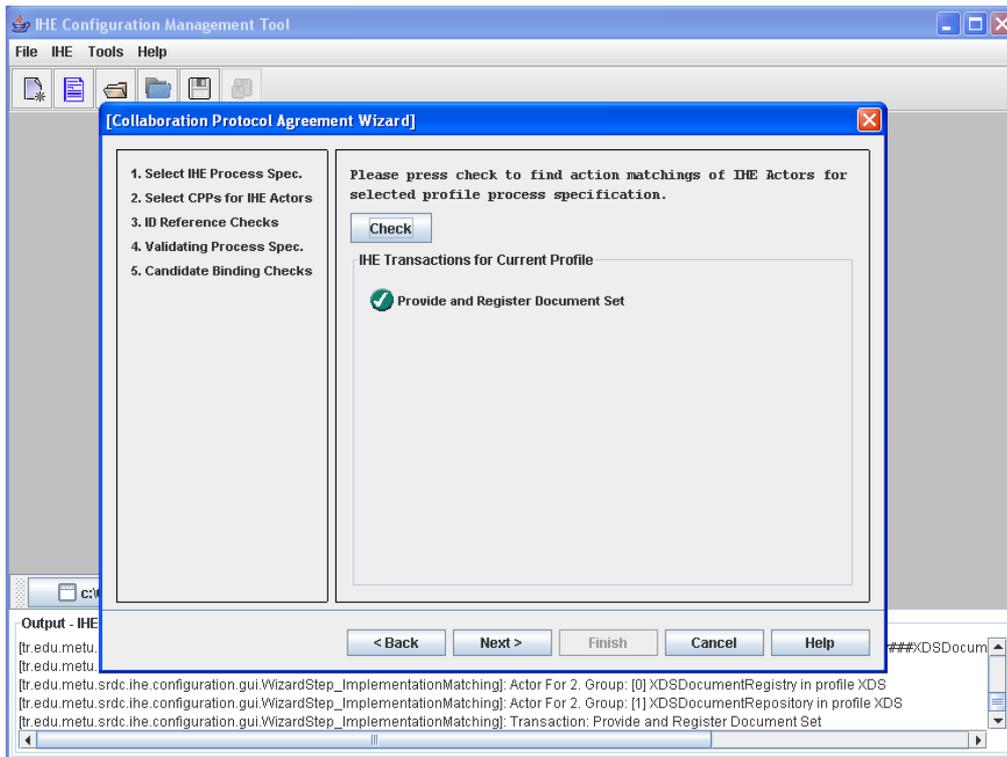


Figure 41: Candidate Binding Checking

1229 In the next step, the CPP of each IHE Actor is checked to see whether they can realize the mandatory IHE
 1230 transactions specified for its role. Note that a CPP refers to an ebBP definition which describes the IHE
 1231 transactions that the Actor can play. What the tool further checks is whether the requesting Actor's sending
 1232 capabilities (such as transport related parameters) matches the responding IHE Actor's receiving capabilities
 1233 and vice-versa. This step is demonstrated in Figure 41.

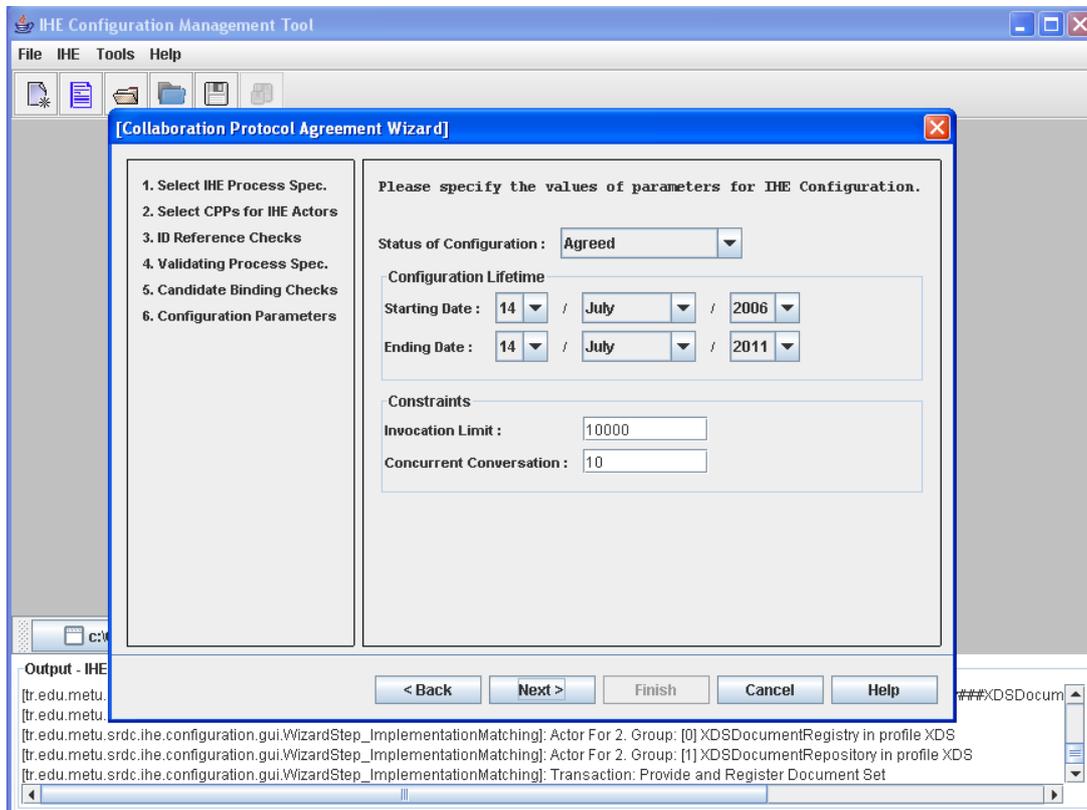


Figure 42: Configuration Parameters

1229 There are a number of parameters in CPA that MAY be set if the user wishes to as shown in Figure 42. The
 1230 user MAY just skip this step by pressing the "Next" button in which case the default place holder values are
 1231 used. The "Status of Configuration" can be "Agreed", "Signed" or "Proposed". The "Configuration Lifetime",
 1232 "Invocation Limit" and number of "Concurrent Conversations" can be specified.

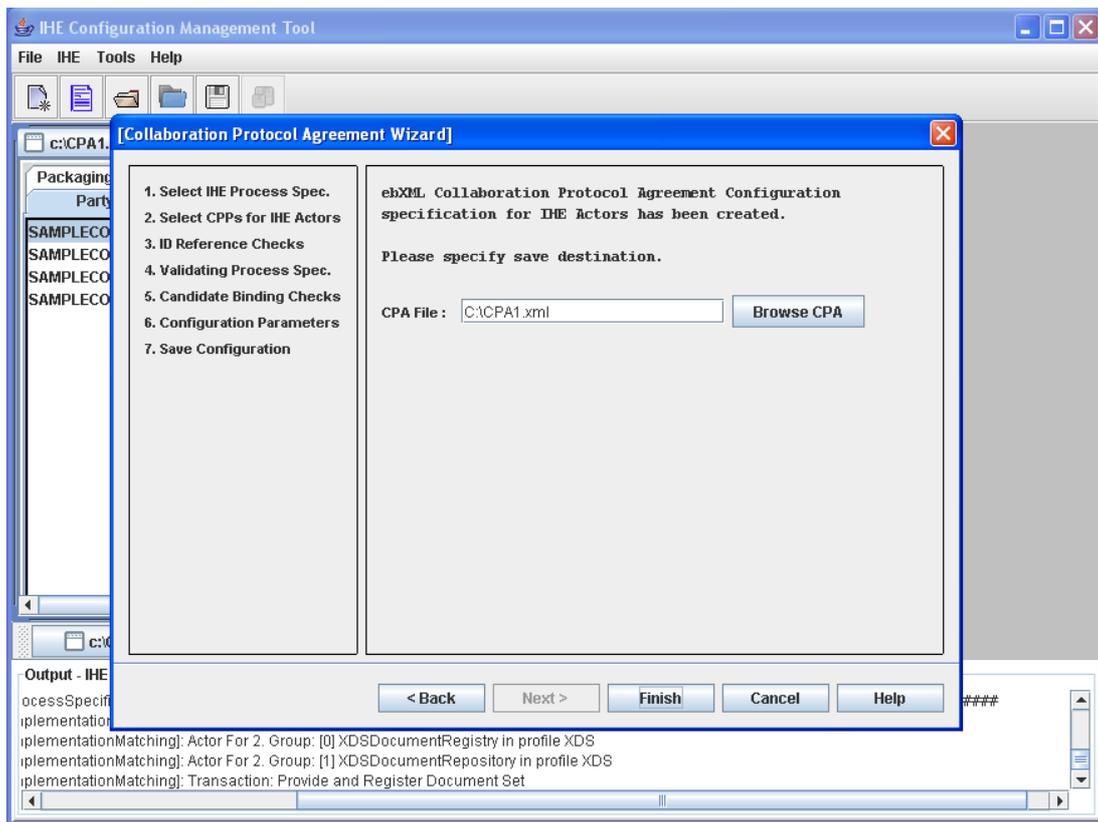


Figure 43: Saving IHE Configuration file

1229 Finally, the IHE Configuration file is saved as shown in Figure 43.

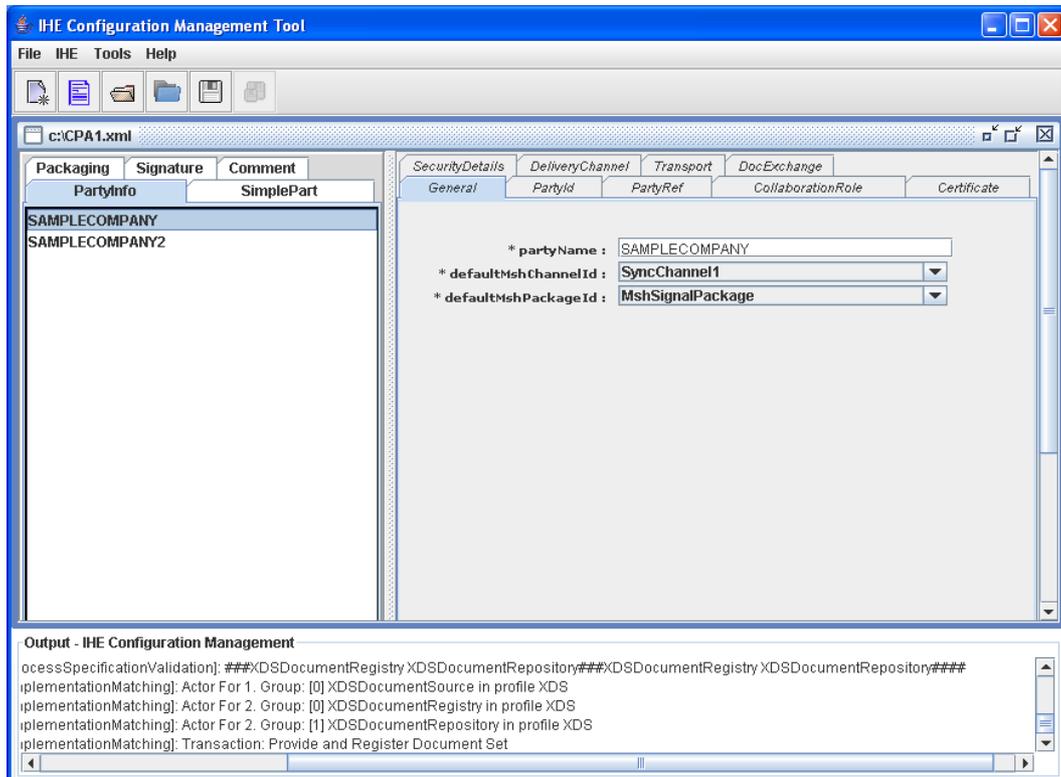


Figure 44: CPA Editor Expert Mode

1229 CPA gives the all the details of configuration parameters for establishing electronic relationship between two
 1230 IHE Actors in a given business collaboration. Hence, whenever such two Actors wishes to communicate, the
 1231 electronic communication can be established automatically.

1229 An example CPA generated by IHE-CPA Editor is given in Listing 24.

```
1229 <?xml version="1.0" encoding="UTF-8" standalone="yes"?>
1229 <ns1:CollaborationProtocolAgreement ns1:cpaid="daf6789a-1672-11db-8e4f-
1230 cb4e0e2df11b" ns1:version="2_0b" xmlns:ns1="http://www.oasis-
1231 open.org/committees/ebxml-cppa/schema/cpp-cpa-2_0.xsd">
1229   <ns1:Status ns1:value="agreed"/>
1229   <ns1:Start>2006-07-18T00:00:00+03:00</ns1:Start>
1229   <ns1:End>2011-07-18T00:00:00+03:00</ns1:End>
1229   <ns1:ConversationConstraints ns1:concurrentConversations="10"
1230 ns1:invocationLimit="10000"/>
1229   <ns1:PartyInfo ns1:defaultMshChannelId="SyncChannel1"
1230 ns1:defaultMshPackageId="MshSignalPackage" ns1:partyName="SAMPLECOMPANY">
1229     <ns1:PartyId>Dummy</ns1:PartyId>
1229     <ns1:PartyId ns1:type="urn:oasis:names:tc:ebxml-cppa:partyid-
1230 type:duns">d5bb6612-133e-11db-8726-318c944c8c64</ns1:PartyId>
1229     <ns1:PartyId ns1:type="urn:oasis:names:tc:ebxml-cppa:partyid-
1230 type:duns">d5bb6612-133e-11db-8726-318c944c8c64</ns1:PartyId>
1229     <ns1:PartyId ns1:type="urn:oasis:names:tc:ebxml-cppa:partyid-
1230 type:duns">d5bb6612-133e-11db-8726-318c944c8c64</ns1:PartyId>
1229     <ns1:PartyRef ns2:href="http://www.srdc.metu.edu.tr" ns2:type="simple"
1230 xmlns:ns2="http://www.w3.org/1999/xlink"/>
1229     <ns1:PartyRef ns3:href="http://www.samplecompany.com.tr"
1230 ns3:type="simple" xmlns:ns3="http://www.w3.org/1999/xlink"/>
1229     <ns1:PartyRef ns4:href="http://www.samplecompany.com.tr"
1230 ns4:type="simple" xmlns:ns4="http://www.w3.org/1999/xlink"/>
1229     <ns1:PartyRef ns5:href="http://www.samplecompany.com.tr"
1230 ns5:type="simple" xmlns:ns5="http://www.w3.org/1999/xlink"/>
1229     <ns1:CollaborationRole>
1229       <ns1:ProcessSpecification
1230 ns6:href="http://144.122.230.177:8080/ride/ebbp/deneme.xml"
1231 ns6:type="simple" ns1:name="IHE XDS Profile" ns1:uuid="urn:metu-
1232 srdc:names:specification:iheXDSprofile:schema" ns1:version="Unknown"
1233 xmlns:ns6="http://www.w3.org/1999/xlink"/>
1229       <ns1:Role
1230 ns7:href="http://144.122.230.177:8080/ride/ebbp/deneme.xml#XSDDocumentSourc
1231 e" ns7:type="simple" ns1:name="XSDDocumentSource"
1232 xmlns:ns7="http://www.w3.org/1999/xlink"/>
1229       <ns1:ServiceBinding>
1229         <ns1:Service>urn:metu-
1230 srdc:names:specification:iheXDSprofile:schema</ns1:Service>
1229         <ns1:CanSend>
1229           <ns1:ThisPartyActionBinding ns1:action="IHE XDS Provide/Register
1230 Document Set BTA Action" ns1:id="1324d593-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="RequestPackage" ns8:type="simple"
1232 xmlns:ns8="http://www.w3.org/1999/xlink">
1229             <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229             <ns1:ActionContext ns1:binaryCollaboration="IHE XDS
1230 Provide/Register Document Set" ns1:businessTransactionActivity="IHE XDS
1231 Provide/Register Document Set BTA"
1232 ns1:requestOrResponseAction="Provide/Register Document Set Requesting
1233 Business Activity"/>
1229             <ns1:ChannelId>SyncChannel1</ns1:ChannelId>
1229           </ns1:ThisPartyActionBinding>
1229           <ns1:CanReceive>
1229             <ns1:ThisPartyActionBinding ns1:action="IHE XDS Provide/Register
1230 Document Set BTA Action" ns1:id="13271f84-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="RequestPackage" ns9:type="simple"
1232 xmlns:ns9="http://www.w3.org/1999/xlink">
1229               <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229               <ns1:ActionContext ns1:binaryCollaboration="IHE XDS
1230 Provide/Register Document Set" ns1:businessTransactionActivity="IHE XDS
1231 Provide/Register Document Set BTA"
1232 ns1:requestOrResponseAction="Provide/Register Document Set Responding
1233 Business Activity"/>

```

```
1229     <ns1:ChannelId>SyncChannel1</ns1:ChannelId>
1229     </ns1:ThisPartyActionBinding>
1229   </ns1:CanReceive>
1229   <ns1:CanReceive>
1229     <ns1:ThisPartyActionBinding ns1:action="IHE XDS Provide/Register
1230 Document Set BTA Action" ns1:id="13330665-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckPackage" ns10:type="simple"
1232 xmlns:ns10="http://www.w3.org/1999/xlink">
1229     <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229     <ns1:ActionContext ns1:binaryCollaboration="IHE XDS
1230 Provide/Register Document Set" ns1:businessTransactionActivity="IHE XDS
1231 Provide/Register Document Set BTA"
1232 ns1:requestOrResponseAction="Provide/Register Document Set Responding
1233 Business Activity"/>
1229     <ns1:ChannelId>SyncChannel1</ns1:ChannelId>
1229     </ns1:ThisPartyActionBinding>
1229   </ns1:CanReceive>
1229   <ns1:CanReceive>
1229     <ns1:ThisPartyActionBinding ns1:action="IHE XDS Provide/Register
1230 Document Set BTA Action" ns1:id="1337e866-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckExceptionPackage" ns11:type="simple"
1232 xmlns:ns11="http://www.w3.org/1999/xlink">
1229     <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229     <ns1:ActionContext ns1:binaryCollaboration="IHE XDS
1230 Provide/Register Document Set" ns1:businessTransactionActivity="IHE XDS
1231 Provide/Register Document Set BTA"
1232 ns1:requestOrResponseAction="Provide/Register Document Set Responding
1233 Business Activity"/>
1229     <ns1:ChannelId>SyncChannel1</ns1:ChannelId>
1229     </ns1:ThisPartyActionBinding>
1229   </ns1:CanReceive>
1229   <ns1:CanReceive>
1229     <ns1:ThisPartyActionBinding ns1:action="IHE XDS Provide/Register
1230 Document Set BTA Action" ns1:id="133ca357-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="AcceptanceAckPackage" ns12:type="simple"
1232 xmlns:ns12="http://www.w3.org/1999/xlink">
1229     <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229     <ns1:ActionContext ns1:binaryCollaboration="IHE XDS
1230 Provide/Register Document Set" ns1:businessTransactionActivity="IHE XDS
1231 Provide/Register Document Set BTA"
1232 ns1:requestOrResponseAction="Provide/Register Document Set Responding
1233 Business Activity"/>
1229     <ns1:ChannelId>SyncChannel1</ns1:ChannelId>
1229     </ns1:ThisPartyActionBinding>
1229   </ns1:CanReceive>
1229 </ns1:CanSend>
1229 <ns1:CanSend>
1229   <ns1:ThisPartyActionBinding ns1:action="IHE XDS Provide/Register
1230 Document Set BTA Action" ns1:id="13415e48-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckPackage" ns13:type="simple"
1232 xmlns:ns13="http://www.w3.org/1999/xlink">
1229   <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
```

```
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS
1230 Provide/Register Document Set" ns1:businessTransactionActivity="IHE XDS
1231 Provide/Register Document Set BTA"
1232 ns1:requestOrResponseAction="Provide/Register Document Set Requesting
1233 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel1</ns1:ChannelId>
1229     </ns1:ThisPartyActionBinding>
1229     <ns1:CanReceive>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Provide/Register
1230 Document Set BTA Action" ns1:id="13488a39-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="RequestPackage" ns14:type="simple"
1232 xmlns:ns14="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS
1230 Provide/Register Document Set" ns1:businessTransactionActivity="IHE XDS
1231 Provide/Register Document Set BTA"
1232 ns1:requestOrResponseAction="Provide/Register Document Set Responding
1233 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel1</ns1:ChannelId>
1229     </ns1:ThisPartyActionBinding>
1229     </ns1:CanReceive>
1229     <ns1:CanReceive>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Provide/Register
1230 Document Set BTA Action" ns1:id="134fb62a-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckPackage" ns15:type="simple"
1232 xmlns:ns15="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS
1230 Provide/Register Document Set" ns1:businessTransactionActivity="IHE XDS
1231 Provide/Register Document Set BTA"
1232 ns1:requestOrResponseAction="Provide/Register Document Set Responding
1233 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel1</ns1:ChannelId>
1229     </ns1:ThisPartyActionBinding>
1229     </ns1:CanReceive>
1229     <ns1:CanReceive>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Provide/Register
1230 Document Set BTA Action" ns1:id="1354711b-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckExceptionPackage" ns16:type="simple"
1232 xmlns:ns16="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS
1230 Provide/Register Document Set" ns1:businessTransactionActivity="IHE XDS
1231 Provide/Register Document Set BTA"
1232 ns1:requestOrResponseAction="Provide/Register Document Set Responding
1233 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel1</ns1:ChannelId>
1229     </ns1:ThisPartyActionBinding>
1229     </ns1:CanReceive>
1229     <ns1:CanReceive>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Provide/Register
1230 Document Set BTA Action" ns1:id="13592c0c-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="AcceptanceAckPackage" ns17:type="simple"
1232 xmlns:ns17="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
```

```
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS
1230 Provide/Register Document Set" ns1:businessTransactionActivity="IHE XDS
1231 Provide/Register Document Set BTA"
1232 ns1:requestOrResponseAction="Provide/Register Document Set Responding
1233 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel1</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
1229         </ns1:CanReceive>
1229         </ns1:CanSend>
1229         <ns1:CanSend>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Provide/Register
1230 Document Set BTA Action" ns1:id="136057fd-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckExceptionPackage" ns18:type="simple"
1232 xmlns:ns18="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS
1230 Provide/Register Document Set" ns1:businessTransactionActivity="IHE XDS
1231 Provide/Register Document Set BTA"
1232 ns1:requestOrResponseAction="Provide/Register Document Set Requesting
1233 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel1</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
1229         <ns1:CanReceive>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Provide/Register
1230 Document Set BTA Action" ns1:id="137f51ae-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="RequestPackage" ns19:type="simple"
1232 xmlns:ns19="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS
1230 Provide/Register Document Set" ns1:businessTransactionActivity="IHE XDS
1231 Provide/Register Document Set BTA"
1232 ns1:requestOrResponseAction="Provide/Register Document Set Responding
1233 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel1</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
1229         </ns1:CanReceive>
1229         <ns1:CanReceive>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Provide/Register
1230 Document Set BTA Action" ns1:id="13867d9f-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckPackage" ns20:type="simple"
1232 xmlns:ns20="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS
1230 Provide/Register Document Set" ns1:businessTransactionActivity="IHE XDS
1231 Provide/Register Document Set BTA"
1232 ns1:requestOrResponseAction="Provide/Register Document Set Responding
1233 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel1</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
1229         </ns1:CanReceive>
1229         <ns1:CanReceive>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Provide/Register
1230 Document Set BTA Action" ns1:id="138da990-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckExceptionPackage" ns21:type="simple"
1232 xmlns:ns21="http://www.w3.org/1999/xlink">
```

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1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS
1230 Provide/Register Document Set" ns1:businessTransactionActivity="IHE XDS
1231 Provide/Register Document Set BTA"
1232 ns1:requestOrResponseAction="Provide/Register Document Set Responding
1233 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel1</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
1229         </ns1:CanReceive>
1229         <ns1:CanReceive>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Provide/Register
1230 Document Set BTA Action" ns1:id="13974681-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="AcceptanceAckPackage" ns22:type="simple"
1232 xmlns:ns22="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS
1230 Provide/Register Document Set" ns1:businessTransactionActivity="IHE XDS
1231 Provide/Register Document Set BTA"
1232 ns1:requestOrResponseAction="Provide/Register Document Set Responding
1233 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel1</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
1229         </ns1:CanReceive>
1229         </ns1:CanSend>
1229         <ns1:CanSend>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Provide/Register
1230 Document Set BTA Action" ns1:id="139e4b62-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="AcceptanceAckPackage" ns23:type="simple"
1232 xmlns:ns23="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS
1230 Provide/Register Document Set" ns1:businessTransactionActivity="IHE XDS
1231 Provide/Register Document Set BTA"
1232 ns1:requestOrResponseAction="Provide/Register Document Set Requesting
1233 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel1</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
1229         <ns1:CanReceive>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Provide/Register
1230 Document Set BTA Action" ns1:id="13a7e853-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="RequestPackage" ns24:type="simple"
1232 xmlns:ns24="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS
1230 Provide/Register Document Set" ns1:businessTransactionActivity="IHE XDS
1231 Provide/Register Document Set BTA"
1232 ns1:requestOrResponseAction="Provide/Register Document Set Responding
1233 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel1</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
1229         </ns1:CanReceive>
1229         <ns1:CanReceive>
```

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1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Provide/Register
1230 Document Set BTA Action" ns1:id="13b15e34-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckPackage" ns25:type="simple"
1232 xmlns:ns25="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS
1230 Provide/Register Document Set" ns1:businessTransactionActivity="IHE XDS
1231 Provide/Register Document Set BTA"
1232 ns1:requestOrResponseAction="Provide/Register Document Set Responding
1233 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel1</ns1:ChannelId>
1229     </ns1:ThisPartyActionBinding>
1229 </ns1:CanReceive>
1229 <ns1:CanReceive>
1229     <ns1:ThisPartyActionBinding ns1:action="IHE XDS Provide/Register
1230 Document Set BTA Action" ns1:id="13d07ef5-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckExceptionPackage" ns26:type="simple"
1232 xmlns:ns26="http://www.w3.org/1999/xlink">
1229     <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229     <ns1:ActionContext ns1:binaryCollaboration="IHE XDS
1230 Provide/Register Document Set" ns1:businessTransactionActivity="IHE XDS
1231 Provide/Register Document Set BTA"
1232 ns1:requestOrResponseAction="Provide/Register Document Set Responding
1233 Business Activity"/>
1229     <ns1:ChannelId>SyncChannel1</ns1:ChannelId>
1229 </ns1:ThisPartyActionBinding>
1229 </ns1:CanReceive>
1229 <ns1:CanReceive>
1229     <ns1:ThisPartyActionBinding ns1:action="IHE XDS Provide/Register
1230 Document Set BTA Action" ns1:id="13dc65d6-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="AcceptanceAckPackage" ns27:type="simple"
1232 xmlns:ns27="http://www.w3.org/1999/xlink">
1229     <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229     <ns1:ActionContext ns1:binaryCollaboration="IHE XDS
1230 Provide/Register Document Set" ns1:businessTransactionActivity="IHE XDS
1231 Provide/Register Document Set BTA"
1232 ns1:requestOrResponseAction="Provide/Register Document Set Responding
1233 Business Activity"/>
1229     <ns1:ChannelId>SyncChannel1</ns1:ChannelId>
1229 </ns1:ThisPartyActionBinding>
1229 </ns1:CanReceive>
1229 </ns1:CanSend>
1229 </ns1:ServiceBinding>
1229 </ns1:CollaborationRole>
1229 <ns1:DeliveryChannel ns1:channelId="SyncChannel1"
1230 ns1:docExchangeId="DocExchange1" ns1:transportId="Transport1">
1229     <ns1:MessagingCharacteristics ns1:ackRequested="perMessage"
1230 ns1:ackSignatureRequested="always" ns1:duplicateElimination="always"
1231 ns1:syncReplyMode="signalsAndResponse"/>
1229 </ns1:DeliveryChannel>
1229 <ns1:Transport ns1:transportId="Transport1">
1229     <ns1:TransportSender>
1229     <ns1:TransportProtocol ns1:version="1.1">HTTP</ns1:TransportProtocol>
1229     </ns1:TransportSender>
1229     <ns1:TransportReceiver>
1229     <ns1:TransportProtocol ns1:version="1.1">HTTP</ns1:TransportProtocol>
1229     <ns1:Endpoint ns1:uri="http://www.samplecompany.com.tr/IHEServlet"/>
1229     </ns1:TransportReceiver>
1229 </ns1:Transport>

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1229     <ns1:DocExchange ns1:docExchangeId="DocExchange1">
1229       <ns1:ebXMLSenderBinding ns1:version="2.0"/>
1229       <ns1:ebXMLReceiverBinding ns1:version="2.0"/>
1229     </ns1:DocExchange>
1229   </ns1:PartyInfo>
1229   <ns1:PartyInfo ns1:defaultMshChannelId="SyncChannel13"
1230 ns1:defaultMshPackageId="MshSignalPackage11"
1231 ns1:partyName="SAMPLECOMPANY2">
1229     <ns1:PartyId>Dummy</ns1:PartyId>
1229     <ns1:PartyId ns1:type="urn:oasis:names:tc:ebxml-cppa:partyid-
1230 type:duns">a9aa01d8-133f-11db-8726-318c944c8c64</ns1:PartyId>
1229     <ns1:PartyRef ns28:href="http://www.srdc.metu.edu.tr"
1230 ns28:type="simple" xmlns:ns28="http://www.w3.org/1999/xlink"/>
1229     <ns1:PartyRef ns29:href="http://www.samplecompany2.com.tr"
1230 ns29:type="simple" xmlns:ns29="http://www.w3.org/1999/xlink"/>
1229     <ns1:CollaborationRole>
1229       <ns1:ProcessSpecification
1230 ns30:href="http://144.122.230.177:8080/ride/ebbp/deneme.xml"
1231 ns30:type="simple" ns1:name="IHE XDS Profile" ns1:uuid="urn:metu-
1232 srdc:names:specification:iheXDSprofile:schema" ns1:version="Unknown"
1233 xmlns:ns30="http://www.w3.org/1999/xlink"/>
1229       <ns1:Role
1230 ns31:href="http://144.122.230.177:8080/ride/ebbp/deneme.xml#XDSDocumentRegi
1231 stry XDSDocumentRepository" ns31:type="simple"
1232 ns1:name="XDSDocumentRegistry XDSDocumentRepository"
1233 xmlns:ns31="http://www.w3.org/1999/xlink"/>
1229       <ns1:ServiceBinding>
1229         <ns1:Service>urn:metu-
1230 srdc:names:specification:iheXDSprofile:schema</ns1:Service>
1229         <ns1:CanSend>
1229           <ns1:ThisPartyActionBinding ns1:action="IHE XDS Register Document
1230 Set BTA Action" ns1:id="bfcad54d-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="RequestPackage12" ns32:type="simple"
1232 xmlns:ns32="http://www.w3.org/1999/xlink">
1229             <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229             <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Register
1230 Document Set" ns1:businessTransactionActivity="IHE XDS Register Document
1231 Set BTA" ns1:requestOrResponseAction="Register Document Set Requesting
1232 Business Activity"/>
1229             <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229           </ns1:ThisPartyActionBinding>
1229           <ns1:CanReceive>
1229             <ns1:ThisPartyActionBinding ns1:action="IHE XDS Register Document
1230 Set BTA Action" ns1:id="bff0faee-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="RequestPackage12" ns33:type="simple"
1232 xmlns:ns33="http://www.w3.org/1999/xlink">
1229               <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229               <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Register
1230 Document Set" ns1:businessTransactionActivity="IHE XDS Register Document
1231 Set BTA" ns1:requestOrResponseAction="Register Document Set Responding
1232 Business Activity"/>
1229               <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229             </ns1:ThisPartyActionBinding>
1229           </ns1:CanReceive>
1229           <ns1:CanReceive>
1229             <ns1:ThisPartyActionBinding ns1:action="IHE XDS Register Document
1230 Set BTA Action" ns1:id="c017208f-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckPackage15" ns34:type="simple"
1232 xmlns:ns34="http://www.w3.org/1999/xlink">
```

```
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Register
1230 Document Set" ns1:businessTransactionActivity="IHE XDS Register Document
1231 Set BTA" ns1:requestOrResponseAction="Register Document Set Responding
1232 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
1229         </ns1:CanReceive>
1229         <ns1:CanReceive>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Register Document
1230 Set BTA Action" ns1:id="c03ad530-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckExceptionPackage16" ns35:type="simple"
1232 xmlns:ns35="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Register
1230 Document Set" ns1:businessTransactionActivity="IHE XDS Register Document
1231 Set BTA" ns1:requestOrResponseAction="Register Document Set Responding
1232 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
1229         </ns1:CanReceive>
1229         <ns1:CanReceive>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Register Document
1230 Set BTA Action" ns1:id="c05eb0e1-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="AcceptanceAckPackage17" ns36:type="simple"
1232 xmlns:ns36="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Register
1230 Document Set" ns1:businessTransactionActivity="IHE XDS Register Document
1231 Set BTA" ns1:requestOrResponseAction="Register Document Set Responding
1232 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
1229         </ns1:CanReceive>
1229         </ns1:CanSend>
1229         <ns1:CanSend>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Register Document
1230 Set BTA Action" ns1:id="c0872072-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckPackage15" ns37:type="simple"
1232 xmlns:ns37="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Register
1230 Document Set" ns1:businessTransactionActivity="IHE XDS Register Document
1231 Set BTA" ns1:requestOrResponseAction="Register Document Set Requesting
1232 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
1229         <ns1:CanReceive>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Register Document
1230 Set BTA Action" ns1:id="c0ad4613-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="RequestPackage12" ns38:type="simple"
1232 xmlns:ns38="http://www.w3.org/1999/xlink">
```

```
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Register
1230 Document Set" ns1:businessTransactionActivity="IHE XDS Register Document
1231 Set BTA" ns1:requestOrResponseAction="Register Document Set Responding
1232 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
1229         </ns1:CanReceive>
1229         <ns1:CanReceive>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Register Document
1230 Set BTA Action" ns1:id="c0d121c4-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckPackage15" ns39:type="simple"
1232 xmlns:ns39="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Register
1230 Document Set" ns1:businessTransactionActivity="IHE XDS Register Document
1231 Set BTA" ns1:requestOrResponseAction="Register Document Set Responding
1232 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
1229         </ns1:CanReceive>
1229         <ns1:CanReceive>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Register Document
1230 Set BTA Action" ns1:id="c0f74765-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckExceptionPackage16" ns40:type="simple"
1232 xmlns:ns40="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Register
1230 Document Set" ns1:businessTransactionActivity="IHE XDS Register Document
1231 Set BTA" ns1:requestOrResponseAction="Register Document Set Responding
1232 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
1229         </ns1:CanReceive>
1229         <ns1:CanReceive>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Register Document
1230 Set BTA Action" ns1:id="c11fb6f6-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="AcceptanceAckPackage17" ns41:type="simple"
1232 xmlns:ns41="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Register
1230 Document Set" ns1:businessTransactionActivity="IHE XDS Register Document
1231 Set BTA" ns1:requestOrResponseAction="Register Document Set Responding
1232 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
1229         </ns1:CanReceive>
1229         </ns1:CanSend>
1229         <ns1:CanSend>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Register Document
1230 Set BTA Action" ns1:id="c132c9c7-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckExceptionPackage16" ns42:type="simple"
1232 xmlns:ns42="http://www.w3.org/1999/xlink">
```

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1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Register
1230 Document Set" ns1:businessTransactionActivity="IHE XDS Register Document
1231 Set BTA" ns1:requestOrResponseAction="Register Document Set Requesting
1232 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229     </ns1:ThisPartyActionBinding>
1229     <ns1:CanReceive>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Register Document
1230 Set BTA Action" ns1:id="c15daa58-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="RequestPackage12" ns43:type="simple"
1232 xmlns:ns43="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Register
1230 Document Set" ns1:businessTransactionActivity="IHE XDS Register Document
1231 Set BTA" ns1:requestOrResponseAction="Register Document Set Responding
1232 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229     </ns1:ThisPartyActionBinding>
1229 </ns1:CanReceive>
1229 <ns1:CanReceive>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Register Document
1230 Set BTA Action" ns1:id="c183cff9-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckPackage15" ns44:type="simple"
1232 xmlns:ns44="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Register
1230 Document Set" ns1:businessTransactionActivity="IHE XDS Register Document
1231 Set BTA" ns1:requestOrResponseAction="Register Document Set Responding
1232 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229     </ns1:ThisPartyActionBinding>
1229 </ns1:CanReceive>
1229 <ns1:CanReceive>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Register Document
1230 Set BTA Action" ns1:id="c1ac669a-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckExceptionPackage16" ns45:type="simple"
1232 xmlns:ns45="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Register
1230 Document Set" ns1:businessTransactionActivity="IHE XDS Register Document
1231 Set BTA" ns1:requestOrResponseAction="Register Document Set Responding
1232 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229     </ns1:ThisPartyActionBinding>
1229 </ns1:CanReceive>
1229 <ns1:CanReceive>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Register Document
1230 Set BTA Action" ns1:id="c1d9b82b-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="AcceptanceAckPackage17" ns46:type="simple"
1232 xmlns:ns46="http://www.w3.org/1999/xlink">

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1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Register
1230 Document Set" ns1:businessTransactionActivity="IHE XDS Register Document
1231 Set BTA" ns1:requestOrResponseAction="Register Document Set Responding
1232 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
1229         </ns1:CanReceive>
1229         </ns1:CanSend>
1229         <ns1:CanSend>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Register Document
1230 Set BTA Action" ns1:id="c215619c-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="AcceptanceAckPackage17" ns47:type="simple"
1232 xmlns:ns47="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Register
1230 Document Set" ns1:businessTransactionActivity="IHE XDS Register Document
1231 Set BTA" ns1:requestOrResponseAction="Register Document Set Requesting
1232 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
1229         <ns1:CanReceive>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Register Document
1230 Set BTA Action" ns1:id="c240422d-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="RequestPackage12" ns48:type="simple"
1232 xmlns:ns48="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Register
1230 Document Set" ns1:businessTransactionActivity="IHE XDS Register Document
1231 Set BTA" ns1:requestOrResponseAction="Register Document Set Responding
1232 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
1229         </ns1:CanReceive>
1229         <ns1:CanReceive>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Register Document
1230 Set BTA Action" ns1:id="c26667ce-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckPackage15" ns49:type="simple"
1232 xmlns:ns49="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Register
1230 Document Set" ns1:businessTransactionActivity="IHE XDS Register Document
1231 Set BTA" ns1:requestOrResponseAction="Register Document Set Responding
1232 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
1229         </ns1:CanReceive>
1229         <ns1:CanReceive>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Register Document
1230 Set BTA Action" ns1:id="c27bc48f-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckExceptionPackage16" ns50:type="simple"
1232 xmlns:ns50="http://www.w3.org/1999/xlink">
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1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Register
1230 Document Set" ns1:businessTransactionActivity="IHE XDS Register Document
1231 Set BTA" ns1:requestOrResponseAction="Register Document Set Responding
1232 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
1229         </ns1:CanReceive>
1229         <ns1:CanReceive>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Register Document
1230 Set BTA Action" ns1:id="c2alea30-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="AcceptanceAckPackage17" ns51:type="simple"
1232 xmlns:ns51="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Register
1230 Document Set" ns1:businessTransactionActivity="IHE XDS Register Document
1231 Set BTA" ns1:requestOrResponseAction="Register Document Set Responding
1232 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
1229         </ns1:CanReceive>
1229         </ns1:CanSend>
1229         <ns1:CanReceive>
1229         <ns1:ThisPartyActionBinding ns1:action="Patient Identity Feed BTA
1230 Action" ns1:id="bc695aa9-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="RequestPackage12" ns52:type="simple"
1232 xmlns:ns52="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="XDS Patient Identity
1230 Feed" ns1:businessTransactionActivity="Patient Identity Feed BTA"
1231 ns1:requestOrResponseAction="Patient Identity Feed Responding Business
1232 Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
1229         <ns1:CanSend>
1229         <ns1:ThisPartyActionBinding ns1:action="Patient Identity Feed BTA
1230 Action" ns1:id="bc70869a-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckPackage15" ns53:type="simple"
1232 xmlns:ns53="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="XDS Patient
1230 Identity Feed" ns1:businessTransactionActivity="Patient Identity Feed BTA"
1231 ns1:requestOrResponseAction="Patient Identity Feed Requesting Business
1232 Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
1229         </ns1:CanSend>
1229         <ns1:CanSend>
1229         <ns1:ThisPartyActionBinding ns1:action="Patient Identity Feed BTA
1230 Action" ns1:id="bc77b28b-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckExceptionPackage16" ns54:type="simple"
1232 xmlns:ns54="http://www.w3.org/1999/xlink">
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1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="XDS Patient
1230 Identity Feed" ns1:businessTransactionActivity="Patient Identity Feed BTA"
1231 ns1:requestOrResponseAction="Patient Identity Feed Requesting Business
1232 Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
1229         </ns1:CanSend>
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1229         <ns1:ThisPartyActionBinding ns1:action="Patient Identity Feed BTA
1230 Action" ns1:id="bc7ede7c-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="AcceptanceAckPackage17" ns55:type="simple"
1232 xmlns:ns55="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="XDS Patient
1230 Identity Feed" ns1:businessTransactionActivity="Patient Identity Feed BTA"
1231 ns1:requestOrResponseAction="Patient Identity Feed Requesting Business
1232 Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
1229         </ns1:CanSend>
1229         </ns1:CanReceive>
1229         <ns1:CanReceive>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Register Document
1230 Set BTA Action" ns1:id="bca2931d-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="RequestPackage12" ns56:type="simple"
1232 xmlns:ns56="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Register
1230 Document Set" ns1:businessTransactionActivity="IHE XDS Register Document
1231 Set BTA" ns1:requestOrResponseAction="Register Document Set Responding
1232 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
1229         <ns1:CanSend>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Register Document
1230 Set BTA Action" ns1:id="bcac08fe-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="RequestPackage12" ns57:type="simple"
1232 xmlns:ns57="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Register
1230 Document Set" ns1:businessTransactionActivity="IHE XDS Register Document
1231 Set BTA" ns1:requestOrResponseAction="Register Document Set Requesting
1232 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
1229         </ns1:CanSend>
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1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Register Document
1230 Set BTA Action" ns1:id="bcb334ef-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckPackage15" ns58:type="simple"
1232 xmlns:ns58="http://www.w3.org/1999/xlink">
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1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
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1231 Set BTA" ns1:requestOrResponseAction="Register Document Set Requesting
1232 Business Activity"/>
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1229         <ns1:CanSend>
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1230 Set BTA Action" ns1:id="bcbcd1e0-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckExceptionPackage16" ns59:type="simple"
1232 xmlns:ns59="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
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1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Register
1230 Document Set" ns1:businessTransactionActivity="IHE XDS Register Document
1231 Set BTA" ns1:requestOrResponseAction="Register Document Set Requesting
1232 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
1229         </ns1:CanSend>
1229         <ns1:CanSend>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Register Document
1230 Set BTA Action" ns1:id="bcc647c1-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="AcceptanceAckPackage17" ns60:type="simple"
1232 xmlns:ns60="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Register
1230 Document Set" ns1:businessTransactionActivity="IHE XDS Register Document
1231 Set BTA" ns1:requestOrResponseAction="Register Document Set Requesting
1232 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
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1229         </ns1:CanSend>
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1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Register Document
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1231 ns1:packageId="ReceiptAckPackage15" ns61:type="simple"
1232 xmlns:ns61="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Register
1230 Document Set" ns1:businessTransactionActivity="IHE XDS Register Document
1231 Set BTA" ns1:requestOrResponseAction="Register Document Set Responding
1232 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
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1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Register Document
1230 Set BTA Action" ns1:id="bcf14f63-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="RequestPackage12" ns62:type="simple"
1232 xmlns:ns62="http://www.w3.org/1999/xlink">
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1229         <ns1:BusinessTransactionCharacteristics
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1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
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1232 Business Activity"/>
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1230 Set BTA Action" ns1:id="bcfac544-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckPackage15" ns63:type="simple"
1232 xmlns:ns63="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
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1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
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1231 Set BTA" ns1:requestOrResponseAction="Register Document Set Requesting
1232 Business Activity"/>
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1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Register Document
1230 Set BTA Action" ns1:id="bd19bef5-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckExceptionPackage16" ns64:type="simple"
1232 xmlns:ns64="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Register
1230 Document Set" ns1:businessTransactionActivity="IHE XDS Register Document
1231 Set BTA" ns1:requestOrResponseAction="Register Document Set Requesting
1232 Business Activity"/>
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1231 ns1:packageId="AcceptanceAckPackage17" ns65:type="simple"
1232 xmlns:ns65="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
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1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
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1231 Set BTA" ns1:requestOrResponseAction="Register Document Set Requesting
1232 Business Activity"/>
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1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Register Document
1230 Set BTA Action" ns1:id="bd2cd1c7-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckExceptionPackage16" ns66:type="simple"
1232 xmlns:ns66="http://www.w3.org/1999/xlink">
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1229         <ns1:BusinessTransactionCharacteristics
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1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
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1230 Document Set" ns1:businessTransactionActivity="IHE XDS Register Document
1231 Set BTA" ns1:requestOrResponseAction="Register Document Set Responding
1232 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
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1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Register Document
1230 Set BTA Action" ns1:id="bd4bcb78-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="RequestPackage12" ns67:type="simple"
1232 xmlns:ns67="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
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1231 Set BTA" ns1:requestOrResponseAction="Register Document Set Requesting
1232 Business Activity"/>
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1229         <ns1:CanSend>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Register Document
1230 Set BTA Action" ns1:id="bd556869-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckPackage15" ns68:type="simple"
1232 xmlns:ns68="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Register
1230 Document Set" ns1:businessTransactionActivity="IHE XDS Register Document
1231 Set BTA" ns1:requestOrResponseAction="Register Document Set Requesting
1232 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
1229         </ns1:CanSend>
1229         <ns1:CanSend>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Register Document
1230 Set BTA Action" ns1:id="bd791d0a-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckExceptionPackage16" ns69:type="simple"
1232 xmlns:ns69="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Register
1230 Document Set" ns1:businessTransactionActivity="IHE XDS Register Document
1231 Set BTA" ns1:requestOrResponseAction="Register Document Set Requesting
1232 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
1229         </ns1:CanSend>
1229         <ns1:CanSend>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Register Document
1230 Set BTA Action" ns1:id="bd8503eb-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="AcceptanceAckPackage17" ns70:type="simple"
1232 xmlns:ns70="http://www.w3.org/1999/xlink">
```

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1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Register
1230 Document Set" ns1:businessTransactionActivity="IHE XDS Register Document
1231 Set BTA" ns1:requestOrResponseAction="Register Document Set Requesting
1232 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
1229         </ns1:CanSend>
1229         </ns1:CanReceive>
1229         <ns1:CanReceive>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Register Document
1230 Set BTA Action" ns1:id="bda8df9c-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="AcceptanceAckPackage17" ns71:type="simple"
1232 xmlns:ns71="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Register
1230 Document Set" ns1:businessTransactionActivity="IHE XDS Register Document
1231 Set BTA" ns1:requestOrResponseAction="Register Document Set Responding
1232 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
1229         <ns1:CanSend>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Register Document
1230 Set BTA Action" ns1:id="bdcc943d-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="RequestPackage12" ns72:type="simple"
1232 xmlns:ns72="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Register
1230 Document Set" ns1:businessTransactionActivity="IHE XDS Register Document
1231 Set BTA" ns1:requestOrResponseAction="Register Document Set Requesting
1232 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
1229         </ns1:CanSend>
1229         <ns1:CanSend>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Register Document
1230 Set BTA Action" ns1:id="bdcae1e-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckPackage15" ns73:type="simple"
1232 xmlns:ns73="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Register
1230 Document Set" ns1:businessTransactionActivity="IHE XDS Register Document
1231 Set BTA" ns1:requestOrResponseAction="Register Document Set Requesting
1232 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
1229         </ns1:CanSend>
1229         <ns1:CanSend>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Register Document
1230 Set BTA Action" ns1:id="bdfc56cf-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckExceptionPackage16" ns74:type="simple"
1232 xmlns:ns74="http://www.w3.org/1999/xlink">
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1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Register
1230 Document Set" ns1:businessTransactionActivity="IHE XDS Register Document
1231 Set BTA" ns1:requestOrResponseAction="Register Document Set Requesting
1232 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
1229     </ns1:CanSend>
1229     <ns1:CanSend>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Register Document
1230 Set BTA Action" ns1:id="be227c70-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="AcceptanceAckPackage17" ns75:type="simple"
1232 xmlns:ns75="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Register
1230 Document Set" ns1:businessTransactionActivity="IHE XDS Register Document
1231 Set BTA" ns1:requestOrResponseAction="Register Document Set Requesting
1232 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
1229     </ns1:CanSend>
1229     </ns1:CanReceive>
1229     <ns1:CanReceive>
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Query Registry BTA
1230 Action" ns1:id="be2e6351-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="RequestPackage12" ns76:type="simple"
1232 xmlns:ns76="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Query
1230 Registry" ns1:businessTransactionActivity="IHE XDS Query Registry BTA"
1231 ns1:requestOrResponseAction="Query Registry Responding Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
1229     </ns1:CanSend>
1229     <ns1:ThisPartyActionBinding ns1:action="IHE XDS Query Registry
1230 BTA Action" ns1:id="be56d2e2-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="RequestPackage12" ns77:type="simple"
1232 xmlns:ns77="http://www.w3.org/1999/xlink">
1229     <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229     <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Query
1230 Registry" ns1:businessTransactionActivity="IHE XDS Query Registry BTA"
1231 ns1:requestOrResponseAction="Query Registry Requesting Business Activity"/>
1229     <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229     </ns1:ThisPartyActionBinding>
1229 </ns1:CanSend>
1229 <ns1:CanSend>
1229     <ns1:ThisPartyActionBinding ns1:action="IHE XDS Query Registry
1230 BTA Action" ns1:id="be652ac3-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckPackage15" ns78:type="simple"
1232 xmlns:ns78="http://www.w3.org/1999/xlink">
1229     <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
```

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1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Query
1230 Registry" ns1:businessTransactionActivity="IHE XDS Query Registry BTA"
1231 ns1:requestOrResponseAction="Query Registry Requesting Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229     </ns1:ThisPartyActionBinding>
1229 </ns1:CanSend>
1229 <ns1:CanSend>
1229     <ns1:ThisPartyActionBinding ns1:action="IHE XDS Query Registry
1230 BTA Action" ns1:id="be8b5064-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckExceptionPackage16" ns79:type="simple"
1232 xmlns:ns79="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Query
1230 Registry" ns1:businessTransactionActivity="IHE XDS Query Registry BTA"
1231 ns1:requestOrResponseAction="Query Registry Requesting Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229     </ns1:ThisPartyActionBinding>
1229 </ns1:CanSend>
1229 </ns1:CanReceive>
1229 <ns1:CanReceive>
1229     <ns1:ThisPartyActionBinding ns1:action="IHE XDS Query Registry BTA
1230 Action" ns1:id="beb8alf5-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckPackage15" ns80:type="simple"
1232 xmlns:ns80="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Query
1230 Registry" ns1:businessTransactionActivity="IHE XDS Query Registry BTA"
1231 ns1:requestOrResponseAction="Query Registry Responding Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229     </ns1:ThisPartyActionBinding>
1229 <ns1:CanSend>
1229     <ns1:ThisPartyActionBinding ns1:action="IHE XDS Query Registry
1230 BTA Action" ns1:id="bedec796-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="RequestPackage12" ns81:type="simple"
1232 xmlns:ns81="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Query
1230 Registry" ns1:businessTransactionActivity="IHE XDS Query Registry BTA"
1231 ns1:requestOrResponseAction="Query Registry Requesting Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229     </ns1:ThisPartyActionBinding>
1229 </ns1:CanSend>
1229 <ns1:CanSend>
1229     <ns1:ThisPartyActionBinding ns1:action="IHE XDS Query Registry
1230 BTA Action" ns1:id="beef6967-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckPackage15" ns82:type="simple"
1232 xmlns:ns82="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Query
1230 Registry" ns1:businessTransactionActivity="IHE XDS Query Registry BTA"
1231 ns1:requestOrResponseAction="Query Registry Requesting Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229     </ns1:ThisPartyActionBinding>
1229 </ns1:CanSend>
1229 <ns1:CanSend>
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1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Query Registry
1230 BTA Action" ns1:id="bf180008-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckExceptionPackage16" ns83:type="simple"
1232 xmlns:ns83="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Query
1230 Registry" ns1:businessTransactionActivity="IHE XDS Query Registry BTA"
1231 ns1:requestOrResponseAction="Query Registry Requesting Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229     </ns1:ThisPartyActionBinding>
1229 </ns1:CanSend>
1229 </ns1:CanReceive>
1229 <ns1:CanReceive>
1229     <ns1:ThisPartyActionBinding ns1:action="IHE XDS Query Registry BTA
1230 Action" ns1:id="bf3bb4a9-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckExceptionPackage16" ns84:type="simple"
1232 xmlns:ns84="http://www.w3.org/1999/xlink">
1229     <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229     <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Query
1230 Registry" ns1:businessTransactionActivity="IHE XDS Query Registry BTA"
1231 ns1:requestOrResponseAction="Query Registry Responding Business Activity"/>
1229     <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229 </ns1:ThisPartyActionBinding>
1229 <ns1:CanSend>
1229     <ns1:ThisPartyActionBinding ns1:action="IHE XDS Query Registry
1230 BTA Action" ns1:id="bf61da4a-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="RequestPackage12" ns85:type="simple"
1232 xmlns:ns85="http://www.w3.org/1999/xlink">
1229     <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229     <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Query
1230 Registry" ns1:businessTransactionActivity="IHE XDS Query Registry BTA"
1231 ns1:requestOrResponseAction="Query Registry Requesting Business Activity"/>
1229     <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229 </ns1:ThisPartyActionBinding>
1229 </ns1:CanSend>
1229 <ns1:CanSend>
1229     <ns1:ThisPartyActionBinding ns1:action="IHE XDS Query Registry
1230 BTA Action" ns1:id="bf8a70eb-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckPackage15" ns86:type="simple"
1232 xmlns:ns86="http://www.w3.org/1999/xlink">
1229     <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229     <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Query
1230 Registry" ns1:businessTransactionActivity="IHE XDS Query Registry BTA"
1231 ns1:requestOrResponseAction="Query Registry Requesting Business Activity"/>
1229     <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229 </ns1:ThisPartyActionBinding>
1229 </ns1:CanSend>
1229 <ns1:CanSend>
1229     <ns1:ThisPartyActionBinding ns1:action="IHE XDS Query Registry
1230 BTA Action" ns1:id="bfb5517c-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckExceptionPackage16" ns87:type="simple"
1232 xmlns:ns87="http://www.w3.org/1999/xlink">
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1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Query
1230 Registry" ns1:businessTransactionActivity="IHE XDS Query Registry BTA"
1231 ns1:requestOrResponseAction="Query Registry Requesting Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229     </ns1:ThisPartyActionBinding>
1229 </ns1:CanSend>
1229 </ns1:CanReceive>
1229 <ns1:CanReceive>
1229     <ns1:ThisPartyActionBinding ns1:action="IHE XDS Provide/Register
1230 Document Set BTA Action" ns1:id="c2ccf1d1-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="RequestPackage12" ns88:type="simple"
1232 xmlns:ns88="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS
1230 Provide/Register Document Set" ns1:businessTransactionActivity="IHE XDS
1231 Provide/Register Document Set BTA"
1232 ns1:requestOrResponseAction="Provide/Register Document Set Responding
1233 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229     </ns1:ThisPartyActionBinding>
1229 <ns1:CanSend>
1229     <ns1:ThisPartyActionBinding ns1:action="IHE XDS Provide/Register
1230 Document Set BTA Action" ns1:id="c316cc12-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="RequestPackage12" ns89:type="simple"
1232 xmlns:ns89="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS
1230 Provide/Register Document Set" ns1:businessTransactionActivity="IHE XDS
1231 Provide/Register Document Set BTA"
1232 ns1:requestOrResponseAction="Provide/Register Document Set Requesting
1233 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229     </ns1:ThisPartyActionBinding>
1229 </ns1:CanSend>
1229 <ns1:CanSend>
1229     <ns1:ThisPartyActionBinding ns1:action="IHE XDS Provide/Register
1230 Document Set BTA Action" ns1:id="c3468ea3-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckPackage15" ns90:type="simple"
1232 xmlns:ns90="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS
1230 Provide/Register Document Set" ns1:businessTransactionActivity="IHE XDS
1231 Provide/Register Document Set BTA"
1232 ns1:requestOrResponseAction="Provide/Register Document Set Requesting
1233 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229     </ns1:ThisPartyActionBinding>
1229 </ns1:CanSend>
1229 <ns1:CanSend>
1229     <ns1:ThisPartyActionBinding ns1:action="IHE XDS Provide/Register
1230 Document Set BTA Action" ns1:id="c3789b24-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckExceptionPackage16" ns91:type="simple"
1232 xmlns:ns91="http://www.w3.org/1999/xlink">
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1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS
1230 Provide/Register Document Set" ns1:businessTransactionActivity="IHE XDS
1231 Provide/Register Document Set BTA"
1232 ns1:requestOrResponseAction="Provide/Register Document Set Requesting
1233 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
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1231 ns1:packageId="AcceptanceAckPackage17" ns92:type="simple"
1232 xmlns:ns92="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
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1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
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1230 Provide/Register Document Set" ns1:businessTransactionActivity="IHE XDS
1231 Provide/Register Document Set BTA"
1232 ns1:requestOrResponseAction="Provide/Register Document Set Requesting
1233 Business Activity"/>
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1231 ns1:packageId="ReceiptAckPackage15" ns93:type="simple"
1232 xmlns:ns93="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
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1232 ns1:isNonRepudiationReceiptRequired="true"
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1231 Provide/Register Document Set BTA"
1232 ns1:requestOrResponseAction="Provide/Register Document Set Responding
1233 Business Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229         </ns1:ThisPartyActionBinding>
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1231 ns1:packageId="RequestPackage12" ns94:type="simple"
1232 xmlns:ns94="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
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1232 ns1:requestOrResponseAction="Provide/Register Document Set Requesting
1233 Business Activity"/>
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1229         </ns1:ThisPartyActionBinding>
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1232 xmlns:ns95="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
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1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
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1232 ns1:requestOrResponseAction="Provide/Register Document Set Requesting
1233 Business Activity"/>
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1232 xmlns:ns96="http://www.w3.org/1999/xlink">
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1232 ns1:isNonRepudiationReceiptRequired="true"
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1232 ns1:requestOrResponseAction="Provide/Register Document Set Requesting
1233 Business Activity"/>
1229     <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
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1231 ns1:packageId="AcceptanceAckPackage17" ns97:type="simple"
1232 xmlns:ns97="http://www.w3.org/1999/xlink">
1229     <ns1:BusinessTransactionCharacteristics
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1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
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1232 ns1:requestOrResponseAction="Provide/Register Document Set Requesting
1233 Business Activity"/>
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1231 ns1:packageId="ReceiptAckExceptionPackage16" ns98:type="simple"
1232 xmlns:ns98="http://www.w3.org/1999/xlink">
1229     <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
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1232 ns1:requestOrResponseAction="Provide/Register Document Set Responding
1233 Business Activity"/>
1229     <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229 </ns1:ThisPartyActionBinding>
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1231 ns1:packageId="RequestPackage12" ns99:type="simple"
1232 xmlns:ns99="http://www.w3.org/1999/xlink">
1229             <ns1:BusinessTransactionCharacteristics
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1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
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1232 ns1:requestOrResponseAction="Provide/Register Document Set Requesting
1233 Business Activity"/>
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1229         </ns1:ThisPartyActionBinding>
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1233 Business Activity"/>
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1231 ns1:packageId="ReceiptAckExceptionPackage16" ns101:type="simple"
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1233 Business Activity"/>
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1233 Business Activity"/>
1229             <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
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1232 xmlns:ns103="http://www.w3.org/1999/xlink">
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1233 Business Activity"/>
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1232 ns1:requestOrResponseAction="Provide/Register Document Set Requesting
1233 Business Activity"/>
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1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
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1233 Business Activity"/>
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1232 Activity"/>
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1232 Activity"/>
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1232 Activity"/>
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1231 ns1:packageId="RequestPackage12" ns113:type="simple"
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1229                 </ns1:CanSend>
1229             <ns1:ThisPartyActionBinding ns1:action="IHE XDS Retrieve Document
1230 BTA Action" ns1:id="cb29e7db-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckPackage15" ns114:type="simple"
1232 xmlns:ns114="http://www.w3.org/1999/xlink">
1229                 <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229                     <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Retrieve
1230 Document" ns1:businessTransactionActivity="IHE XDS Retrieve Document BTA"
1231 ns1:requestOrResponseAction="Retrieve Document Requesting Business
1232 Activity"/>
1229                         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229                     </ns1:ThisPartyActionBinding>
1229                 </ns1:CanSend>
1229             <ns1:CanSend>
```

```
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Retrieve Document
1230 BTA Action" ns1:id="cb952ccc-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckExceptionPackage16" ns115:type="simple"
1232 xmlns:ns115="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Retrieve
1230 Document" ns1:businessTransactionActivity="IHE XDS Retrieve Document BTA"
1231 ns1:requestOrResponseAction="Retrieve Document Requesting Business
1232 Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229     </ns1:ThisPartyActionBinding>
1229 </ns1:CanSend>
1229 </ns1:CanReceive>
1229 <ns1:CanReceive>
1229     <ns1:ThisPartyActionBinding ns1:action="IHE XDS Retrieve Document
1230 BTA Action" ns1:id="cc079dad-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckExceptionPackage16" ns116:type="simple"
1232 xmlns:ns116="http://www.w3.org/1999/xlink">
1229     <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229     <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Retrieve
1230 Document" ns1:businessTransactionActivity="IHE XDS Retrieve Document BTA"
1231 ns1:requestOrResponseAction="Retrieve Document Responding Business
1232 Activity"/>
1229     <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229 </ns1:ThisPartyActionBinding>
1229 <ns1:CanSend>
1229     <ns1:ThisPartyActionBinding ns1:action="IHE XDS Retrieve Document
1230 BTA Action" ns1:id="cc779d8e-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="RequestPackage12" ns117:type="simple"
1232 xmlns:ns117="http://www.w3.org/1999/xlink">
1229     <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229     <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Retrieve
1230 Document" ns1:businessTransactionActivity="IHE XDS Retrieve Document BTA"
1231 ns1:requestOrResponseAction="Retrieve Document Requesting Business
1232 Activity"/>
1229     <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229 </ns1:ThisPartyActionBinding>
1229 </ns1:CanSend>
1229 <ns1:CanSend>
1229     <ns1:ThisPartyActionBinding ns1:action="IHE XDS Retrieve Document
1230 BTA Action" ns1:id="cceef06f-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckPackage15" ns118:type="simple"
1232 xmlns:ns118="http://www.w3.org/1999/xlink">
1229     <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229     <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Retrieve
1230 Document" ns1:businessTransactionActivity="IHE XDS Retrieve Document BTA"
1231 ns1:requestOrResponseAction="Retrieve Document Requesting Business
1232 Activity"/>
1229     <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229 </ns1:ThisPartyActionBinding>
1229 </ns1:CanSend>
1229 <ns1:CanSend>
```

```
1229         <ns1:ThisPartyActionBinding ns1:action="IHE XDS Retrieve Document
1230 BTA Action" ns1:id="cd792f10-133f-11db-8726-318c944c8c64"
1231 ns1:packageId="ReceiptAckExceptionPackage16" ns119:type="simple"
1232 xmlns:ns119="http://www.w3.org/1999/xlink">
1229         <ns1:BusinessTransactionCharacteristics
1230 ns1:isAuthenticated="persistent" ns1:isAuthorizationRequired="true"
1231 ns1:isConfidential="persistent" ns1:isIntelligibleCheckRequired="false"
1232 ns1:isNonRepudiationReceiptRequired="true"
1233 ns1:isNonRepudiationRequired="true" ns1:isTamperProof="none"/>
1229         <ns1:ActionContext ns1:binaryCollaboration="IHE XDS Retrieve
1230 Document" ns1:businessTransactionActivity="IHE XDS Retrieve Document BTA"
1231 ns1:requestOrResponseAction="Retrieve Document Requesting Business
1232 Activity"/>
1229         <ns1:ChannelId>SyncChannel13</ns1:ChannelId>
1229     </ns1:ThisPartyActionBinding>
1229     </ns1:CanSend>
1229     </ns1:CanReceive>
1229     </ns1:ServiceBinding>
1229     </ns1:CollaborationRole>
1229     <ns1:DeliveryChannel ns1:channelId="SyncChannel13"
1230 ns1:docExchangeId="DocExchange11" ns1:transportId="Transport12">
1229         <ns1:MessagingCharacteristics ns1:ackRequested="perMessage"
1230 ns1:ackSignatureRequested="always" ns1:duplicateElimination="always"
1231 ns1:syncReplyMode="signalsAndResponse"/>
1229     </ns1:DeliveryChannel>
1229     <ns1:Transport ns1:transportId="Transport12">
1229         <ns1:TransportSender>
1229             <ns1:TransportProtocol ns1:version="1.1">HTTP</ns1:TransportProtocol>
1229         </ns1:TransportSender>
1229         <ns1:TransportReceiver>
1229             <ns1:TransportProtocol ns1:version="1.1">HTTP</ns1:TransportProtocol>
1229             <ns1:Endpoint ns1:uri="http://www.samplecompany2.com.tr/IHE"/>
1229         </ns1:TransportReceiver>
1229     </ns1:Transport>
1229     <ns1:DocExchange ns1:docExchangeId="DocExchange11">
1229         <ns1:ebXMLSenderBinding ns1:version="2.0"/>
1229         <ns1:ebXMLReceiverBinding ns1:version="2.0"/>
1229     </ns1:DocExchange>
1229 </ns1:PartyInfo>
1229 <ns1:SimplePart ns1:id="MsgHdr" ns1:mimetype="text/xml">
1229     <ns1:NamespaceSupported ns1:location="http://www.oasis-
1230 open.org/committees/ebxml-msg/schema/msg-header-2_0.xsd"
1231 ns1:version="2.0">http://www.oasis-open.org/committees/ebxml-
1232 msg/schema/msg-header-2_0.xsd</ns1:NamespaceSupported>
1229 </ns1:SimplePart>
1229 <ns1:SimplePart ns1:id="ReceiptAcknowledgment"
1230 ns1:mimetype="application/xml">
1229     <ns1:NamespaceSupported ns1:location="http://docs.oasis-
1230 open.org/ebxmlbp/ebbp-signals-2.0" ns1:version="2.0">http://docs.oasis-
1231 open.org/ebxmlbp/ebbp-signals-2.0</ns1:NamespaceSupported>
1229 </ns1:SimplePart>
1229 <ns1:SimplePart ns1:id="ReceiptAcknowledgmentException"
1230 ns1:mimetype="application/xml">
1229     <ns1:NamespaceSupported ns1:location="http://docs.oasis-
1230 open.org/ebxmlbp/ebbp-signals-2.0" ns1:version="2.0">http://docs.oasis-
1231 open.org/ebxmlbp/ebbp-signals-2.0</ns1:NamespaceSupported>
1229 </ns1:SimplePart>
1229 <ns1:SimplePart ns1:id="Request" ns1:mimetype="application/xml">
1229     <ns1:NamespaceSupported ns1:location="http://www.oasis-
1230 open.org/committees/regrep/documents/2.0/schema/rs.xsd"
1231 ns1:version="2.0">urn:oasis:names:tc:ebxml-
1232 regrep:registry:xsd:2.0</ns1:NamespaceSupported>
1229 </ns1:SimplePart>
1229 <ns1:SimplePart ns1:id="Response" ns1:mimetype="application/xml">
1229     <ns1:NamespaceSupported ns1:location="http://www.oasis-
1230 open.org/committees/regrep/documents/2.0/schema/rs.xsd"
1231 ns1:version="2.0">urn:oasis:names:tc:ebxml-
1232 regrep:registry:xsd:2.0</ns1:NamespaceSupported>
1229 </ns1:SimplePart>
1229 <ns1:SimplePart ns1:id="AcceptanceAcknowledgement"
1230 ns1:mimetype="application/xml">
```

```
1229     <ns1:NamespaceSupported ns1:location="http://docs.oasis-
1230 open.org/ebxmlbp/ebbp-signals-2.0" ns1:version="2.0">http://docs.oasis-
1231 open.org/ebxmlbp/ebbp-signals-2.0</ns1:NamespaceSupported>
1229   </ns1:SimplePart>
1229   <ns1:SimplePart ns1:id="AcceptanceAcknowledgementException"
1230 ns1:mimetype="application/xml">
1229     <ns1:NamespaceSupported ns1:location="http://docs.oasis-
1230 open.org/ebxmlbp/ebbp-signals-2.0" ns1:version="2.0">http://docs.oasis-
1231 open.org/ebxmlbp/ebbp-signals-2.0</ns1:NamespaceSupported>
1229     </ns1:SimplePart>
1229     <ns1:SimplePart ns1:id="MsgHdr4" ns1:mimetype="text/xml">
1229       <ns1:NamespaceSupported ns1:location="http://www.oasis-
1230 open.org/committees/ebxml-msg/schema/msg-header-2_0.xsd"
1231 ns1:version="2.0">http://www.oasis-open.org/committees/ebxml-
1232 msg/schema/msg-header-2_0.xsd</ns1:NamespaceSupported>
1229       </ns1:SimplePart>
1229       <ns1:SimplePart ns1:id="ReceiptAcknowledgment5"
1230 ns1:mimetype="application/xml">
1229         <ns1:NamespaceSupported ns1:location="http://docs.oasis-
1230 open.org/ebxmlbp/ebbp-signals-2.0" ns1:version="2.0">http://docs.oasis-
1231 open.org/ebxmlbp/ebbp-signals-2.0</ns1:NamespaceSupported>
1229         </ns1:SimplePart>
1229         <ns1:SimplePart ns1:id="ReceiptAcknowledgmentException6"
1230 ns1:mimetype="application/xml">
1229           <ns1:NamespaceSupported ns1:location="http://docs.oasis-
1230 open.org/ebxmlbp/ebbp-signals-2.0" ns1:version="2.0">http://docs.oasis-
1231 open.org/ebxmlbp/ebbp-signals-2.0</ns1:NamespaceSupported>
1229           </ns1:SimplePart>
1229           <ns1:SimplePart ns1:id="Request7" ns1:mimetype="application/xml">
1229             <ns1:NamespaceSupported ns1:location="http://www.oasis-
1230 open.org/committees/regrep/documents/2.0/schema/rs.xsd"
1231 ns1:version="2.0">urn:oasis:names:tc:ebxml-
1232 regrep:registry:xsd:2.0</ns1:NamespaceSupported>
1229             </ns1:SimplePart>
1229             <ns1:SimplePart ns1:id="Response8" ns1:mimetype="application/xml">
1229               <ns1:NamespaceSupported ns1:location="http://www.oasis-
1230 open.org/committees/regrep/documents/2.0/schema/rs.xsd"
1231 ns1:version="2.0">urn:oasis:names:tc:ebxml-
1232 regrep:registry:xsd:2.0</ns1:NamespaceSupported>
1229               </ns1:SimplePart>
1229               <ns1:SimplePart ns1:id="AcceptanceAcknowledgement9"
1230 ns1:mimetype="application/xml">
1229                 <ns1:NamespaceSupported ns1:location="http://docs.oasis-
1230 open.org/ebxmlbp/ebbp-signals-2.0" ns1:version="2.0">http://docs.oasis-
1231 open.org/ebxmlbp/ebbp-signals-2.0</ns1:NamespaceSupported>
1229                 </ns1:SimplePart>
1229                 <ns1:SimplePart ns1:id="AcceptanceAcknowledgementException10"
1230 ns1:mimetype="application/xml">
1229                   <ns1:NamespaceSupported ns1:location="http://docs.oasis-
1230 open.org/ebxmlbp/ebbp-signals-2.0" ns1:version="2.0">http://docs.oasis-
1231 open.org/ebxmlbp/ebbp-signals-2.0</ns1:NamespaceSupported>
1229                   </ns1:SimplePart>
1229                   <ns1:Packaging ns1:id="MshSignalPackage">
1229                     <ns1:ProcessingCapabilities ns1:generate="true" ns1:parse="true"/>
1229                     <ns1:CompositeList>
1229                       <ns1:Composite ns1:id="MshSignal" ns1:mimeparameters="type=text/xml"
1230 ns1:mimetype="multipart/related">
1229                         <ns1:Constituent ns1:idref="MsgHdr"/>
1229                       </ns1:Composite>
1229                     </ns1:CompositeList>
1229                   </ns1:Packaging>
1229                   <ns1:Packaging ns1:id="RequestPackage">
1229                     <ns1:ProcessingCapabilities ns1:generate="true" ns1:parse="true"/>
1229                     <ns1:CompositeList>
1229                       <ns1:Composite ns1:id="RequestMsg" ns1:mimeparameters="type=text/xml"
1230 ns1:mimetype="multipart/related">
1229                         <ns1:Constituent ns1:idref="MsgHdr"/>
1229                         <ns1:Constituent ns1:idref="Request"/>
1229                       </ns1:Composite>
1229                     </ns1:CompositeList>
1229                   </ns1:Packaging>
```

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1229 <ns1:ProcessingCapabilities ns1:generate="true" ns1:parse="true"/>
1229 <ns1:CompositeList>
1229 <ns1:Composite ns1:id="ResponseMsg"
1230 ns1:mimeparameters="type=text/xml" ns1:mimetype="multipart/related">
1229 <ns1:Constituent ns1:excludedFromSignature="false"
1230 ns1:idref="MsgHdr"/>
1229 <ns1:Constituent ns1:excludedFromSignature="false"
1230 ns1:idref="Response"/>
1229 </ns1:Composite>
1229 </ns1:CompositeList>
1229 </ns1:Packaging>
1229 <ns1:Packaging ns1:id="ReceiptAckResponsePackage">
1229 <ns1:ProcessingCapabilities ns1:generate="true" ns1:parse="true"/>
1229 <ns1:CompositeList>
1229 <ns1:Composite ns1:id="SignalAndResponseMsg"
1230 ns1:mimeparameters="type=text/xml" ns1:mimetype="multipart/related">
1229 <ns1:Constituent ns1:idref="MsgHdr"/>
1229 <ns1:Constituent ns1:idref="ReceiptAcknowledgment"/>
1229 <ns1:Constituent ns1:idref="Response"/>
1229 </ns1:Composite>
1229 </ns1:CompositeList>
1229 </ns1:Packaging>
1229 <ns1:Packaging ns1:id="ReceiptAckPackage">
1229 <ns1:ProcessingCapabilities ns1:generate="true" ns1:parse="true"/>
1229 <ns1:CompositeList>
1229 <ns1:Composite ns1:id="ReceiptAckMsg"
1230 ns1:mimeparameters="type=text/xml" ns1:mimetype="multipart/related">
1229 <ns1:Constituent ns1:idref="MsgHdr"/>
1229 <ns1:Constituent ns1:idref="ReceiptAcknowledgment"/>
1229 </ns1:Composite>
1229 </ns1:CompositeList>
1229 </ns1:Packaging>
1229 <ns1:Packaging ns1:id="ReceiptAckExceptionPackage">
1229 <ns1:ProcessingCapabilities ns1:generate="true" ns1:parse="true"/>
1229 <ns1:CompositeList>
1229 <ns1:Composite ns1:id="ReceiptAckExceptionMsg"
1230 ns1:mimeparameters="type=text/xml" ns1:mimetype="multipart/related">
1229 <ns1:Constituent ns1:idref="MsgHdr"/>
1229 <ns1:Constituent ns1:idref="ReceiptAcknowledgmentException"/>
1229 </ns1:Composite>
1229 </ns1:CompositeList>
1229 </ns1:Packaging>
1229 <ns1:Packaging ns1:id="AcceptanceAckPackage">
1229 <ns1:ProcessingCapabilities ns1:generate="true" ns1:parse="true"/>
1229 <ns1:CompositeList>
1229 <ns1:Composite ns1:id="AcceptanceAckMsg"
1230 ns1:mimeparameters="multipart/related" ns1:mimetype="multipart/related">
1229 <ns1:Constituent ns1:excludedFromSignature="false"
1230 ns1:idref="MsgHdr"/>
1229 <ns1:Constituent ns1:excludedFromSignature="false"
1230 ns1:idref="AcceptanceAcknowledgement"/>
1229 </ns1:Composite>
1229 </ns1:CompositeList>
1229 </ns1:Packaging>
1229 <ns1:Packaging ns1:id="MshSignalPackage11">
1229 <ns1:ProcessingCapabilities ns1:generate="true" ns1:parse="true"/>
1229 <ns1:CompositeList>
1229 <ns1:Composite ns1:id="MshSignal" ns1:mimeparameters="type=text/xml"
1230 ns1:mimetype="multipart/related">
1229 <ns1:Constituent ns1:idref="MsgHdr4"/>
1229 </ns1:Composite>
1229 </ns1:CompositeList>
1229 </ns1:Packaging>
1229 <ns1:Packaging ns1:id="RequestPackage12">
1229 <ns1:ProcessingCapabilities ns1:generate="true" ns1:parse="true"/>
1229 <ns1:CompositeList>
1229 <ns1:Composite ns1:id="RequestMsg" ns1:mimeparameters="type=text/xml"
1230 ns1:mimetype="multipart/related">
1229 <ns1:Constituent ns1:idref="MsgHdr4"/>
1229 <ns1:Constituent ns1:idref="Request7"/>
```

```

1229     </ns1:Composite>
1229   </ns1:CompositeList>
1229 </ns1:Packaging>
1229 <ns1:Packaging ns1:id="ResponsePackage13">
1229   <ns1:ProcessingCapabilities ns1:generate="true" ns1:parse="true"/>
1229   <ns1:CompositeList>
1229     <ns1:Composite ns1:id="ResponseMsg"
1230 ns1:mimeparameters="type=text/xml" ns1:mimetype="multipart/related">
1229     <ns1:Constituent ns1:excludedFromSignature="false"
1230 ns1:idref="MsgHdr4"/>
1229     <ns1:Constituent ns1:excludedFromSignature="false"
1230 ns1:idref="Response8"/>
1229     </ns1:Composite>
1229   </ns1:CompositeList>
1229 </ns1:Packaging>
1229 <ns1:Packaging ns1:id="ReceiptAckResponsePackage14">
1229   <ns1:ProcessingCapabilities ns1:generate="true" ns1:parse="true"/>
1229   <ns1:CompositeList>
1229     <ns1:Composite ns1:id="SignalAndResponseMsg"
1230 ns1:mimeparameters="type=text/xml" ns1:mimetype="multipart/related">
1229     <ns1:Constituent ns1:idref="MsgHdr4"/>
1229     <ns1:Constituent ns1:idref="ReceiptAcknowledgment5"/>
1229     <ns1:Constituent ns1:idref="Response8"/>
1229     </ns1:Composite>
1229   </ns1:CompositeList>
1229 </ns1:Packaging>
1229 <ns1:Packaging ns1:id="ReceiptAckPackage15">
1229   <ns1:ProcessingCapabilities ns1:generate="true" ns1:parse="true"/>
1229   <ns1:CompositeList>
1229     <ns1:Composite ns1:id="ReceiptAckMsg"
1230 ns1:mimeparameters="type=text/xml" ns1:mimetype="multipart/related">
1229     <ns1:Constituent ns1:idref="MsgHdr4"/>
1229     <ns1:Constituent ns1:idref="ReceiptAcknowledgment5"/>
1229     </ns1:Composite>
1229   </ns1:CompositeList>
1229 </ns1:Packaging>
1229 <ns1:Packaging ns1:id="ReceiptAckExceptionPackage16">
1229   <ns1:ProcessingCapabilities ns1:generate="true" ns1:parse="true"/>
1229   <ns1:CompositeList>
1229     <ns1:Composite ns1:id="ReceiptAckExceptionMsg"
1230 ns1:mimeparameters="type=text/xml" ns1:mimetype="multipart/related">
1229     <ns1:Constituent ns1:idref="MsgHdr4"/>
1229     <ns1:Constituent ns1:idref="ReceiptAcknowledgmentException6"/>
1229     </ns1:Composite>
1229   </ns1:CompositeList>
1229 </ns1:Packaging>
1229 <ns1:Packaging ns1:id="AcceptanceAckPackage17">
1229   <ns1:ProcessingCapabilities ns1:generate="true" ns1:parse="true"/>
1229   <ns1:CompositeList>
1229     <ns1:Composite ns1:id="AcceptanceAckMsg"
1230 ns1:mimeparameters="multipart/related" ns1:mimetype="multipart/related">
1229     <ns1:Constituent ns1:excludedFromSignature="false"
1230 ns1:idref="MsgHdr4"/>
1229     <ns1:Constituent ns1:excludedFromSignature="false"
1230 ns1:idref="AcceptanceAcknowledgment9"/>
1229     </ns1:Composite>
1229   </ns1:CompositeList>
1229 </ns1:Packaging>
1229 </ns1:CollaborationProtocolAgreement>

```

1229

Listing 24: An Example CPA Generated by the IHE-CPA Editor

1229 10. Configuring An IHE XDS Connect-a-thon Scenario

1229 10.1. As-is Situation in Connect-a-thons

1229 Network configuration including hostnames, IP addresses, port numbers for DICOM and HL7 services and
1230 URLs for the various web services used in XDS but also Retrieve Information for Display are stored in a big
1231 online database which is accessible for participants from the IHE website. When all companies have
1232 registered for participation to the connectathon in early January, a default configuration is created in the
1233 database, assigning default IP addresses, port numbers, DICOM application entity titles, HL7 facility,
1234 application and authority names, etc. Companies are then requested to either confirm or update the
1235 configuration until two or three weeks before the connectathon. Then everybody is expected to use the
1236 configuration parameters from that database during the connectathon. For the security (ATNA) Actors, which
1237 includes all XDS Actors, X.509 certificates and private keys were generated specifically for the connectathon
1238 and had to be installed by everybody using security functions.

1229 For XDS metadata, there are XML files that specify all the meta-data for the affinity domain [IHE-OS]
1230 which can be used to validate the metadata of the submissions.

1229 10.2. Envisioned Situation in Connect-a-thons

1229 The IHE business process definitions (IHE Profiles defined in ebBP possibly through ebBP Editor and/or the
1230 IHE business processes for combined IHE Profiles resulting from IHE Actor Grouping, obtained possibly
1231 through IHE-AGT) can be made available from ebXML Registry to be discovered. ebBP definitions of new
1232 profiles can be graphically defined through the ebBP Editor and stored in the ebXML Registry. A CPP
1233 template for IHE Actors will be available from the ebXML Registry. The users can use IHE-CPP Editor to fill in
1234 specific IHE Actor details such as organization information and transport technical details. The IHE-CPP
1235 Editor fetches appropriate roles and the Business Collaborations the Actor participates from the IHE
1236 business process definitions. The Actors can graphically edit this specification through the IHE-CPP Editor if
1237 they wish. The CPP definitions produced by IHE-CPP Editor are fed into IHE-CPA Editor and after taking
1238 some parameter values as input from the user, the CPA is automatically generated.

1229 In summary, the IHE-CMT described in Section 9 automatically fills in the missing parameters in the template
1230 CPA by discovering the needed information from corresponding CPPs and by processing this information.

1229 11. References

- 1229 [ebBP] ebXML Business Process version 2.0.3
1229 <http://www.oasis-open.org/committees/download.php/18301/ebxmlbp-v2.0.3-Spec-cs-en-odf.zip>
- 1229 [ebCPA] ebXML Collaboration Protocol Profile and Agreement version 2.0
1229 <http://www.oasis-open.org/committees/download.php/204/ebcpp-2.0.pdf>
- 1229 [ebMS] ebXML Messaging Services version 2.0
1229 http://www.oasis-open.org/committees/download.php/272/ebMS_v2_0.pdf
- 1229 [ebBP-IHE-Packages] ebBP Packages for IHE Profiles, <http://www.srdc.metu.edu.tr/ihe/ebBP/packages/>
- 1229 [ebRIM] ebXML Registry Information Model version 2.0
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