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PIDX ebXML Message Service Specification
Draft 1.0
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49			

51 **1 Introduction**

52 The PIDX Executive Committee formed a team under the Business Messages Work Group to
53 write a transport, routing and packaging (TRP) software specification compliant with the OASIS
54 ebXML Message Service Specification (ebMS). That specification defines specific enveloping
55 constructs and methods supporting reliable, secure delivery of business messages and
56 information.

57
58 The PIDX ebMS specification will not supercede the current PIDX TRP specification defined in
59 PIDX XML Transaction Standards, Version 1.0.
60

61 **1.1 Charter**

62 The PIDX Executive Committee issued the following charter to the specification team giving the
63 team its authority to write the specification:
64

65 “The Business Messages Group TRP Specification Team will develop a transport, routing and
66 packaging (TRP) specification compliant with version 2.0, revision C, of the OASIS ebXML
67 Message Service Specification. The specification will be consistent with the requirements
68 specified in PIDX XML Transaction Standards, version 1.0, and be in sufficient detail to facilitate
69 development of software that will implement the specification.”
70

71 **1.2 Background and Objectives**

72 **1.2.1 PIDX XML Transaction Standards, Version 1.0**

73 The PIDX Procurement User Group and Standards Subcommittee formed the Complex Products
74 and Services Task Group (Com.Pro.Serv.) to promote standard processes for non-catalog,
75 configurable products and services using eBusiness technology. The task group defined a set of
76 industry specific XML standards that became PIDX XML Transaction Standards, Version 1.0.
77 The standards were unanimously adopted by the PIDX general membership in March, 2002.
78 Later in 2002, the standards were adopted by the American Petroleum Institute as Recommended
79 Practice 3901.
80

81 Section four of the version 1.0 standards describes the PIDX TRP standards used to implement
82 messaging architecture for the automated, end-to-end exchange of XML documents. The TRP
83 standards are based on RosettaNet Implementation Framework, version 2.0 (RNIF2). The RNIF2
84 standards bind specific XML messages to the TRP protocol.
85

86 RNIF2 was developed for the electronics industry and did not address the business processes in
87 the upstream petroleum industry. The PIDX ComProServ Task Group modified the RNIF2
88 standards to accommodate those processes.
89

90 The task group considered other TRP standards including ebMS. The task group would have
91 preferred to use ebMS, but software implementing the standard did not exist. RNIF2 was chosen
92 as the PIDX TRP because it complied with project requirements, it was supported by software
93 vendors, and RosettaNet had stated that it intended to migrate to ebXML standards in future
94 versions.

96 **1.2.2 Version 1.0 Pilots**

97 Several upstream oil and gas operators, suppliers and exchanges piloted the PIDX XML
98 Transaction Standards. These companies included ChevronTexaco, Digital Oilfield, Encana,
99 Halliburton, Schlumberger, SEPCo, Trade Ranger and Unocal. Lessons learned from these pilots
100 include:

101

- 102 • The cost to purchase and configure commercially available software to implement the PIDX
103 standards was greater than US \$500,000.
- 104 • Configuring the implementing software required significant technical expertise in many
105 areas.
- 106 • The PIDX implementation of RNIF2 did not conform to the RosettaNet specification. This
107 caused some piloting companies to modify their configuration or software in order to comply
108 with the PIDX standards.
- 109 • Minimum requirements for conformance to the TRP standards were interpreted differently by
110 different software vendors. This caused some piloting companies to change their
111 requirements to accommodate the functionality of other piloting companies.

112

113 **1.2.3 Need for Additional TRP Protocol**

114 The PIDX Executive Committee believes that demand for the current PIDX TRP will continue to
115 be strong in larger companies. Accordingly, the committee does not see a need to replace the
116 current TRP standards. However, the Executive Committee feels that the cost to purchase and
117 integrate commercial software currently available is a significant barrier to adoption of the PIDX
118 XML message standards by small and medium sized enterprises. The Executive Committee also
119 sees the need by all enterprises for a general purpose TRP protocol not bound to specific vertical
120 industries or payloads.

121

122 The ebMS specification defines a flexible enveloping technique, permitting messages to contain
123 payloads of any format type. This versatility ensures legacy electronic business systems
124 employing traditional syntaxes (i.e., UN/EDIFACT, ASC X12) can leverage the advantages of
125 the ebXML infrastructure along with users of emerging technologies. The existence of open-
126 source ebMS software provides an opportunity to lower the cost of implementing the PIDX XML
127 message standards.

128

129 **1.3 Document Purpose**

130 The OASIS ebXML Message Service Specification 2.0 contains many configurable features and
131 options. Any use of ebMS requires a certain amount of standardization within a trading
132 community. In order to promote interoperability between trading partners, both inside and
133 outside the oil and gas industries, PIDX sees a need to document exactly which parts of the
134 OASIS standard must be deployed and how. Accordingly, this specification defines minimum
135 conformance to implementing the OASIS ebXML Message Service in the oil and gas industries.
136 It is a guide to software developers, both commercial and open-source, writing code to implement
137 the standards.

138

140 **1.4 References and Acknowledgments**

141 **1.4.1 References**

142 This document restricts the OASIS ebXML Message Service Specification, Version 2.0, Revision
143 C. Accordingly, the OASIS specification should be considered as an integral part of the PIDX
144 ebMS Specification. The PIDX ebMS specification does not restate material from the OASIS
145 specification unless restatement adds clarity to this specification. The reader is expected to refer
146 to the relevant sections in the OASIS specification for the text of referred specifications.

147
148 The following specifications were developed independent of this specification and the OASIS
149 ebXML Message Service specification as part of the ebXML initiative:

- 150 • **ebXML Technical Architecture Specification** defines the overall technical architecture for
151 ebXML
- 152 • **ebXML Technical Architecture Risk Assessment Technical Report** defines the security
153 mechanisms necessary to negate anticipated, selected threats
- 154 • **ebXML Collaboration Protocol Profile and Agreement Specification** defines how one
155 party can discover and/or agree upon the information the party needs to know about another
156 party prior to sending them a message that complies with this specification
- 157 • **ebXML Registry/Repository Services Specification** defines a registry service for the
158 ebXML environment

159
160 The PIDX ebMS specification must be consistent with the TRP requirements specified in the
161 PIDX XML Transaction Standards, Version 1.0. Accordingly, knowledge of that specification
162 and the RosettaNet Implementation Framework, Version 2.0 is recommended.

164 **1.4.2 Acknowledgments**

165 TBD

166 **1.5 Scope**

167 **1.5.1 In Scope**

168 The scope of the specification is limited to the transport, routing and packaging of payloads. As
169 such it addresses specific information items described in detail in the OASIS ebXML Message
170 Service Specification, Version 2.0, Revision C, and their values.

171 **1.5.2 Out of Scope**

172 The specification does not address PIDX messages defined in PIDX XML Transaction Standards,
173 Version 1.0.

174 **1.6 Intended Audience and Prerequisites**

175 The primary audience is the group of software solution developers who will implement the
176 specification. IT departments responsible for the deployment of the message service according to
177 the business requirements of the PIDX member company will also find this document useful.

178

180 It is assumed the users of this specification understand communications protocols, MIME, XML,
181 SOAP, SOAP Messages with Attachments, security technologies, OASIS ebXML Message
182 Service Specification, Version 2.0, Revision C, PIDX XML Transaction Standards, Version 1.0
183 and RosettaNet Implementation Framework, Version 2.0. It is strongly RECOMMENDED
184 implementers read and understand the Collaboration Protocol Profile / Agreement specification
185 and its implications prior to implementation.
186

187 **1.7 Document Organization**

188 The functional requirements of this specification are divided into two user-targeted sections:
189 Business-Level Requirements (Section two) and Technical-Level Requirements (Section three).
190 These correspond roughly to the Business Operational View and Functional Service View as
191 described by the ebXML Technical Architecture Specification.
192

193 The Technical-Level Requirements are sometimes a direct consequence of choices made in the
194 Business-Level Requirements section. Where items appear to be duplicated between the two
195 sections, the Technical-Level items are meant to provide more explicit details necessary for
196 implementation of the business requirements, such as precise data formatting specifications.
197

198 Section four defines requirements not directly related to transport, routing and packaging of PIDX
199 messages.

200 **1.8 Use of Non-normative Examples**

201 Examples shown are non-normative. If inconsistencies exist between the specification and the
202 examples, the specification supersedes the examples.
203

204 **1.9 Document Conventions**

205 **1.9.1 Typographical Conventions**

206 TBD

207 **1.9.2 Language Conventions**

208 This specification adopts the conventions expressed in the Internet Engineering Task Force's
209 (IETF) Request for Comments (RFC) 2119 "Key Words for Use in RFCs to Indicate Requirement
210 Levels." The key words "MUST," "MUST NOT," "REQUIRED," "SHALL," "SHALL NOT,"
211 "SHOULD," "SHOULD NOT," "RECOMMENDED," "MAY," and "OPTIONAL" in this
212 document are to be interpreted as described in RFC 2119.
213

214 **2 Business-Level Requirements**

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216 **2.1 PartyId Element**

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219	2.2 CPAId Element
220	
221	2.3 Service Element
222	
223	2.4 Action Element
224	
225	2.5 Role Element
226	
227	2.6 Supported Security Services
228	
229	2.7 Security and Management
230	
231	2.8 Reliable Messaging Combinations
232	
233	3 Technical-Level Requirements
234	
235	3.1 Packaging Specification
236	
237	3.1.1 SOAP Structural Conformance
238	
239	3.1.2 Message Package
240	
241	3.1.3 Header Container
242	
243	3.1.3.1 Content-Type Header
244	
245	3.1.3.2 charset attribute
246	

248	3.1.4 Payload Container
249	
250	3.1.5 Additional MIME Parameters
251	
252	3.2 XML Prolog
253	
254	3.2.1 XML Declaration
255	
256	3.2.2 Encoding Declaration
257	
258	3.3 ebXML SOAP Envelope extensions
259	
260	3.3.1 #wildcard Element Content
261	
262	3.3.2 id attribute
263	
264	3.3.3 version attribute
265	
266	4 Non-functional Requirements
267	
268	4.1 User Interface Requirements
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270	4.2 Reporting Requirements
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272	4.3 Documentation Requirements
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274	Appendix A: Glossary
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277 **Appendix B: Examples**

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279 **Appendix C: Mapping RP 3901 TRP Requirements**

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281 **Appendix D: ebMS open source software links**

282

283 **Appendix E: Unresolved Issues**

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