PIDX ebXML Message Service Specification
Draft 1.0
April 22, 2003

1 Introduction

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

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

1.1 Charter

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

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

1.2 Background and Objectives

1.2.1 PIDX XML Transaction Standards, Version 1.0

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

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

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

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

1.2.2 Version 1.0 Pilots

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

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

1.2.3 Need for Additional TRP Protocol

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

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

1.3 Document Purpose

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

1.4 References and Acknowledgments

1.4.1 References

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

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

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

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

1.4.2 Acknowledgments

TBD

1.5 Scope

1.5.1 In Scope

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

1.5.2 Out of Scope

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

1.6 Intended Audience and Prerequisites

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

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

1.7 Document Organization

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

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

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

1.8 Use of Non-normative Examples

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

1.9 Document Conventions

1.9.1 Typographical Conventions

TBD

1.9.2 Language Conventions

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

2 Business-Level Requirements

2.1 PartyId Element

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