Business Messages Workgroup
EDIINT/AS2 Usage Guidleline (vers. 1.2)

Introduction

The PIDX Business Messages Workgroup (BMWG) is mandated with facilitating eBusiness. In addition to developing and maintaining standards for XML business document payloads, BMWG is responsible for Transport, Routing, and Packaging (TRP) protocols. The RosettaNet Implementation Framework (RNIF) version 2.0 was the first TRP to be approved for use in PIDX recommended practices. While fully-featured, RNIF has proven to be too costly and complex for smaller enterprises in the oil and gas industry to adopt. RNIF will likely continue to be the TRP of choice among larger enterprises, but PIDX has recognized the need for more accessible TRP protocols in order to encourage widespread uptake of the PIDX standards among smaller companies, and has thus examined alternatives to RNIF that might address these issues.

The following PIDX requirements must be addressed by the TRP and its usage guideline:

- Authentication
- Authorization
- Confidentiality
- Data Integrity
- Message Identification
- Non-repudiation of origin
- Non-repudiation of receipt
- Reliable Messaging
- Error Handling
- Support for binary attachments

A detailed analysis of available protocols has indicated that using EDI-over-the-Internet Applicability Statement 2 (EDIINT/AS2, or simply, AS2) will satisfy PIDX TRP requirements *within a specific usage guideline*. The main advantage of AS2, in terms of PIDX' stated goal of lowering the TRP entry barrier, is the widespread availability of (relatively) low-cost AS2 tools.

It should be noted that AS2 is used predominantly in North America, not globally. As well, vendor support for *other* standards such as web services is rapidly increasing, and will likely result in similarly widespread and low cost alternatives to AS2 in the coming years. Even in light of these considerations, AS2 addresses an immediate need for low-cost business document transport among, at the very least, the North American oil and gas SME community. PIDX members are encouraged to apply due diligence in determining if AS2 is an appropriate solution for their specific TRP requirements.

AS2 wraps business message payloads in a lightweight envelope, and transports them using HTTP or HTTPS. Message senders can request response messages, known in AS2 as Message Disposition Notifications (MDN), either synchronously or asynchronously. Digital Signatures can be used on both the original messages and on MDNs, and data encryption can be applied at either a protocol level (by using HTTPS) or on message payloads (by using S/MIME). Using AS2 with no encryption, no MDNs, and no signatures obviously would not address the PIDX TRP requirements. The objective of this document, therefore, is to detail *how* AS2 should be used among PIDX trading partners.

PIDX AS2 Standard Usage Guideline

The PIDX standard is based on version 1.1 of the AS2 standard (http://www.rfc-editor.org/rfc/rfc4130.txt).

Transport Protocol	HTTP
Authentication	HTTP Username / Password, + validation of the sender certificate in the digital signature of the message payload.
Digitally-Signed message content	Yes
MDN requested	Yes
Digitally-Signed MDN	Yes
MIME used	Yes
S/MIME used	Yes

The Standard Usage Guideline matches AS2 usage in other industries, and has proven to be suitable to address the needs of literally thousands of AS2 trading parners in real world implementations. As such, this guideline should be readily supportable by most AS2 software packages, and will be achievable by SMEs with limited IT resources. The following briefly summarizes how PIDX TRP requirements are addressed.

- Authentication – HTTP username / password + validation of the sender certificate in the digital signature of the message payload.
- Authorization – handled by back-office systems
- Confidentiality – payload is encrypted via S/MIME
- Data Integrity –digitally signed messages
- Message Identification – handled by the AS2 software
- Non-repudiation of origin – digitally-signed message; originator cannot deny having sent a message
- Non-repudiation of receipt - digitally-signed MDN, receiver cannot deny having received the original message
- Reliable Messaging – handled by the AS2 software (retries, notifications, etc.)
- Error Handling– handled by the AS2 software
- Support for binary attachments – handled by the AS2 software, provided the AS2 vendor has undergone Drummond's optional attachment testing

MDN Delivery

The PIDX Standard Usage Guideline allows for the delivery of MDNs either synchronously or asynchronously. The decision on which method to deploy is a trading partner to trading partner decision.

The conventional wisdom is for asynchronous MDN messages to be used in high volume applications, where the number of incoming and outgoing messages is extremely high. In which case the receipt is returned to the sender on a different communication session than the sender's original session.

When the request is for a synchronous MDN, the receipt is returned to the sender during the same HTTP session as the sender's original message. This may introduce problems if the receiving system is dealing with a high volume of messages and the HTTP session is open for a long time period.

However, for the smallest of suppliers that do not have a static IP address, the asynchronous receipt is not an option for them as any receipt must be returned in the original session synchronously. Therefore, being able to use the synchronous message enables even the smallest suppliers to derive the benefits of the PIDX eCommerce standards.

PIDX Document Payload

It is recommended that only one PIDX XML document be delivered within each AS2 payload. This single PIDX XML document can be accompanied by multiple supporting electronic documents i.e. attachments.

For example, a PIDX Invoice and two Field Ticket images maybe transmitted together but two PIDX Invoices and three Field Ticket images should not be delivered in the same payload.

Support for this recommendation will simplify the receipt and processing of an AS2 payload, and as this feature can be found within PIDX RNIF, adhering to this requirement provides a similar document processing path for organizations supporting both RNIF and AS2.

Trading Partner Configuration Checklist

Prior to connecting with Trading Partners, several activities typically take place and are presented in the following checklist. The checklist will certainly not cover everyone's specific environment, security, topology, and software requirements, so partners are encouraged to communicate individual requirements as soon as possible.

- Exchange inbound and outbound IP addresses and URLs of AS2 servers
- Establish firewall rules for inbound and outbound HTTP to and from AS2 servers
- Make certificate requests from CAs, as necessary
- Exchange certificates, register certificates in stores used by AS2 server
- Configure partner profiles in AS2 server software
- Exchange system level usernames/passwords
- Configure partner profiles in back-office applications
- Email a sample business document to partner, so that they may verify any necessary data pre-configuration prior to import

Summary

AS2 should be far more achievable to SMEs than is RosettaNet. Any PIDX member company wishing to electronically transact with large numbers of SMEs is encouraged to examine AS2 as a low-cost Transport, Routing, and Packaging protocol. RNIF 2.0 will continue to be a PIDX-recommended TRP.

In order to ensure PIDX TRP requirements are addressed, and to avoid trading partners from having to support many variants in AS2 configuration, PIDX recommends AS2 implementations follow the usage guideline presented in this document.

While not endorsing any specific AS2 vendors or technologies, PIDX recommends its members examine software that has undergone interoperability certification testing by the Drummond Group. Results of interoperability testing can be found at http://www.ebusinessready.org/. As well, please note that support for binary attachments is an *optional* test in the Drummond AS2 profile. Vendors and products that are certified interoperable have not necessarily implemented support for attachments. If attachments are necessary for your business, be sure to query the vendor and see if they have undergone (and passed) Drummond's optional attachment tests.

Change Log

Version	Date	Reason/Description of Change	Author
1.0	4/22/2005	Initial Version	Andy Ross, Tim Morgan
1.1	11/26/2005	Updates following PIDX Fall Conference 2005: • Support for sync or async MDN delivery • Limit of one PIDX document for delivery	Tim Morgan