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1. Introduction

1.1. RosettaNet Endorsement

The Chem eStandards™ were developed to meet Chemical Industry needs for interoperability between enterprises via XML-based standards, while at the same time providing a path forward for potential cross-industry convergence as XML-based standards become more robust. The Chem eStandards developers decided that the best way to accomplish this was to leverage the work of a well-established organization developing XML-based specifications, one that has specifications in active use and is in a good position to influence the evolution of the XML standards. The organization selected was RosettaNet.

Chem eStandards leverage the transport, envelope, and security aspects of RosettaNet Implementation Framework (RNIF), version 1.1, as documented on the RosettaNet website: http://www.rosettanet.org. Further clarification of how the Chem eStandards leverages and deviates from the RNIF is provided in this document. Although some RNIF specification material is repeated for context in this document, the reader should access the RNIF v1.1 specification to understand how to implement the Chem eStandards Envelope and Security specification. The reader should assume that all aspects of the RNIF v1.1 specification apply unless stated otherwise in this document.

1.1.1. Message Structure

The Chem eStandards adopt the RosettaNet Partner Interface Process (PIP) business message structure, as specified in RNIF v1.1, but do not adopt the specific RosettaNet service contents or payloads, as specified in the RosettaNet PIP specifications. Specific guidance on the use of the RNIF v1.1 business message structure is provided in Section 2.

1.1.2. Envelope

The Chem eStandards adopt the RosettaNet RNIF v1.1 envelope structure, which is summarized in Section 2 but RNIF v1.1 should be consulted as the definitive source of information. Specific envelope codes that must be used with Chem eStandards are also specified in Section 2.

1.1.3. Generic Acknowledgements

The Chem eStandards adopt the acknowledgement or business signal messages specified in RNIF v1.1. In particular, use of the ReceiptAcknowledgement message is required for Chem eStandards.

1.1.4. Security & Transport Protocols

The Chem eStandards adopt the RosettaNet’s security standards and transport protocols, HTTP and HTTPS. RNIF 1.1 should be consulted as the definitive source of information.

Recognizing that some Chem eStandards implementers may choose to use alternative transport protocols such as FTP, SMTP, and asynchronous message queuing over some form of Virtual
Private Network (VPN), use of such protocols is allowed as long as certain security requirements are met, as specified in Section 3 of this document.

Security mechanisms used may not violate explicit prohibitions in RNIF 1.1. Secure Sockets Layer (SSL) must be used where specified. Digital certificates based on X.509 v.3 must be used.

1.2. Use of Specific Terms

Several words used within this document are intended to be interpreted in a particular way. The following table lists the specific words and their meanings as they pertain to the Chem eStandards:

<table>
<thead>
<tr>
<th>MUST, REQUIRED, or SHALL</th>
<th>These words mean that the definition is an absolute requirement of the specification.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUST NOT or SHALL NOT, or NOT REQUIRED</td>
<td>These phrases mean that the definition is an absolute prohibition of the specification.</td>
</tr>
<tr>
<td>SHOULD or RECOMMENDED</td>
<td>These words mean that there may exist valid reasons in particular circumstances to ignore a particular item, but the full implications must be understood and carefully weighed before choosing a different course.</td>
</tr>
<tr>
<td>SHOULD NOT or NOT RECOMMENDED</td>
<td>These phrases mean that there may exist valid reasons in particular circumstances, when the particular behavior is acceptable or even useful. However, the full implication should be understood and the case carefully weighed before implementing any behavior described with this label.</td>
</tr>
</tbody>
</table>

1.3. Revision History

This document does not contain any substantive changes from the Envelope and Security specifications contained in Chem eStandards 2.0. Some wording has been refined to more clearly describe the specifications.

The most significant difference is that the Envelope and Security section in Chem eStandards 2.0 has been separated from the Chem eStandards Message specifications into a standalone document. This move will allow the Envelope and Security specification to evolve independently from the message standards.

In addition, this document provides guidance (i.e., not part of the standard) on linking transactions together to form processes. Two methods are described. The first method links different transactions through the message body (“Message-based Process Enablement”) and the second method links transactions through the framework (“Framework-based Process Enablement”).
2. Envelope & Message Structure

The following describes the Chem eStandards use of and deviations from RNIF v1.1 as these relate to such aspects as the envelope structure, message structure, acknowledgements, etc. Although some of RNIF v1.1 specification is repeated here for context, the reader should consult the RNIF v1.1 specification as the definitive source of information. Deviations are highlighted in bold text.

2.1. Message Structure

The Chem eStandards use the message structure as specified in RNIF v1.1. The message structure, shown in Figure 1, involves three XML documents (a Preamble, a Service Header, and the ChemXML transaction stored as a multi-part MIME document) as well as length fields and optional signature information. [MIME, Multipurpose Internet Mail Extensions, is a common Internet standard for describing the content of an object]. Where RosettaNet objects define their MIME type as "Application/ x-RosettaNet," Chem eStandards uses "Application/ x-ChemXML." This distinction will support enterprises that exchange XML both with Chemical companies using ChemXML and with Information Technology companies using RosettaNet. Additionally, the value for GlobalAdministeringAuthorityCode for ChemXML is "CIDX," which is the organization that will oversee eStandards (see example markup).

![Figure 1 - Basic message structure](image-url)
2.2. Transaction Process Flow

RosettaNet payloads are used in the context of specific business processes to which the participating companies have agreed, as specified in Partner Interface Process (PIP) documents. By contrast, conformance to Chem eStandards business processes is not required to be in compliance. Each ChemXML transaction stands by itself, leaving enterprises using ChemXML to define the business processes for which ChemXML is used. Business partners opting to link transactions as a process may use the optional guidance provided in Appendix A for that purpose.

For example, two companies using ChemXML might elect to use a business process of OrderCreate to be responded to with OrderResponse. Note however, as specified by RosettaNet RNIF 1.1, Receipt Acknowledgements are signals that a message has been received, rather than a separate transaction or process. Receipt Acknowledgements are a requirement for each transaction; otherwise, this example is just one way these transactions can be combined into a process.

**Example** (OrderCreate with OrderResponse):

An example of a buying and selling entity executing a “Purchase Order Request” (order create) transaction follows:

**Step 1:**
The buyer creates an OrderCreate document and sends the document to the selling entity.

*Note:* The OrderCreate message is unique to this process.

**Step 2:**
The supplier, or selling entity, has two hours (by mutual agreement) to respond to the buyer with a “Receipt Acknowledgement” message. This message is **not** transaction specific and serves only to acknowledge the sender of the original message that the Step 1 transmission was received and was well formed.

*Note:* This two-hour reply window is specified as a parameter in the service header of the document. See “Service Header” description within the “Transaction Structure” below. Also, see the section on Generic and Transaction Specific Acknowledgements below.

**Step 3:**
The supplier then has 24 hours (by mutual agreement) to respond to the buyer with an OrderResponse message. This message indicates that the supplier is going to fulfill the buyer’s request as indicated in this document (may include quantity changes, price changes etc.).

*Note:* This 24-hour reply window is specified as a parameter in the service header of the document.

*Note:* The OrderResponse message is unique to this transaction.

**Step 4:**
The buyer has a two-hour window (by mutual agreement) in which to transmit a “Receipt Acknowledgement” message back to the supplying organization. This signifies that the buyer has received the OrderResponse message from the supplier. If the buying organization does not agree to the terms on the acceptance document, an OrderChange transaction may be executed.
Note: As in Step 2, the “Receipt Acknowledgement“ message is a generic Chem eStandard message.

Figure 2 - Example document flow

Note: Although the eStandard specification also provides necessary transactions to handle error situations, cancellations, etc., they were omitted from these examples for sake of conciseness.

2.3. Generic Acknowledgements

Generic receipt acknowledgements are as specified in RosettaNet RNIF 1.1. The generic receipt acknowledgement is very similar to an EDI functional acknowledgement and is called “ReceiptAcknowledgement.” The purpose of the ReceiptAcknowledgement message is to alert the sender of the previous message that their transmission is received and is well formed. The ReceiptAcknowledgement is not used to acknowledge acceptance or rejection of the business transaction that it is acknowledging. If the original message has errors (such as formatting or content), a “Receipt Acknowledgement Exception” message is returned. All exception messages contain free form text fields that allow the receiver of the errant message to include descriptive text.

2.4. Envelope Structure

As shown in figure 1 the envelope, which encloses the actual “payload“ of the message, is composed of three ChemXML subsections, each of which is a valid XML document. Each of these sub-sections (Preamble, Service Header and Service Content) is defined by separate DTDs. Each of these sub-sections is described in more detail below.

2.4.1. Preamble

The purpose of the preamble is to handle information that is global to the document (i.e. version, datestamp, etc.). Schematically, the preamble may be represented as follows:
Figure 3 - Preamble
Note: The structure of the preamble document is static across all transactions.

For ChemXML, the Preamble uses RosettaNet Preamble DTD, however, GlobalAdministeringAuthorityCode is “CIDX” to distinguish transactions from RosettaNet.

2.4.2. Service Header
The Service Header contains the transaction routing and processing information for a given transaction. The service header contains three separate data objects. They are shown schematically below:

Figure 4 - Service Header

2.4.3. Process Identity
The ProcessIdentity object contains information that describes the process to be carried out by the transaction encapsulated in the service content section of this document. The individual elements in the ProcessIdentity are shown below:

Note: For ChemXML, the GlobalProcessCode and GlobalProcessIndicatorCode contain identifiers for ChemXML transactions rather than RosettaNet processes. The VersionIdentifier contains the ChemXML version number (for example “3.0” or “2.0.2”), reflecting the exact version number of the current content payload.
2.4.4. Service Route
The ServiceRoute object contains the “to” and “from” information for this document. The data elements are shown below:

Figure 6 - Service Route

2.4.5. Transaction Control
The final object in the service header is the TransactionControl object. This object contains data elements that provide information about how the transaction encapsulated in the service content document is to be processed. It also contains monitoring information such as the number of times this transaction has been attempted, reply time windows, and acknowledgement time windows. Below is a pictorial representation of the transaction control object.

Figure 7 - Transaction Control
Note: As with the preamble document, the structure of the service header document is static across all transactions. The preamble and service header sections as used by Chem eStandards are unchanged from those in RosettaNet version 1.1, except for the coding noted above.

2.4.6. Service Content
The service content section of the document contains the actual transaction markup. Unlike the preamble and service header, the structure of the service content document is unique to each transaction.
2.4.7. Additions to RosettaNet Codes for ChemXML Envelope

RosettaNet has incorporated the following data elements in tags for the Preamble and Service Header envelope sections (see RosettaNet RNIF 1.1 for DTD's, dictionary, RosettaNet code list, and additional examples). For some of these elements, additional code values are required for ChemXML.

<table>
<thead>
<tr>
<th>Data Element Tag</th>
<th>Description</th>
<th>New Value</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>GlobalAdministeringAuthorityCode</td>
<td>Organization charged with Maintenance of Standard</td>
<td>CIDX</td>
<td>For ChemXML use “CIDX” in place of “RosettaNet”. This distinguishes documents for organizations that may do business with multiple industries and standards.</td>
</tr>
<tr>
<td>GlobalProcessCode</td>
<td>Name of Process</td>
<td>Use ChemXML Transaction Name</td>
<td>Note: for ChemXML, each transaction stands alone, so we will use transaction names where RosettaNet used Processes and Actions. However, we will retain redundant entries for consistency with RosettaNet Envelope</td>
</tr>
<tr>
<td>GlobalBusinessServiceCode</td>
<td>Service being undertaken</td>
<td>None</td>
<td>Continue to use RosettaNet codes</td>
</tr>
<tr>
<td>GlobalPartnerRoleClassificationCode</td>
<td>Role in this transaction</td>
<td>None</td>
<td>Continue to use RosettaNet codes</td>
</tr>
<tr>
<td>GlobalTransactionCode</td>
<td>Transaction Name</td>
<td>Use ChemXML Transaction Name</td>
<td>See Note under GlobalProcessCode</td>
</tr>
<tr>
<td>GlobalPartnerClassificationCode</td>
<td>Type of Business Partner</td>
<td>Marketplace</td>
<td>Add “Marketplace” to the RosettaNet code list</td>
</tr>
</tbody>
</table>
3. Security & Transport Protocols

The following describes the Chem eStandards use of and deviations from RNIF v1.1 as these relate to security and transport protocols. Although some of RNIF v1.1 specification is repeated here for context, the reader should consult the RNIF v1.1 specification as the definitive source of information. **Deviations are highlighted in bold text.**

Chem eStandards endorse RosettaNet’s security standards. The RosettaNet security standards and requirements are documented in RNIF 1.1, dated November 8, 1999. RNIF 1.1 should be consulted for specific details about security.

Chem eStandards also endorse the RNIF v1.1 use of HTTP (Hypertext Transfer Protocol) and HTTPS (Secure HTTP) transport protocols. **However, Chem eStandard recognizes that current eMarketplaces and business partners use other mechanisms such as FTP, SMTP, and asynchronous message queuing.** If such mechanisms are to be used, they are expected to be subject to the following conditions:

- Implementers must support security standards documented in RNIF 1.1 for those business partners who choose to use them.
- Implementers that also support alternative mechanisms must provide equivalent security functionality; see “Security Requirements for Alternate Transports.”
- Mechanisms for such accommodations should not violate explicit prohibitions in RNIF 1.1.

While the Chem eStandards allow for FTP, SMTP, and asynchronous message queuing transports, the Chem eStandards do not offer any specific implementation guidance beyond the HTTP/ S transport.

3.1. Significant RNIF Security Implications

The intent of this document is not to repeat all the RNIF envelope and security requirements; however, certain key implications of RNIF security are incorporated as follows:

- Secure Sockets Layer (SSL) v3 is to be used for mutual authentication during a session, confidentiality and integrity during a session, and receipt of objects sent during a session.
- Public Key Cryptography Standard (PKCS) #7 detached Digital Signatures on signed objects is to be used not only for transport, but also for persistent proof of non-repudiation. This in turn requires tools for generating and managing Digital Signatures beyond an SSL v3 browser.
- Digital Certificates based on X.509 version 3 standard is to be used. A third party Certificate Authority who’s Root Certificate is distributed with standard browsers is recommended. Since HTTPS communication for these standards is between servers, server certificates are required.
- Security that is optional at the overall level may be required for a specific transaction: for example, digital signatures are optional overall, but are required for most specific transactions. Furthermore if a specific transaction requires a digital signature, then the “Receipt Acknowledgement” or “Receipt Acknowledgement Exception” message that follows must also be digitally signed.
- An implementation that uses digital signatures that violate RNIF v1.1 specifications is prohibited.
- Authorization for access control is typically via the “subject organization name” in digital certificates. If this is not sufficiently granular for access control, trading partners may negotiate other mechanisms such as account number with digital certificates. In general, access control standards are not part of the RosettaNet specification or this document.
3.2. Chem eStandards Stipulations for RNIF

While RNIF is a broad framework with several implementation options, Chem eStandards specify the following choices among the RNIF options:

- Transfer of messages is via “Server-to-Server” interaction, rather than “Server-Browser-Server” interaction (refer to RNIF Version 1.1, page 34 and 54).
- Consequently, server certificates are required rather than end-user and browser digital certificates.
- It remains to validate that the then current Certificate Revocation List (CRL) be stored with each signed message (reference item 9 documented on page 55 of RNIF Version 1.1). Since the size of the CRL may greatly exceed the size of the signed object, mechanisms such as storing a CRL sequence number or other methods of delegating CRL storage to the Certificate Authority (CA) should be explored.

Moreover, the following stipulations are implicit in Chem eStandards endorsement of the RosettaNet security framework:

- Chem eStandards focus on B2B (Business-to-Business) transactions; consequently, consumer to business and web browsing are not within scope. This implies that order status is “pushed” from the eMarketplace or seller via a server-to-server exchange, rather than “pulled” by the buyer via a browser session.
- The security portion of Chem eStandards is largely a technical framework; consequently, business practices are not currently in scope, except to the extent they are defined in specific transactions.

3.3. Digital Signatures

Digital signatures are important to Chem eStandards because they can ensure integrity of documents long after processing and can be used for authentication and non-repudiation (confirmation of who originated the document). For the chemical industry, which deals in large financial values of products that may only be sold to qualified buyers, confirmation will be important.

Implementation of digital signatures (ability to create them and verify them) will vary according to the selection of integration tools and security the business entity uses. Some EAI/eAI tools have this capability built in, either by default or as part of support for Chem eStandards or RosettaNet. If built-in, configuration may only require choosing options and determining where and when to sign specific content. Other tools will require custom programming or calls to special tools to implement signatures. The signature implementations may require purchase of a separate tool.

An existing or new digital certificate with public and private keys may be used to generate digital signatures.

Chem eStandards follow RosettaNet guidance on specifications for digital signatures:

- PKCS #7 (detached digital signatures)
- National Institute of Standards and Technology (NIST) Digital Signature Specification, which specifies a Digital Signature Architecture (also specified as Federal Information Processing Standard FIPS 186).
• The encryption algorithm is RSA and the hashing algorithm may be SHA-1 (Secure Hashing Algorithm 1) but MD5 (Message Digest 5) is also supported.

Digital signatures are usually created and validated in association with parsing the ChemXML, but some security environments will process the digital signatures as part of the Extranet acceptance criteria. In this case, the signature should remain with the document, so that the parsing process can validate it again.

3.4. Transaction Security Requirements

Each transaction has its own security requirements as outlined in the messaging Chem eStandard document. The points to define around each transaction include:

• **Authentication**: indicates whether mutual authentication is required for a particular transaction.

• **Digital Signature**: indicates whether a PKCS-7 digital signature of non-zero length that conforms to RNIF requirements should accompany the object.

• **Non-repudiation**: implies the following:
  • The object has been signed.
  • Both initiator and recipient of the object store that object’s digital signature including object message digest.
  • Both initiator and recipient of the object store supporting information (such as signer certificate, certificate authority and public key, secure time stamp, and unambiguous reference to the then-current CRL).

3.5. HTTPS Transport

HTTPS Communication requires preparation and configuration. For bi-directional communication, a separate mutually authenticated HTTPS connection is configured in each direction. Although the same concept as browser to server HTTPS is being used, for Chem eStandards, a higher level of security is involved and the connections are server to server (B2B eCommerce frequently involve substantial financial transactions, content is considered proprietary, and qualified purchasers must be authenticated).

Each business entity will need to tell the other entities what information they require to establish HTTPS communication. For each connection, the receiving business will indicate the requirements that must be met for the sending business to enable access.

The specific requirements may differ by company but will include information such as:

• SSL v3 required
• Certificate level required (level 3)
• Valid certificate, public key
• Domain name and/or IP address, port from which access will originate

The business entities exchange the required information with the receiving company. When each entity has configured its communications capability to support the connection, they will notify the other entity, so that communications can be initiated.
Establishing HTTPS communication is a significant event for enterprise security officers and for Intranet/Extranet and security infrastructure support groups. If the enterprise does not already provide for HTTPS communication, the plan must be laid out well in advance.

It is strongly recommended that certificates be obtained from a recognized Certificate Authority (CA). Where mutually agreed, businesses may act as their own CA’s, but this can create issues. Obtaining certificates requires lead-time and documentation.

3.6. Alternate Transports

HTTPS communication is supported for Chem eStandards compliance, because it is open and non-proprietary, yet provides a high degree of security and reliability as used here.

As specified in this document, however, a pair of business entities may select another approach to communication that better meets their mutual needs, e.g. for very short response times. Some of these alternate approaches involve significant resources (people and money) to implement, creating barriers to participation if they were the only communication approaches. It is acceptable to use alternate approaches with Chem eStandards, as long as the alternate approach incorporates requirements that meet chemical company needs for reliability and security.

One example of alternate communication is asynchronous messaging (a frequently referenced example would be IBM’s MQSeries product). For this approach to be acceptable the messaging between business entities must be encrypted and digital signatures must be maintained. A dedicated asynchronous messaging connection could carry encrypted, signed documents, or the signed documents could travel over a Virtual Private Network (VPN). Some asynchronous messaging tools may provide guaranteed delivery and assurance of source and destination for the connection. If so, the business entities using this approach may decide to disable or eliminate envelopes and receipt acknowledgements. Note however that those receipt acknowledgements also carry information about whether the message sent is well formed XML and could be used to document receipt for legal purposes. If receipt acknowledgements are eliminated, thorough testing and alternate notifications are essential.

Since ChemXML transactions, in envelopes, travel as multipart MIME (Multipurpose Internet Mail Extensions) documents, e-mail is another possible communication approach. S/MIME (Secure MIME) transport of digitally signed documents would make this approach acceptable.

FTP (file transfer protocol) is the most basic alternate transfer method. This method is only acceptable if the ChemXML transactions are signed and encrypted prior to transmission.

While accommodations may be made for non-RNIF 1.1 frameworks that use asynchronous message queuing, FTP, or SMTP, such accommodations must meet the following security requirements:

- Assurance of document source, destination, and delivery must be provided.
- Authentication between the Marketplace and Business Partners should at least be via user-id and password, and preferably should use digital certificates for authentication.
- Communications between the Marketplace and Business Partners should be strongly encrypted.
- Document integrity & non-repudiation should be assured.
- Transactions requiring digital signatures are signed with PKCS7 digital signatures for non-repudiation and tamper-proofing.
- Mutual agreement by business entities is documented.

Note that the use of PKI and digital certificates will address most of the above security requirements.
Appendix A: Implementation Guidance

A.1 Application Integration Tools

Chem eStandards ChemXML defines the format in which transactions will travel between business entities. At origin, transaction information will be translated from a back-end system into ChemXML for transmission to business trading partners. Upon receipt, trading partners will convert the ChemXML to the format required for internal processing systems. Application integration software is the most likely tool for translating to and from ChemXML. Business entities may already have such a tool for Enterprise Application Integration (EAI) or eCommerce Application Integration (eAI). Many EAI/eAI tools already have capability to process ChemXML. In addition, the list of Solution Partners on the RosettaNet website includes a number of EAI/eAI tool vendors who have the capability to process RosettaNet transactions or have committed to do so.

Because EAI/eAI tools are in a dynamic market space, an evaluation checklist is much more appropriate than an analysis of current tools. The characteristics to examine before selecting a tool are delineated in the following table:

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Rationale</th>
<th>Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>What data formats does the tool support for mapping transformations?</td>
<td>This is the minimum essential requirement: the tool must support XML and the back-end systems used by the enterprise.</td>
<td>The required formats may be standard features or extra-cost add-ons. A release upgrade may be required for full support.</td>
</tr>
<tr>
<td>What communications mechanisms does the tool support?</td>
<td>For use with Chem eStandards, the tool must be able to support or transfer to the external communication mechanism to be used. If the tool is expected to handle the external communication directly, it should support HTTP/HTTPS, including mutual authentication. Some marketplaces will also communicate via MQ Series (IBM’s asynchronous messaging product) over a virtual private network (VPN); if using such an eMarketplace, MQ Series support may be required.</td>
<td>If the tool does not have this capability, but meets the preceding requirement, it may be possible to pass data through another tool to handle the communication. Enterprise security provisions may include such a requirement, or a relay between Intranet and Extranet may be required.</td>
</tr>
<tr>
<td>Does the tool incorporate support for Chem eStandards</td>
<td>This support could be in the form of:</td>
<td>Some vendors have expressed interest in supporting ChemXML. The expected vehicle for providing this support would be to extend the</td>
</tr>
<tr>
<td></td>
<td>• accepting ChemXML DTD’s</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• HTTPS communication</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• signaling acknowledgements</td>
<td></td>
</tr>
<tr>
<td>Does the tool incorporate support for RosettaNet?</td>
<td>Some tools provide add-on packages that facilitate use of RosettaNet transactions, including envelope processing, PIP process support, RosettaNet DTD mapping, and signaling and digital signatures.</td>
<td>Flexibility is an important issue here. E.g., some tools provide “all or none” RosettaNet support, which is useless for Chemical eStandard ChemXML. However, if the envelope and security provisions can be used, substituting the ChemXML transactions, this approach will lower development cost. If the tool does not provide this capability, then additional programming will be required to handle signaling, digital signatures and enveloping.</td>
</tr>
<tr>
<td>Does the tool have a built-in facility for digital certificates and digital signatures?</td>
<td>ChemXML transactions need to be signed for tamper-proofing and non-repudiation</td>
<td>If this capability is not already provided as part of ChemXML or RosettaNet support, it may be available as a stand-alone capability. If it is not, then custom programming or calls to other packages will be required to sign the transactions.</td>
</tr>
</tbody>
</table>
A.2 Processing Sequence

When a document is to be sent in ChemXML format, processing will usually follow a sequence like this:

- **Back-end system (e.g. SAP or legacy system):**
  - Create document and export to integration tool

- **Integration Tool**
  - Receive back-end system document
  - Convert document to ChemXML
  - Apply digital signature (or call external modules to apply signature)
  - Pass document to communications interface
  - Await receipt acknowledgement (generate error if not received in timely fashion)

- **Communications Interface**
  - Receive ChemXML
  - Establish HTTPS communication with target enterprise
  - Send ChemXML over HTTPS link

When a document is received in ChemXML format, processing will generally follow a sequence like this:

- **Communications Server**
  - Receive request for HTTPS session
  - Exchange authentication information to establish session
  - Receive ChemXML document over HTTPS
  - Relay ChemXML to integration tool

- **Integration Tool**
  - Receive ChemXML
  - Validate digital signature
  - Parse ChemXML
  - Respond back to sending system with ReceiptAcknowledgement or ReceiptAcknowledgementException (if there was an error).
  - Convert ChemXML as required for back-end system
  - Relay converted document to back-end system

- **Back-end System**
  - Receive formatted document from integration tool
  - Process document according to design
  - Acknowledge with appropriate transaction (which travels as a sent document above)

A.3 Linking Transactions into Processes

The Chem eStandards do not include standard processes like RosettaNet does; however, for companies wishing to link transactions together, there are two supported methods for doing so: Message-Based Process Enablement and Framework-Based Process Enablement. There are pros and cons of each implementation as outlined in the following sections.
A.3.1 Message-Based Process Enablement

This section describes the proper usage of the Payload Header structure for linking processes through the message content identifiers.

**Payload Header Structure**

The Payload Header structure, which is a common structure included in all ChemXML DTDs, provides data that uniquely identifies the specific XML document itself, as well as the trading partner information for which the transaction is being executed (i.e., the originator and the recipient of the business transaction).

**Data Elements**

*ThisDocumentIdentifier and RequestingDocumentIdentifier*

The ThisDocumentIdentifier and RequestingDocumentIdentifier data elements are utilized to uniquely identify ChemXML documents being transmitted (i.e., the document or message itself, not the business transaction). Since ThisDocumentIdentifier is a required field, all ChemXML messages from the originator (e.g., Buyer sending an OrderCreate to a Seller) must contain a unique value for this data element, with an associated date and time stamp (ThisDocumentDateTime). For two-way conversations (i.e., a Seller’s OrderResponse to a Buyer’s OrderCreate), the response document from the recipient to the originator should contain the original (or inbound) ThisDocumentIdentifier and ThisDocumentDateTime values from the originator in the RequestingDocumentIdentifier and RequestingDocumentDateTime fields. This mechanism allows the originator to ‘match’ a response document from a recipient to the original requesting document. This concept is further illustrated in the following examples. (Note: For simplicity, the DateTime fields have been omitted from these examples.)

**Example 1:**

OrderCreate

<table>
<thead>
<tr>
<th>ThisDocumentIdentifier:</th>
<th>123 (Set by Buyer’s system)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RequestingDocumentIdentifier:</td>
<td>(Not included in the ChemXML document)</td>
</tr>
</tbody>
</table>

OrderResponse

<table>
<thead>
<tr>
<th>ThisDocumentIdentifier:</th>
<th>3765 (Set by Seller’s system)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RequestingDocumentIdentifier:</td>
<td>123</td>
</tr>
</tbody>
</table>

---

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Example 2:

OrderChange
ThisDocumentIdentifier: 789 (Set by Buyer’s system)
RequestingDocumentIdentifier: (Not included in the ChemXML document)

OrderResponse
ThisDocumentIdentifier: 5643 (Set by Seller's system)
RequestingDocumentIdentifier: 789

If the recipient of an OrderCreate or an OrderChange responds with more than one OrderResponse message, all instances of the OrderResponse should contain the RequestingDocumentIdentifier of the original transaction.

Example 3:

OrderCreate
ThisDocumentIdentifier: 123 (Set by Buyer’s system)
RequestingDocumentIdentifier: (Not included in the ChemXML document)

OrderResponse
ThisDocumentIdentifier: 3765 (Set by Seller’s system)
RequestingDocumentIdentifier: 123

OrderResponse
ThisDocumentIdentifier: 4244 (Set by Seller’s system)
RequestingDocumentIdentifier: 123

If the originator of an OrderCreate receives an OrderResponse containing changes suggested by the Seller, and as a result decides to send an OrderChange message to the Seller, the RequestingDocumentIdentifier of that OrderChange transaction should be omitted.

Example 4:

OrderCreate
ThisDocumentIdentifier: 123 (Set by Buyer's system)
RequestingDocumentIdentifier: (Not included in the ChemXML document)

OrderResponse
ThisDocumentIdentifier: 3765 (Set by Seller’s system)
RequestingDocumentIdentifier: 123

OrderChange
ThisDocumentIdentifier: 157 (Set by Buyer’s system)
RequestingDocumentIdentifier: (Not included in the ChemXML document)
**From and To**

The From and To data elements are utilized to identify the specific trading partners involved (i.e., the originator and the recipient of the business transaction). Generally, the From and To data elements apply to the beginning (originator) and end point (recipient) of a business transaction. In other words, the values for the From and To data elements typically contain the same values for business-to-business (B2B) and business-to-marketplace (B2M) transaction models. However, in business situations where the ultimate end point (recipient) of a transaction is not known, such as in an on-line auction business model (e.g., ChemConnect), the To element should be specified as the marketplace or exchange. This concept is further illustrated in the following examples.

**Example 1:**

B2B Model

![Diagram of B2B Model]

**Example 2:**

B2M Model – Recipient (Seller) Known

![Diagram of B2M Model – Recipient Known]

**Example 3:**

B2M Model – Recipient (Seller) Not Known (e.g., on-line auction)

![Diagram of B2M Model – Recipient Not Known]

**A.3.2 Framework-Based Process Enablement**

The linking of separate documents or transactions to assemble long running processes is enabled in the Chem eStandards process, despite the fact that the PIP portion of the RNIF 1.1 framework was specifically not included. According to the RNIF 1.1 spec the instance id in the service header is used to tie, for example, an order request to an order response. Linking transactions in this manner allows for companies to leverage several implementation benefits.
The RNIF 1.1 service header contains process and message elements that indicate the type and instance of a given process and message. The process elements stay consistent between messages in a given process, while the message elements change between messages within a given process.

Since CIDX does not define PIPs, the process and PIP names are identical. For individual transactions CIDX has names for each transaction, for example:

- **Transaction Name:** Order Create
- **Transaction Code:** E41

To create a CIDX process, two CIDX transactions may be linked together through the service header. The naming convention for the process would be the two transaction name listed sequentially, separated by a dash. For example, an Order Create transaction linked to an Order Response transaction would be named as follows:

- **Process Name:** Order Create-Order Response
- **Process Code:** E41-E42

Please see Appendix C for example documents for a Framework-Based Process.
Appendix B: Sample ChemXML Transmission with Envelope and Digital Signature

<table>
<thead>
<tr>
<th>Example Markup</th>
<th>Annotation</th>
</tr>
</thead>
<tbody>
<tr>
<td>0x00010100</td>
<td>RosettaNet version number content length</td>
</tr>
<tr>
<td>nnnn</td>
<td></td>
</tr>
<tr>
<td>-U Mime-Version: 1.0</td>
<td>ChemXML designation differentiates this from RosettaNet</td>
</tr>
<tr>
<td>Content-Type: multipart/related; boundary=RN-Part-Boundary977171819368; type=&quot;application/x-ChemXML&quot;</td>
<td></td>
</tr>
<tr>
<td>RN-Part-Boundary977171819368</td>
<td></td>
</tr>
<tr>
<td>Content-Type: application/xml; mssubtype=preamble-header</td>
<td></td>
</tr>
<tr>
<td>Content-transfer-encoding: 7bit</td>
<td></td>
</tr>
<tr>
<td>Content-Description: Preamble Header</td>
<td></td>
</tr>
<tr>
<td>&lt;?xml version=&quot;1.0&quot; encoding=&quot;UTF-8&quot;?&gt;</td>
<td></td>
</tr>
<tr>
<td>&lt;!DOCTYPE Preamble SYSTEM &quot;PreamblePartMessageGuideline.dtd&quot; &gt;</td>
<td></td>
</tr>
<tr>
<td>&lt;Preamble&gt;</td>
<td></td>
</tr>
<tr>
<td>&lt;DateTimeStamp&gt;20001218T203658.923Z&lt;/DateTimeStamp&gt;</td>
<td></td>
</tr>
<tr>
<td>&lt;GlobalAdministeringAuthorityCode&gt;CIDX&lt;/GlobalAdministeringAuthorityCode&gt;</td>
<td></td>
</tr>
<tr>
<td>&lt;GlobalUsageCode&gt;Test&lt;/GlobalUsageCode&gt;</td>
<td></td>
</tr>
<tr>
<td>&lt;VersionIdentifier&gt;1.1&lt;/VersionIdentifier&gt;</td>
<td></td>
</tr>
<tr>
<td>--</td>
<td></td>
</tr>
<tr>
<td>&lt;/Preamble&gt;</td>
<td></td>
</tr>
<tr>
<td>--RN-Part-Boundary977171819368</td>
<td></td>
</tr>
<tr>
<td>Content-Type: application/xml; mssubtype=service-header</td>
<td></td>
</tr>
<tr>
<td>Content-transfer-encoding: 7bit</td>
<td></td>
</tr>
<tr>
<td>Content-Description: Service Header</td>
<td></td>
</tr>
<tr>
<td>&lt;?xml version=&quot;1.0&quot; encoding=&quot;UTF-8&quot;?&gt;</td>
<td></td>
</tr>
<tr>
<td>&lt;!DOCTYPE ServiceHeader SYSTEM &quot;ServiceHeaderPartMessageGuideline.dtd&quot; &gt;</td>
<td></td>
</tr>
<tr>
<td>&lt;ServiceHeader&gt;</td>
<td></td>
</tr>
<tr>
<td>&lt;ProcessControl&gt;</td>
<td></td>
</tr>
<tr>
<td>&lt;ProcessIdentity&gt;</td>
<td></td>
</tr>
<tr>
<td>&lt;description&gt;</td>
<td></td>
</tr>
<tr>
<td>&lt;FreeFormText&gt;Create purchase order transaction.&lt;/FreeFormText&gt;</td>
<td></td>
</tr>
<tr>
<td>&lt;/description&gt;</td>
<td></td>
</tr>
<tr>
<td>&lt;/ProcessIdentity&gt;</td>
<td>ChemXML transaction name</td>
</tr>
<tr>
<td>&lt;GlobalProcessIndicatorCode&gt;E41&lt;/GlobalProcessIndicatorCode&gt;</td>
<td>DUNS Number</td>
</tr>
<tr>
<td>&lt;initiatingPartner&gt;</td>
<td></td>
</tr>
<tr>
<td>&lt;GlobalBusinessIdentifier&gt;001307032&lt;/GlobalBusinessIdentifier&gt;</td>
<td></td>
</tr>
<tr>
<td>&lt;/initiatingPartner&gt;</td>
<td></td>
</tr>
<tr>
<td>&lt;InstanceIdentifier&gt;c.ikirg7j.x8m4.0000000e3836b04912.ikikv5t1.x8m4_.basf_dev.1307032.E41_1_0-Buyer-Create Order Dow2.1.0.1&lt;/InstanceIdentifier&gt;</td>
<td>Unique identifier generated for this transaction</td>
</tr>
<tr>
<td>&lt;VersionIdentifier&gt;3.0&lt;/VersionIdentifier&gt;</td>
<td>3.0 is the version number for the ChemXML transaction being described in this service header</td>
</tr>
<tr>
<td>&lt;/ProcessIdentity&gt;</td>
<td></td>
</tr>
<tr>
<td>&lt;ServiceRoute&gt;</td>
<td></td>
</tr>
<tr>
<td>&lt;fromService&gt;</td>
<td></td>
</tr>
<tr>
<td>&lt;BusinessServiceDescription&gt;</td>
<td></td>
</tr>
<tr>
<td>&lt;/BusinessServiceDescription&gt;</td>
<td></td>
</tr>
<tr>
<td>&lt;/fromService&gt;</td>
<td></td>
</tr>
</tbody>
</table>
<toService>
   <BusinessServiceDescription>
   </BusinessServiceDescription>
</toService>
</ServiceRoute>
<TransactionControl>
   <AttemptCount>1</AttemptCount>
   <PartnerRoleRoute>
      <fromRole>
         <PartnerRoleDescription>
            <GlobalPartnerRoleClassificationCode>Buyer</GlobalPartnerRoleClassificationCode>
         </PartnerRoleDescription>
      </fromRole>
      <toRole>
         <PartnerRoleDescription>
            <GlobalPartnerRoleClassificationCode>Seller</GlobalPartnerRoleClassificationCode>
         </PartnerRoleDescription>
      </toRole>
   </PartnerRoleRoute>
   <TransactionIdentity>
      <description>
         <FreeFormText>Create purchase order transaction.</FreeFormText>
      </description>
      <GlobalTransactionCode>Order Create</GlobalTransactionCode>
      <InstanceIdentifier>c.ikirgt7j.x8m4..101.2001381581.0</InstanceIdentifier>
   </TransactionIdentity>
   <ActionControl>
      <ActionIdentity>
         <InstanceIdentifier>d.ikirgt7j.x8m4.</InstanceIdifier>
         <VersionIdentifier>3.0</VersionIdentifier>
      </ActionIdentity>
      <PartnerRoute>
         <fromPartner>
            <PartnerDescription>
               <BusinessDescription>
                  <GlobalBusinessIdentifier>001307032</GlobalBusinessIdentifier>
               </BusinessDescription>
               <GlobalPartnerClassificationCode>End User</GlobalPartnerClassificationCode>
            </PartnerDescription>
         </fromPartner>
         <toPartner>
            <PartnerDescription>
               <BusinessDescription>
                  <GlobalBusinessIdentifier>001381581</GlobalBusinessIdentifier>
               </BusinessDescription>
               <GlobalPartnerClassificationCode>End User</GlobalPartnerClassificationCode>
            </PartnerDescription>
         </toPartner>
      </PartnerRoute>
   </ActionControl>
</ChemXML version number>
MIME Description for service content, third of three XML documents
<PurchaseOrderNumber/>
<PurchaseOrderTypeCode Domain="ANSI-ASC-X12-92">KN</PurchaseOrderTypeCode>

<PurchaseOrderIssuedDate>
    <DateTime DateTimeQualifier="On">20020204T091436</DateTime>
</PurchaseOrderIssuedDate>

<LanguageCode Domain="ISO-639-2T">en</LanguageCode>
<CurrencyCode Domain="ISO-4217">USD</CurrencyCode>

BuyerSequenceNumber>0</BuyerSequenceNumber>

MarketPlaceInformation>
    <MarketPlaceIdentifier>Your Marketplace Inc.</MarketPlaceIdentifier>
    <MarketPlaceDocumentReference Type="ContractNumber">
        <DocumentReference>
            <DocumentIdentifier>14355</DocumentIdentifier>
            <DateTime DateTimeQualifier="On">20020101T000000</DateTime>
        </DocumentReference>
    </MarketPlaceDocumentReference>
    <MarketPlaceSellerIdentifier>45</MarketPlaceSellerIdentifier>
    <MarketPlaceBuyerIdentifier>88745</MarketPlaceBuyerIdentifier>
</MarketPlaceInformation>

SpecialInstructions InstructionType="ShipperInstructions">Maintain 30 degrees C in transit</SpecialInstructions>
<TransportMethodCode Domain="UN-Rec-19">3</TransportMethodCode>
<DeliveryTerms Code="Incoterms-2000">FOB</DeliveryTerms>
<DeliveryTermsLocation>Dover</DeliveryTermsLocation>


OrderCreateProperties>
Buyer>
    <PartnerInformation>
        <PartnerName>Thomas Corp WorldWide Molding</PartnerName>
        <PartnerIdentifier Agency="D-U-N-S">123666785</PartnerIdentifier>
        <ContactInformation>
            <ContactName>Joe Cutter</ContactName>
            <TelephoneNumber>
                <NationalPhoneNumber>(403) 678-3356</NationalPhoneNumber>
            </TelephoneNumber>
        </ContactInformation>
        <AddressInformation>
            <AddressLine>765 Clinton Street</AddressLine>
            <CityName>Hope</CityName>
            <StateOrProvince>Tn</StateOrProvince>
            <PostalCode>37874</PostalCode>
            <PostalCountry>USA</PostalCountry>
        </AddressInformation>
    </PartnerInformation>
</Buyer>

Seller>
    <PartnerInformation>
        <PartnerName>ABC Chemical</PartnerName>
        <PartnerIdentifier Agency="D-U-N-S">123000763</PartnerIdentifier>
        <ContactInformation>
            <ContactName>Tom Smith</ContactName>
            <TelephoneNumber>
                <NationalPhoneNumber>(536) 389-2958</NationalPhoneNumber>
            </TelephoneNumber>
        </ContactInformation>
        <AddressInformation/>
    </PartnerInformation>
</Seller>

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<StateOrProvince>FL</StateOrProvince>
<PostalCode>45684</PostalCode>
<PostalCountry>USA</PostalCountry>
<AddressInformation>
<URL>www.yourmarketplace.com</URL>
</PartnerInformation>
</OtherPartner>
</OrderCreatePartners>
<OrderCreateDetails>
<OrderCreateProductLineItem>
<LineNumber>00001</LineNumber>
<PurchaseOrderLineItemNumber>10</PurchaseOrderLineItemNumber>
<ProductIdentification Agency="AssignedByBuyer">
<ProductIdentifier>34599801</ProductIdentifier>
<ProductName>Teflon</ProductName>
<ProductDescription>Polytetrafluoroethylene</ProductDescription>
</ProductIdentification>
<ProductQuantity>
<Measurement>
<MeasurementValue>1000</MeasurementValue>
<UnitOfMeasureCode Domain="UN-Rec-20">LBR</UnitOfMeasureCode>
</Measurement>
</ProductQuantity>
<BatchNumber BatchNumberCreator="Seller">3010</BatchNumber>
<ScheduleDateTimeInformation ScheduleType="RequestedDelivery">
<DateTimeInformation>
<DateTime DateTimeQualifier="On">20020305T110000</DateTime>
</DateTimeInformation>
</ScheduleDateTimeInformation>
<DeliveryTolerances>
<MinimumMeasurement>
<Measurement>
<MeasurementValue>990</MeasurementValue>
<UnitOfMeasureCode Domain="UN-Rec-20">LBR</UnitOfMeasureCode>
</Measurement>
</MinimumMeasurement>
<MaximumMeasurement>
<Measurement>
<MeasurementValue>1100</MeasurementValue>
<UnitOfMeasureCode Domain="UN-Rec-20">LBR</UnitOfMeasureCode>
</Measurement>
</MaximumMeasurement>
</DeliveryTolerances>
<TransportInformation StageIdentifier="Primary">
<TransportStepNumber>1</TransportStepNumber>
<TransportMethodCode Domain="UN-Rec-19">3</TransportMethodCode>
</TransportInformation>
</Carrier>
</PartnerInformation>
<ContactInformation>
<ContactName>Jane Mann</ContactName>
<TelephoneNumber>
<NationalPhoneNumber>(609) 334-1130</NationalPhoneNumber>
</TelephoneNumber>
</ContactInformation>
</NATIONALPHONE>
</ContactInformation>
What follows is the digital signature length and digital signature, including message digest.
Appendix C: Example of a Linked Document Process

The example below depicts how the Order Create and Order Response transactions look with document linking enabled.

Note: Focus on the data points highlighted in red, green and blue. The other portions of the Service Header have not been reviewed and may be incorrect.

Service Header Key:
Instance identifiers in Red.
Notes in Blue.
Message/Process/PIP identifiers in Green.

Order Create Action Message Service Header

```xml
<ServiceHeader>
  <ProcessControl>
    <ProcessIdentity>
      <description>
        <FreeFormText/>
      </description>
      Name of the “PIP” or conversation.
      Code of the “PIP” or conversation.
      <initiatingPartner>
        <GlobalBusinessIdentifier>123456789</GlobalBusinessIdentifier>
      </initiatingPartner>
      <InstanceIdentifier>PIP 1</InstanceIdentifier>
      InstanceID correlates between messages in process.
      <VersionIdentifier>3.0</VersionIdentifier>
      Version of the “PIP” or conversation.
    </ProcessIdentity>
  </ProcessControl>
</ServiceHeader>
```

```
<ServiceRoute>
  <fromService>
    <BusinessServiceDescription>
    </BusinessServiceDescription>
  </fromService>
  <toService>
    <BusinessServiceDescription>
    </BusinessServiceDescription>
  </toService>
</ServiceRoute>
```

```
<TransactionControl>
```

<PartnerRoleRoute>
  <fromRole>
    <PartnerRoleDescription>
      <GlobalPartnerRoleClassificationCode>Buyer</GlobalPartnerRoleClassificationCode>
    </PartnerRoleDescription>
  </fromRole>
  <toRole>
    <PartnerRoleDescription>
      <GlobalPartnerRoleClassificationCode>Seller</GlobalPartnerRoleClassificationCode>
    </PartnerRoleDescription>
  </toRole>
</PartnerRoleRoute>

<TransactionIdentity>
  <description>
    <FreeFormText>This activity refers to creation of a new order.</FreeFormText>
  </description>
  <GlobalTransactionCode>Order Create-Order Response</GlobalTransactionCode>
  Name of the “process”.
  
  <InstanceId>Process 1</InstanceId>
  InstanceID correlates between messages in process.
</TransactionIdentity>

<ActionControl>
  <ActionIdentity>
    Name of the “action” or message.
    
    <InstanceId>Message 1</InstanceId>
    InstanceID DOES NOT correlate between messages in process.
    
    <VersionIdentifier>3.0</VersionIdentifier>
    Version of the message.
  </ActionIdentity>
</ActionControl>


<PartnerRoute>
  <fromPartner>
    <PartnerDescription>
      <BusinessDescription>
        <GlobalBusinessIdentifier>123456789</GlobalBusinessIdentifier>
      </BusinessDescription>
    </PartnerDescription>
  </fromPartner>
  <toPartner>
    <PartnerDescription>
      <BusinessDescription>
        <GlobalBusinessIdentifier>123123123</GlobalBusinessIdentifier>
      </BusinessDescription>
    </PartnerDescription>
  </toPartner>
</PartnerRoute>
Order Response Action Message Service Header

<ServiceHeader>
  <ProcessControl>
    <ProcessIdentity>
      <description>
        <FreeFormText/>
      </description>
      Name of the “PIP” or conversation.
      Code of the “PIP” or conversation.
      <initiatingPartner>
        <GlobalBusinessIdentifier>123456789</GlobalBusinessIdentifier>
      </initiatingPartner>
      <InstanceIdentifier>PIP 1</InstanceIdentifier>
      InstanceID correlates between messages in process.
      <VersionIdentifier>3.0</VersionIdentifier>
      Version of the “PIP” or conversation.
    </ProcessIdentity>
    <ServiceRoute>
      <fromService>
        <BusinessServiceDescription>
        </BusinessServiceDescription>
      </fromService>
      <toService>
        <BusinessServiceDescription>
        </BusinessServiceDescription>
      </toService>
    </ServiceRoute>
    <TransactionControl>
      <AttemptCount>1</AttemptCount>
      <PartnerRoleRoute>
        <fromRole>
          <PartnerRoleDescription>
            <GlobalPartnerRoleClassificationCode>Buyer</GlobalPartnerRoleClassificationCode>
          </PartnerRoleDescription>
        </fromRole>
        <toRole>
          <PartnerRoleDescription>
            <GlobalPartnerRoleClassificationCode>Seller</GlobalPartnerRoleClassificationCode>
          </PartnerRoleDescription>
        </toRole>
      </PartnerRoleRoute>
    </TransactionControl>
  </ProcessControl>
</ServiceHeader>
<PartnerRoleRoute>
  <TransactionIdentity>
    <description>
      <FreeFormText>This activity refers to creation of a new order.</FreeFormText>
    </description>
    <GlobalTransactionCode>Order Create-Order Response</GlobalTransactionCode>
    Name of the “process”.
  </TransactionIdentity>
  <InstanceIdentifier><Process 1</InstanceIdentifier>
  InstanceID correlates between messages in process.
</TransactionIdentity>
</PartnerRoleRoute>

<ActionControl>
  <ActionIdentity>
    Name of the “action” or message.
  </ActionIdentity>
  <InstanceIdentifier><Message 2</InstanceIdentifier>
  InstanceID DOES NOT correlate between messages in process.
  <VersionIdentifier>3.0</VersionIdentifier>
  Version of the message.
</ActionIdentity>
</ActionControl>
</PartnerRoute>
</ServiceHeader>