e*Xchange Partner Manager Implementation Guide

Release 5.0.5 for Schema Run-time Environment (SRE)

Contents

Chapter 1

Introduction

This guide provides comprehensive information on implementing eBusiness solutions using the e*Xchange Partner Manager portion of the Oracle eBusiness Integration Suite. It discusses the essentials of implementing e*Xchange, Business-to-Business Integration, and the components used in a complete e*Xchange implementation.

This guide also provides detailed information on the e*Xchange architecture and its core components, as well as the e*Gate schema components that make up an e*Xchange implementation. Finally, it discusses how e*Xchange and e*Gate work together to provide a comprehensive toolset for designing, creating, and maintaining a fully functional eApplication.

1.1 Document Purpose and Scope

This guide explains how to use the e*Xchange Partner Manager, including:

- Understanding the e*Xchange schema components.
- Functions and methods available to the user

This guide gives you the necessary background and methodology for getting an e*Xchange system up and running in a real-world situation. To do this, it provides detailed information on the e*Gate schema that e*Xchange uses as its back end and explains the various areas requiring configuration. This guide also contains several detailed case studies showing how to implement various features built into e*Xchange, such as how to send secure transactions.

1.2 Intended Audience

The reader of this guide is presumed to be a developer or system administrator with responsibility for developing or maintaining the e*Xchange system. You should have experience of Windows and UNIX operations and administration, and should be thoroughly familiar with Windows-style GUI operations.

Since most of the work in an e*Xchange implementation involves setting up the e*Gate components that send data into and out of the e*Xchange system, you should also have experience implementing e*Gate.

Note: *Please refer to the **e*Gate Integrator User's Guide** or the **e*Gate Integrator System Administrator's Guide** for specific information about e*Gate configuration and administration information.*

1.3 Writing Conventions

The writing conventions listed in this section are observed throughout this document.

Hypertext Links

When you are using this guide online, cross-references are also hypertext links and appear in **blue text** as shown below. Click the **blue text** to jump to the section.

For information on these and related topics, see **"Supporting Documents" on page 15**.

Command Line

Text to be typed at the command line is displayed in a special font as shown below.

```
java -jar ValidationBuilder.jar
```

Variables within a command line are set in the same font and bold italic as shown below.

```
stcregutil -rh host-name -un user-name -up password -sf
```

Code and Samples

Computer code and samples (including printouts) on a separate line or lines are set in the command-line font as shown below.

```
Configuration for BOB_Promotion
```

However, when these elements (or portions of them) or variables representing several possible elements appear within ordinary text, they are set in *italics* as shown below.

path and *file-name* are the path and file name specified as arguments to **-fr** in the **stcregutil** command line.

Notes and Cautions

Points of particular interest or significance to the reader are introduced with ***Note***, ***Caution***, or ***Important***, and the text is displayed in *italics*, for example:

Note: *The Actions menu is only available when a Properties window is displayed.*

User Input

The names of items in the user interface such as icons or buttons that you click or select appear in **bold** as shown below.

Click **Apply** to save, or **OK** to save and close.

File Names and Paths

When names of files are given in the text, they appear in **bold** as shown below.

Use a text editor to open the **ValidationBuilder.properties** file.

When file paths and drive designations are used, with or without the file name, they appear in **bold** as shown below.

In the **Open** field, type **D:\setup\setup.exe** where **D:** is your CD-ROM drive.

Parameter, Function, and Command Names

When names of parameters, functions, and commands are given in the body of the text, they appear in **bold** as follows:

The default parameter **localhost** is normally only used for testing.

The Monk function **iq-put** places an Event into an IQ.

After you extract the schema files from the CD-ROM, you must import them to an e*Gate schema using the **stcregutil** utility.

1.4 Supporting Documents

The following documents provide additional information about e*Xchange and e*Gate:

- *Oracle eBusiness Integration Suite Deployment Guide*
- *Oracle eBusiness Integration Suite Primer*
- *e*Xchange Partner Manager User's Guide*
- *e*Xchange Partner Manager Installation Guide*
- *e*Gate Integrator Alert Agent User's Guide*
- *e*Gate Integrator Alert and Log File Reference Guide*
- *e*Gate Integrator Collaboration Services Reference Guide*
- *e*Gate Integrator Intelligent Queue Services Reference Guide*
- *e*Gate Integrator System Administration and Operations Guide*
- *e*Gate Integrator User's Guide*
- *Monk Developer's Reference*
- *Standard e*Way Intelligent Adapters User's Guide*

Chapter 2

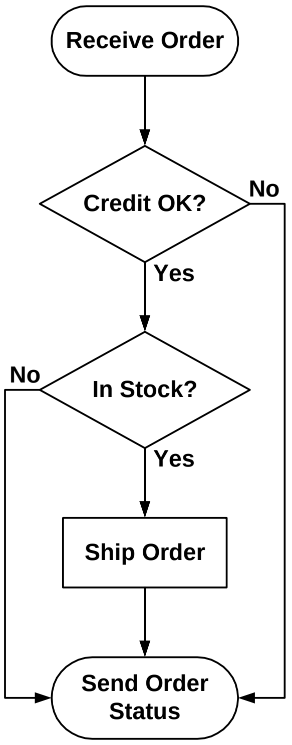
Business-to-Business Integration

Electronic Business-to-Business Integration, or eBusiness Integration (eBI), does more than allow one business to send electronic documents to another. eBI automates and integrates the entire business supply chain so that a business process that uses external trading partners can be managed as a single process. In moving from intra-business to inter-business, the integrator must overcome several challenges, most of which stem from the need to use infrastructure that is outside one's control. Once these challenges are overcome, the enterprise can manage the entire end-to-end business process and extend the proven planning and cost savings abilities of Enterprise Application Integration (EAI) to the larger world of eBI.

2.1 An eBI Example

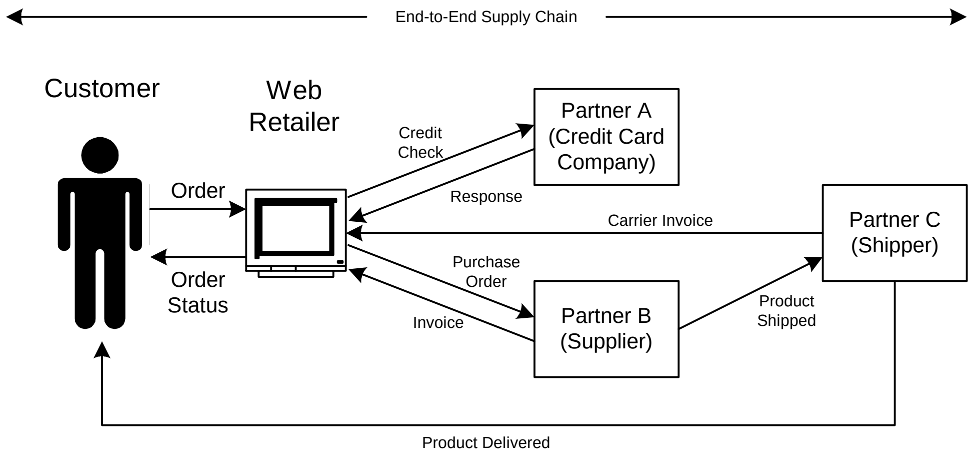
The need to integrate a number of trading partners is an essential requirement in the realm of internet retailing. For example, consider a Web retailer that sells sports equipment online. This retailer sets up an electronic storefront that allows a customer to browse an online catalog of items and place orders for them. After securing payment via credit card, the items are shipped to the customer, along with the status of the order. Figure 1, on the next page, shows a flow chart of the Web retailer's business process outlining the steps involved in a typical transaction.

Figure 1 Web Retailer Business Process



Three out of the five steps in this business process (checking credit, stock availability, and shipping to the customer) are outside the Web retailer's enterprise. However, from the customer's point of view, the entire transaction is handled by the online retailer. The Web retailer's business model depends on the efficient use of trading partners to fulfill parts of the business transaction that he does not handle directly. Figure 2 shows the interrelationships between the retailer and the trading partners.

Figure 2 Trading Partner Relationships



The goal of eBI is to successfully integrate the trading partner relationships into the overall business process in order to create a composite eApplication.

2.2 How Is eBI different from EAI?

The necessity to coordinate the information systems of multiple trading partners outside one's own control is the main difference between eBusiness Integration and traditional EAI.

2.2.1 Traditional EAI

Traditional Enterprise Application Integration focused on getting a company's in-house business management software applications to work together, and on improving business process efficiency by sharing data. Data sharing also made possible timely planning and analysis, which made businesses more efficient.

EAI became necessary because the specialized nature of the various tasks involved in running a business gave rise to a compartmentalized approach to handling them. Consequently, businesses often divided up the work load into departments, with each department in charge of accomplishing a specific business task. For example, the sales department took orders, the finance department received payments, the warehouse stored goods and prepared the orders, and the shipping department delivered the goods to the customer.

Each department in turn had its own computer system for keeping track of the data for which it was responsible, and periodically prepared reports to be used by the people entrusted with planning for the business as a whole. These stand-alone departmental systems usually could not communicate well with each other, because each had unique requirements for how they handled data. This inability to share data limited inter-departmental planning or business level planning, and any suggestions for business improvement had to wait for each department's reports to be produced, combined together, and reconciled.

EAI solutions improved business integration dramatically. By allowing the departmental applications to share data, EAI solutions made it possible to model the entire process of a business from order taking to order fulfillment, and provided the glue to hold all the pieces of the process together. Moreover, business planners could now do real-time analysis of how a business was doing across all its departments and divisions, in whatever detail was required.

2.2.2 The Emerging eBI Model

eBI essentially performs the same kind of integration as EAI, but at a higher level. Instead of integrating departments, it integrates trading partners. Because these trading partners are autonomous businesses, the integration itself must be more flexible and based on cooperation. Moreover, this integration needs to use the public electronic infrastructure such as the Internet and Value Added Networks (VANs), and established business protocols such as X12, UN/EDIFACT, RosettaNet, and CIDX, that any business can utilize. The challenge for businesses implementing an eBI model of integration is to find ways to achieve the same level of business process tracking and planning that are gained with EAI, within this looser structure.

2.3 Meeting the Challenges of eBI

As the logical next step in business integration, eBI faces all the challenges faced by traditional EAI, with two other important additions:

- It must support autonomous trading partners
- It must be able to use the public electronic infrastructure

2.3.1 Meeting the EAI Challenge

Given the vast range of ways to exchange electronic information, so many data formats, transmission protocols, and different types of software, simply making the connection between these disparate systems is a significant technological challenge. Once these disparate components are connected, companies face a further challenge to manage and monitor the entire system. e*Xchange addresses these issues by using e*Gate, the most powerful suite of tools for Enterprise Application Integration.

e*Gate’s reliable, flexible, scalable, and distributed architecture, combined with data transformations, enables you to manipulate data whenever, wherever, and however you wish. This solid base, combined with the wide range of e*Way communication adapters that can exchange data between almost any software and hardware, means that much of the work of integration and implementation has already been done for you.

2.3.2 Meeting the Trading-Partner Challenge

In a traditional EAI project, even though you must integrate different computer systems, you always enjoy the security of knowing that ultimately you have control of the entire composite system. Unfortunately, you do not enjoy this same sense of control within an eBI configuration; there are autonomous entities outside your enterprise—and outside your control.

Fortunately, there are standards that provide “rules of engagement” between entities in an eBI chain: the well established eBusiness protocols such as X12, UN/EDIFACT, RosettaNet, and CIDX, which any business can use to exchange electronic business documents. By supporting these standards, e*Xchange gives you a powerful way to integrate beyond your enterprise. e*Xchange includes built-in support for the standard versions of X12, UN/EDIFACT, RosettaNet, and CIDX, and includes a tool for building customized versions of some of these standards for your particular industry.

2.3.3 Meeting the Challenge of Using Public Domains

The implementation of a traditional EAI project occurs behind the safety of a company's firewall. This type of isolated integration environment is unavailable in an eBI implementation. Just as every business must use the existing public transportation infrastructure to move its physical goods to market, so too must an eBusiness use the public Internet and Value Added Networks open to every business.

Public networks provide opportunities for unauthorized users to access your sensitive data. e*Xchange uses safe and secure ways to carry on electronic commerce, and includes support for sending encrypted messages over secure channels. By using a combination of the proven public-key approach for sending secure messages over unsecured channels, and support for the HTTPS protocol for securely connecting two computers, e*Xchange has features that make eBusiness safe and secure.

2.4 The Benefits of eBI

Despite its challenges, eBI has definite benefits:

- Increased efficiency
- The ability to track an individual business transaction through the entire supply chain
- The ability to analyze your business model

2.4.1 Increased Efficiency

Sharing data electronically vastly increases efficiency. Every paper-based transfer of information brings with it the risk of introducing error and inefficiency. Every time business data is re-entered into another system by hand, the cost of doing so is added to the transaction, as is the cost of correcting the errors that this type of transfer inevitably creates.

There is also a latency problem in getting the data to its intended destination; even with "overnight delivery," the time it takes a paper transaction to be delivered physically is significantly longer than the time it takes to deliver it electronically.

2.4.2 Tracking Complete Business Transactions

By tying all the trading partners that handle steps in your business process into a single end-to-end configuration, you can track the entire business transaction from beginning to end.

2.4.3 Business Model Analysis

Because you can track the entire business process from end to end, you can analyze, over time, how your model is performing. You can identify bottlenecks and make intelligent decisions about how to improve your process.

Chapter 3

e*Xchange Schema Components

The purpose of this chapter is to describe the e*Gate components provided with the **eXSchema,** as well as those that are added in the implementation process, and discuss how each fits into and supports a working e*Xchange implementation.

The e*Gate schema for e*Xchange is the e*Gate schema that implements a particular e*Xchange installation. The starting point is the **eXSchema** created when you install the e*Gate schema for e*Xchange from the installation CD. This schema contains a number of pre-configured and partially pre-configured e*Gate components used by e*Xchange.

In addition to the components that are provided on the CD, a complete e*Xchange implementation requires several other e*Gate components that are added to the e*Xchange schema during the implementation process.

The pre-configured components that are used, as well as the additional e*Gate components that are added to make up the final working e*Xchange schema, depends entirely on the specifics of the implementation.

For each component there is a detailed drawing showing the other components with which it interacts as well as the publication and subscription information for its Collaborations. In addition, for each component we discuss: the type of component it is, its function in e*Xchange, any configuration you must perform, the Collaborations it uses, and what is contained in the Events it processes.

3.1 e*Gate Schema for e*Xchange Components Overview

Table 1 lists all of the component types used by e*Xchange. It lists the components that are provided as part of the e*Gate schema for e*Xchange (eXSchema) installation, and also the components that the user adds in the implementation process. The meaning of the column headings is as follows.

- **Component**—The e*Gate logical name for the component. *Italics* indicates that the name varies by association or is user-defined.
- **Description**—A brief description of what the component does in e*Xchange.
- **In Default eXSchema**—Whether or not this component is provided as part of the e*Gate Schema for e*Xchange.
- **Configuration Required**—Most of the components in the default eXSchema require little configuration on your part. Table 1 uses the following terms to describe the level of configuration required:

- **No—**The component does not require any configuration or programming on your part.
- **Minor—**You must add the e*Xchange database connection information to the configuration file.
- **Some—**You must make additional changes to the configuration file beyond providing the e*Xchange database connection information.
- **Yes—**The component is mostly or entirely user-defined and must be configured and programmed by you.

- **More Information**—A cross reference to the section that describes this component in detail.

Table 1 e*Xchange Component Types

Component	Description	In Default eXSchema?	Configuration Required?	More Information
eX_ePM e*Way	Handles the tracking, validating, security, and enveloping of Events sent to and from trading partners.	Yes	Minor	**3.2.1 on page 26**
eX_ePM_Ack_Monitor e*Way	Handles the process of resending to trading partner Events, when no acknowledgment has been received. For AS2, NCPDP, X12 and UN/EDIFACT, this e*Way sends the message to a staging area.RosettaNet and CIDX send the message out to the queue.	Yes	Minor	**3.2.2 on page 31**
eX_ePM_Batch e*Way	Handles the process of bundling together transactions to be sent out as a group to a single trading partner.	Yes	Minor	**3.2.3 on page 33**
eX_ePM_Trans_Poll e*Way	For NCPDP, AS2, X12 and UN/EDIFACT, handles the process of sending out interactive Events that require acknowledgments. This is also used for resend messages from the Web Interface.	Yes	Minor	**3.2.4 on page 36**
eX_Batch_to_Trading_ Partner e*Way	Sends out Events to trading partners in batch (FTP) mode.	Yes	No	**3.2.5 on page 37**
eX_Https_to_ Trading_ Partner e*Way	Sends out Events to trading partners using a secure HTTPS (encrypted) or insecure HTTP (not encrypted) communication protocol.	Yes	No	**3.2.6 on page 38**
eX_Poll_Receive_FTP	Polls the e*Xchange database for information on trading partners in batch (FTP) mode. This information is passed to the eX_Batch_From_Trading_Partner e*Way.	Yes	Minor	**3.2.7 on page 40**
eX_Batch_From_Trad ing_Partner e*Way	Receives Events from trading partners in batch (FTP) mode.	Yes	Minor	**3.2.8 on page 41**
eX_Mux_from_ Trading_Partner e*Way	Sends and receives Events from trading partners using a Web server.	Yes	No	**3.2.9 on page 43**
eX_POP3_from_ Trading_ Partner e*Way	Receives events via email.	Yes	No	**3.2.10 on page 46**
eX_SMTP_to_ Trading_ Partner e*Way	Sends out Events to trading partners via email.	Yes	No	**3.2.11 on page 47**
Send_to_ePM e*Way	Prepares Events coming from a business application for processing by e*Xchange.	Yes	Yes	**3.2.12 on page 48**
Receive_from_ePM e*Way	Prepares Events coming from e*Xchange for use by a business application.	Yes	Yes	**3.2.13 on page 50**
ewHipaaValidation e*Way	Serves as a placeholder for the HIPAA Java Collaboration Rules.	No	Yes	**3.2.14 on page 51**
eX_from_Trading _Partner e*Way	Prepares Events coming from trading partners for processing by e*Xchange.	No	Yes	**3.2.15 on page 51**

3.1.1 e*Xchange Schema Component Relationships Diagram

Figure 4 on the next page illustrates the relationships among the e*Xchange schema components. Figure 3 provides a legend for Figure 4. Not every e*Xchange implementation uses all of these components.

Some of the components shown are not provided as part of the e*Gate schema for e*Xchange installation from the CD. These components are shown in light blue and must be added to the base e*Xchange schema, as needed.

Figure 3 e*Xchange Overview Legend

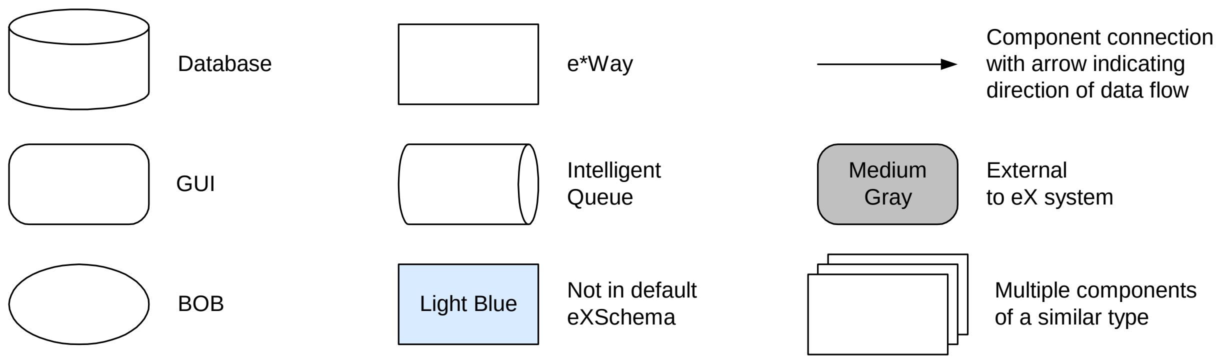
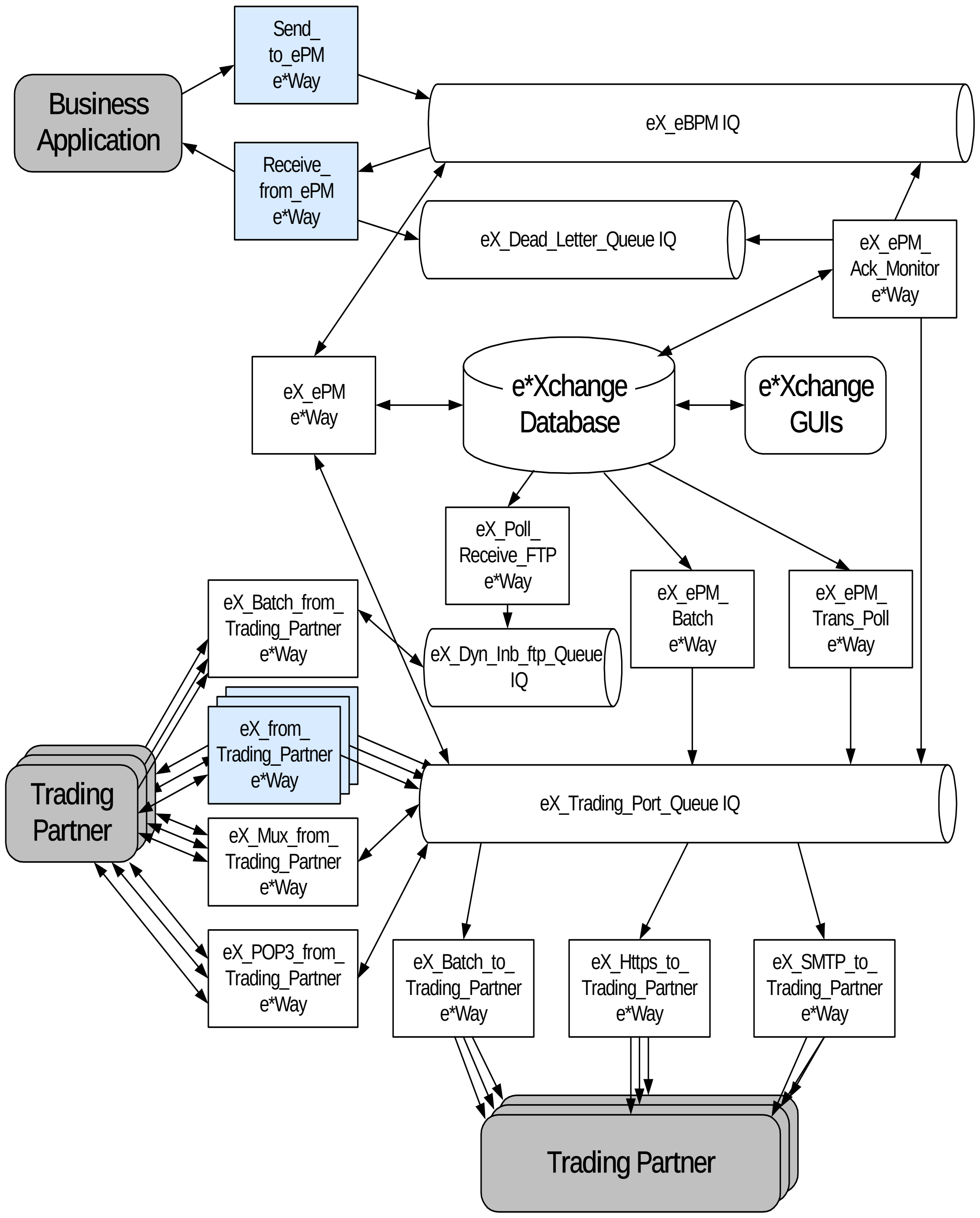

Database
e*Way
Component connection with arrow indicating direction of data flow
GUI
Intelligent Queue
Medium Gray
External to eX system
BOB
Light Blue
Not in default eXSchema
Multiple components of a similar type

Figure 4 e*Xchange Components


Business Application
Send_ to_ePM e*Way
Receive_ from_ePM e*Way
eX_eBPM IQ
eX_Dead_Letter_Queue IQ
eX_ePM_ Ack_Monitor e*Way
eX_ePM e*Way
e*Xchange Database
e*Xchange GUIs
eX_Poll_ Receive_FTP e*Way
eX_ePM_ Batch e*Way
eX_ePM_ Trans_Poll e*Way
eX_Batch_from_ Trading_Partner e*Way
eX_Dyn_Inb_ftp_Queue IQ
eX_from_ Trading_Partner e*Way
Trading Partner
eX_Trading_Port_Queue IQ
eX_Mux_from_ Trading_Partner e*Way
eX_POP3_from_ Trading_Partner e*Way
eX_Batch_to_ Trading_Partner e*Way
eX_Https_to_ Trading_Partner e*Way
eX_SMTP_to_ Trading_Partner e*Way
Trading Partner

3.2 e*Xchange Partner Manager Components

e*Xchange contains the e*Gate components that handle the sending, receiving, and tracking of messages to and from trading partners. The e*Xchange group is divided into components that interact internally or with the e*Xchange database and those that interact with external systems and trading partners.

e*Xchange Partner Manager—Internal Components

- **eX_ePM e*Way**
- **eX_ePM_Ack_Monitor e*Way**
- **eX_ePM_Batch e*Way**
- **eX_ePM_Trans_Poll e*Way**
- **eX_Poll_Receive_FTP e*Way**

All of these components are provided when the e*Gate schema for e*Xchange is installed. They require only minimal configuration on the part of the user. The components only require that you provide e*Xchange database logon information in their configuration files.

e*Xchange Partner Manager—External Components

The e*Xchange—External component contains e*Ways that send data to and receive data from trading partners and business applications.

- **eX_Batch_from_Trading_Partner e*Way**
- **eX_Batch_to_Trading_Partner e*Way**
- **eX_HTTPS_to_Trading Partner e*Way**
- **eX_Mux_from_Trading_Partner e*Way**
- **eX_POP3_from_Trading_Partner e*Way**
- **eX_SMTP_to_Trading Partner e*Way**
- **Send_to_ePM e*Way**
- **Receive_from_ePM e*Way**
- **ewHipaaValidation e*Way**
- ***eX_from_Trading_Partner e*Way*** (this is a user-defined component)

3.2.1 eX_ePM e*Way

The e*Xchange e*Way is the main workhorse in the back-end portion of the e*Xchange Partner Manager. The e*Xchange e*Way:

- validates protocol-specific data from trading partners
- writes Event data to the database

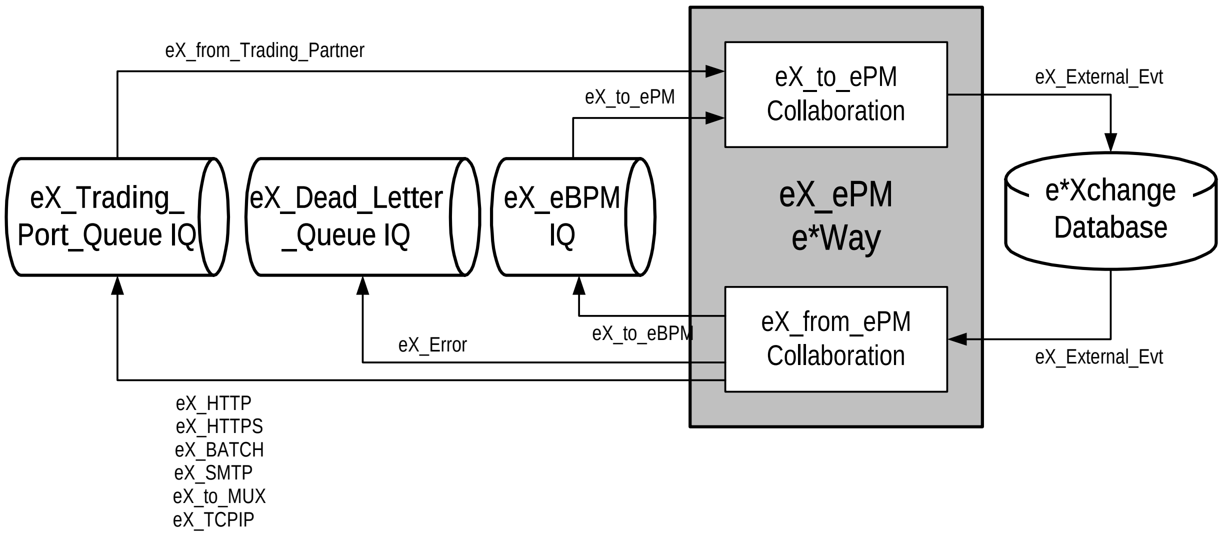
- retrieves trading partner profile information from the database
- envelopes the data as required by the destination trading partner

The **eX_ePM** e*Way is a bidirectional e*Way that communicates with both the **eX_eBPM** IQ and the **eX_Trading_Port_Queue** IQ, as well as the e*Xchange database. It forms a bridge between the e*Insight side of the e*Xchange system and the e*Xchange side, receiving Event information both from activity e*Ways and the e*Ways that communicate directly with trading partners.

The e*Xchange engine prepares *outbound* Events coming from e*Insight activity e*Ways to be forwarded to the appropriate trading partner. Conversely, the e*Xchange engine takes *Inbound* Events coming into e*Xchange from trading partners and prepares them to be forwarded to internal systems.

The following diagram illustrates the **eX_ePM** e*Way.

Figure 5 eX_ePM e*Way Detail



Configuring the e*Xchange Database Connectivity e*Ways

All of the e*Xchange components that communicate with the e*Xchange database are database connectivity e*Ways. You must edit the configuration files for these e*Ways and provide the logon information about the e*Xchange database to which they connect. Table 2 provides information about the required parameters that must be filled in.

Table 2 Parameter Settings for the e*Xchange Database Connectivity e*Ways

Screen	Parameter	Setting
General Settings	(All)	(Default)
Communication Setup	(All)	(Default)

Table 2 Parameter Settings for the e*Xchange Database Connectivity e*Ways

Screen	Parameter	Setting
Monk Configuration	(All)	(Default)
Database Setup	Database Type	Select one of the following: ▪ ODBC for a SQL Server 7, SQL Server 2000 or UDB ▪ Oracle 8 and 8i for an Oracle 8.x database. ▪ Oracle 9i for an Oracle 9.x database. ▪ Microsoft SQL Server 7 and 2000 ▪ UDB 7.1 and 7.2
	Database Name	The **Database Name** is the name the e*Way uses to connect to the e*Xchange database.
	User name	This is the database user name, used by the e*Way to access the e*Xchange database.
	Encrypted Password	This is the password associated with the database user name the e*Way uses to access the e*Xchange database. The default password used by e*Xchange database creation scripts is **ex_admin**.
Java VM Configuration	(All)	(Default)
	Native Stack Size	Specifies the maximum stack size in bytes for native threads. The default is 128KB.
	Java Stack Size	Specifies the maximum stack size in bytes for any JVM thread. The default is 400KB.
	Min. Heap Size	Specifies the initial heap size in bytes for the virtual machine. The default is 1024 KB.
	Max. Heap Size	Specifies the maximum heap size in bytes for the virtual machine. The default is 16384KB.

Journal file

In the e*Way configuration settings, you may define an absolute path for the journal file for the eX_ePM e*Way. The correct format for the path is:

```
d:\egate\logs\eX_ePM.journal
```

e*Gate may allow you to enter the path another way and still create the file. However, e*Xchange will not recognize it and will not write errors to the file. If you notice that errors are not being written to your journal file, you may want to check the format of the path.

Using a Java Translation with the eX_ePM e*Way

When using a Java Translation with the eX_ePM e*Way, you must download the files to the participating host.

1 Create a Java e*Way.

See your e*Gate User's Manual for instruction on creating an e*Way.

2 Create a Collaboration for the Java Translation.

3 Add the Java Translation or Collaboration Rule to the e*Way.

The Java Translation can only have one input and one output.

4 When executing the eX_ePM e*Way, start the Java e*Way containing the Collaboration Rule.

This can be done from the e*Gate monitor or you can set the Java e*Way to auto-start.

Large Message Support

Certain HIPAA transactions consist of very large messages, which can cause processing errors unless the large message feature is in use. e*Xchange provides the ability to process large HIPAA X12 835 outbound messages in an interactive manner through the eX_ePM and eX_Batch_to_External e*Ways within the e*Xchange Schema. Large messages are processed by breaking the messages up into smaller, more manageable pieces during processing.

You can use large message processing for any size message, however there are a few considerations:

- You cannot view large messages using the Message Tracking feature.
- Large message processing uses additional disk space.
- Large message processing may slow down processing speed due to the additional validations performed.

Note: *See the **HIPAA Implementation Guide** for more information on Large Message support.*

eX_to_ePM Collaboration

The **eX_to_ePM** Collaboration is *not* user-configurable.

The **eX_to_ePM** Collaboration retrieves Events to be processed by the e*Xchange engine from either e*Xchange IQ (**eX_eBPM** or **eX_Trading_Port_Queue**), and passes the information to the database script that writes the data from the Events to the e*Xchange database.

Events subscribed to by the **eX_to_ePM** Collaboration must have values populating the e*Xchange-required nodes in the **eX_Standard_Event.ssc** ETD used by these Event Types. These required values include:

- Message ID (a unique identifier for the message), if the direction is outbound and the message does not have a validation check.
- Direction (“I” = inbound, “O” = outbound)
- Partner Name (must correspond exactly to the Logical Name used in the B2B Protocol section of the trading partner profile)

These nodes are explained in more detail in **“Using the ETD in e*Xchange” on page 58** and in the *e*Xchange Partner Manager User’s Guide.*

Subscribed Event Types:

- **eX_from_Trading_Partner**—This Event is published by the user-defined e*Ways that handle the inbound Event traffic from trading partners. The Event's data must already be in the XML format required by e*Xchange.
- **eX_to_ePM**—These Events are published either by a **Send_to_ePM** e*Way (or one with similar function) or one of the activity e*Ways associated with the e*Insight business process. The Event's data must already be in the XML format required by e*Xchange.

Published Event Type: eX_External_Evt

This Event carries the data to the database script that writes the information to the e*Xchange database.

eX_from_ePM Collaboration

The **eX_from_ePM** Collaboration is *not* user-configurable.

The **eX_from_ePM** Collaboration retrieves Events prepared by the e*Xchange engine from the database and publishes them to the appropriate IQ. Events forwarded to trading partners are published to the **eX_Trading_Port_Queue** IQ. Events sent to e*Gate are published to the **eX_eBPM** IQ.

Subscribed Event Type: eX_External_Evt

This Event carries information retrieved from the e*Xchange database after the data has been prepared by the e*Xchange engine.

Published Event Types

- **eX_to_eBPM**—This Event contains information from a trading partner to be sent to e*Xchange. This would be the case, for example, if an activity e*Way required an acknowledgment from a trading partner before returning the "Done" Event for that activity.
- **eX_to_Trading_Partner**—This Event contains information that has been prepared by the e*Xchange engine to be sent to a trading partner.
- **eX_to_ePM**—This Event contains information that has been prepared for e*Xchange.
- **eX_HTTPS**—This Event contains the enveloped Event along with destination information.
- **eX_HTTP**—This Event contains the enveloped Event along with destination information.
- **eX_Error**—This Event contains error information.

Important: *You must create an e*Way or BOB that subscribes to eX_Error, otherwise the eX_ePM e*Way is unable to publish this Event Type.*

- **eX_to_MUX**—This Event contains the enveloped Event along with destination information.

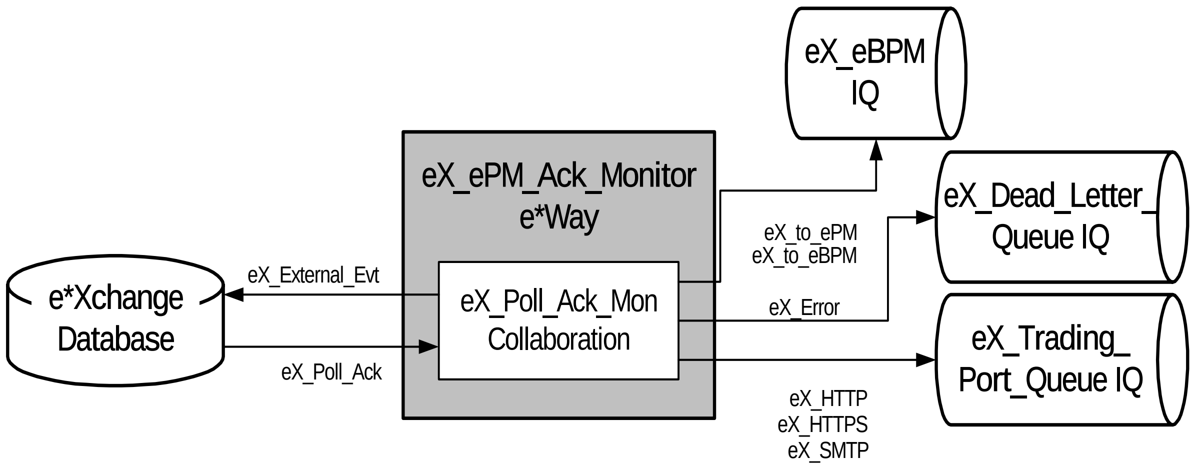
- **eX_TCPIP**—This Event contains the enveloped Event along with destination information.
- **eX_SMTP**—This Event contains the enveloped Event along with destination information.
- **eX_BATCH**—This Event contains the enveloped Event along with destination information.

3.2.2 eX_ePM_Ack_Monitor e*Way

The **eX_ePM_Ack_Monitor** e*Way is a database connectivity e*Way that monitors the e*Xchange database for Event acknowledgments that are overdue from trading partners.

Figure 6 illustrates the **eX_ePM_Ack_Monitor** e*Way.

Figure 6 eX_ePM_Ack_Monitor e*Way Detail



An acknowledgment is considered overdue if the specified amount of time to wait for an acknowledgment has passed. This "timeout" is configurable and can be set in the e*Xchange GUI. The acknowledgment handling is slightly different for each supported protocol.

X12, AS2, NCPDP and UN/EDIFACT Acknowledgment Handling

When an acknowledgment is overdue, the **eX_ePM_Ack_Monitor** e*Way determines if the retry limit (the number of times to retry sending the Event) has been reached. If it has not, the e*Way places the Event in a "staging area" within the database to be picked up by the **eX_ePM_Trans_Poll** e*Way and resent to the trading partner. If the retry limit has been reached, the e*Way logs information about the transaction and corresponding error information in the database, and sends an **eX_Error** Event back to the eX_Dead_Letter_Queue IQ with "Hit Re-send Limit" in the eX_Standard_Event.

RosettaNet and CIDX Acknowledgment Handling

The **eX_ePM_Ack_Monitor** e*Way polls the e*Xchange database for overdue acknowledgments. If an acknowledgment is overdue and the retry limit for that message has not been reached, then the original message is resent to the trading partner. If an acknowledgment is overdue and the retry limit has been exceeded, a failure notification is sent to both the trading partner and the internal application that generated the original message.

Resends

eX_ePM_Ack_Monitor retrieves the original message from the e*Xchange database, increments the retry counter, resigns the message, and then publishes the message to the **eX_Trading_Port_Queue**. The message is then picked up and forwarded to the trading partner.

Failures

eX_ePM_Ack_Monitor e*Way publishes this failure notification using two different Event Types: **eX_to_ePM** and **eX_to_eBPM**. The e*Xchange engine picks up the **eX_to_ePM** failure notification, processes it, and then sends it out to the trading partner via the **eX_Trading_Port_Queue** IQ. The e*Insight engine picks up the **eX_to_eBPM** failure notification and sends it to the internal application.

Configuring the eX_ePM_Ack_Monitor e*Way

The **eX_ePM_Ack_Monitor** e*Way requires only minor changes to the e*Way's configuration file. You must edit this file and provide the information required in the **Database Setup** section as shown in **Table 2 on page 27**.

eX_Poll_Ack_Mon Collaboration

Subscribed Event Type: ex_Poll_Ack

This Event type does not carry any information, since no data is actually extracted from the database by the database script associated with the **eX_ePM_Ack_Monitor** e*Way.

Published Event Types:

- **eX_to_ePM**—This Event Type carries the RosettaNet failure notification sent to the trading partner when the retry message limit has been exceeded.
- **eX_to_eBPM**—This Event Type carries the RosettaNet failure notification sent to the internal application when the retry message limit has been exceeded.
- **eX_to_HTTP**—This Event Type carries the RosettaNet message that is resent when an acknowledgment is overdue.
- **eX_to_HTTPS**—This Event Type carries the RosettaNet message that is resent when an acknowledgment is overdue.
- **eX_to_SMTP**—This Event Type carries the RosettaNet message that is resent when an acknowledgment is overdue.
- **eX_Poll_Ack**—This Event Type is used by the eX_ePM_Ack_Monitor to communicate with the e*Xchange database.

- **eX_Error**—This Event contains error information.

Important: *You must create an e*Way or BOB that subscribes to eX_Error, otherwise the eX_ePM_Ack_Monitor e*Way is unable to publish this Event Type.*

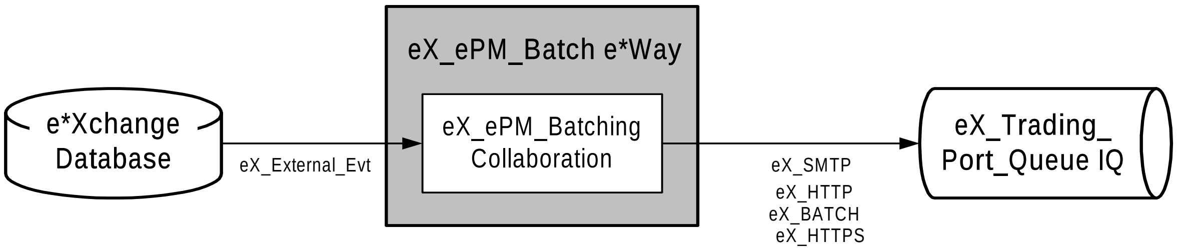
3.2.3 eX_ePM_Batch e*Way

The **eX_ePM_Batch** e*Way polls the e*Xchange database for Events being sent to trading partners using Fast Batch transfer mode or Batch transfer mode (rather than an Interactive) and prepares them to be sent to the appropriate trading partner. When multiple Events need to be sent to the same trading partner, the e*Way bundles these Events together, according to a user-definable bundling scheme, before enveloping them and publishing them to the **eX_Trading_Port_Queue** IQ.

Note: *This e*Way only acts on Events using X12 or UN/EDIFACT enveloping protocols. Events using RosettaNet cannot be transmitted in batch mode.*

The following diagram illustrates the **eX_ePM_Batch** e*Way.

Figure 7 eX_ePM_Batch e*Way Detail



Batch Bundling Schemes

There are 3 types of bundling schemes used by the **eX_ePM_Batch** e*Way:

- **Fast batch**—A set number of Events, all of the same transaction type, are bundled together and sent to a trading partner.
- **Per schedule batch**—At a set time all the Events destined for a single trading partner. The Events can be of differing transaction types.
- **Per interval batch**—The e*Way waits a set interval then bundle all the Events destined for a single trading partner. The Events can be of differing transaction types.

Whether a particular Event uses batch transfer mode and what type of bundling scheme is used for a particular batched Event, is set in the message profile. See the *e*Xchange Partner Manager User's Guide* for information on setting up the message profile to use batch transfer mode.

e*Xchange Event Requirements for Fast Batch

The e*Xchange Event that contains a transaction to be sent to a trading partner using Fast Batch transfer mode, must have the following name and value pairs configured in the standard event:

- FB_UNIQUE_ID — this name and value pair sets the fast batch unique ID. All messages with the same identifier are batched together for processing.
- FB_COUNT — this name and the value pair sets the total number of fast batch records. When e*Xchange receives a fast batch record count equal to or greater than the value specified in FB_COUNT, or if the fast batch records have exceeded the timeout period, then the **eX_ePM_Batch** e*Way sends the batch records to the trading partner.

Two functions are required for each name and value pair; the first sets the name of the pair (for example, FB_UNIQUE_ID), and the second sets the value.

The example below shows how to configure both name and value pairs for a single event that contains multiple messages in the FB_Feeder.Payload node. The unique ID is the same for every message in the event, and the count is set by counting the number of messages contained in the event (that is, the number of occurrences of the FB_Feeder.Payload node). The method that you use to populate the Value nodes depends on your implementation.

```
// to set the value in the Name node for the unique ID
(copy-strip "FB_UNIQUE_ID"
~output%eX_Event.DS.eX_Event.CT.DSN.DS.TP_EVENT.CT.DSN.DS.TPAttribute
.CT.DSN.DS.NameValuePair[0].CT.DSN.DS.Name.CT.DSN.DS.Data "")

// to set the actual fast batch unique id value in Value node
(uniqueid
~output%eX_Event.DS.eX_Event.CT.DSN.DS.TP_EVENT.CT.DSN.DS.TPAttribute
.CT.DSN.DS.NameValuePair[0].CT.DSN.DS.Value.CT.DSN.DS.Data)

// to set the value in the Name node for the count
(copy-strip "FB_COUNT"
~output%eX_Event.DS.eX_Event.CT.DSN.DS.TP_EVENT.CT.DSN.DS.TPAttribute
.CT.DSN.DS.NameValuePair[1].CT.DSN.DS.Name.CT.DSN.DS.Data "")

// to set the actual total fast batch record count in the Value Node
(copy-strip (count-rep ~input%FB_Feeder.Payload)
~output%eX_Event.DS.eX_Event.CT.DSN.DS.TP_EVENT.CT.DSN.DS.TPAttribute
.CT.DSN.DS.NameValuePair[1].CT.DSN.DS.Value.CT.DSN.DS.Data "")
```

Configuring the eX_ePM_Batch e*Way

The **eX_ePM_Batch** e*Way requires only minor changes to the e*Way's configuration file. You must edit this file and provide the information required in the **Database Setup** section as shown in Table 2 on page 27.

You can also specify the protocol type of the messages to be batched, if required. The **eBusiness Type** is specified in the **eBusiness Type Settings** section. The available parameters are:

- ALL—All protocol types are retrieved. This is the default setting.
- NCPDP—Only NCPDP messages are retrieved.
- UN/EDIFACT—Only UN/EDIFACT messages are retrieved.
- X12—Only X12 messages are retrieved.

Large Message Support

Certain HIPAA transactions consist of very large messages, which can cause processing errors unless the large message feature is in use. e*Xchange provides the ability to process large HIPAA X12 835 outbound messages in an interactive manner through the eX_ePM and eX_Batch_to_External e*Ways within the e*Xchange Schema. Large messages are processed by breaking the messages up into smaller, more manageable pieces during processing.

You can use large message processing for any size message, however there are a few considerations:

- You cannot view large messages using the Message Tracking feature.
- Large message processing uses additional disk space.
- Large message processing may slow down processing speed due to the additional validations performed.

Note: *See the **HIPAA Implementation Guide** for more information on Large Message support.*

Scaling of eX_ePM _Batch e*Way

You can create multiple eX_ePM_Batch e*Ways to improve performance. To use multiple e*Ways you need to modify the configuration. For example, if you want three eX_ePM_Batch e*Ways you need to create and configure them as follows:

- Copy the eX_ePM_Batch e*Way.
- Create separate configuration files for each eX_ePM_Batch e*Way.
  - Open the configuration file for each new e*Way and save with a different name. Ensure that the e*Way refers to this configuration file, not the original one.
- Modify the configuration files, as shown in the Table 3.

Table 3 Configuration File Parameters

e*Way	Number of Batch eWays Parameter	Batch eWay Instance Number Parameter
eX_ePM_Batch	3	1
eX_ePM_Batch_0	3	2
eX_ePM_Batch_1	3	3

The functionality used by each e*Way is a modulo. Therefore, if three e*Ways are used, any one e*Way picks up every third record.

Important: *Do not use this if message sequencing is desired.*

eX_ePM_Batching Collaboration

This Collaboration is not user configurable.

Subscribed Event Type: eX_External_Evt

The **eX_ePM_Batch** e*Way uses this Event Type to communicate with the e*Xchange database.

Published Event Type: eX_To_Trading_Partner, eX_SMTP, eX_HTTP, eX_BATCH, eX_HTTPS

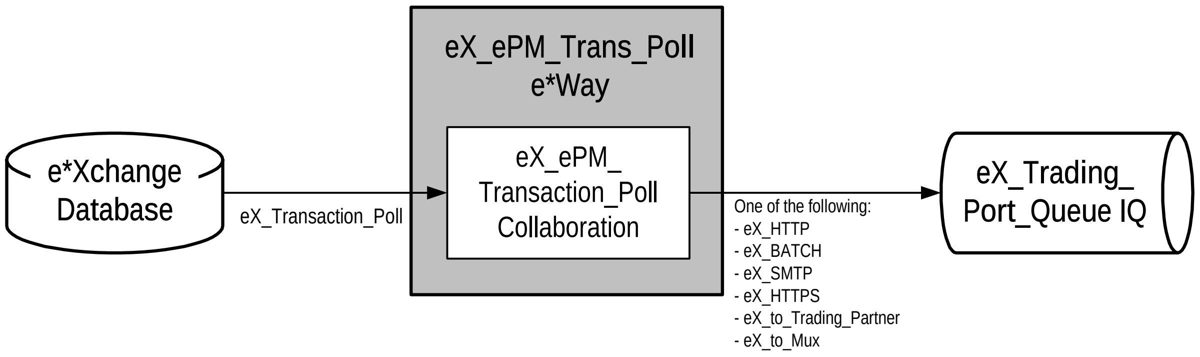
This Event carries the multiple X12 transactions that have been bundled together and enveloped by the **eX_ePM_Batch** e*Way.

3.2.4 eX_ePM_Trans_Poll e*Way

The **eX_ePM_Trans_Poll** e*Way monitors a "staging area" in the database for outbound Events pending interactive transfer. It uses a database access script (**tran_poll.dsc**) called by the **Exchange Data With External Function** parameter in the e*Way's configuration file to retrieve these Events from the e*Xchange database. The **eX_Transaction_Poll** Collaboration then publishes the Events to the **eX_Trading_Port_Queue** IQ under **eX_HTTP**, **eX_BATCH**, **eX_SMTP**, **eX_HTTPS**, **eX_to_Mux** or **eX_to_Trading_Partner** Event Type.

Figure 8 illustrates the **eX_ePM_Trans_Poll** e*Way.

Figure 8 eX_ePM_Trans_Poll e*Way



Configuring the eX_ePM_Trans_Poll e*Way

The **eX_ePM_Trans_Poll** e*Way requires only minor changes to the e*Way's configuration file. You must edit this file and provide the information required in the **Database Setup** section as shown in **Table 2 on page 27**.

eX_ePM_Transaction_Poll Collaboration

This is a Collaboration that does two things:

1 Changes the name of the Event from **eX_Transaction_Poll** to one of the following:
- **eX_BATCH**
- **eX_HTTPS**
- **eX_HTTP**

- **eX_SMTP**
- **eX_to_Mux**
- **eX_to_Trading_Partner**

2 Publishes it to the **eX_Trading_Port_Queue** IQ.

Subscribed Event Type: eX_Transaction_Poll

This Event Type is used by the **eX_ePM_Trans_Poll** e*Way to retrieve the enveloped Events from the e*Xchange database.

Published Event Types: eX_BATCH, eX_HTTP, eX_HTTPS, eX_SMTP, eX_to_Mux, eX_to_Trading_Partner

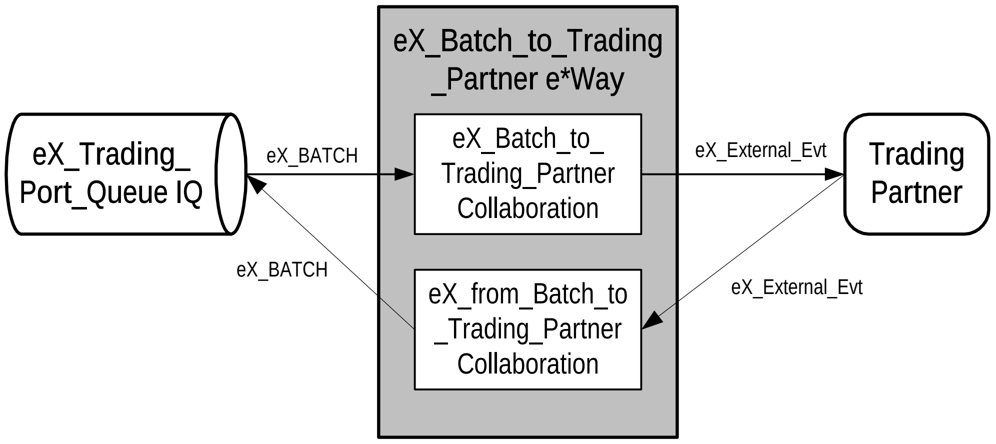
This Event Type carries enveloped Events intended for a trading partner.

3.2.5 eX_Batch_to_Trading_Partner e*Way

The **eX_Batch_to_Trading_Partner** e*Way sends enveloped eBusiness messages designated for batch transmission to trading partners using FTP.

Figure 10 illustrates the **eX_Batch_to_Trading_Partner** e*Way.

Figure 9 eX_Batch_to_Trading_Partner e*Way Detail


eX_Batch_to_Trading _Partner e*Way
eX_Trading_ Port_Queue IQ
eX_BATCH
eX_Batch_to_ Trading_Partner Collaboration
eX_External_Evt
Trading Partner
eX_BATCH
eX_from_Batch_to _Trading_Partner Collaboration
eX_External_Evt

The destination file location for each Event is carried as part of the e*Xchange Event data passed to the **eX_Batch_to_Trading_Partner** e*Way. The file location is maintained in the e*Xchange database and applied to the Event at the same time that the Event is enveloped for a specific trading partner. When the **eX_Batch_to_Trading_Partner** e*Way receives an Event, they send the data to the file location specified within the Event itself.

Configuring the eX_Batch_to_Trading_Partner e*Way

No configuration is required.

eX_Batch_to_Trading_Partner Collaboration

This is a Pass Through Collaboration used to publish the Event outside of e*Gate. The communication portion of the **eX_Batch_to_Trading_Partner** e*Way then takes the Event and sends via FTP to the appropriate trading partner.

Subscribed Event Type: eX_BATCH

This Event carries the enveloped Event along with the destination information (URL) used by the **eX_Batch_to_Trading_Partner** e*Way for transmission to the trading partners.

Published: eX_External_Evt

This Event carries the eBusiness message to the communications half of the e*Way where it is forwarded to the trading partner.

eX_from_Batch_to_Trading_Partner Collaboration

This Collaboration is used when the e*Way failed to connect to an external host. The user has three options:

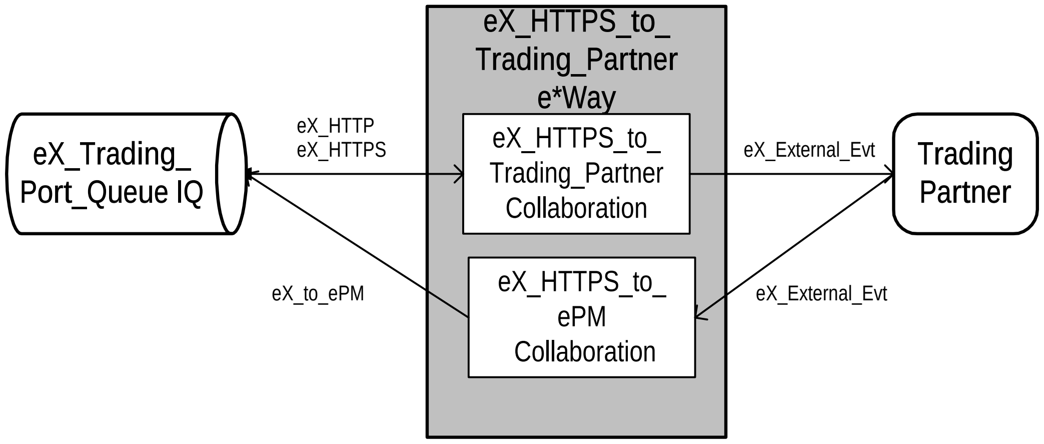
- Resend—Re-publishes the message to the eX_Batch_to_Trading_Partner e*Way through the queue.
- Rollback—Retries the message within the eX_Batch_to_Trading_Partner e*Way the number of times specified in the configuration for the eX_Batch_to_Trading_Partner e*Way, in the General settings, **Max Resends Per Message**. If the resend count is reached without success, the e*Way shuts down.
- Skip—Skips the message. Resends the number of times specified in the trading partner profile in the user interface.

3.2.6 eX_Https_to_Trading_Partner e*Way

The **eX_Https_to_Trading_Partner** e*Way is an HTTPS e*Way that sends eBusiness messages enveloped by the e*Xchange Partner Manager to trading partners over a secure (HTTPS) or insecure (HTTP) communication link. The secure link encrypts the data, the insecure link does not.

Figure 10 illustrates the **eX_Https_to_Trading_Partner** e*Way.

Figure 10 eX_Https_to_Trading_Partner e*Way Detail


eX_HTTPS_to_ Trading_Partner e*Way
eX_Trading_ Port_Queue IQ
eX_HTTP
eX_HTTPS
eX_HTTPS_to_ Trading_Partner Collaboration
eX_External_Evt
Trading Partner
eX_to_ePM
eX_HTTPS_to_ ePM Collaboration
eX_External_Evt

The destination URL for each Event is carried as part of the e*Xchange Event passed to the **eX_Https_to_Trading_Partner** e*Way. The URL is maintained in the trading partner database and applied to the Event at the same time that the Event is enveloped for a specific trading partner. When the **eX_Https_to_Trading_Partner** e*Way receives an Event, it sends the data to the URL specified within the Event itself.

Whether or not the Event is sent over a secure channel (encrypted) using HTTPS or over an insecure channel (not encrypted) using HTTP protocol is also determined by the presence of “https” in the URL string. For example, a URL sting such as **http://tradingpartner.com** indicates the use of the insecure mode, whereas a string such as **https://tradingpartner.com** indicates the use of the secure mode.

Note: *When using the secure mode, the eSecurityManager components (both the GUI and the back end) must be installed and the appropriate security key fields populated in the trading partner profile. See the* ***e*Xchange Partner Manager User's Guide*** *for information on setting up e*Xchange to use the eSM features of e*Xchange.*

Configuring the eX_Https_to_Trading_Partner e*Way

No configuration is required if the HTTP protocol is used.

If the HTTPS protocol is used, you must ensure that the configuration for the TrustStore is correct. The trust store file contains information about Web servers that accept messages from your system. The file **<egate>\client\pkicerts\truststore\trustcacertsjks** is created when e*Gate is installed and this default file can be used with e*Xchange. However, if you have not installed e*Gate on your C drive, or you want to use a different file or location, you need to update the configuration file for the **eX_ePM_Https_eWay_Con** e*Way connection. The file name for the trust store file is defined in the SSL section, TrustStore parameter.

For more information about the TrustStore, see *HTTPS e*Way Intelligent Adapter User's Guide*.

eX_Https_to_Trading_Partner Collaboration

This is a Java Collaboration used to publish the Event outside of e*Gate. The communication portion of the **eX_Https_to_Trading_Partner** e*Way then takes the Event and sends it to the appropriate trading partner.

Subscribed Event Type: eX_HTTPS

This Event carries the data and destination information (URL) used by the **eX_Https_to_Trading_Partner** e*Way for sending the message to the trading partner.

Published: eX_External_Evt

This Event carries the eBusiness message to the trading partner.

eX_Https_to_ePM Collaboration

This is a Pass Through Collaboration used to receive a response from the trading partner.

Subscribed Event Type: eX_External_Evt

This Event carries the response from the trading partner.

Published: eX_to_ePM

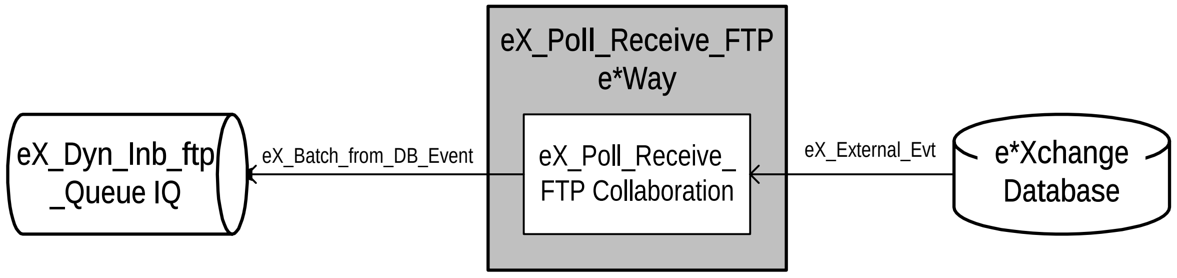
This Event forwards the response to e*Xchange.

3.2.7 eX_Poll_Receive_FTP e*Way

The **eX_Poll_Receive_FTP** e*Way polls the e*Xchange database for information on trading partners that have data to be retrieved via FTP. This information is provided in the Trading Partner profile. The information about each Trading Partner is then passed to the **eX_Batch_From_Trading_Partner** e*Way.

Figure 12 illustrates the **eX_Poll_Receive_FTP** e*Way.

Figure 11 eX_Poll_Receive_FTP e*Way Detail



The Event is sent to **eX_Batch_from_Trading_Partner**.

The **eX_Dyn_Inb_ftp_Queue** IQ is configured to use a Subscriber Pool. This ensures that when multiple eX_Batch_from_Trading_Partner e*Ways are used, the information about each Trading Partner is passed to every e*Way in turn.

Configuring the eX_Poll_Receive_FTP e*Way

The **eX_Poll_Receive_FTP** e*Way requires only minor changes to the e*Way's configuration file. You must edit this file and provide the information required in the **Database Setup** section as shown in **Table 2 on page 27**.

eX_Poll_Receive_FTP Collaboration

This is a Pass Through Collaboration used to take the Event received from the **eX_Poll_Receive_FTP** e*Way and send it to the **eX_Trading_Port_Queue**.

Subscribed Event Type: eX_External

This Event carries information about the trading partners that have files to be retrieved by FTP.

Published: eX_Batch_from_DB_Event

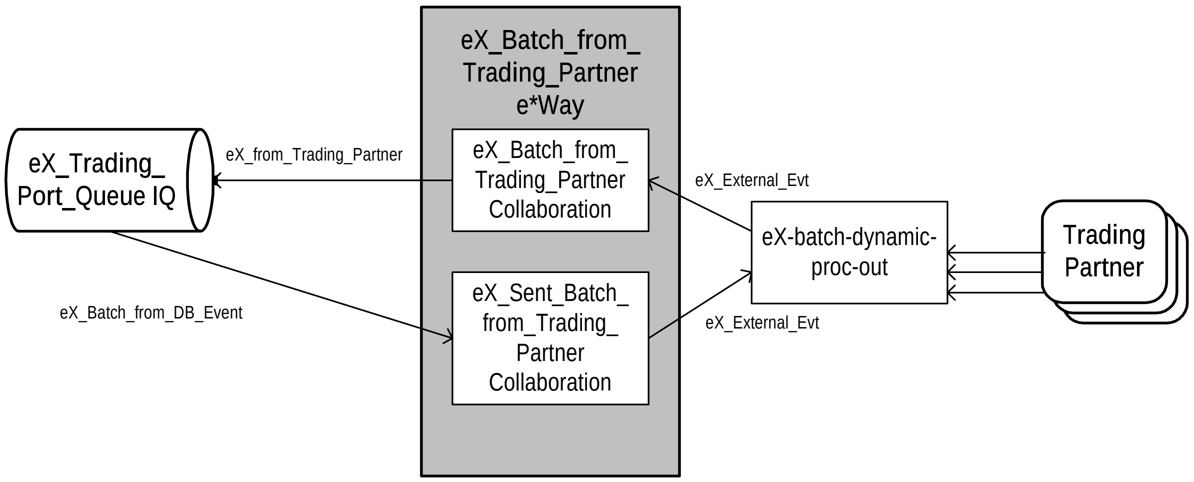
This Event carries the trading partner configuration information to the **eX_Trading_Port_Queue**. It is then retrieved by the **eX_Batch_from_Trading_Partner** e*Way.

3.2.8 eX_Batch_from_Trading_Partner e*Way

The **eX_Batch_from_Trading_Partner** e*Way sends enveloped eBusiness messages to e*Xchange.

Figure 12 illustrates the **eX_Batch_from_Trading_Partner** e*Way.

Figure 12 eX_Batch_from_Trading_Partner e*Way Detail


eX_Batch_from_ Trading_Partner e*Way
eX_Trading_ Port_Queue IQ
eX_from_Trading_Partner
eX_Batch_from_ Trading_Partner Collaboration
eX_External_Evt
eX-batch-dynamic-proc-out
Trading Partner
eX_Batch_from_DB_Event
eX_Sent_Batch_ from_Trading_ Partner Collaboration
eX_External_Evt

The Event is sent to e*Xchange.

Configuring the eX_Batch_from_Trading_Partner e*Way

The **eX_Batch_from_Trading_Partner** e*Way supports minor changes regarding the naming and location of files after the transfer has successfully completed and the messages have been published to the **eX_Trading_Port_Queue** IQ. By default, the remote files are renamed and local files are deleted.

The parameters that determine what happens to these files are set in the **Subscribe to External** section.

Table 4 Subscribe to External Parameters

Parameter	Setting	Description
Remote Command after Transfer	archive	The file is moved from the <path> defined in the trading partner profile to <path>\ARCHIVE Important: This directory must be created manually. Note: UNIX is case-sensitive.
	delete	The file is deleted.
	none	This is not supported with this e*Way.
	rename	The file is renamed to <filename>.backup. The location remains the same.

eX_Sent_Batch_from_Trading_Partner Collaboration

This is a Pass Through Collaboration used to take the Event received from the **eX_Poll_Receive_FTP** e*Way and send it to the external. The communication portion of the **eX_Sent_Batch_from_Trading_Partner** e*Way then takes the Event and uses the trading partner configuration information to issue the relevant FTP command to the appropriate trading partner.

Subscribed Event Type: eX_Batch_from_DB_Event

This Event carries information about the trading partners that have files to be retrieved by FTP.

Published: eX_External_Evt

This Event carries the trading partner configuration information to the communications half of the e*Way where it is used to format the FTP command sent to the trading partner.

eX_Batch_from_Trading_Partner Collaboration

This is a Monk Collaboration used to take the Event received from the Trading Partner and send to e*Gate.

Subscribed Event Type: eX_External_evt

This Event carries the Event retrieved from the trading partners.

Published: eX_from_Trading_Partner

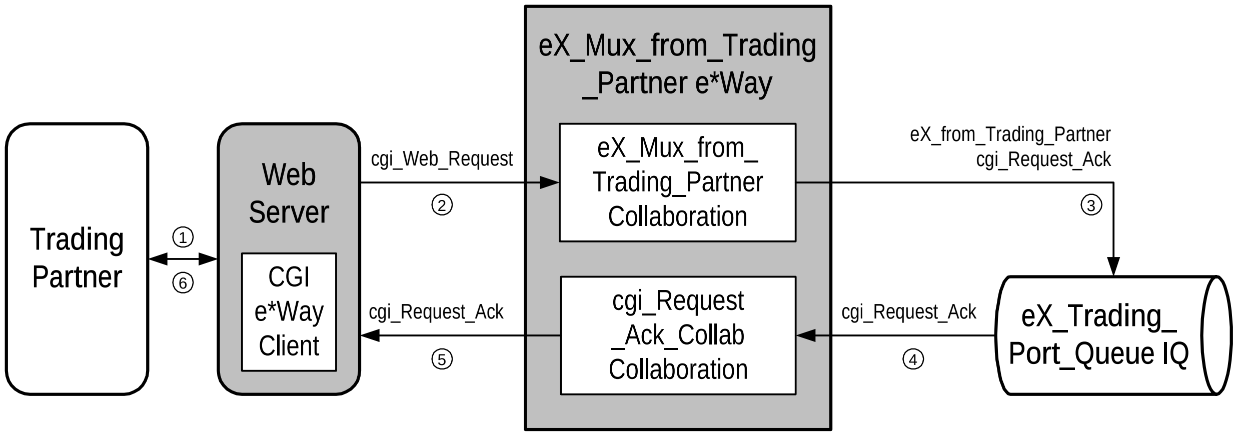
This Event carries the Event retrieved from the trading partners and forwards it to e*Gate.

3.2.9 eX_Mux_from_Trading_Partner e*Way

The **eX_Mux_from_Trading_Partner** e*Way is a CGI Web Server e*Way that communicates with a CGI e*Way client running on a Web server. This allows information sent to the Web server by a trading partner to be picked up and processed by e*Xchange.

Figure 10 illustrates the **eX_Mux_from_Trading_Partner** e*Way.

Figure 13 eX_Mux_from_Trading_Partner e*Way Detail


eX_Mux_from_Trading _Partner e*Way
Trading Partner
Web Server
CGI e*Way Client
cgi_Web_Request
eX_Mux_from_ Trading_Partner Collaboration
eX_from_Trading_Partner
cgi_Request_Ack
cgi_Request _Ack_Collab Collaboration
cgi_Request_Ack
cgi_Request_Ack
eX_Trading_ Port_Queue IQ
①
②
③
④
⑤
⑥

How the CGI Web Server e*Way Works

① The trading partner posts eBusiness data to the Web server.

② The CGI e*Way client program adds tracking information and forwards the eBusiness message to the **eX_Mux_from_Trading_Partner** e*Way.

③ The **eX_Mux_from_Trading_Partner** Collaboration extracts the trading partner name from the tracking information provided by the CGI e*Way client and publishes the eBusiness message data as a standard e*Xchange Event (**eX_from_Trading_Partner**) to the **eX_Trading_Port_Queue** IQ. In addition, the Collaboration creates an acknowledgment Event (**cgi_Request_Ack**) with the same Mux tracking number as the original post and publishes it to the **eX_Trading_Port_Queue** IQ.

④ The **cgi_Request_Ack_Collab** Collaboration picks up the acknowledgment Event and forwards it to the CGI client on the Web server.

⑤ The CGI client matches up the acknowledgment with the original post.

⑥ The trading partner receives a response from the Web server indicating that the data has been sent successfully to e*Xchange.

Configuring the eX_Mux_from_Trading_Partner e*Way

Configuring the **eX_Mux_from_Trading_Partner** e*Way is a two step process.

1 Set up the CGI e*Way client on the Web server.

2 Specify the port over which the CGI e*Way server listens for connections from the CGI e*Way client.

Setting up the CGI client

The following is a brief discussion of setting up the CGI e*Way client. For more information about setting up client software used by the CGI e*Way, see the *CGI Web Server e*Way User's Guide*.

1 Install the CGI e*Way client files on the Web server.

   The files **stc_common.dll**, **stc_ewipmpclnt.dll**, and **stcewcgi.exe**, provided as part of the CGI e*Way add-on installation, should be placed at the document root location on the Web server host machine.

2 Modify the configuration file for the Web server.

   You must add the following environment variables to the virtual host setup for the port over which the trading partners send data to the Web server. These variables are used by the CGI e*Way Client.

   - **STC_EW_SERVER_NAME**—The host name or IP address of the machine running the CGI Web server e*Way. If the parameter is not supplied, the default is localhost.
   - **STC_EW_SERVER_PORT**—The port number on which the CGI Web server e*Way is listening. If the parameter is not supplied, or a value of zero (0) is supplied, the default port number is used.
   - **STC_EW_SECONDS_TO_EXPIRE**—The number of seconds the message is active in the e*Gate system. host name or IP address of the machine running the CGI Web server e*Way. If the parameter is not supplied, the default is zero (0), indicating that the message remains active indefinitely.
   - **STC_EW_MILLISECONDS_TO_WAIT**—The number of milliseconds the CGI e*Way Client waits for the response from the CGI e*Way Server. The CGI e*Way Client displays an error message if the CGI e*Way Server fails to respond in the given time period. If the parameter is not supplied, a value of ten thousand (10,000) is the default.
   - **DocumentRoot**—The location on the Web server taken as the starting point for relative paths to files for this virtual host setup. For example, if the **DocumentRoot** for port **690** is **opt/web/htdocs/exchange** and a request is made to the following URL **http://www.stc.com:690/4.1.2/stcewcgi.exe**, the file is found at the location **opt/web/htdocs/exchange/4.1.2/stcewcgi.exe** on the Web server.

   The virtual host setup containing all the above environment variables can be kept in a separate file and called using the **include** command from within the Web server's configuration file.

Specifying the Request Reply IP Port

You must edit the **eX_Mux_from_Trading_Partner** e*Way's configuration file and enter the appropriate port number. This port should be the same as the port specified by the **STC_EW_SERVER_PORT** environment variable used by the CGI e*Way client.

Configure the MUX e*Way Port

The MUX e*Way picks up the messages that the HTTP server posts. To use the MUX e*Way, you need to configure the following items.

Files needed on the HTTP server:

- ewcgi.cfg
- stc_common.dll
- stc_ewipmpclnt.dll
- stcewcgi.exe, which is renamed to stcewcgi.cgi

The format of **stcewcgi.cfg**:

```
abc|10.1.191.135|8887|600|1000000|r
```

Set the values for:

- The IP address of the machine where the MUX e*Way resides.
- The e*Gate port used by the ePM e*Way configuration file.

eX_Mux_from_Trading_Partner Collaboration

This Collaboration takes the information in the **cgi_Web_Request** Event and uses it to construct a standard e*Xchange Event (**eX_from_Trading_Partner**) to be processed by e*Xchange. In addition, it creates an acknowledgment Event (**cgi_Request_Ack**) to be sent back to the trading partner telling it that the information has been successfully placed into e*Xchange for processing.

The Collaboration creates the trading partner name used by e*Xchange by concatenating the values of **SERVER_NAME** and **SCRIPT_NAME.** Add **SERVER_PORT** if the port is set to a value other than the default (80). Use the following format:

https://<SERVER_NAME><SCRIPT_NAME>

https://<SERVER_NAME>:<SERVER_PORT><SCRIPT_NAME>

Subscribed Event Type: cgi_Web_Request

This is the Event is provided by the CGI client. It contains the 24 byte Mux header used to match up the request with the reply, URL tracking information, and the data contained in the Web server post.

Published Event Types:

- **eX_from_Trading_Partner**—This is the e*Xchange Event created from the Web server post and contains the post information along with the required e*Xchange tracking information.
- **cgi_Request_Ack**—This Event contains the 24-byte Mux header.

cgi_Request_Ack_Collab Collaboration

This is a Pass Through Collaboration that picks up the **cgi_Request_Ack** Event and publishes it outside of e*Gate where it is picked up by the CGI e*Way client running on the Web server.

Subscribed Event Type: cgi_Request_Ack

This Event contains the 24 byte Mux header.

Published Event Types: cgi_Request_Ack

This Event contains the 24 byte Mux header. For AS2 asynchronous mode and RosettaNet 1.1:

```
cgi_Request_Ack = 24 byte Mux header "Status: 200 (OK)\n\n"
```

For RosettaNet 2.0 asynchronous mode:

```
cgi_Request_Ack = 24 byte Mux header "Status: 202 (Accepted)\n\n"
```

or, if error occurs:

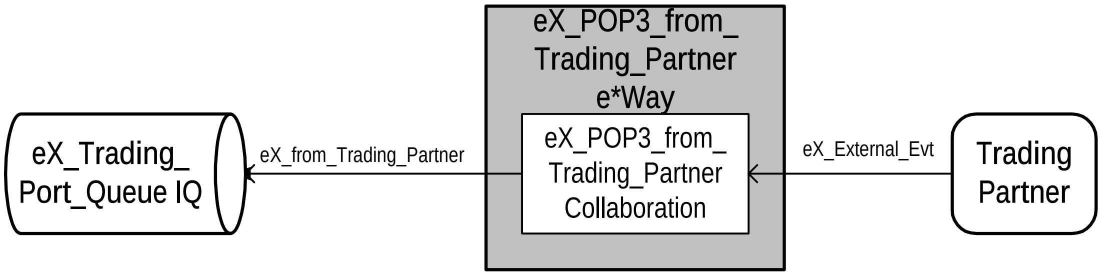
```
cgi_Request_Ack = 24 byte Mux header "Status: 400 (Bad Request)\n\n"
```

3.2.10 eX_POP3_from_Trading_Partner e*Way

The **eX_POP3_from_Trading_Partner** e*Way sends enveloped eBusiness messages to e*Xchange.

Figure 14 illustrates the **eX_POP3_from_Trading_Partner** e*Way.

Figure 14 eX_POP3_from_Trading_Partner e*Way Detail


eX_Trading_ Port_Queue IQ
eX_from_Trading_Partner
eX_POP3_from_ Trading_Partner e*Way
eX_POP3_from_ Trading_Partner Collaboration
eX_External_Evt
Trading Partner

The Event is sent to e*Xchange.

Configuring the eX_POP3_from_Trading_Partner e*Way

Specify the following values in the configuration section:

- E-mail username
- E-mail password
- InboundServer: POP3 server
- InboundPort: POP3 server port number

eX_POP3_from_Trading_Partner Collaboration

This is a Pass Through Collaboration used to send the Event to e*Gate. The communication portion of the **eX_POP3_from_Trading_Partner** e*Way receives the Event via POP 3 and sends into e*Gate.

Subscribed Event Type: eX_External_Evt

This Event carries the content and header information used by the **eX_POP3_from_Trading_Partner** e*Way for transmission from the trading partners.

Published: eX_from_Trading_Partner

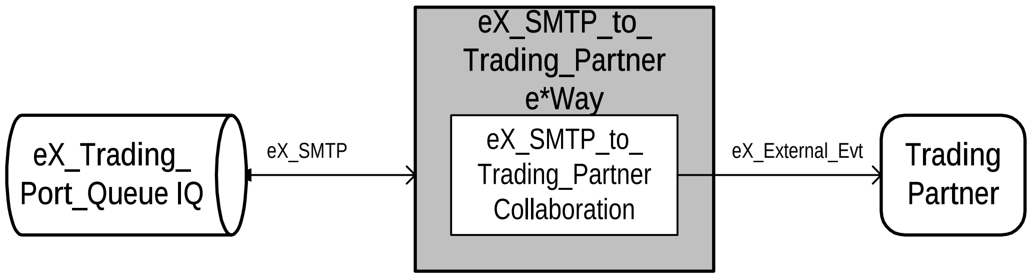
This Event carries the eBusiness message to the communications half of the e*Way where it is forwarded to the trading partner.

3.2.11 eX_SMTP_to_Trading_Partner e*Way

The **eX_SMTP_to_Trading_Partner** e*Way sends enveloped eBusiness messages designated for batch transmission to trading partners using email.

Figure 15 illustrates the **eX_SMTP_to_Trading_Partner** e*Way.

Figure 15 eX_SMTP_to_Trading_Partner e*Way Detail



The destination information for each Event is carried as part of the e*Xchange Event data passed to the **eX_SMTP_to_Trading_Partner** e*Way. The information is maintained in the e*Xchange database and applied to the Event at the same time that the Event is enveloped for a specific trading partner.

Configuring the eX_SMTP_to_Trading_Partner e*Way

No configuration is required.

eX_SMTP_to_Trading_Partner Collaboration

This is a Pass Through Collaboration used to publish the Event outside of e*Gate. The communication portion of the **eX_SMTP_to_Trading_Partner** e*Way then takes the Event and sends via FTP to the appropriate trading partner.

Subscribed Event Type: eX_SMTP

This Event carries the enveloped Event along with the SMTP mail host information used by the eX_SMTP_to_Trading_Partner e*Way for transmission to the trading partners.

Published: eX_External_Evt

This Event carries the eBusiness message to the communications half of the e*Way where it is forwarded to the trading partner.

3.2.12 Send_to_ePM e*Way

In an e*Xchange implementation, e*Xchange requires one or more e*Gate components to feed data into and take data from e*Xchange. Typically, these components are e*Ways that connect to the business application providing the eBusiness data that is sent to trading partners via e*Xchange.

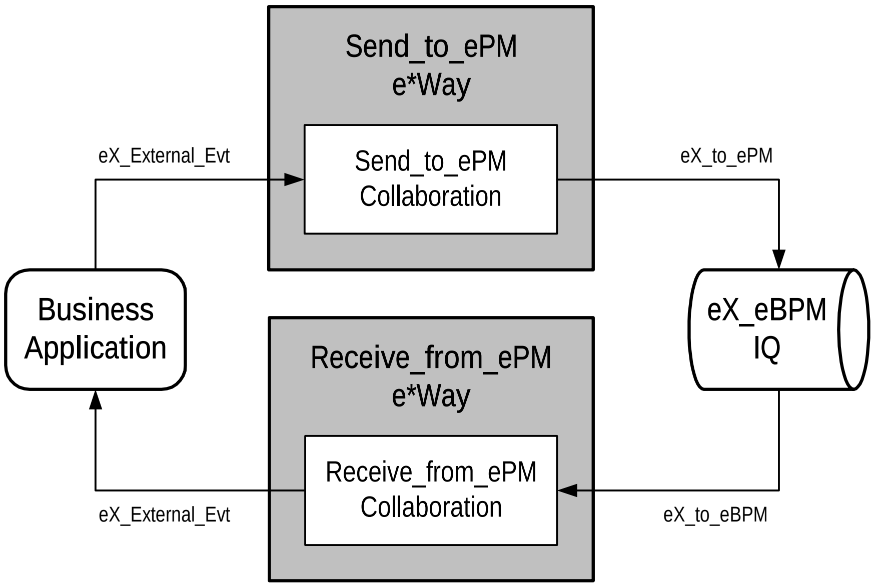
These e*Ways are user defined, and the type of e*Way used depends on the source for the eBusiness data. For example, if the source is a business application the e*Gate e*Way that connects to that business application (such as Siebel) is used. If the source of the data is already available in e*Gate, you can use a BOB instead of an e*Way.

The eXSchema installed as the e*Xchange backend includes two placeholder e*Ways, **Send_to_ePM** and **Receive_from_ePM** that can be used as the starting point for this functionality.

These e*Ways have all the Collaborations and routing defined, but the e*Way executable must be selected and the configuration file must be created.

The following diagram illustrates these e*Ways.

Figure 16 Send_to_ePM and Receive_from_ePM e*Ways Detail



The **Send_to_ePM** e*Way initiates the process of sending data to e*Xchange. This e*Way is user-defined, and its type is dependent upon the communication protocol and/or application-specific requirements of the customer. The Collaboration within the e*Way is also user-defined. It converts the external, proprietary data format supplied by the application to the Standard Event, an internal XML format required by e*Xchange.

Configuring the Send_to_ePM e*Way

The configuration details for this eWay depend on the type of external system to which it connects. In general you must

- Choose the e*Way executable
- Create the configuration file
- Edit the Collaboration Rules Script used by the **Send_to_ePM** Collaboration

See the *e*Way User's Guide* for the e*Way type you wish to use for this e*Way for more detailed configuration information.

Send_to_ePM Collaboration

The **Send_to_ePM** Collaboration must use the data it receives from the business application to create the Event sent to the e*Xchange engine. Specifically it must do the following:

- convert the data to an XML-compatible format and put it in the e*Xchange payload node of the e*Xchange standard Event
- populate the e*Xchange-required tracking nodes in the e*Xchange standard Event

Subscribed Event Type: eX_External_Evt

This Event Type corresponds to the inbound data provided by the external application.

Published Event Type: eX_to_PM

This Event carries the e*Xchange formatted data to the e*Xchange engine.

Converting Business Application Data to e*Xchange Format

You must copy the eBusiness message data to the payload node (**TP_EVENT.CT.DSN.DS.Payload.CT.DSN.Data)** of the **eX_Standard_Event.ssc** ETD for the Event that is sent to e*Xchange.

Data placed in the payload of the e*Xchange standard Event must be in base64 encoding prior to being copied. You can convert the data in the **START_BP** Collaboration by using the Monk function **raw->base64**.

Note: *Make sure that the **stc_monkutils.dll** that contains the function **raw->base64** is loaded before using **raw->base64** in a Collaboration Rules Script. For example, you may use the command: **load-extension "stc_monkutils.dll"** in the CRS itself or you may put path to a file that loads in the **initialization file** box in the Collaboration Rule that uses the CRS. See* **"Convert the Event to Base 64 Encoding" on page 62** *for an example.*

e*Xchange-required Tracking Nodes

The following three nodes in the **eX_Standard_Event.ssc** ETD must be populated in the Event sent to the e*Xchange engine:

- **TP_EVENT.CT.DSN.DS.MessageID.CT.DSN.Data** node must be filled with a unique ID for the Event, if the message is X12 or NCPDP and is outbound with no validation checking.
- **TP_EVENT.CT.DSN.DS.Direction.CT.DSN.Data** node must be filled with the string "I" to designate it as an inbound to e*Xchange Event or an "O" to indicate outbound.
- **TP_EVENT.CT.DSN.DS.PartnerName.CT.DSN.Data** node must be filled with the logical name of the trading partner to which the EDI message is being sent. This name corresponds to the case sensitive text found in the **Logical Name** box in the B2B Protocol properties, General section, Trading Partner.

3.2.13 Receive_from_ePM e*Way

The **Receive_from_ePM** e*Way takes eBusiness data received from trading partners and processed by e*Xchange and formats it for use by the destination business application that requires it. This e*Way is user-defined, and the type chosen depends upon the communication protocol and/or application-specific requirements of the business application or other external to e*Gate destination to which it connects. The Collaboration within the e*Way is also user-defined. It must convert the eBusiness data from the e*Xchange XML format back into the format required by the destination system.

Configuring the Receive_from_ePM e*Way

The **Receive_from_ePM** e*Way must be configured by the user. You must select the type of e*Way create the configuration file, and then edit the Collaboration Rules Script used by the **Receive_from_ePM** Collaboration.

See the *e*Way User's Guide* for the e*Way type you wish to use as the **Receive_from_ePM** e*Way for more detailed configuration information.

Receive_from_ePM Collaboration

This Collaboration takes data from a trading partner, processed by e*Xchange, and formats it for use by the business application to which the **Receive_from_ePM** e*Way connects. You must edit the placeholder Collaboration (**Receive_from_ePM**) provided with the default **Receive_from_ePM** e*Way so that it performs this translation.

Subscribed: eX_to_eBPM

This Event carries the de-enveloped trading partner data to the eX_eBPM IQ where it is picked up by the Receive_from_ePM Collaboration.

Published: eX_External_Evt

This Event carries the properly formatted data received from a trading partner to the business application.

3.2.14 ewHipaaValidation e*Way

e*Xchange provides an e*Way within the e*Xchange Schema, **ewHipaaValidation**, that serves as a placeholder for the HIPAA Java Collaboration Rules. This e*Way is not designed to publish or subscribe to any data, but it does need to be started in order for HIPAA transactions to be processed using the Collaboration Rules.

Each Collaboration Rule in the HIPAA e*Way corresponds with a specific X12 transaction type, and so also corresponds with a specific ETD provided in the HIPAA ETD Library. Using the HIPAA e*Way Collaboration Rules in addition to the HIPAA ETDs provides more comprehensive validation of your HIPAA X12 transactions.

To use the Collaboration Rules of the HIPAA e*Way, you must specify "HIPAA" as the Validation Collaboration Type in the Message Profile, and you must specify the name of the Collaboration (not the Collaboration Rule file name) as the Validation Collaboration.

Note: *For additional information, see the* ***HIPAA Implementation Guide****.*

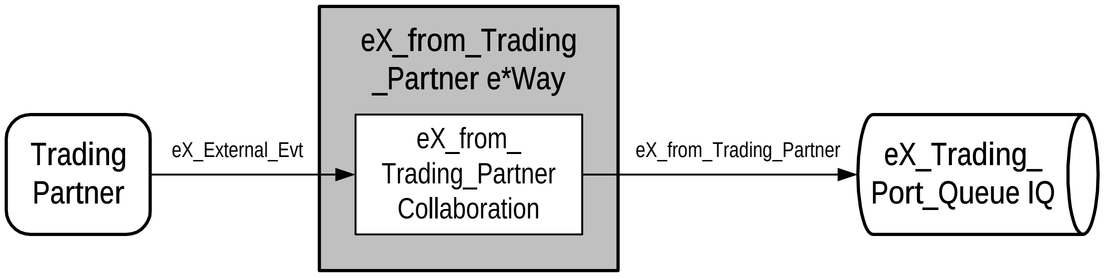
3.2.15 eX_from_Trading_Partner e*Way

The **eX_from_Trading_Partner** e*Way is not included as part of the default eXSchema installation. Because of the wide variety of methods used by trading partners to transmit eBusiness data, it is impossible to predict in advance the type of e*Way needed (Batch, HTTP, TCP/IP, and so on) or the type of data translation required to bring the data into e*Xchange for a particular trading partner. Therefore, this e*Way must be added to the e*Xchange schema and configured for a trading partner on a per entity basis. Typically, there are several e*Ways of this type that need to be added to a large e*Xchange implementation.

The following discussion focuses on the requirements for the e*Xchange Event that this e*Way type must create and send to e*Xchange. The **eX_from_Trading_Partner** e*Way must ensure that the data coming into the e*Xchange system is in the proper XML format, and that the nodes in the e*Xchange standard Event, required for processing by e*Xchange, are populated.

The following diagram illustrates an example of an inbound e*Way.

Figure 17 eX_from_Trading_Partner e*Way Detail



Configuring the eX_from_Trading_Partner e*Way

The configuration for the **eX_from_Trading_Partner** e*Way depends on the type of e*Way it is, Batch, HTTP, TCP/IP, or another type of e*Way, and the amount required to get the data into standard e*Xchange format. See the *e*Way User's Guide* for the e*Way type selected for more detailed information on configuration.

eX_from_Trading_Partner Collaboration

This user-defined Collaboration must put the data coming in from the external trading partner into the e*Xchange standard format. In addition it must ensure that the required tracking information is included in the Event sent to the e*Xchange engine. Specifically, this includes:

- The Message ID (a unique identifier for the message)

  If this is an acknowledgment to a previously sent out eBusiness message, it should use the same identifier as the original Event.
- The Direction of the Event ("I" = inbound to e*Xchange)
- The Partner Name

  This must correspond exactly to the Logical Name used in the B2B Protocol section of the trading partner profile.
- Message Type ("RAW", "PROCESSED", or "ENCRYPTED")

These nodes are explained in more detail in and in the e*Xchange Partner Manager *User's Guide*. Also, see **Populate the Required e*Xchange Nodes** on page 63 for an example of a Monk Collaboration that does this, or see **Populate the Required e*Xchange Nodes** on page 70 for an example of a Java Collaboration that does this.

Subscribed Event Type: eX_External_Evt

This Event carries the data that comes from the trading partner. Depending on the amount of pre-processing the data has received, this Event may or may not be in the XML format, with the required nodes populated as needed by the e*Xchange system.

Published Event Type: eX_from_Trading_Partner

This Event carries e*Xchange formatted data to the e*Xchange engine. All inbound e*Xchange e*Ways publish data from the trading partner using this Event Type.

Chapter 4

Using the Monk e*Xchange ETD

e*Xchange uses a single Event Type Definition (ETD) named **eX_Standard_Event.ssc** to define Events as they move from one component to another in the e*Xchange system. The ETD is an XML DTD in a proprietary messaging format. For a description of the XML DTD see **Appendix A**.

All data going into and coming out of the e*Xchange components is parsed according to the e*Xchange ETD. Understanding this ETD is the key to creating the Collaboration Rules scripts necessary to process the data according to the rules determined by the business process.

Note: *The BP_EVENT location in the* ***eX_Standard_Event.ssc*** *contains information for e*Insight Business Process Manager. You can ignore this section if your implementation does not use e*Insight Business Process Manager. For more information on the BP_EVENT location, refer to the e*Insight Business Process Manager Implementation Guide.*

4.1 ETD Structure

The first step in using the ETD is understanding the structure of the nodes in the context of the XML message being created. Each level is structured in the same way.

The ETD contains a number of nodes that do not explicitly correlate to the XML DTD but are required by the Monk engine to parse the XML data correctly. Table 5 lists these *facilitator* nodes.

Table 5 Facilitator Nodes in the ETD

Name	Description
CT	A container node for an XML element. This node allows the short and long forms of XML tags to coexist in the structure.
DSN	Identifies a data section within an XML element. This is the long form of the XML tag.
DS	Identifies a data set within an XML element. The sub-elements within a data set can occur in any order.
Empty	The short form of the corresponding DSN node XML tag.
CM	XML comment.

Table 5 Facilitator Nodes in the ETD

Name	Description
Data	Holds the data for the element.
AS	Identifies an XML attribute set within an XML element.
EQ	The equals sign ("=") within an XML attribute.
Value	Holds the value for the XML attribute.

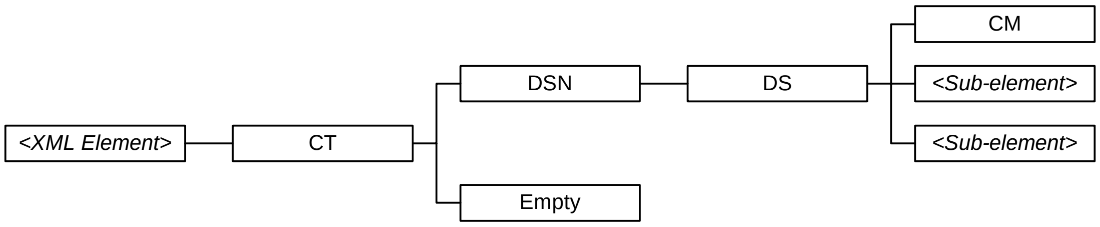
The facilitator nodes always occur in a set order and define the structure of the XML message. In the e*Xchange ETD, the facilitator nodes define three types of branches:

- XML element with sub-elements
- XML element without sub-elements
- XML attribute

4.1.1 XML Element with Sub-elements

The following diagram illustrates the ETD structure for an XML element that has sub-elements.

Figure 18 XML Element with Sub-elements



Each XML element contains one child node, **CT**. **CT** identifies the parent node as an XML element. The **CT** node contains two child nodes: **DSN** and **Empty**. **DSN** is the long form of the XML tag (</*tag*>) and **Empty** is the short form (</>).

The **DSN** and **DS** nodes always occur as parent-child pairs. In this type of branch, **DS** is the parent node for two types of child nodes:

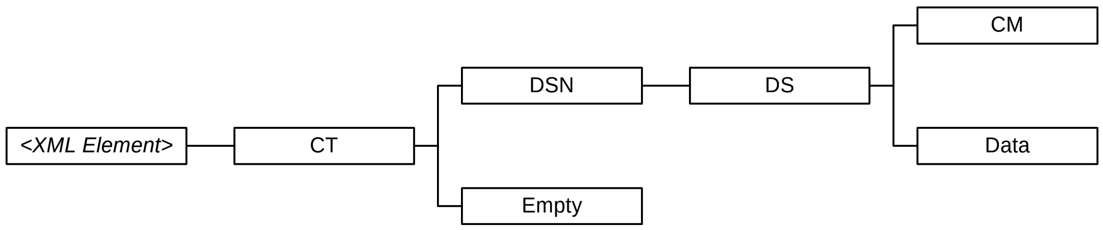
- **CM**, which holds XML comments for the element
- ***<sub-element>***, the name of a sub-element of the parent element

The **DS** node always contains a **CM** child node to hold XML comments. Each ***<sub-element>*** node contains an ETD structure of its own, with the ***<sub-element>*** node as the parent node for the branch.

4.1.2 XML Element without Sub-elements

The following diagram illustrates the ETD structure for an XML element that does not have sub-elements.

Figure 19 XML Element without sub-elements

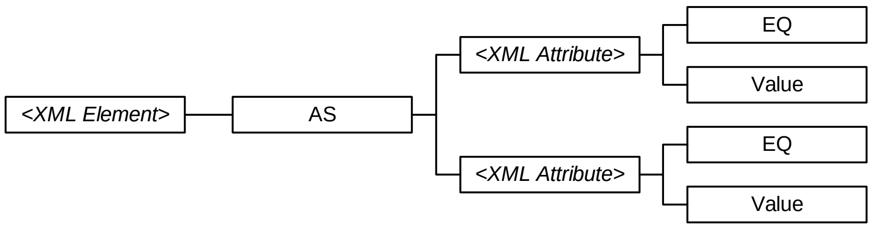


Notice that the only difference between this diagram and the previous diagram is a **Data** child node in place of the ***<sub-element>*** child nodes above. The **Data** node contains the actual data for the XML element that is defined. When creating Collaboration Rules scripts, you must map the XML element data to the **Data** nodes at the terminal end of the element's branch.

4.1.3 XML Attribute

The following diagram illustrates the ETD structure for an XML attribute.

Figure 20 XML Attribute

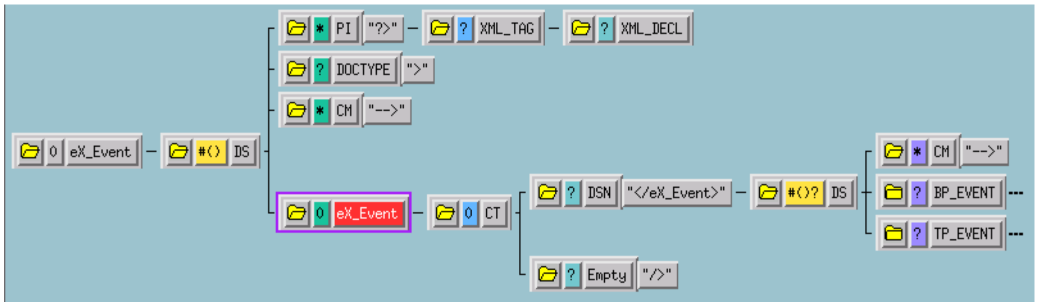


In this case, the XML element contains one child node, **AS**, which identifies the branch as XML attributes of the parent element. The **AS** node contains the ***<XML Attribute>*** nodes as child nodes. Each ***<XML Attribute>*** node has two child nodes: **EQ** to represent the equal sign (=) in the attribute and **Value** which holds the actual value for the attribute. When creating Collaboration Rules scripts, you must map the XML attribute value to the **Value** nodes at the terminal end of the attribute's branch.

4.2 Element Overview

The following diagram illustrates the entire e*Xchange ETD tree. This is only a representation of the tree, since the actual tree conforms to the node structure described in **"ETD Structure" on page 53**.

Figure 21 The e*Xchange ETD



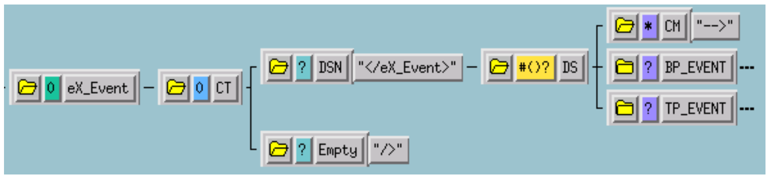
All data pertinent to e*Xchange is contained in the XML element **eX_Event**. **eX_Event** contains two distinct “trees”: **BP_EVENT** and **TP_EVENT**. **BP_EVENT** contains all of the information pertaining to e*Insight. **TP_EVENT** contains all of the information pertaining to e*Xchange. Both **BP_EVENT** and **TP_EVENT** are optional nodes in the ETD. So if you use e*Insight to track business process activities but do not use e*Xchange to send data to and from trading partners, you do not need to populate the **TP_EVENT** element. Conversely, if you use e*Xchange to send data to and from trading partners but do not track business process activities in e*Insight, you do not need to populate the **BP_EVENT** element in your Collaboration Rules scripts.

Example: XML Element with Sub-elements

eX_Event is an example of a top-level XML element.

In this example, the **CT**, **DSN**, **DS**, **Empty**, and **CM** facilitator nodes describe the top-level XML element **eX_Event**. Figure 22 shows the ETD structure for this element.

Figure 22 XML Element **eX_Event**



The **eX_Event** parent node contains one child node, **CT**. **CT** identifies **eX_Event** as an XML element. The **CT** node contains two child nodes: **DSN** and **Empty**. **DSN** is the long form of the XML tag (</eX_Event>) and **Empty** is the short form (</>).

The **DSN** and **DS** nodes always occur as parent-child pairs. **DS** is the parent node for three child nodes:

- A **CM** node to hold XML comments for the element.
- **BP_EVENT**, a sub-element of **eX_Event**.
- **TP_EVENT**, a sub-element of **eX_Event**.

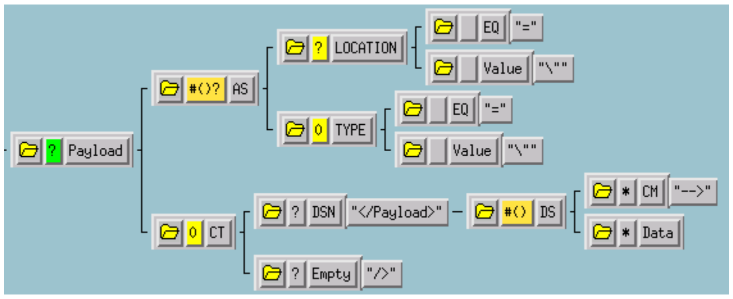
The **DS** node always contains a **CM** child node to hold XML comments. In this example, the eX_Event element does not hold data directly, but contains two sub-elements—**BP_EVENT** and **TP_EVENT**—which have similar facilitator node branches associated with them.

The following example explains the structure of XML attributes.

Example: XML Element with Attributes

In this example, the **AS** and **EQ** facilitator nodes describe the XML attributes **TYPE** and **LOCATION**. Both are XML attributes of the **Payload** element. Figure 23 shows the ETD structure for these attributes.

Figure 23 XML Attribute **Type**



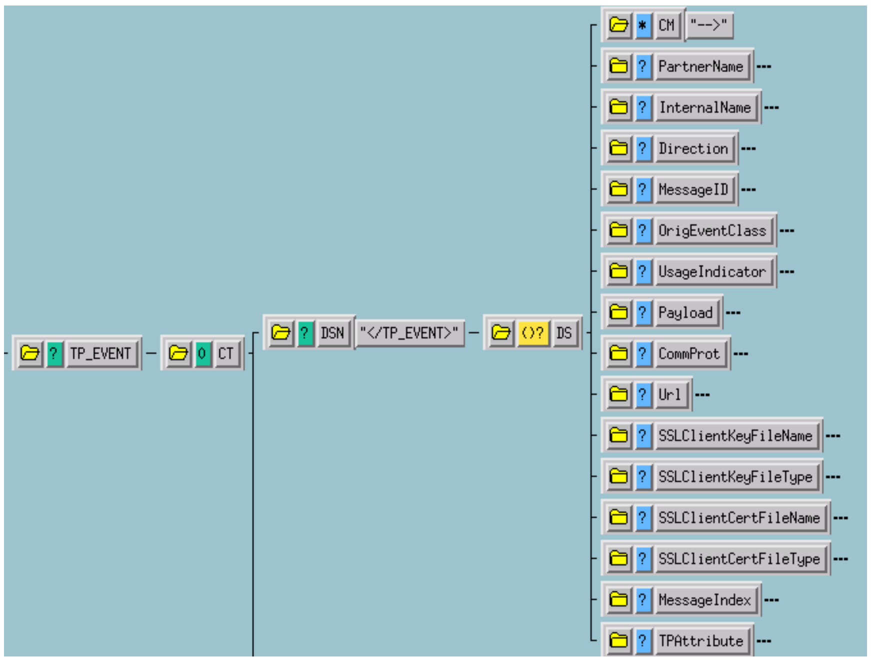
4.3 Using the ETD in e*Xchange

The e*Xchange engine uses the e*Xchange ETD to carry out enveloping and de-enveloping the EDI messages it sends to and receives from trading partners. The **TP_EVENT** location in the e*Xchange ETD contains data the e*Xchange engine uses to track the EDI Event. **TP_EVENT** also contains the actual EDI message stored in the **Payload** node.

TP_EVENT

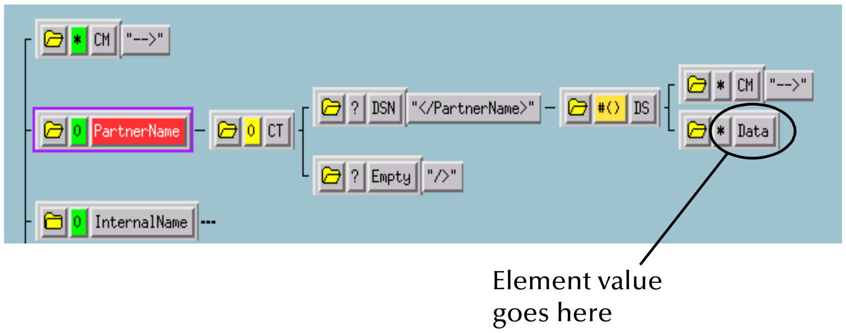
All data relevant to e*Xchange processing is contained in the parent node **TP_EVENT**. **TP_EVENT** contains fifteen elements as shown in Figure 24.

Figure 24 TP_EVENT



Because each of the categories is implemented as an XML element in the e*Xchange ETD structure, the value for the element goes in the **Data** node at the end node structure, as shown in Figure 25.

Figure 25 Location of Element Value



PartnerName

The value for this element must match the **Logical Name** in the B2B Protocol of the trading partner profile.

InternalName

The name of the internal system sending the original data.

Direction

Direction of the transaction. Possible values are “**O**” for outbound Events going to the trading partner or ”**I**” for inbound Events coming from the trading partner.

MessageID

A unique ID for each Event originating from a particular internal system. This tag correlates data moving to and from a trading partner, with the original request sent from the internal system.

OrigEventClass

The original Event classification. This tag is used to classify Events, not necessarily originating from the same system, according to functional group. For example, a request for price and availability could originate from one of many systems, but the classification of the Events (QPA) would be the same.

UsageIndicator

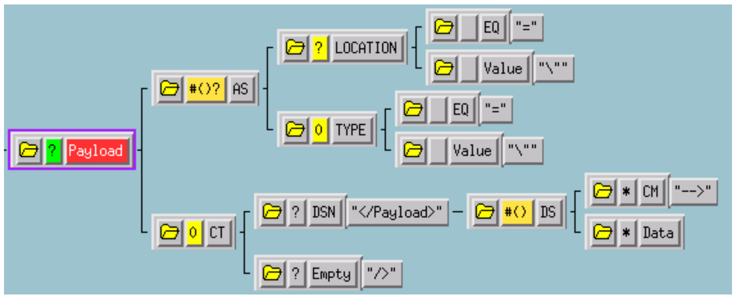
Determines whether the Events being sent to the trading partner are for testing purposes only or are part of a production environment. Possible values are “**T**“ for test or “**P**“ for production.

Payload

This is the node structure in which you place the EDI message to be processed by e*Xchange. The inbound and outbound data for this node must be in base 64 format.

Unlike the other **TP_EVENT** elements, the **Payload** element has XML attributes associated with it. These attributes qualify the value contained in the terminal **Data** node. Figure 26 shows the **Payload** element’s node structure in the e*Xchange ETD.

Figure 26 Payload Node



You must supply values for the element, **Payload**, as well as the attributes for the element, **LOCATION** and **TYPE**.

The following table lists acceptable values for **LOCATION**.

Figure 27 Element Value Locations

Value	Purpose
"FILE"	Indicates that the value for the element can be found in the file at the location specified in the **Data** node.
"DB"	Indicates that the value for the element can be found in the e*Xchange database at the location specified in the **Data** node.
"URL"	Indicates that the value for the element can be found at the URL location specified in the **Data** node.
"EMBEDDED"	Indicates that the value for the element is contained in the current e*Xchange Event in the **Data** node. This is the default value.
"AUTO"	Reserved for future use.

The following table lists acceptable values for **TYPE**.

Figure 28 Data Type

Value	Purpose
"RAW"	Indicates that the data in the **Data** node is in ASCII format, but not XML data that has been converted to ASCII using base 64 or some other conversion. The data must not contain any characters that would conflict with the XML nature of the e*Xchange ETD (for example, EDI delimiters that are the same as XML control characters).
"PROCESSED"	Indicates that the data in the **Data** node is XML data that has been encoded using the scheme described in the **ENCODING** node. Currently only base 64 encoding is supported.

Value	Purpose
"ENCRYPTED"	Indicates that the data in the **Data** node has been encrypted, and must be decrypted before it can be processed by e*Xchange.

The value for **Payload**, the EDI message to be processed by e*Xchange, must be placed in the **Data** node at the end of the **Payload** element's node structure.

CommProt

The communication protocol used by the trading partner. Possible values are **BATCH**, **SMTP**, **HTTP**, **HTTPS**, or **TCPIP**.

Url

The destination URL for the trading partner. The data is sent according to the value in this field.

SSLClientKeyFileName

This node contains HTTPS security information.

SSLClientKeyFileType

This node contains HTTPS security information.

SSLClientCertFileName

This node contains HTTPS security information.

SSLClientCertFileType

This node contains HTTPS security information.

MessageIndex

This node contains information used by the "Fast Batch" feature of e*Xchange. Using this feature a number of transactions of the same type can be bundled together and sent out as a single batch transaction to a trading partner. Transactions using fast batch must populate this node in the Event that is sent to e*Xchange using the following format:

<transaction number in bundle>|<total number of transactions to bundle together>

For example, if the Event sent to e*Xchange contains the 4th transaction of 20 that are sent out together, this field must contain "4|20". This is analogous to the "page X of total pages" page numbering format used by some documents. When e*Xchange receives the last transaction in the bundle, labeled 20|20, it sends all 20 transaction out together.

TPAttribute

This is a repeating node containing a name/value pair that is used to add future functionality to e*Xchange without having to change the structure of the eX ETD.

4.4 Sending Data to e*Xchange

You must create a Collaboration Rules Script that prepares the data coming into the e*Xchange system. How complicated this task is depends on the state of the data before the Collaboration processes it.

The Collaboration Rules Script must do the following:

- put the data into the appropriate format
- convert the data to base 64 encoding
- populate the required nodes in the e*Xchange Event sent to e*Xchange for processing

Put the Data into the Required Format

This step is only necessary if the data is not already in the appropriate format required by the trading partner. This would be the case where data was coming from SAP in IDoc format and was not preprocessed into the correct format by another Collaboration. In such a case, the Collaboration Rules Script must translate the data into the required format before sending to e*Xchange.

This involves creating an ETD corresponding to the initial state of the data and an ETD corresponding to the required EDI format. Most of these standard ETDs are already pre-created and made available in the e*Xchange suite of tools. Next you build a Collaboration that maps one format to the other. This mapping translation could be called as a sub-translation from the main Collaboration prior to converting the entire message to base 64.

Convert the Event to Base 64 Encoding

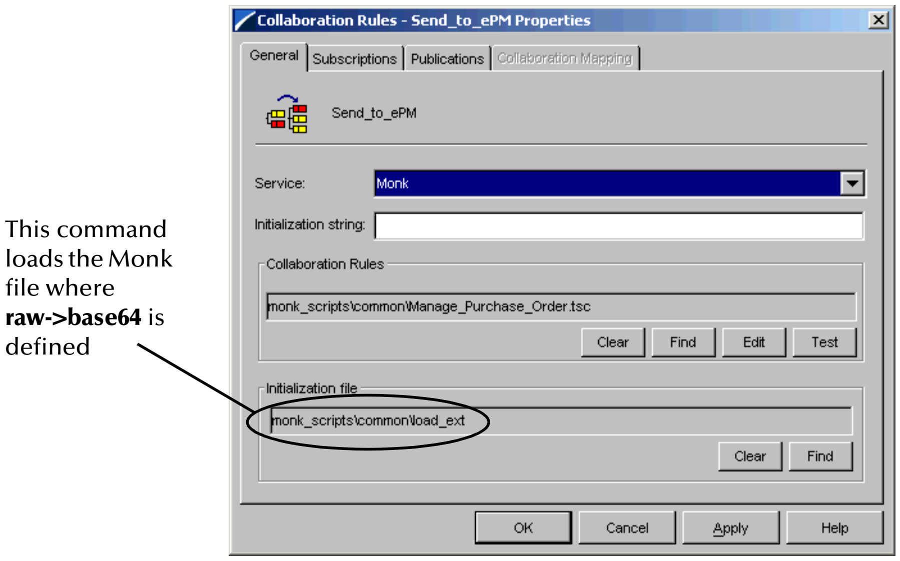
The Collaboration Rules Script must ensure that the data going into e*Xchange does not include any characters that cause problems for the XML structure of the standard e*Xchange Event (for example, characters that are the same as the XML control characters). This is done by converting the entire EDI message to base 64 encoding using the Monk function **raw->base64**, before copying it to the payload node of the **eX_Standard_Event** ETD.

Important: *To use the Monk function **raw->base64**, you must make sure the file containing this function has been loaded. You can do this by adding the following command to the **Initialization file** box in the **Collaboration Rules** dialog box for the Collaboration that uses this function:*

```
monk_scripts\common\load_ext
```

This is shown in Figure 29.

Figure 29 Send_to_ePM Collaboration Rules Properties Dialog Box



Send_to_ePM

Service: Monk

Initialization string:

Collaboration Rules

monk_scripts\common\Manage_Purchase_Order.tsc

Initialization file

monk_scripts\common\load_ext

This command loads the Monk file where **raw->base64** is defined

Populate the Required e*Xchange Nodes

In addition to copying the base 64 encoded message to the payload node of the TP_EVENT portion of the e*Xchange standard Event, you must provide e*Xchange with tracking information about the message.

e*Xchange Tracking Information

e*Xchange needs to know certain things about an message before it can apply the proper enveloping and send it out to the trading partner. The Collaboration Rules Script must supply this information by populating certain required nodes in the Event that is sent to e*Xchange. At a minimum you must tell e*Xchange:

- Direction (inbound or outbound)
- Partner Name (logical name from the B2B Protocol in the e*Xchange)

All of these requirements can be met by copying the appropriate information to the corresponding nodes in the TP section of the e*Xchange ETD (**eX_Standard_Event.ssc**).

The **TP_EVENT.CT.DSN.DS.Direction.CT.DSN.DS.Data** node must contain the direction of the Event: “O” for outbound to the trading partner or “I” for inbound from a trading partner.

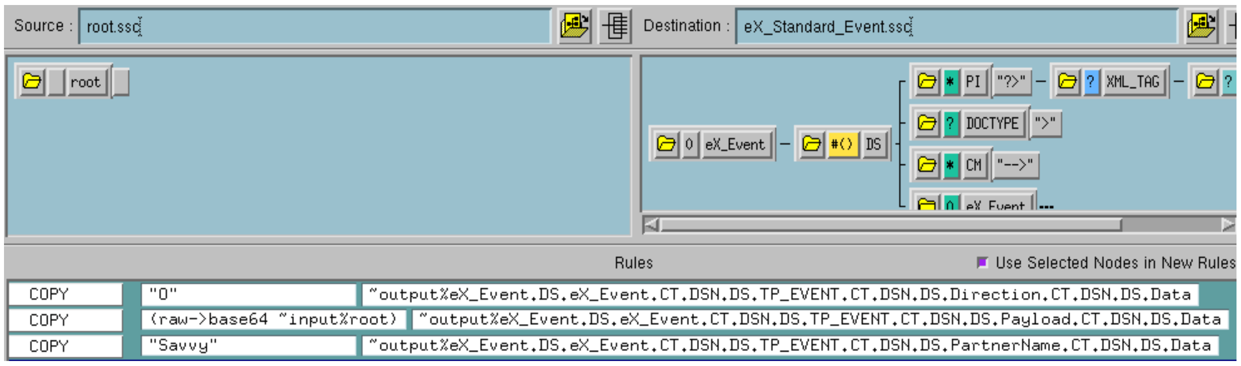
The **TP_EVENT.CT.DSN.DS.PartnerName.CT.DSN.DS.Data** node must contain the name (case-sensitive) of the trading partner from the **Logical Name** box in the **General** section of Trading Partner in the B2B Protocol properties for this message.

The e*Xchange Payload

In addition to the tracking information, the **TP_EVENT.CT.DSN.DS.Payload.CT.DSN.DS.Data** node must be filled with the entire base 64 encoded message.

Figure 30 shows a Collaboration Rules Script with the necessary code to populate **eX_Standard_Event.ssc** with the required values.

Figure 30 Example Monk Collaboration Rules Script



Source : root.ssc

Destination : eX_Standard_Event.ssc

COPY	"0"	~output%eX_Event.DS.eX_Event.CT.DSN.DS.TP_EVENT.CT.DSN.DS.Direction.CT.DSN.DS.Data
COPY	(raw->base64 ~input%root)	~output%eX_Event.DS.eX_Event.CT.DSN.DS.TP_EVENT.CT.DSN.DS.Payload.CT.DSN.DS.Data
COPY	"Savvy"	~output%eX_Event.DS.eX_Event.CT.DSN.DS.TP_EVENT.CT.DSN.DS.PartnerName.CT.DSN.DS.Data

Chapter 5

Using the Java e*Xchange ETD

e*Xchange generally uses the Monk service for collaborations. However, the Java collaboration service can be used to transform an event from or to another format when sending the Event into e*Gate.

5.1 Understanding the Java e*Xchange ETD

e*Xchange uses a Java Event Type Definition (ETD) named **eX_StandardEvent.xsc** to define Events as they move from one component to another in the e*Xchange system. The ETD is an XML DTD in a proprietary messaging format. For a description of the XML DTD see **Appendix A**.

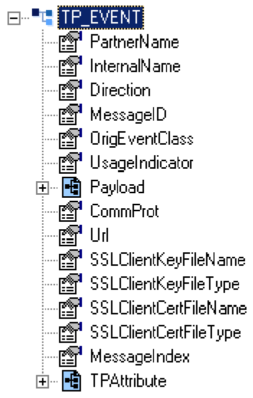
All data going into and coming out of the e*Xchange components is parsed according to the e*Xchange ETD. Understanding this ETD is the key to creating the Collaboration Rules scripts necessary to process the data according to the rules determined by the business process.

Note: *When you install the e*Gate e*Xchange Schema, **eIX_StandardEvent.xsc** is also created. This ETD has a BP_EVENT location that is used for e*Insight Business Process Manager. You should use this ETD if your implementation requires both e*Insight and e*Xchange. For more information on the BP_EVENT location, refer to the e*Insight Business Process Manager Implementation Guide.*

5.2 Element Overview

Figure 31 illustrates the entire e*Xchange ETD tree.

Figure 31 The e*Xchange ETD



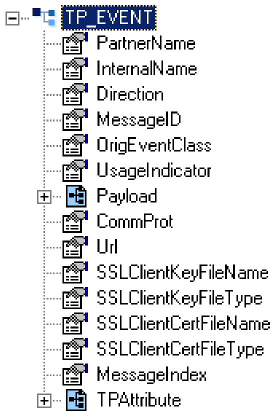
5.2.1 Using the ETD with e*Xchange

The e*Xchange engine uses the e*Xchange ETD to carry out enveloping and de-enveloping messages it sends to and receives from trading partners. The **TP_EVENT** location in the e*Xchange ETD contains data the e*Xchange engine uses to track the Event. **TP_EVENT** also contains the actual EDI message stored in the **Payload** node.

TP_EVENT

All data relevant to e*Xchange processing is contained in the parent node **TP_EVENT**. **TP_EVENT** contains fifteen elements as shown in Figure 32.

Figure 32 TP_EVENT



PartnerName

The value for this element must match the **Logical Name** in the B2B Protocol section of the trading partner profile.

InternalName

The name of the internal system sending the original data.

Direction

Direction of the transaction. Possible values are "**O**" for outbound Events going to the trading partner or "**I**" for inbound Events coming from the trading partner.

MessageID

A unique ID for each Event originating from a particular internal system. This tag correlates data moving to and from a trading partner, with the original request sent from the internal system.

OrigEventClass

The original Event classification. This tag is used to classify Events, not necessarily originating from the same system, according to functional group. For example, a request for price and availability could originate from one of many systems, but the classification of the Events (QPA) would be the same.

UsageIndicator

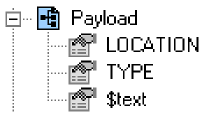
Determines whether the Events being sent to the trading partner are for testing purposes only or are part of a production environment. Possible values are "**T**" for test or "**P**" for production.

Payload

This is the node structure in which you place the EDI message to be processed by e*Xchange. The inbound and outbound data for this node must be in base 64 format.

Unlike the other **TP_EVENT** elements, the **Payload** element has XML attributes associated with it. These attributes qualify the value contained in the **$text** node. Figure 33 shows the **Payload** element's node structure in the e*Xchange ETD.

Figure 33 Payload Node



You must supply values for the element, **$text**, as well as the attributes for the element, **LOCATION** and **TYPE**.

The following table lists acceptable values for **LOCATION**.

Figure 34 Element Locations

Value	Purpose
"FILE"	Indicates that the value for the element can be found in the file at the location specified in the **Data** node.
"DB"	Indicates that the value for the element can be found in the e*Xchange database at the location specified in the **Data** node.
"URL"	Indicates that the value for the element can be found at the URL location specified in the **Data** node.

Value	Purpose
"EMBEDDED"	Indicates that the value for the element is contained in the current e*Xchange Event in the **Data** node. This is the default value.
"AUTO"	Reserved for future use.

The following table lists acceptable values for **TYPE**.

Figure 35 Data Type

Value	Purpose
"RAW"	Indicates that the data in the **Data** node is in ASCII format, but not XML data that has been converted to ASCII using base 64 or some other conversion. The data must not contain any characters that would conflict with the XML nature of the e*Xchange ETD (for example, EDI delimiters that are the same as XML control characters).
"PROCESSED"	Indicates that the data in the **Data** node is XML data that has been encoded using the scheme described in the **ENCODING** node. Currently only base 64 encoding is supported.
"ENCRYPTED"	Indicates that the data in the **Data** node has been encrypted, and must be decrypted before it can be processed by e*Xchange.

The value for **Payload**, the EDI message to be processed by e*Xchange, must be placed in the **Data** node at the end of the **Payload** element's node structure.

CommProt

The communication protocol used by the trading partner. Possible values are **BATCH**, **SMTP**, **HTTP**, **HTTPS**, or **TCP/IP**.

Url

The destination URL for the trading partner. The data is sent according to the value in this field.

SSLClientKeyFileName

This node contains HTTPS security information.

SSLClientKeyFileType

This node contains HTTPS security information.

SSLClientCertFileName

This node contains HTTPS security information.

SSLClientCertFileType

This node contains HTTPS security information.

MessageIndex

This node contains information used by the "Fast Batch" feature of e*Xchange. Using this feature a number of transactions of the same type can be bundled together and sent out as a single batch transaction to a trading partner. Transactions using fast batch must populate this node in the Event that is sent to e*Xchange using the following format:

<transaction number in bundle>|<total number of transactions to bundle together>

For example, if the Event sent to e*Xchange contains the 4th transaction of 20 to be sent out together, this field must contain "4|20". This is analogous to the "page X of total pages" page numbering format used by some documents. When e*Xchange receives the last transaction in the bundle, labeled 20|20, it sends all 20 transaction out together.

TPAttribute

This is a repeating node containing a name/value pair that is used to add future functionality to e*Xchange without having to change the structure of the ETD.

5.3 Sending a Message to e*Xchange

The Collaboration Rules Script that sends data to e*Xchange must do the following:

- put the data into the appropriate format
- convert the data to base 64 encoding
- populate the required nodes in the e*Xchange Event sent to e*Xchange for processing

Put the Data into EDI Format

This step is only necessary if the data is not already in the appropriate format required by the trading partner. This would be the case where data was coming from SAP in IDoc format and was not preprocessed into the required format by another Collaboration. In such a case, the e*Way must translate the data into the required format before sending to e*Xchange.

This involves creating an ETD corresponding to the initial state of the data and an ETD corresponding to the required format. Most of these standard ETDs are already pre-created and made available in the e*Xchange suite of tools. Next you build a Collaboration that maps one format to the other. This mapping translation could be called as a sub-translation from the main Collaboration prior to converting the entire message to base 64.

Convert the Event to Base 64 Encoding

The Collaboration must ensure that the data going into e*Xchange doesn't include any characters that will cause problems for the XML structure of the standard e*Xchange Event (for example, characters that are the same as the XML control characters). This is done by converting the entire EDI message to base 64 encoding using the method **string2base64**, before copying it to the payload node of the **eX_StandardEvent** ETD.

For example:

```
getOut().getTP_EVENT().getPayload().set$Text(Base64.string2base64(get
In().getData()))
```

This converts the contents of **getIn().getData()** to base 64 encoding before copying to the **$text** node.

Populate the Required e*Xchange Nodes

In addition to copying the base 64 encoded message to the payload node of the TP_EVENT portion of the e*Xchange standard Event, you must provide e*Xchange with tracking information about the message.

e*Xchange Tracking Information

e*Xchange needs to know certain things about a message before it can apply the proper enveloping and send it out to the trading partner. The Collaboration Rules Script must supply this information by populating certain required nodes in the Event that is sent to e*Xchange. At a minimum you must tell e*Xchange:

- Direction (inbound or outbound)
- Partner Name (logical name from the B2B Protocol section in e*Xchange)

All of these requirements can be met by copying the appropriate information to the corresponding nodes in the e*Xchange ETD (**eX_StandardEvent.xsc**).

The **TP_EVENT.Direction** node must contain the direction of the Event: "O" for outbound to the trading partner or "I" for inbound from a trading partner.

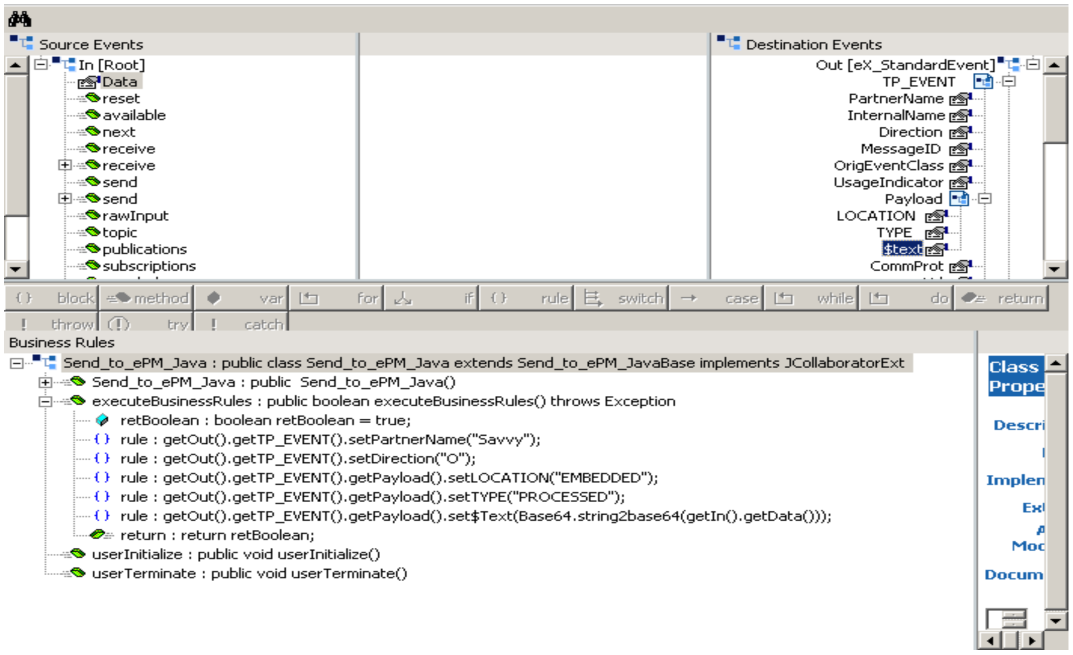
The **TP_EVENT.PartnerName** node must contain the name (case-sensitive) of the trading partner from the **Logical Name** box on the **General** page of the B2B Protocol for this message.

The e*Xchange Payload

In addition to the tracking information, the payload data must be provided. The **TP_EVENT.Payload.$text** node must be filled with the entire base 64 encoded EDI message.

Figure 36 shows a Collaboration Rules Script with the necessary code to populate **eX_StandardEvent.xsc** with the required values.

Figure 36 Example Java Collaboration Rules Script



```
Send_to_ePM_Java : public class Send_to_ePM_Java extends Send_to_ePM_JavaBase implements JCollaboratorExt
    Send_to_ePM_Java : public  Send_to_ePM_Java()
    executeBusinessRules : public boolean executeBusinessRules() throws Exception
        retBoolean : boolean retBoolean = true;
        rule : getOut().getTP_EVENT().setPartnerName("Savvy");
        rule : getOut().getTP_EVENT().setDirection("O");
        rule : getOut().getTP_EVENT().getPayload().setLOCATION("EMBEDDED");
        rule : getOut().getTP_EVENT().getPayload().setTYPE("PROCESSED");
        rule : getOut().getTP_EVENT().getPayload().set$Text(Base64.string2base64(getIn().getData()));
        return : return retBoolean;
    userInitialize : public void userInitialize()
    userTerminate : public void userTerminate()
```

Chapter 6

Implementation Overview

This chapter provides a high-level overview of the steps involved in an e*Xchange implementation, and by doing so provides background information for the case study chapters that follow it.

6.1 Basic Information

Implementing an e*Xchange system is the process of translating the vision of the business analyst into a functioning system. Once the analyst has determined that a certain business task must be accomplished with e*Xchange, it is your job to make it a reality.

You implement e*Xchange by using the e*Xchange GUIs to enter the relevant data into the e*Xchange database. Then you combine the e*Xchange e*Gate components with other e*Gate components you add to create a complete e*Xchange schema. The e*Xchange components are mostly pre-configured and do not require any (or very slight) modification by you. The components that you add are completely user-defined. However, the e*Xchange GUIs and this guide provide a framework for integrating these user-defined components into a working e*Xchange system.

6.1.1 Types of e*Xchange Implementations

The e*Xchange system is designed for the large-scale integration of information systems, both inside and outside of an enterprise, in order to run and monitor business processes. The details of the business processes themselves depend on the nature of the business.

Not every business process takes advantage of every feature built into the e*Xchange suite. Because of this, some e*Xchange implementations can use a simplified eXSchema.

6.2 Implementation Road Map

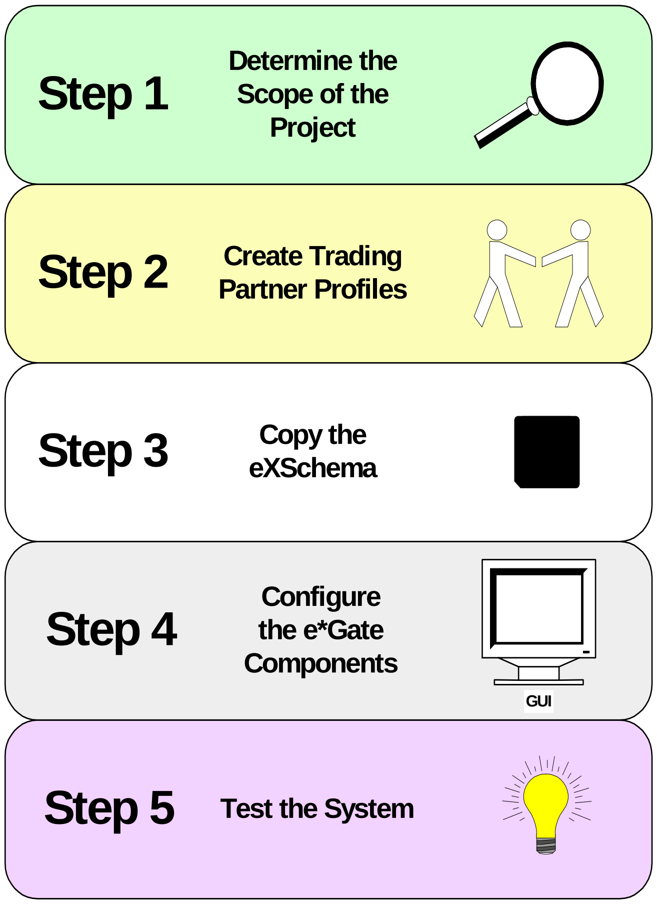
Clearly, each type of implementation involves a different approach. However, at a high level, there are certain similarities.

In general, the work of implementing an end-to-end scenario with e*Xchange involves taking what is created in e*Xchange and integrating it into a working e*Gate schema. e*Gate powers every e*Xchange scenario, and a successful e*Xchange implementation is dependent on a successful e*Gate implementation.

To give you an overview of the complete process, the following implementation road map contains high-level steps for a full e*Xchange implementation. The road map is further refined and given more detail in the case study chapters that immediately follow this one.

Figure 37 illustrates the major steps in the integration process for an e*Xchange implementation.

Figure 37 Integration Road Map


Step 1
Determine the Scope of the Project
Step 2
Create Trading Partner Profiles
Step 3
Copy the eXSchema
Step 4
Configure the e*Gate Components
GUI
Step 5
Test the System

Step 1: Determine the Scope of the Project

Determine the type of implementation

The tasks involved in implementing e*Xchange differ depending on the type of implementation.

Analyze the business process

The business analyst must perform the standard tasks of analysis to develop a clear representation of the business process. It is a good idea to have diagrams of the process and a list of the data that must be tracked within the business process.

Step 2: Create Trading Partner Profiles

1. Create the custom validation Collaborations you need. For X12 or UN/EDIFACT protocol implementations, use the Validation Rules Builder tool to help create these validation Collaborations.
2. Enter the trading partner information into the e*Xchange database.

For information on entering Trading Partner information, see the *e*Xchange Partner Manager User's Guide*.

Step 3: Copy the eXSchema

When beginning an integration project, make a copy of the e*Xchange schema, **eXSchema**, that is installed from the CD. Don't make any modifications to eXSchema itself; keep it as a template. Make changes to the copy of the eXSchema that you create. Use this copy as your starting point in e*Gate for supporting e*Xchange.

Use the following procedure to create a copy of the eXSchema:

1. Open the eXSchema in the e*Gate Schema Designer GUI.
   - A Start the e*Gate Schema Designer.
   - B Log in to eXSchema.
2. Export the eXSchema to a file **<eGate>\client\<*eXSchema backup file name*>**, where <eGate> is the directory where e*Gate is installed, for example, C:\eGate.
   - A Select **Export Schema Definitions to File ...** from the **File** pull-down menu.
   - B In the **Select archive File** dialog box enter <*eXSchema backup file name*> in the **File name** text box, then click **Save**.
3. Create a new schema using the eXSchema export file as a template.
   - A Select **New Schema** from the **File** pull-down menu.
   - B Enter <*new e*Xchange schema name*> in the text box.
   - C Mark the **Create from export** check box.
   - D Click **Find** and browse for the <*eXSchema backup file name*> file created in step 2 above.
   - E Click **Open**.

     The Schema Designer creates a copy of the eXSchema with the schema name entered in step 3B above.

Step 4: Configure the e*Gate Components

Configuring the e*Gate components forms the majority of the integration work done. In this step, you will:

- add and configure the e*Ways that send data into and out of the e*Xchange system
- make all user-configurable associations in the e*Gate GUI

Step 5: Test and Tune the System

It is a good idea to test the system in stages. For example, make sure that one activity works properly before you try to run the entire business process. One good approach is to start with the “upstream” activities at the beginning of the business process, and work your way down to the last activity.

Once you have the entire system working, make adjustments as necessary to improve performance.

Chapter 7

e*Xchange Implementation—X12

This chapter discusses the steps involved to create an e*Xchange implementation that transfers X12 data.

The components for this implementation are provided on your installation CD. For instructions on installing and using the implementation components, see **“Using the Implementation Sample” on page 79**.

7.1 Overview

An e*Xchange implementation makes use of the features designed to add and remove the EDI enveloping information for messages exchanged between trading partners.

In an e*Xchange implementation, use the e*Xchange Partner Manager Web interface to set up the trading partner information, and the e*Gate Schema Designer GUI to add user-defined e*Gate components to provide connectivity to the business application or trading partner. Once this is done, the pre-configured e*Xchange e*Gate schema components handle enveloping and de-enveloping Events as they travel through the e*Xchange system.

The major steps for an e*Xchange implementation are as follows:

1. Create any needed validation Collaborations.
2. Create the Trading Partner profiles.
3. Configure the user-defined e*Ways that will connect the business application to e*Xchange.
4. Configure the e*Xchange e*Way.
5. Run and test the scenario.

7.1.1 Case Study: Sending an X12 850 Purchase Order

The case study discussed in this chapter illustrates one possible implementation of sending out a purchase order to a trading partner.

In this example, an X12 Version 4010 850 purchase order is sent out from a (simulated) internal application to an external trading partner using a Batch e*Way. The X12 enveloping is automatically added to the message by e*Xchange based on trading partner information retrieved from the e*Xchange database, before it is sent to the outbound Batch e*Way.

Typically, the purchase order information would be provided by a business application and may or may not be in X12 format. A user-defined e*Way must be created to connect to a business application in order to receive the data and put it into the proper X12 format. The schema contains an e*Way named **Send_to_ePM** that you can use as a starting point. In order to simplify this example, the purchase order information is provided in the form of a text file that is already in X12 850 format.

This example provides instructions for creating e*Ways that use both the Java and Monk Collaboration Services to create the event that is sent to e*Xchange.

Note: *This example does not use a return acknowledgment. Therefore, the step covering configuration of the e*Ways used to receive data back from a trading partner is not covered in this chapter.*

Figure 38 e*Xchange Scenario Data Flow

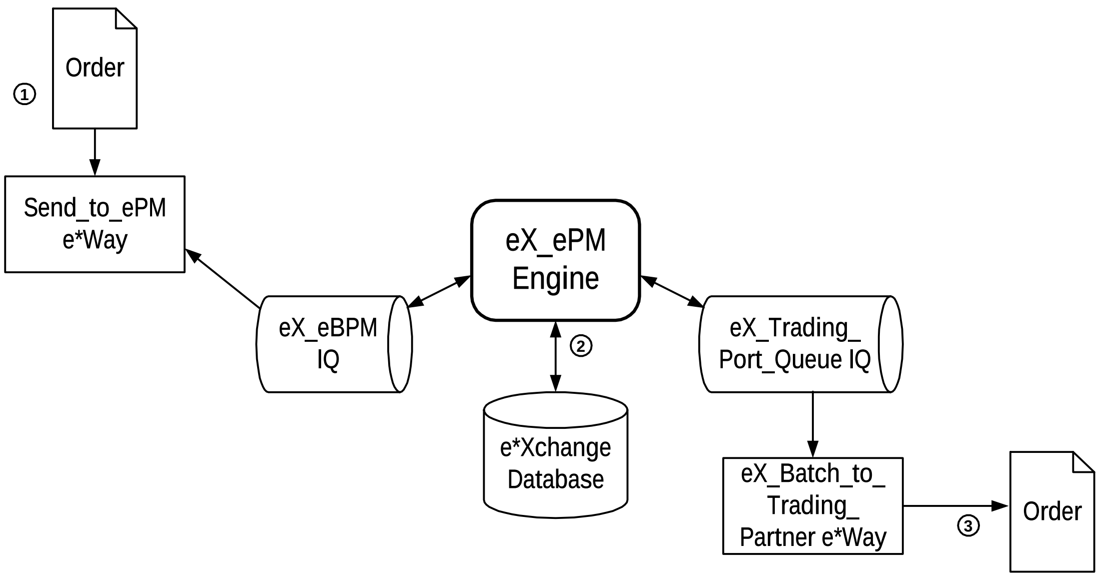


Figure 38 data flow description

① The **Send_to_ePM_Java** or **Send_to_ePM_Monk** e*Way picks up the text file containing the 850 Purchase order, puts the data into standard e*Xchange format, adds the tracking information required by e*Xchange, and then publishes it to the **eX_eBPM** IQ in e*Gate.

② The **eX_ePM** e*Way picks up the e*Xchange Event from the **eX_eBPM** IQ, retrieves the trading partner information from the e*Xchange database, and then uses the retrieved trading partner information to add the X12 enveloping to the Event, and then places it in the **eX_Trading_Port_Queue** IQ using the **eX_BATCH** Event Type.

③ The **eX_Batch_to_Trading_Partner** e*Way picks up the **eX_BATCH** Event from the **eX_Trading_Port_Queue** IQ, and then sends the message via FTP to the trading partner.

7.2 Using the Implementation Sample

The components for this implementation are provided on your installation CD, and are located in **\setup\ex\sample\X12_Implementation_Sample.zip**. Follow these steps to install the components:

1. Unzip the file to a local directory.
2. Install the e*Gate schema using one of the following commands. The instructions refer to the schema name **X12**, however, this is user-defined.

Note: *The default registry port number is 23001.*

   A. For UNIX

```
sh install_po.sh <egate_registry_host_name> <schema_name>
<user_name> <password> <egate_registry_port_num>
```

   B. For Windows

```
install_po.bat <egate_registry_host_name> <schema_name>
<user_name> <password> <egate_registry_port_num>
```

3. Use the e*Xchange Import function in the e*Xchange Repository Manager to import **Savvy_Toy_Company.exp** into e*Xchange Partner Manager.
4. Copy eXchange_PO.~in to **<egate>\client\data\eXchange**.
5. Refer to **"Step 3: Set Up the B2B Protocol Information" on page 84** and ensure that the directory referred to in the **File Name** parameter matches the location of the file **eXchange_PO.~in**, as set up in step 4 above. If it does not, change the **File Name** parameter value.
6. Refer to either **Table 12 on page 87** (Java) or **Table 15 on page 90** (Monk) and ensure that the directory referred to in the **PollDirectory** parameter exists. If it does not, either create the directory or change the **PollDirectory** parameter value.
7. Configure the **eX_ePM** e*Way as described in **"Configure the eX_ePM e*Way" on page 93**.

The steps on the following pages describe how the components for this implementation were created. See **"Run and Test the e*Xchange Scenario" on page 94** for instructions to run the implementation.

7.3 Create Necessary Validation Collaborations

Creating an X12 validation Collaboration is a two-step process:

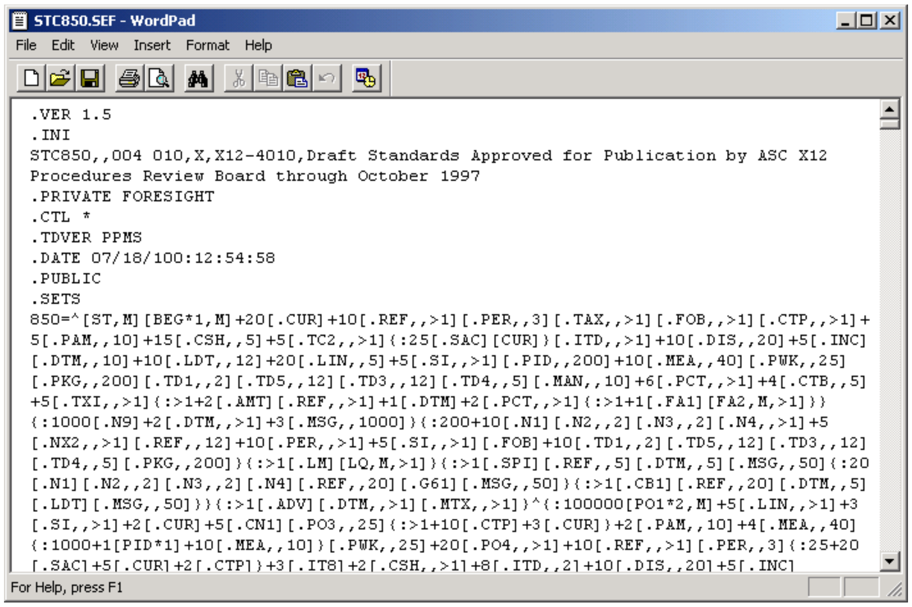
1. Create the Standard Exchange Format (SEF) file.
2. Use the Validation Rules Builder (VRB) tool to create the validation Collaborations based on the SEF file.

7.3.1 Create the SEF File

e*Xchange includes many generic X12 validation Collaborations that you can use to verify the format of X12 EDI messages. You can use these as supplied, or modify them to fit your particular needs. In addition, the e*Xchange suite includes a tool, the VRB, for building customized validation Collaborations directly from a SEF file. You create the SEF file with a third-party Implementation Guide editor using the EDI Implementation Guide for your industry.

Figure 39 shows a portion of the SEF file created for the e*Xchange example, using Foresight's EDISIM software.

Figure 39 e*Xchange SEF File



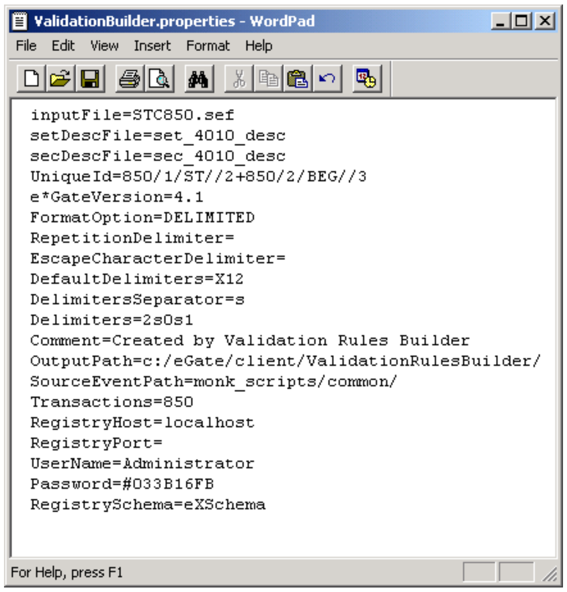
```
.VER 1.5
.INI
STC850,,004 010,X,X12-4010,Draft Standards Approved for Publication by ASC X12
Procedures Review Board through October 1997
.PRIVATE FORESIGHT
.CTL *
.TDVER PPMS
.DATE 07/18/100:12:54:58
.PUBLIC
.SETS
850=^[ST,M][BEG*1,M]+20[.CUR]+10[.REF,,>1][.PER,,3][.TAX,,>1][.FOB,,>1][.CTP,,>1]+
5[.PAM,,10]+15[.CSH,,5]+5[.TC2,,>1]{:25[.SAC][CUR]}[.ITD,,>1]+10[.DIS,,20]+5[.INC]
[.DTM,,10]+10[.LDT,,12]+20[.LIN,,5]+5[.SI,,>1][.PID,,200]+10[.MEA,,40][.PWK,,25]
[.PKG,,200][.TD1,,2][.TD5,,12][.TD3,,12][.TD4,,5][.MAN,,10]+6[.PCT,,>1]+4[.CTB,,5]
+5[.TXI,,>1]{:>1+2[.AMT][.REF,,>1]+1[.DTM]+2[.PCT,,>1]{:>1+1[.FA1][FA2,M,>1]}}
{:1000[.N9]+2[.DTM,,>1]+3[.MSG,,1000]}{:200+10[.N1][.N2,,2][.N3,,2][.N4,,>1]+5
[.NX2,,>1][.REF,,12]+10[.PER,,>1]+5[.SI,,>1][.FOB]+10[.TD1,,2][.TD5,,12][.TD3,,12]
[.TD4,,5][.PKG,,200]}{:>1[.LM][LQ,M,>1]}{:>1[.SPI][.REF,,5][.DTM,,5][.MSG,,50]{:20
[.N1][.N2,,2][.N3,,2][.N4][.REF,,20][.G61][.MSG,,50]}{:>1[.CB1][.REF,,20][.DTM,,5]
[.LDT][.MSG,,50]}}{:>1[.ADV][.DTM,,>1][.MTX,,>1]}^{:100000[PO1*2,M]+5[.LIN,,>1]+3
[.SI,,>1]+2[.CUR]+5[.CN1][.PO3,,25]{:>1+10[.CTP]+3[.CUR]}+2[.PAM,,10]+4[.MEA,,40]
{:1000+1[PID*1]+10[.MEA,,10]}[.PWK,,25]+20[.PO4,,>1]+10[.REF,,>1][.PER,,3]{:25+20
[.SAC]+5[.CUR]+2[.CTP]}+3[.IT8]+2[.CSH,,>1]+8[.ITD,,2]+10[.DIS,,20]+5[.INC]
```

7.3.2 Create the Validation Collaboration with the VRB

To create the validation Collaboration using the VRB, you must edit the VRB properties file, and then run the VRB tool against the SEF file. This process generates the corresponding CRS (**.tsc**) and ETD (**.ssc**) files needed by e*Xchange.

Figure 40 shows the edited **ValidationBuilder.properties** file used to create the validation Collaboration used in this example.

Figure 40 Edited VRB Properties File


ValidationBuilder.properties - WordPad
File Edit View Insert Format Help
For Help, press F1

```
inputFile=STC850.sef
setDescFile=set_4010_desc
secDescFile=sec_4010_desc
UniqueId=850/1/ST//2+850/2/BEG//3
e*GateVersion=4.1
FormatOption=DELIMITED
RepetitionDelimiter=
EscapeCharacterDelimiter=
DefaultDelimiters=X12
DelimitersSeparator=s
Delimiters=2s0s1
Comment=Created by Validation Rules Builder
OutputPath=c:/eGate/client/ValidationRulesBuilder/
SourceEventPath=monk_scripts/common/
Transactions=850
RegistryHost=localhost
RegistryPort=
UserName=Administrator
Password=#033B16FB
RegistrySchema=eXSchema
```

Once the VRB file has been edited and saved you must run the VRB tool.

- From a command prompt within the **ValidationRulesBuilder** directory, enter the following command:

  ```
  java -jar <eGate>\client\classes\ValidationBuilder.jar
  ```

  where <eGate> is the directory where e*Gate is installed, for example, C:\eGate.

The VRB tool creates the following two files and places them in the **ValidationRulesBuilder** directory:

- **X12_850PurcOrde_4010.ssc**
- **X12_850PurcOrde_4010.tsc**

The VRB also commits these two files to the e*Gate Registry under the eXSchema.

See “Using the Validation Rules Builder” in the *e*Xchange Partner Manager User’s Guide* for more information on how to create validation Collaborations using this tool.

7.4 Create the Trading Partner Profiles

The trading partner profiles in e*Xchange Partner Manager act as the repositories for the information necessary to send EDI messages back and forth between the entities. They contain all of the information to properly envelope an Event and forward it to its correct destination.

When creating trading partner profiles, check your values carefully before saving or leaving a section/screen, because many values cannot be changed once they are committed to the database due to auditing restrictions. You can inactivate erroneous information and add the correct information under a different company, B2B Protocol, and so on.

Refer to the *e*Xchange Partner Manager User's Guide* for detailed assistance with the process of creating trading partner profiles.

Trading Partner Information Hierarchy

e*Xchange stores trading partner information at various levels. The process of creating a trading partner profile proceeds from the most general inclusive level, that of a company with which you do business, to the most specific information regarding an message that you wish to send (the message profile).

7.4.1 The Savvy Toy Company Trading Partner

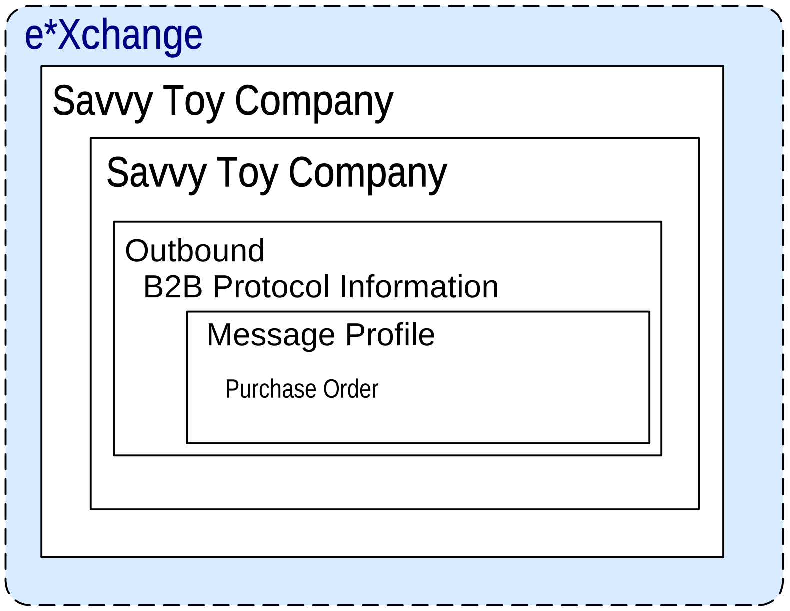
The Savvy Toy Company (Savvy) is a manufacturer of high quality toys that uses the X12 format to exchange business data with its customers. In our example we send a purchase order to Savvy for one of their products, "the Millennium Pet Rock."

The following procedure and accompanying tables were used to create the Savvy trading partner for this example.

Figure 41 shows an overview of the components that you need to create for this example, including,

- Company
- Trading Partner
- B2B Protocol Information
- Message Profiles

Figure 41 The Savvy Toy Company Overview



To configure the Savvy Toy Company Trading Partner Profile you must follow the steps listed below:

- **Step 1: Create the Company** on page 83
- **Step 2: Create the Trading Partner** on page 83
- **Step 3: Set Up the B2B Protocol Information** on page 84
- **Step 4: Create the Message Profile** on page 85

Step 1: Create the Company

1. Log in to the e*Xchange Web interface.
2. From the **Main** page, click **Profile Management**.
3. From the **Company** page, click **New**.
4. In the **Company - Adding** page, enter the **Company** name, “Savvy Toy Company”.
5. Click **Next**.

   This saves your changes and returns to the **Company** page.

Note: *The security information is automatically configured for the current user.*

Step 2: Create the Trading Partner

1. From the **Company** page, ensure that “Savvy Toy Company” is selected, and click **Continue: Trading Partner**.

2 From the **Trading Partner** page, click **New** to access the **Trading Partner - adding** page.

3 Enter the **Trading Partner Name**, "Savvy Toy Company".

4 Click **Next**.

This saves your changes and returns to the **Trading Partner** page.

The required security information defaults from the company level.

Step 3: Set Up the B2B Protocol Information

1 From the **Trading Partner** page, ensure that the "Savvy Toy Company" is selected, and click **Continue: B2B Protocol**.

2 From the **B2B Protocol** page, click **New** to access the **B2B Protocol - Adding** page.

3 Enter the information listed in Table 6.

In an actual implementation, your local administrator can provide you with the B2B Protocol information. For an explanation of the B2B Protocol parameters, see the *e*Xchange Partner Manager User's Guide*.

Table 6 B2B Protocol Information

Parameter	Value
eBusiness Protocol	X12
Version	4010
Direction	Outbound

4 Click **Next** to save your changes and access the **General** section.

5 Enter the information listed in Table 7.

Table 7 B2B Protocol Information, General Page

Parameter	Value
Logical Name	Savvy
Status	Active
Communication Protocol	FTP (BATCH)

6 Click **Next** to save your changes and access the **Transport Component** section.

7 In the **File Name** window, enter **<drive>\SavvyOut\Savvy850_Out_%d_%3#.dat**.

Note: *You must create the directory **<drive>\SavvyOut** before running the Schema.*

8 Click **Next** to accept the values and access the **Message Security** page.

9 No changes are required. Click **Finish** to save the information and return to the **B2B Protocol** page.

Step 4: Create the Message Profile

1 From the **B2B Protocol** page, click **Continue: Message Profile**.

2 From the **Message Profile** page, click the **New** button to access the **Message Profile - adding** page.

3 Enter the information listed in Table 8.

Note: *This table only lists the attributes required to make this scenario work.*

Table 8 General (X12_850PurcOrde_4010)

Name	Value
Name	Savvy 850 Outbound PO
Transfer Mode	Interactive
Validation Collaboration	X12_850PurcOrde_4010

4 Click **Next** to access the **Interchange Control Envelope** section. Enter the information listed in Table 9.

Table 9 Interchange Control Envelope (X12_850PurcOrde_4010)

Name	Value
ISA06 Interchange Sender Identifier	eBiz01
ISA08 Interchange Receiver Identifier	Savvy01
ISA13 IC Control Number	000000002

Note: *The IC Control Number must be 9 digits in length.*

5 Click **Next** to access the **Functional Group Envelope** section. Enter the information listed in Table 10.

Note: *This table only lists the attributes required to make this scenario work.*

Table 10 Functional Group Envelope (X12_850PurcOrde_4010)

Name	Value
GS01 Functional Identification Code	PO
GS02 Application Sender Code	eBiz01
GS03 Application Receiver Code	Savvy01
GS06 Group Control Number	2

6 Click **Next** to access the **Transaction Set Envelope** section. Enter the information listed in Table 11.

Note: *This table only lists the attributes required to make this scenario work.*

Table 11 Transaction Set Envelope (X12_850PurcOrde_4010)

Name	Value
ST01 Transaction Set Identification Code	850
ST02 TS Control Number	1

7 Click **Next** to access the **Return Messages** section.

8 No changes are required. Click **Finish** to save the information and return to the **Message Profile** page.

7.5 Clone the eXSchema

The supplied schema named eXSchema contains the components required to run e*Xchange. Make a copy of this schema and then configure the copy for this implementation.

To make a copy of eXSchema

1 Open eXSchema in the e*Gate Schema Designer GUI.

2 Export eXSchema.

3 Create a new schema named **X12** using the exported file.

7.6 Configure the e*Way to Send the Message to e*Xchange

The component (e*Way or BOB) that feeds data into e*Xchange must put the data into the appropriate business protocol format. It must also populate the required fields in the e*Xchange Event that is processed by e*Xchange.

This component is entirely user-defined and must be added to the eXSchema. The type of component to use depends on whether a connection to a system outside e*Gate must be made, and if so, what type of system. Typically, this component is an e*Way that connects to a business application such as SAP that sends out electronic messages. These messages may or may not be in the format required by the trading partner to which they are being sent. If the data is not in the correct format, the e*Way must translate the data into the required format before it is sent to the e*Xchange system for enveloping and forwarding to the trading partner.

The e*Xchange Send_to_ePM e*Way

This example simulates the publication of an electronic purchase order from an internal (to the company, but not to e*Gate) accounting application to a shared location on the network file system. This file, which is already in X12 850 format, is then picked up by a file e*Way and moved into e*Xchange.

This example shows the configuration steps for creating the e*Way using the Java Collaboration Service (see **"Configuring the Send_to_ePM_Java e*Way"**) and the Monk Collaboration Service (see **"Configuring the Send_to_ePM_Monk e*Way" on page 90**).

7.6.1 Configuring the Send_to_ePM_Java e*Way

Follow these steps to configure **Send_to_ePM_Java** e*Way.

1. Create the configuration file.
2. Create the ETDs.
3. Create the Collaboration Rule and Collaboration Rules Script.
4. Create the Collaboration.

Step 1: Edit the Send_to_ePM_Java e*Way Configuration File

1. In the **Configuration file** area of the **General** tab, in the **e*Way Properties** dialog box, click **Clear**, and then click **New**.
2. Configure the **Send_to_ePM_Java** e*Way parameters using Table 12.

Table 12 Send_to_ePM_Java e*Way Parameters

Screen	Parameter	Setting
General Settings	(All)	(Default)
Outbound (send) settings	(All)	(Default)
Poller (inbound) settings	PollDirectory	<eGate>\client\data\eXchange
	(All others)	(Default)
Performance Testing	(All)	(Default)

3. When finished editing the e*Way configuration file, save your work and close the e*Way editor.
4. Click **OK** to close the **e*Way Properties** dialog box.

Step 2: Create the Send_to_ePM_Java ETDs

In the case where the **Send_to_ePM_Java** e*Way connects to a business application, you must create an ETD that corresponds to the business application. For example, an SAP system sends out EDI messages in IDoc (SAP proprietary) format. In order to work with these messages you must create an ETD that corresponds to the IDoc.

In the present example, since the data is already in standard X12 850 format for a purchase order, you can bring in the Event without parsing it. To do this, all that is required is an ETD with a root node.

Step 3: Create the Send_to_ePM_Java Collaboration Rule and Collaboration Rule Script

The **Send_to_ePM_Java.xpr** CRS used in the present example is shown in Figure 42. It does the following:

- Converts the X12 850 message to base 64 encoding, and copies it to the Payload node of the TP_EVENT section of the e*Xchange standard Event.
- Sets the Payload type and location.
- Copies “O” for outbound to the direction node of the TP_EVENT section.
- Copies the trading partner logical name “Savvy” to the PartnerName node of the TP_EVENT section.

To create and configure the Send_to_ePM_Java Collaboration Rule and Collaboration Rule Script

1. Create a new Collaboration Rule named **Send_to_ePM_Java**.
2. From **Send_to_ePM_Java** Collaboration Rule properties, select the **General** tab. Select **Java** as the **Service**.
3. Select the **Collaboration Mapping** tab. Create two instances, and configure as shown in Table 13.

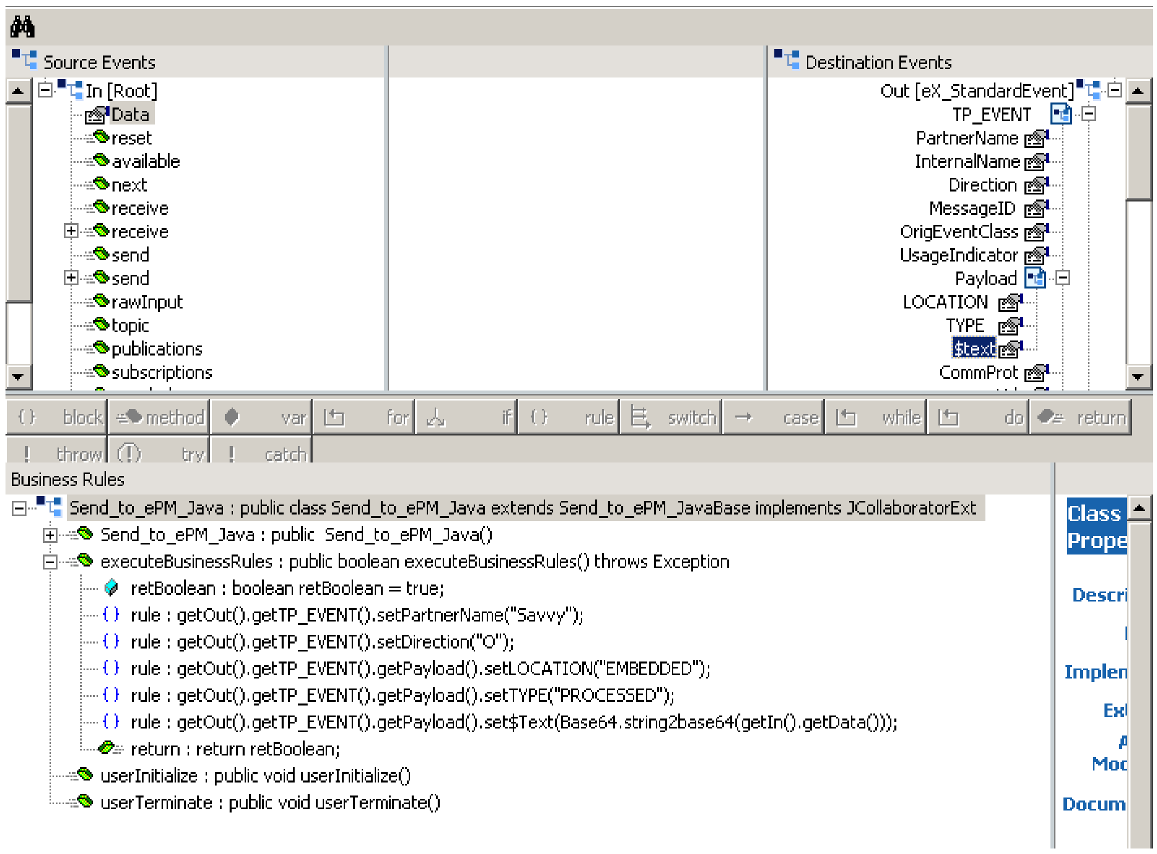
Table 13 Send_to_ePM_Java CR configuration - Collaboration Mapping Tab

Instance Name	ETD	Mode	Manual Publish
In	Root.xsc	In	N/A
Out	eX_StandardEvent.xsc	Out	

4. Select the **General** tab, and then click **New**.

   The Collaboration Editor opens.
5. Add the rules shown in Figure 42.

Figure 42 Send_to_ePM_Java.xpr



```
Send_to_ePM_Java : public class Send_to_ePM_Java extends Send_to_ePM_JavaBase implements JCollaboratorExt
    Send_to_ePM_Java : public  Send_to_ePM_Java()
    executeBusinessRules : public boolean executeBusinessRules() throws Exception
        retBoolean : boolean retBoolean = true;
        rule : getOut().getTP_EVENT().setPartnerName("Savvy");
        rule : getOut().getTP_EVENT().setDirection("O");
        rule : getOut().getTP_EVENT().getPayload().setLOCATION("EMBEDDED");
        rule : getOut().getTP_EVENT().getPayload().setTYPE("PROCESSED");
        rule : getOut().getTP_EVENT().getPayload().set$Text(Base64.string2base64(getIn().getData()));
        return : return retBoolean;
    userInitialize : public void userInitialize()
    userTerminate : public void userTerminate()
```

Step 4: Create the Send_to_ePM_Java Collaboration

Once the CRS has been created, you must set up the Collaboration Properties for the **Send_to_ePM_Java** Component in the Schema Designer GUI.

To create and configure the Send_to_ePM_Java Collaboration

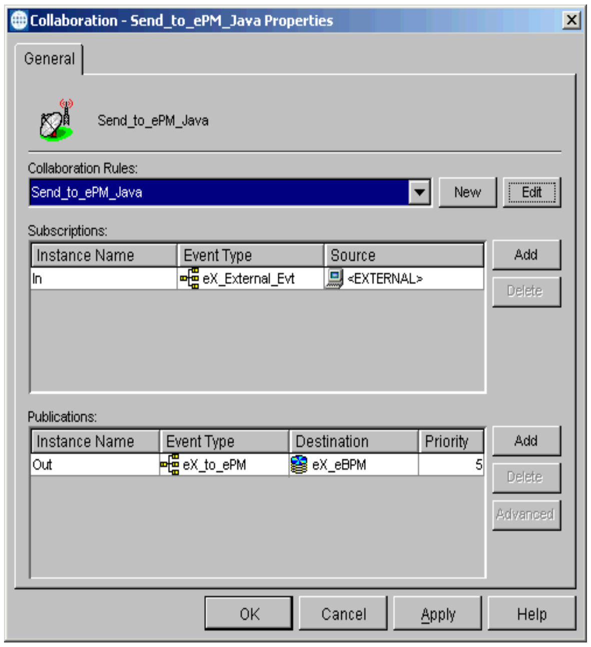
1. Select the **Send_to_ePM_Java** e*Way.
2. Create a new Collaboration named **Send_to_ePM_Java**.
3. Configure the **Send_to_ePM_Java** Collaboration properties using Table 14.

Table 14 Send_to_ePM_Java Collaboration configuration

Section	Value
Collaboration Rule	Send_to_ePM_Java
Subscriptions	Instance: In Event Type: eX_External_Evt Source: <EXTERNAL>
Publication	Instance: Out Event Type: eX_to_ePM Destination: eX_eBPM

Verify the information in the **Collaboration Properties** dialog box as shown in Figure 43.

Figure 43 Send_to_ePM_Java Collaboration Properties



Collaboration - Send_to_ePM_Java Properties

General

Send_to_ePM_Java

Collaboration Rules: Send_to_ePM_Java

Subscriptions:

Instance Name	Event Type	Source
In	eX_External_Evt	<EXTERNAL>

Publications:

Instance Name	Event Type	Destination	Priority
Out	eX_to_ePM	eX_eBPM	5

7.6.2 Configuring the Send_to_ePM_Monk e*Way

Follow these steps to configure **Send_to_ePM_Monk** e*Way.

1. Create the configuration file.
2. Create the ETDs.
3. Create the Collaboration Rule and Collaboration Rules Script.
4. Create the Collaboration.

Step 1: Edit the Send_to_ePM_Monk e*Way Configuration File

1. In the **Configuration file** area of the **General** tab, in the **e*Way Properties** dialog box, click **Clear**, and then click **New**.
2. Configure the **Send_to_ePM_Monk** e*Way parameters using Table 15.

Table 15 Send_to_ePM_Monk e*Way Parameters

Screen	Parameter	Setting
General Settings	(All)	(Default)
Outbound (send) settings	(All)	(Default)
Poller (inbound) settings	PollDirectory	<eGate>\client\data\eXchange
	(All others)	(Default)

Table 15 Send_to_ePM_Monk e*Way Parameters

Screen	Parameter	Setting
Performance Testing	(All)	(Default)

3 When finished editing the e*Way configuration file, save your work and close the e*Way editor.

4 Click **OK** to close the **e*Way Properties** dialog box.

Step 2: Create the Send_to_ePM_Monk ETDs

In the present example, since the data is already in standard X12 850 format for a purchase order, you can bring in the Event without parsing it. To do this, all that is required is an ETD with a root node.

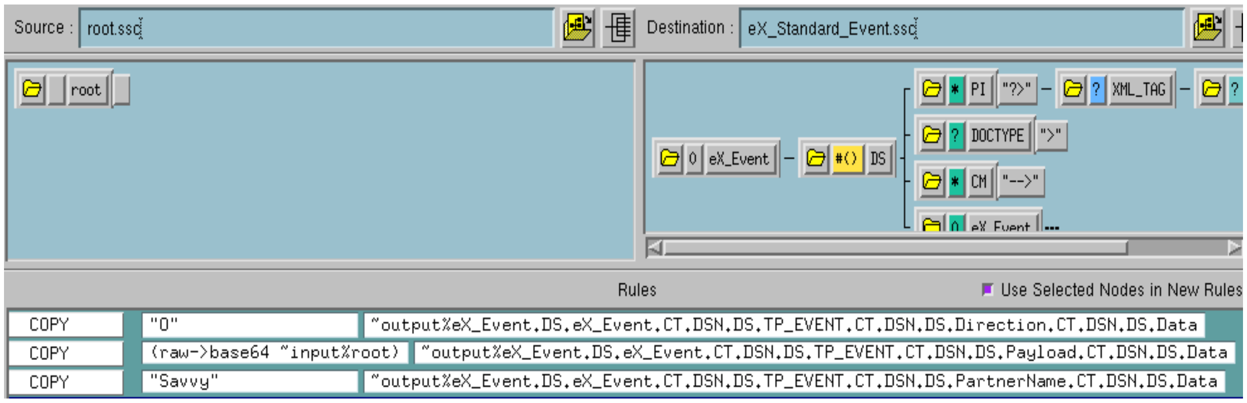
Step 3: Create the Send_to_ePM_Monk Collaboration Rules Script

The **Send_to_ePM_Monk.tsc** CRS used in this example is shown in Figure 44. It does the following:

- Converts the X12 850 message to base 64 encoding, and copies it to the Payload node of the TP_EVENT section of the e*Xchange standard Event.
- Copies “O” for outbound to the direction node of the TP_EVENT section.
- Copies the trading partner logical name “Savvy” to the PartnerName node of the TP_EVENT section.

Figure 44 shows the CRS used in this example.

Figure 44 Send_to_ePM_Monk.tsc



```
COPY   "O"                       ~output%eX_Event.DS.eX_Event.CT.DSN.DS.TP_EVENT.CT.DSN.DS.Direction.CT.DSN.DS.Data
COPY   (raw->base64 ~input%root) ~output%eX_Event.DS.eX_Event.CT.DSN.DS.TP_EVENT.CT.DSN.DS.Payload.CT.DSN.DS.Data
COPY   "Savvy"                   ~output%eX_Event.DS.eX_Event.CT.DSN.DS.TP_EVENT.CT.DSN.DS.PartnerName.CT.DSN.DS.Data
```

Step 4: Create the Send_to_ePM_Monk Collaboration Rule

To create and configure the Send_to_ePM_Monk Collaboration Rule

1 Create a new Collaboration Rule named **Send_to_ePM_Monk**.

2 From the **Send_to_ePM_Monk** Collaboration Rule properties, select the **General** tab. Configure as shown in Table 16.

Table 16 Send_to_ePM_Monk CR configuration - General Tab

Section	Value
Service	Monk
Collaboration Rule	Send_to_ePM_Monk
Initialization File	monk_scripts\common\load_ext

3 Select the **Subscriptions** tab. Select **eX_External_Evt** and move it to the right pane.

4 Select the **Publications** tab. Select **eX_to_ePM** and move it to the right pane.

Step 5: Create the Send_to_ePM_Monk Collaboration

Once the CRS has been created, you must set up the Collaboration Properties for the **Send_to_ePM_Monk** Component in the Schema Designer GUI.

To create and configure the Send_to_ePM_Monk Collaboration

1 Select the **Send_to_ePM_Monk** e*Way.

2 Create a new Collaboration named **Send_to_ePM_Monk**.

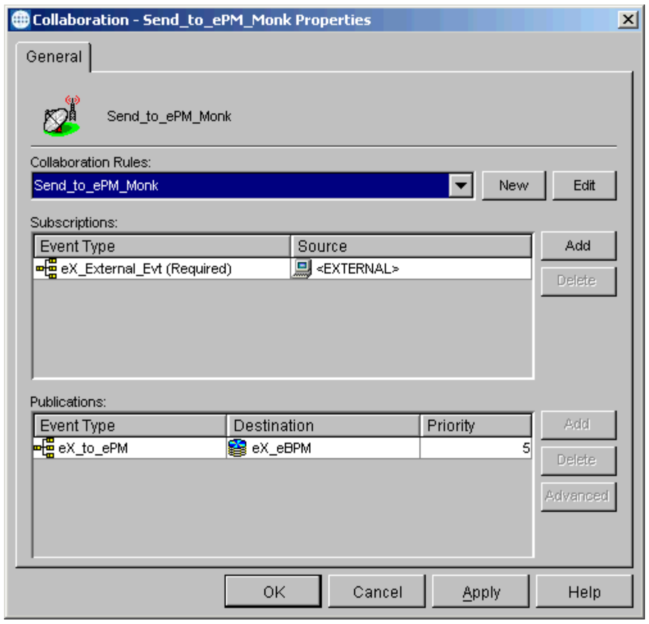
3 Configure the **Send_to_ePM_Monk** Collaboration properties using Table 17.

Table 17 Send_to_ePM_Monk Collaboration Configuration

Section	Value
Collaboration Rule	Send_to_ePM_Monk
Subscriptions	Event Type: eX_External_Evt Source: <EXTERNAL>
Publications	Event Type: eX_to_ePM Destination: eX_eBPM

Verify the information in the **Collaboration Properties** dialog box as shown in Figure 45.

Figure 45 Send_to_ePM_Monk Collaboration Properties


Collaboration - Send_to_ePM_Monk Properties

General

Send_to_ePM_Monk

Collaboration Rules: Send_to_ePM_Monk

Subscriptions:

Event Type	Source
eX_External_Evt (Required)	<EXTERNAL>

Publications:

Event Type	Destination	Priority
eX_to_ePM	eX_eBPM	5

7.7 Configure the eX_ePM e*Way

The **eX_ePM** e*Way requires only minimal configuration. You must give it the logon information for the e*Xchange database.

To configure the eX_ePM configuration file

1. In the **eX_ePM** e*Way properties, select the **General** tab.
2. In the **Configuration File** area, click **Edit**.
3. Configure the parameters as shown in Table 18.

Table 18 eX_ePM e*Way Parameters

Screen	Parameter	Setting
General Settings	(All)	(Default)
Communication Setup	(All)	(Default)
Monk Configuration	(All)	(Default)

Table 18 eX_ePM e*Way Parameters

Screen	Parameter	Setting
Database Setup	Database Name)	(Service name of the e*Xchange database)
	User name	ex_admin
	Password	ex_admin
	(All others)	(Default)

7.8 Configure Any Other e*Gate Components

The remaining component in the e*Xchange schema is the **eX_Batch_to_Trading_Partner** e*Way. This component works without any user configuration.

The Batch e*Way uses the information in the trading partner profile to FTP the message to the trading partner. In this example this is simulated by making a local copy of the file.

7.9 Run and Test the e*Xchange Scenario

Once the schema has been set up in e*Gate you can run and test the scenario.

1 Make a final check of the e*Gate schema. Also, make sure the **eX_ePM**, and **eX_Batch_to_Trading_Partner**, and either **Send_to_ePM_Java** or **Send_to_ePM_Monk**, components are set to auto-start.

Important: *Verify that any other components in the schema that are not being used are not set to auto-start or are moved to an unused host.*

2 At the command line, start the schema:

```
stccb.exe -rh localhost -rs <schema name> -ln localhost_cb -un
Administrator -up STC
```

3 Start the Schema Manager and check the status of all the components. Any components used in the e*Xchange scenario that are red, indicating they are not running, should be investigated before feeding data into the system.

4 Using Windows Explorer (or the equivalent) navigate to the location for the input data file, **eXchange_PO.~in** (**<eGate>\client\data\eXchange**).

5 Change the extension to ".fin". Watch as the data file name changes to ".~in" indicating that the data file has been picked up.

6 Navigate to the location to which you are sending the output file by FTP. If everything is working correctly, an output file should appear in the directory indicating successful completion of the EDI exchange.

Note: *The enveloping information is added to the information contained in the input file by e*Xchange.*

Viewing the Results in Message Tracking

You can view the results of the message processing by using the Message Tracking feature of e*Xchange.

To view the outbound message in Message Tracking

1 From e*Xchange Web Interface, **Main** page, select **Message Tracking**.

  The **TP Profile Selection** page appears.

2 In the **Company Profile** field, select **Savvy Toy Company**.

3 In the **Trading Partner Profile** field, select **Savvy Toy Company**.

4 In the **eBusiness Protocol** field, select **X12**.

5 In the **Direction** field, select **Outbound**.

6 Click the **Message Profile Selection**.

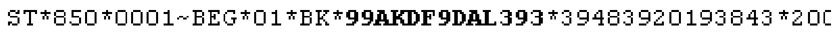
7 Select the **Savvy 850 Outbound PO** message.

8 Click the **Message Details** link to view the resulting list.

7.10 Editing the Data File

If you want to send the data again, you need to edit the data to ensure that it is unique. Open **<eGate>\client\data\eXchange\eXchange_PO.~in** and change the field shown in bold in to a unique value.

Figure 46 Sample data file



```
ST*850*0001~BEG*01*BK*99AKDF9DAL393*39483920193843*20
```

Chapter 8

e*Xchange Implementation—UN/EDIFACT

This chapter discusses the steps involved to create an e*Xchange implementation that transfers UN/EDIFACT data.

The components for this implementation are provided on your installation CD. For instructions on installing and using the implementation components, see **"Using the Implementation Sample" on page 99**.

8.1 Overview

An e*Xchange implementation makes use of the features designed to add and remove the EDI enveloping information for messages exchanged between trading partners.

In an e*Xchange implementation, use the e*Xchange Web Interface to set up trading partner information, and the e*Gate Schema Designer GUI to add user-defined e*Gate components to provide connectivity to the business application or trading partner. Once this is done, the pre-configured e*Xchange e*Gate schema components handle enveloping and de-enveloping Events as they travel through the e*Xchange system.

The major steps for an e*Xchange implementation are as follows:

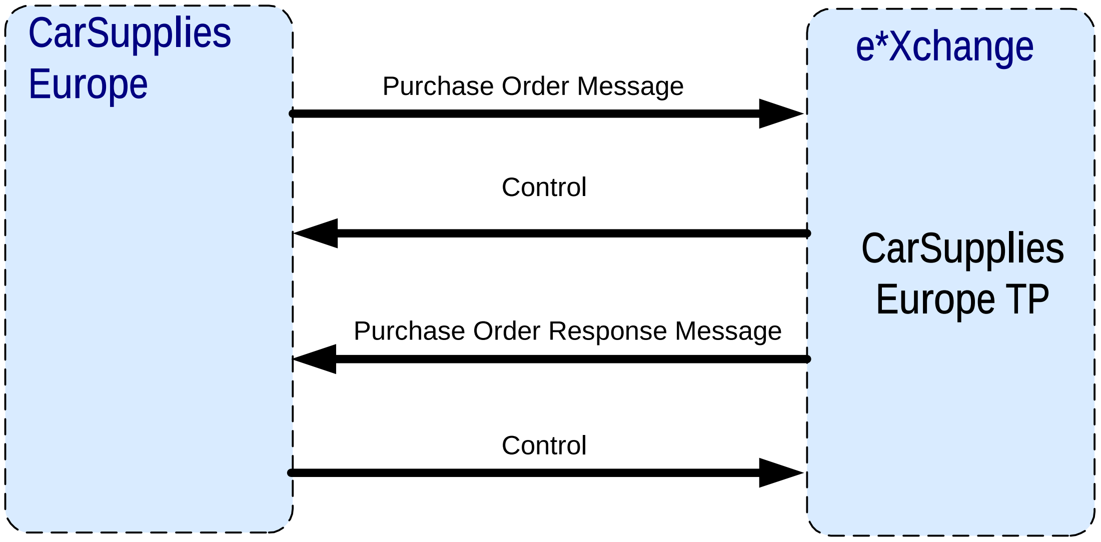
1. Create any needed validation Collaborations.
2. Add the new validation Collaborations and configure envelope profiles in the e*Xchange GUI.
3. Create the trading partner profiles.
4. Configure the user-defined e*Ways that connect the business application to e*Xchange and exchange messages with the trading partner.
5. Configure the e*Xchange e*Way.
6. Run and test the scenario.

8.1.1 Case Study: Sending an UN/EDIFACT Purchase Order

The case study discussed in this chapter illustrates one possible implementation of receiving a purchase order from a trading partner.

In this example, a UN/EDIFACT purchase order is received from an external trading partner. The UN/EDIFACT enveloping is automatically removed from the message by e*Xchange based on trading partner information retrieved from the e*Xchange database, and then it is sent to an internal system. A control message is immediately returned to the Trading Partner. Then the purchase order response is sent to the Trading Partner, and the Trading Partner returns a control message to complete the cycle. Figure 47 shows the message flow.

Figure 47 UN/EDIFACT Message Flow



Typically, the purchase order information would be provided by a business application and may or may not be in UN/EDIFACT format. A user-defined e*Way must be created to connect to a business application in order to receive the data and put it into the proper UN/EDIFACT format. In order to simplify this example, the purchase order information is provided in the form of a text file that is already in UN/EDIFACT format.

Figure 48 e*Xchange Scenario Data Flow

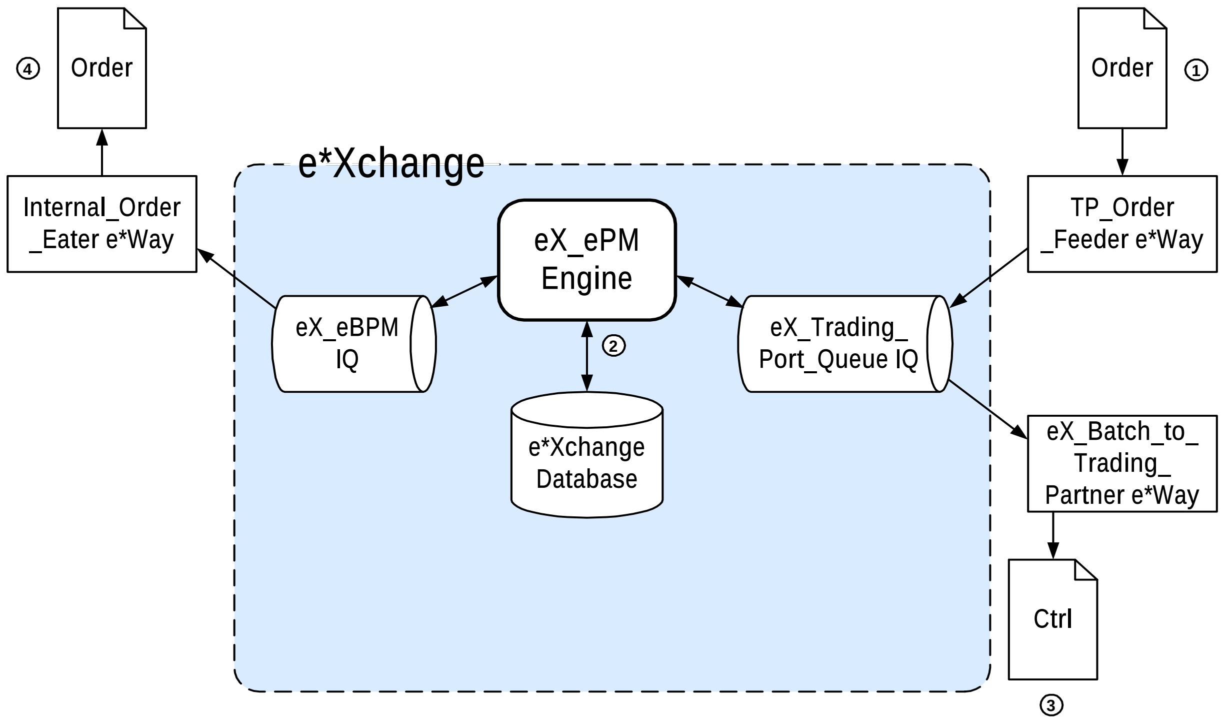


Figure 48 data flow description

① The **TP_Order_Feeder** e*Way picks up the order message and publishes it to the eX_trading_Port_Queue IQ.

② e*Xchange engine picks it up from the IQ, validates it, saves it to the database, and publishes two messages:

- Control message to the eX_Trading_Port_Queue IQ
- Order message to the eX_eBPM IQ.

③ eX_Batch_to_Trading_Partner e*Way sends out the control message to the trading partner.

④ Internal_Order_Eater e*Way picks up the message from the eX_eBPM IQ and sends it to the internal system.

8.2 Using the Implementation Sample

The components for this implementation are provided on your installation CD, and are located in **\setup\eXchange\sample\EDIFACT_SAMPLE_IMPLEMENTATION.zip**. Follow these steps to install the components:

1. Unzip the file to a local directory.
2. Install the e*Gate schema using one of the following commands. The schema name is user defined.

Note: *The default registry port number is 23001.*

   A. For UNIX

```
sh install_edifact_po.sh <egate_registry_host_name> <schema_name>
<user_name> <password> <egate_registry_port_num>
```

   B. For Windows

```
install_edifact_po.bat <egate_registry_host_name> <schema_name>
<user_name> <password> <egate_registry_port_num>
```

3. Use the e*Xchange Import function to import **EDIFACT.exp** into e*Xchange Partner Manager.
4. Copy the data folder to the **<egate>** directory.
5. If e*Gate is not installed on your C drive, update the **Transport Component** file location as described in **"Step 5: Set up outbound B2B Protocol Information" on page 105**.
6. Configure the **eX_ePM** e*Way as described in **"Configure the eX_ePM e*Way" on page 117**.

The steps on the following pages describe how the components for this implementation were created. See **"Running the Scenario" on page 119** for instructions to run the implementation.

8.3 Create the Trading Partner Profiles

Trading partner profiles in e*Xchange act as repositories for the information necessary to send EDI messages back and forth between entities. They contain all of the information needed to properly envelope an Event and forward it to its correct destination.

When creating trading partner profiles, check your values carefully before saving or leaving a section/screen, because many values cannot be changed once they are committed to the database due to auditing restrictions. You can inactivate erroneous information and add the correct information under a different company, B2B Protocol, and so on.

Refer to the *e*Xchange Partner Manager User's Guide* for detailed assistance with the process of creating trading partner profiles.

Trading Partner Information Hierarchy

e*Xchange stores trading partner information at various levels. The process of creating a trading partner profile proceeds from the most general inclusive level, that of a company with which you do business, to the most specific information regarding an message that you wish to send (the message profile).

8.3.1 The Car Interiors Trading Partner

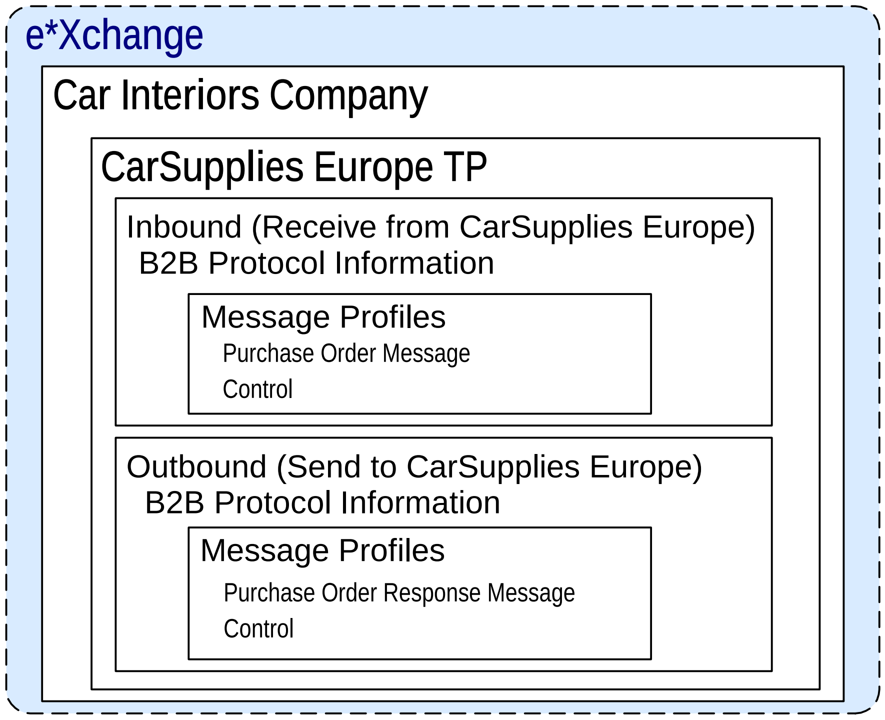
Car Interiors is a manufacturer of high quality car interiors that uses the UN/EDIFACT format to exchange business data with its customers. In our example we send a purchase order to Car Interiors.

The following procedure and accompanying tables were used to create the Car Interiors trading partner for this example.

Figure 49 shows an overview of the components that you need to create for this example, including:

- Company
- Trading Partner
- B2B Protocol Information
- Message Profiles

Figure 49 Car Interiors Overview


e*Xchange
Car Interiors Company
CarSupplies Europe TP
Inbound (Receive from CarSupplies Europe) B2B Protocol Information
Message Profiles
Purchase Order Message
Control
Outbound (Send to CarSupplies Europe) B2B Protocol Information
Message Profiles
Purchase Order Response Message
Control

To configure the CarSupplies Europe trading partner profile you must follow the steps listed below:

- **Step 1: Create the Company** on page 101
- **Step 2: Create the Trading Partner** on page 102
- **Step 3: Set up the Inbound B2B Protocol Information** on page 102
- **Step 4: Create the Inbound Message Profiles** on page 103
- **Step 5: Set up outbound B2B Protocol Information** on page 105
- **Step 6: Create the Outbound Message Profiles** on page 105
- **Step 7: Configure Return Messages for Inbound** on page 108

Step 1: Create the Company

1. Log in to the e*Xchange Web interface.
2. From the **Main** page, click **Profile Management**.
3. From the **Company** page, click **New**.
4. In the **Company - adding** page, enter the **Company** name, “Car Interiors”.
5. Click **Next**.

   This saves your changes and returns to the **Company** page.

Note: *The security information is automatically configured for the current user.*

Step 2: Create the Trading Partner

1. From the **Company** page, ensure that “Car Interiors” is selected, and click **Continue: Trading Partner**.
2. From the **Trading Partner** page, click **New** to access the **Trading Partner - adding** page.
3. Enter the **Trading Partner Name**, “CarSupplies Europe”.
4. Click **Next**.

   This saves your changes and returns to the **Trading Partner** page.

The required security information defaults from the company level.

Step 3: Set up the Inbound B2B Protocol Information

To set up the inbound B2B Protocol Information

1. From the **Trading Partner** page, ensure that the “CarSupplies Europe” is selected, and click **Continue: B2B Protocol**.
2. From the **B2B Protocol** page, click **New** to access the **B2B Protocol - adding** page.
3. Enter the information listed in Table 19.

   In an actual implementation, your local administrator can provide you with the B2B Protocol information. For an explanation of the B2B Protocol parameters, see the *e*Xchange Partner Manager User's Guide*.

Table 19 B2B Protocol Information

Parameter	Value
eBusiness Protocol	UN/EDIFACT
Version	4B
Direction	Inbound

4. Click **Next**, to save your changes and access the **General** section.
5. Enter the information listed in Table 20.

Table 20 B2B Protocol Information, General Page

Parameter	Value
Logical Name	TP_001
Status	Active
Communication Protocol	FTP(BATCH)

6. Click **Next**, to save your changes and access the **Transport Component** section.
7. No changes are required. Click **Next** to access the **Message Security** section.
8. No changes are required. Click **Finish** to save the information and return to the **B2B Protocol** page.

Step 4: Create the Inbound Message Profiles

For the purposes of this scenario, you must set up the following inbound message profiles:

- Purchase Order Message (EDF_ORDERSPurcOrdeMess_D99B)
- Control (EDF_CONTROL)

To set up the EDF_ORDERSPurcOrdeMess_D99B Order inbound message profile

1. From the **B2B Protocol** page, click **Continue: Message Profile**.
2. From the **Message Profile** page, click the **New** button to access the **Message Profile - adding** page.
3. Enter the information listed in Table 21.

Note: *This table only lists the attributes required to make this scenario work.*

Table 21 General (EDF_ORDERSPurcOrdeMess_D99B)

Name	Value
Name	EDF_ORDERSPurcOrdeMess_D99B
Transfer Mode	Interactive
Validation Collaboration	EDF_ORDERSPurcOrdeMess_D99B

4. Click **Next** to access the **Interchange Control Envelope** section. Enter the information listed in Table 22.

Table 22 Interchange Control Envelope (EDF_ORDERSPurcOrdeMess_D99B)

Name	Value
Interchange Recipient Identifier	987654321
Interchange Recipient Identification Qualifier	1
Interchange Sender Identifier	123456789
Interchange Sender Identification Qualifier	1

5. Click **Next** to access the **Functional Group Envelope** section. Enter the information listed in Table 23.

Note: *This table only lists the attributes required to make this scenario work.*

Table 23 Functional Group Envelope (EDF_ORDERSPurcOrdeMess_D99B)

Name	Value
Application Receiver Identification Code	987654321
Application Sender Identification Code	123456789

6. Click **Next** to access the **Message Envelope** section.

7 In the **Message Type Identifier** window, type **ORDERS**.

8 Click **Next** to access the **Return Messages** section.

9 No changes are required. Click **Finish** to save the information and return to the **Message Profile** page.

To set up the EDF_CONTROL inbound message profile

1 From the **Message Profile** page, click the **New** button to access the **Message Profile - adding** page.

2 Enter the information listed in Table 24.

Note: *This table only lists the attributes required to make this scenario work.*

Table 24 General (EDF_CONTROL)

Name	Value
Name	EDF_CONTROL
Transfer Mode	Interactive
Validation Collaboration	EDF_CONTROL

3 Click **Next** to access the **Interchange Control Envelope** section. Enter the information listed in Table 25.

Table 25 Interchange Control Envelope (EDF_CONTROL)

Name	Value
Interchange Recipient Identifier	987654321
Interchange Recipient Identification Qualifier	1
Interchange Sender Identifier	123456789
Interchange Sender Identification Qualifier	1

4 Click **Next** to access the **Functional Group Envelope** section. Enter the information listed in Table 26.

Note: *This table only lists the attributes required to make this scenario work.*

Table 26 Functional Group Envelope (EDF_CONTROL)

Name	Value
Application Receiver Identification Code	987654321
Application Sender Identification Code	123456789

5 Click **Next** to access the **Message Envelope** section.

6 In the **Message Type Identifier** window, type **CONTRL**.

7 Click **Next** to access the **Return Messages** section.

8 No changes are required. Click **Finish** to save the information and return to the **Message Profile** page.

Step 5: Set up outbound B2B Protocol Information

To set up the outbound B2B Protocol Information

As a shortcut, you can copy the Inbound B2B Protocol Information as a model for the Inbound B2B Protocol Information.

1 On the **B2B Protocol** page, select the UN/EDIFACT-4B-Inbound protocol that you created in **"To set up the inbound B2B Protocol Information" on page 102**.

2 Click **Copy**.

The **Copy Type** page appears.

3 Clear the **Include Sub-components** check box and then click **OK**.

The **B2B Protocol - copying** page appears.

4 In the **Direction** field, ensure that **Outbound** is selected.

5 Click **Next**.

The **B2B Protocol - copying, General** page appears.

6 No changes are needed: click **Next** to accept the values and access the **Transport Component** page.

7 In the **File Name** window, enter **<egate>\data\TP\eater\order_response_%d_%3#.dat**.

8 Click **Next** to accept the values and access the **Message Security** page.

9 No changes are required. Click **Finish** to save the information and return to the **B2B Protocol** page.

Step 6: Create the Outbound Message Profiles

For the purposes of this scenario, you must set up the following outbound message profiles:

- Purchase Order Response Message (EDF_ORDRSPPurcOrdeRespMess_D99B)
- Control (EDF_CONTROL)

To set up the EDF_ORDRSPPurcOrdeRespMess_D99B Order inbound message profile

1 From the **B2B Protocol** page, click **Continue: Message Profile**.

2 From the **Message Profile** page, click the **New** button to access the **Message Profile - adding** page.

3 Enter the information listed in Table 27.

Note: *This table only lists the attributes required to make this scenario work.*

Table 27 General (EDF_ORDRSPPurcOrdeRespMess_D99B)

Name	Value
Name	EDF_ORDRSPPurcOrdeRespMess_D99B
Transfer Mode	Interactive
Validation Collaboration	EDF_ORDRSPPurcOrdeRespMess_D99B

4 Click **Next** to access the **Interchange Control Envelope** section. Enter the information listed in Table 28.

Table 28 Interchange Control Envelope (EDF_ORDRSPPurcOrdeRespMess_D99B)

Name	Value
Interchange Recipient Identifier	123456789
Interchange Recipient Identification Qualifier	1
Interchange Sender Identifier	987654321
Interchange Sender Identification Qualifier	1

5 Click **Next** to access the **Functional Group Envelope** section. Enter the information listed in Table 29.

Note: *This table only lists the attributes required to make this scenario work.*

Table 29 Functional Group Envelope (EDF_ORDRSPPurcOrdeRespMess_D99B)

Name	Value
Application Receiver Identification Code	123456789
Application Sender Identification Code	987654321

6 Click **Next** to access the **Message Envelope** section.

7 In the **Message Type Identifier** window, type **ORDRSP**.

8 Click **Next** to access the **Return Messages** section.

9 Select the return message (select the **Include** check box), and enter the values, as shown in Table 30.

Table 30 Return Message Values: Outbound

Name	Response Time	Period	# Retries
EDF_CONTROL	2	Minutes	2

10 Click **Finish** to save the information and return to the **Message Profile** page.

To set up the EDF_CONTROL inbound message profile

1 From the **Message Profile** page, click the **New** button to access the **Message Profile - adding** page.

2 Enter the information listed in Table 31.

Note: *This table only lists the attributes required to make this scenario work.*

Table 31 General (EDF_CONTROL)

Name	Value
Name	EDF_CONTROL
Transfer Mode	Interactive
Validation Collaboration	EDF_CONTROL

3 Click **Next** to access the **Interchange Control Envelope** section. Enter the information listed in Table 32.

Table 32 Interchange Control Envelope (EDF_CONTROL)

Name	Value
Interchange Recipient Identifier	123456789
Interchange Recipient Identification Qualifier	1
Interchange Sender Identifier	987654321
Interchange Sender Identification Qualifier	1

4 Click **Next** to access the **Functional Group Envelope** section. Enter the information listed in Table 33.

Note: *This table only lists the attributes required to make this scenario work.*

Table 33 Functional Group Envelope (EDF_CONTROL)

Name	Value
Application Receiver Identification Code	123456789
Application Sender Identification Code	987654321

5 Click **Next** to access the **Message Envelope** section.

6 In the **Message Type Identifier** window, type **CONTRL**.

7 Click **Next** to access the **Return Messages** section.

8 No changes are required. Click **Finish** to save the information and return to the **Message Profile** page.

Step 7: Configure Return Messages for Inbound

To set up the Return Message Profile values for Inbound

Once you have set up inbound and outbound message profiles, you can specify return messages.

1 From the **B2B Protocol** page, select **UN/EDIFACT-4B-Inbound**.

2 Click **Continue: Message Profile**.

3 From the **Message Profile** page, select **EDF_ORDERSPurcOdeMess_D99B** from the drop-down list.

4 Click the **Return Messages** link to access the **Return Messages** section.

5 Click **Edit**.

6 Select the return messages (select the check boxes), and enter the values, as shown in Table 34.

Table 34 Return Message Values: Inbound

Name	Response Time	Period	# Retries
EDF_ORDRSPPurcOrdeRespMess_D99B	1	Day	0
EDF_CONTROL	2	Minutes	0

7 Click **Apply** to save the information and return to the **Message Profile** page.

8 Click **OK**.

8.4 Clone the eXSchema

The supplied schema named eXSchema contains the components required to run e*Xchange. Make a copy of this schema and then configure the copy for this implementation.

To make a copy of eXSchema

1 Open eXSchema in the e*Gate Schema Designer GUI.

2 Export eXSchema.

3 Create a new schema named **EDIFACT** using the exported file.

8.5 Configure the TP_Order_Feeder e*Way

The component (e*Way or BOB) that feeds data into e*Xchange must put the data into the appropriate business protocol format. It must also populate the required fields in the e*Xchange Event that is processed by e*Xchange.

This component is entirely user-defined and must be added to the EDIFACT schema. The type of component to use depends on whether a connection to a system outside e*Gate must be made, and if so, what type of system. Typically, this component is an e*Way that connects to a business application such as SAP that sends out electronic messages. These messages may or may not be in the format required by the trading partner to which they are being sent. If the data is not in the correct format, the e*Way must translate the data into the required format before it is sent to the e*Xchange system for enveloping and forwarding to the trading partner.

The e*Xchange TP_Order_Feeder e*Way

The e*Xchange example simulates the publication of an electronic purchase order from a trading partner. This file, which is already in UN/EDIFACT format, is picked up by a file e*Way and moved into the e*Xchange system.

Configuration Steps

Follow these steps to configure the TP_Order_Feeder e*Way.

1. Create and configure the e*Way.
2. Create the ETDs.
3. Create the Collaboration.

8.5.1 Step 1: Create and configure the TP_Order_Feeder e*Way

1. Create an e*Way called **TP_Order_Feeder**.
2. In the **e*Way Properties** dialog box, in the **Executable file** area of the **General** tab, browse for **stcewfile.exe.**
3. In the **e*Way Properties** dialog box, in the **Configuration file** area of the **General** tab, click **New**.
4. Configure the **TP_Order_Feeder** e*Way parameters using Table 35.

Table 35 TP_Order_Feeder e*Way Parameters

Screen	Parameter	Setting
General Settings	(All)	(Default)
Outbound (send) settings	(All)	(Default)
Poller (inbound) settings	PollDirectory	<eGate>\Data\TP\feeder
	MultipleRecordsPerFile	NO
	(All others)	(Default)
Performance Testing	(All)	(Default)

5. When finished editing the e*Way configuration file, save your work and close the e*Way editor.
6. Click **OK** to close the **e*Way Properties** dialog box.

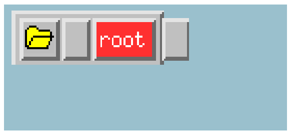
8.5.2 Step 2: Create the TP_Order_Feeder ETDs

In the present example, since the data is already in standard UN/EDIFACT format for a purchase order, you can bring in the Event without parsing it. To do this, all that is required is an ETD with a root node.

To create the root ETD

1. Create a new ETD called **root.ssc**. In the **Type** box, select Delimited, and select **Other** from the drop-down list.
2. Add a single node to the structure. The ETD is shown in Figure 50.

Figure 50 root.ssc Event Type Definition



3. Save the ETD.

8.5.3 Step 3: Create the TP_Order_Feeder Collaboration

The **TP_Order_Feeder** Collaboration must prepare the data coming into the e*Xchange system. How complicated this task is depends on the state of the data before the **TP_Order_Feeder** Collaboration processes it.

The **TP_Order_Feeder** Collaboration must do the following:

- convert the data to base 64 encoding
- populate the required nodes in the e*Xchange Event sent to e*Xchange for processing

Convert the Event to Base 64 Encoding

The **TP_Order_Feeder** Collaboration must ensure that the data going into e*Xchange doesn't include any characters that will cause problems for the XML structure of the standard e*Xchange Event (for example, characters that are the same as the XML control characters). This is done by converting the entire EDI message to base 64 encoding using the Monk function **raw->base64**, before copying it to the payload node of the **eX_Standard_Event** ETD.

Populate the Required e*Xchange Nodes

In addition to copying the base 64 encoded message to the payload node of the TP_EVENT portion of the e*Xchange standard Event, you must provide e*Xchange with tracking information about the EDI message.

e*Xchange Tracking Information

e*Xchange needs to know certain things about an EDI message before it can process it. The **TP_Order_Feeder** Collaboration must supply this information by populating certain required nodes in the Event that is sent to e*Xchange. At a minimum you must tell e*Xchange:

- Direction (inbound or outbound)
- Partner Name (logical name from the B2B Protocol section in e*Xchange)

All of these requirements can be met by copying the appropriate information to the corresponding nodes in the TP section of the e*Xchange ETD (eX_Standard_Event.ssc).

The **TP_EVENT.CT.DSN.DS.Direction.CT.DSN.DS.Data** node must contain the direction of the Event: "O" for outbound to the trading partner or "I" for inbound from a trading partner.

The **TP_EVENT.CT.DSN.DS.PartnerName.CT.DSN.DS.Data** node must contain the logical name (case-sensitive) of the trading partner defined in the **B2B Protocol**, **General** page.

The e*Xchange Payload

In addition to the tracking information, the **TP_EVENT.CT.DSN.DS.Payload.CT.DSN.DS.Data** node must be filled with the entire base 64 encoded EDI message.

The e*Xchange TP_Order_Feeder CRS

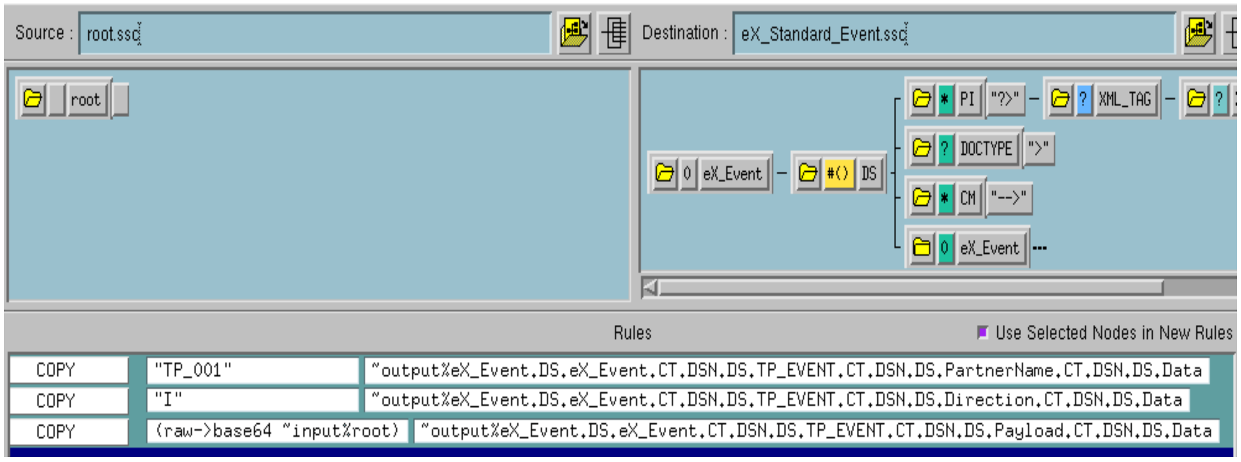
The **TP_Order_Feeder.tsc** CRS does the following:

- Converts the UN/EDIFACT message to base 64 encoding, and copies it to the Payload node of the TP_EVENT section of the e*Xchange standard Event.
- Copies "I" for outbound to the direction node of the TP_EVENT section.
- Copies the trading partner logical name "TP_001" to the PartnerName node of the TP_EVENT section.

To create and configure the TP_Order_Feeder Collaboration Rule Script

1. Open the Collaboration Editor.
2. Create a new Collaboration Rules script named **TP_Order_Feeder.tsc**. The Source Event Type Definition is **root.ssc**. The Destination Event Type Definition is **eX_Standard_Event.ssc**.
3. Add the rules shown in Figure 51.

Figure 51 TP_Order_Feeder.tsc



```
COPY  "TP_001"                     ~output%eX_Event.DS.eX_Event.CT.DSN.DS.TP_EVENT.CT.DSN.DS.PartnerName.CT.DSN.DS.Data
COPY  "I"                          ~output%eX_Event.DS.eX_Event.CT.DSN.DS.TP_EVENT.CT.DSN.DS.Direction.CT.DSN.DS.Data
COPY  (raw->base64 ~input%root)    ~output%eX_Event.DS.eX_Event.CT.DSN.DS.TP_EVENT.CT.DSN.DS.Payload.CT.DSN.DS.Data
```

TP_Order_Feeder Collaboration Properties Setup

Once the CRS has been created, you must set up the Collaboration and Collaboration Rules Properties for the **TP_Order_Feeder** Component in the Schema Designer GUI.

To create and configure the TP_Order_Feeder Collaboration Rule

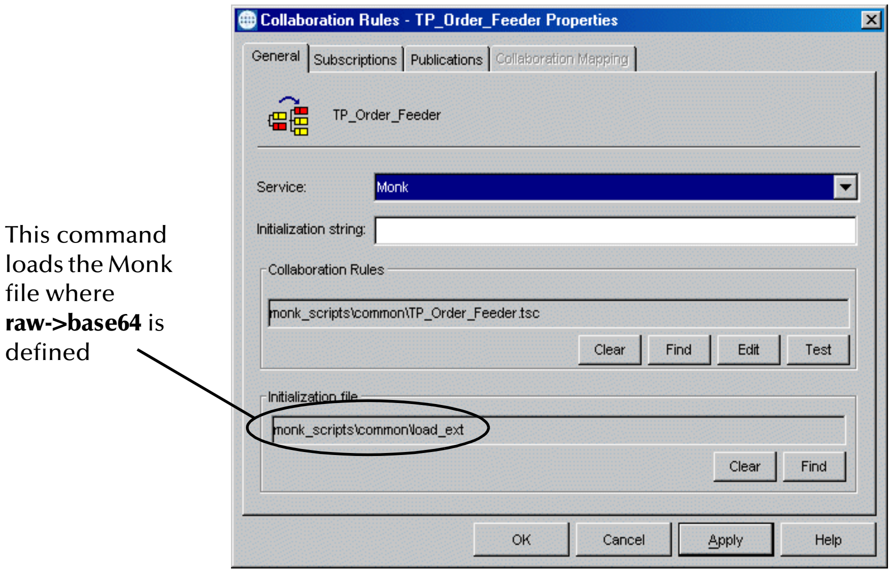
1. Create a new Collaboration Rule named **TP_Order_Feeder**.
2. From **TP_Order_Feeder** Collaboration Rule properties, select the **General** tab. Configure as shown in Table 36.

Table 36 TP_Order_Feeder CR configuration - General Tab

Section	Value
Service	Monk
Collaboration Rule	TP_Order_Feeder
Initialization File	monk_scripts\common\load_ext

Important: *To use the Monk function **raw->base64**, you must make sure the file containing this function has been loaded.*

Figure 52 TP_Order_Feeder Collaboration Rules Properties Dialog Box


This command loads the Monk file where **raw->base64** is defined
Collaboration Rules - TP_Order_Feeder Properties
General
Subscriptions
Publications
Collaboration Mapping
TP_Order_Feeder
Clear
Find
Edit
Test
Clear
Find
OK
Cancel
Apply
Help

Service: Monk

Initialization string:

Collaboration Rules: monk_scripts\common\TP_Order_Feeder.tsc

Initialization file: monk_scripts\common\load_ext

3 Select the **Subscriptions** tab. Select **eX_External_Evt** and move it to the right pane.

4 Select the **Publications** tab. Select **eX_from_Trading_Partner** and move it to the right pane.

To create and configure the TP_Order_Feeder Collaboration

1 Select the **TP_Order_Feeder** e*Way.

2 Create a new Collaboration named **TP_Order_Feeder**.

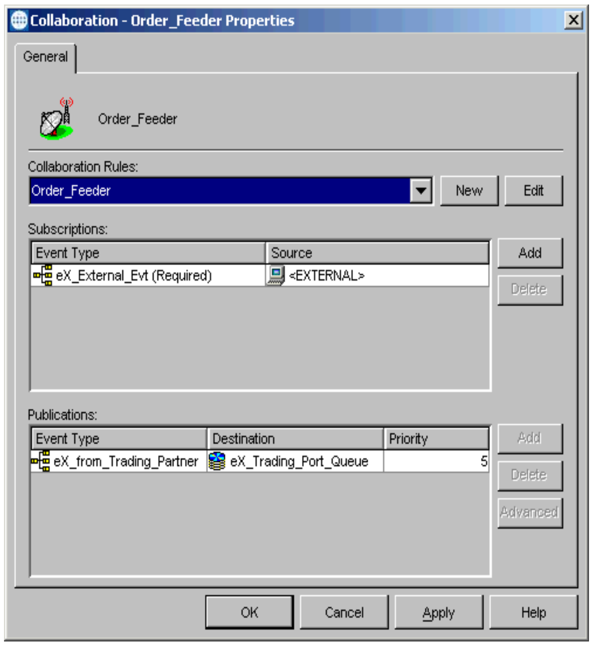
3 Configure the TP_Order_Feeder Collaboration properties using Table 37.

Table 37 TP_Order_Feeder Collaboration configuration

Section	Value
Collaboration Rules	TP_Order_Feeder
Subscriptions	Event Type: eX_External_Evt Source: <EXTERNAL>
Publications	Event Type: eX_from_Trading_Partner Destination: eX_Trading_Port_Queue

Verify the information in the **Collaboration Properties** dialog box as shown in Figure 53.

Figure 53 TP_Order_Feeder Collaboration Properties



Order_Feeder

Collaboration Rules: Order_Feeder

Subscriptions:

Event Type	Source
eX_External_Evt (Required)	<EXTERNAL>

Publications:

Event Type	Destination	Priority
eX_from_Trading_Partner	eX_Trading_Port_Queue	5

8.6 Configure the Internal_Order_Eater e*Way

The component (e*Way or BOB) sends the message to the internal system.

The e*Xchange Internal_Order_Eater e*Way

The e*Xchange example simulates the publication of the message to the internal system.

Configuration Steps

Follow these steps to configure the Internal_Order_Eater e*Way.

1. Create the configuration file.
2. Create the ETDs.
3. Create the Collaboration.

8.6.1 Step 1: Create and Configure the Internal_Order_Eater e*Way

1. Create an e*Way called **Internal_Order_Eater**.
2. In the **e*Way Properties** dialog box **General** tab, in the **Executable file** area browse for **stcewfile.exe.**

3 In the **e*Way Properties** dialog box **General** tab, in the **Configuration file** area click **New**.

4 Configure the **Internal_Order_Eater** e*Way parameters using Table 38.

Table 38 Internal_Order_Eater e*Way Parameters

Screen	Parameter	Setting
General Settings	AllowIncoming	NO
	AllowOutgoing	YES
Outbound (send) settings	OutputDirectory	<eGate>\data\internal\eater
	OutputFileName	output_order%d.dat
	(All others)	(Default)
Poller (inbound) settings	(All)	(Default)
Performance Testing	(All)	(Default)

5 When finished editing the e*Way configuration file, save your work and close the e*Way editor.

6 Click **OK** to close the **e*Way Properties** dialog box.

8.6.2 Step 2: Create the Internal_Order_Eater Collaboration

The **Internal_Order_Eater** Collaboration must prepare the data leaving the e*Xchange system. How complicated this task is depends on the state of the data before the **Internal_Order_Eater** Collaboration processes it.

The **Internal_Order_Eater** Collaboration must do the following:

- put the data into the appropriate EDI format
- convert the data to raw data

The e*Xchange Internal_Order_Eater CRS

The **Internal_Order_Eater.tsc** CRS is used to convert the UN/EDIFACT message to raw data, and copies it from the Payload node of the TP_EVENT section of the e*Xchange standard Event to the output ETD.

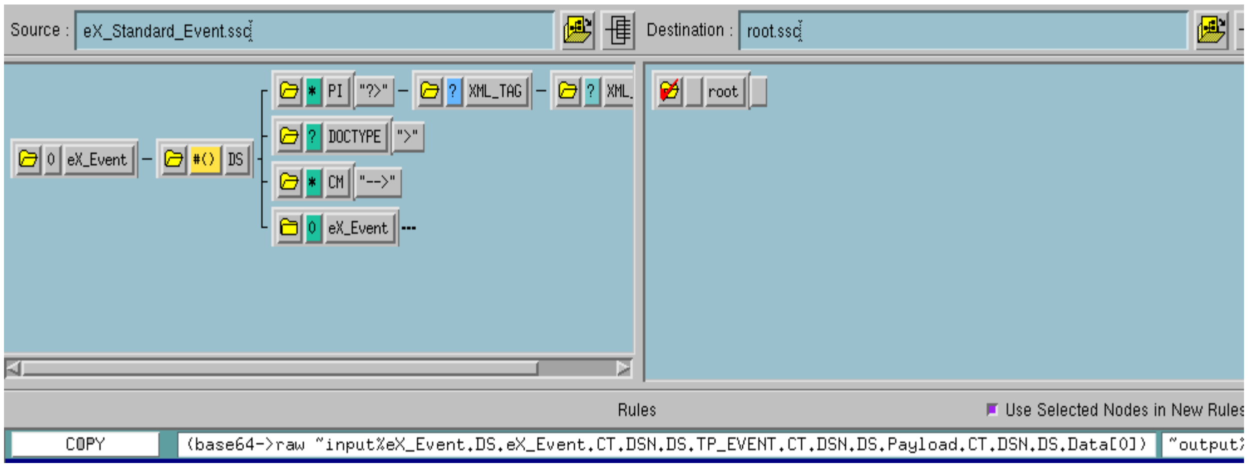
To create and configure the Internal_Order_Eater Collaboration Rule Script

1 Open the Collaboration Editor.

2 Create a new Collaboration Rules script named **Internal_Order_Eater.tsc**. The Source Event Type Definition is **eX_Standard_Event.ssc**. The Destination Event Type Definition is **root.ssc**.

3 Add the rule shown in Figure 54.

Figure 54 Internal_Order_Eater.tsc



```
COPY    (base64->raw ~input%eX_Event.DS.eX_Event.CT.DSN.DS.TP_EVENT.CT.DSN.DS.Payload.CT.DSN.DS.Data[0])    ~output%
```

Internal_Order_Eater Collaboration Properties Setup

Once the CRS has been created, you must set up the Collaboration and Collaboration Rules Properties for the **Internal_Order_Eater** Component in the Schema Designer GUI.

To create and configure the Internal_Order_Eater Collaboration Rule

1. Create a new Collaboration Rule named **Internal_Order_Eater**.
2. From Internal_Order_Eater Collaboration Rule properties, select the **General** tab. Configure as shown in Table 39.

Table 39 Internal_Order_Eater CR configuration - General Tab

Section	Value
Service	Monk
Collaboration Rule	Internal_Order_Eater
Initialization File	monk_scripts\common\load_ext

Important: *To use the Monk function* ***base64->raw****, you must make sure the file containing this function has been loaded.*

3. Select the **Subscriptions** tab. Select **eX_to_eBPM** and move to the right pane.
4. Select the **Publications** tab. Select **eX_External_Evt** and move to the right pane.

To create and configure the Internal_Order_Eater Collaboration

1. Select the **Internal_Order_Eater** e*Way.
2. Create a new Collaboration named **Internal_Order_Eater**.
3. Configure the Internal_Order_Eater Collaboration properties using Table 40.

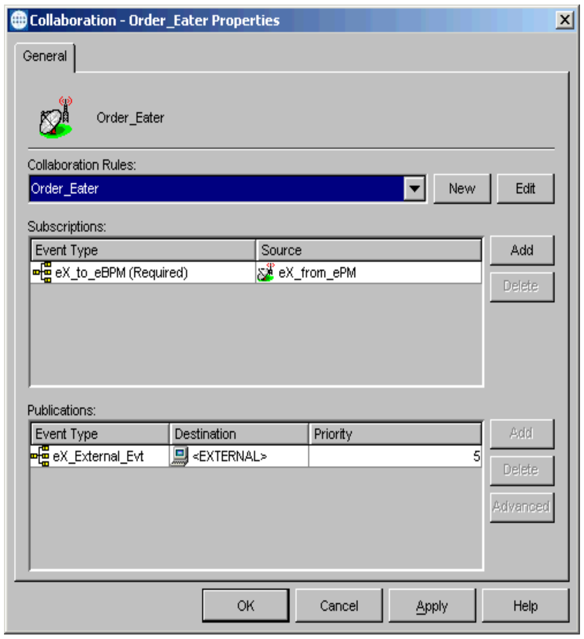
Table 40 Internal_Order_Eater Collaboration configuration

Section	Value
Collaboration Rule	Internal_Order_Eater

Section	Value
Subscriptions	Event Type: eX_to_eBPM Source: eX_from_ePM
Publications	Event Type: eX_External_Evt Destination: <EXTERNAL>

Verify the information in the **Collaboration Properties** dialog box as shown in Figure 55.

Figure 55 Internal_Order_Eater Collaboration Properties



Event Type	Source
eX_to_eBPM (Required)	eX_from_ePM

Event Type	Destination	Priority
eX_External_Evt	<EXTERNAL>	5

8.7 Configure the eX_ePM e*Way

The **eX_ePM** e*Way requires only minimal configuration. You must give it the logon information for the e*Xchange database.

To configure the eX_ePM configuration file

1. In the **eX_ePM** e*Way properties, select the **General** tab.
2. In the **Configuration File** area, click **Edit**.
3. Configure the parameters as shown in Table 41.

Table 41 eX_ePM e*Way Parameters

Screen	Parameter	Setting
General Settings	(All)	(Default)

Table 41 eX_ePM e*Way Parameters

Screen	Parameter	Setting
Communication Setup	(All)	(Default)
Monk Configuration	(All)	(Default)
Database Setup	Database Name	(service name of the e*Xchange database)
	User name	ex_admin
	Password	ex_admin
	(All others)	(Default)

8.8 Editing the Data Files

Before running the scenario, you must make sure that the unique ID in the input file matches that in the output file, and that both files have the expected filename and extension.

Knowing how to set these values also gives you the capability to reset the unique ID to an appropriate new value so that you can run the scenario multiple times.

To ensure the unique ID in both files matches

1. Open up the file **ORDERS.~in** (in the <**egate>\data\TP\feeder** folder) in a text editor such as Notepad or Wordpad.
2. Search for the following string, which is the unique ID in the files provided:

   ```
   ORDERS_000000008
   ```
3. Replace that string with the following string:

   ```
   ORDERS_000000001
   ```
4. Save and close.
5. Open up the file order_response.~in (in the <**egate>\data\internal\feeder** folder) in a text editor such as Notepad or Wordpad.
6. Repeat steps 2 through 4 for this file.

Note: *The last nine digits of the unique ID indicate that this is the first instance for this date. For a second and subsequent running of this scenario, increment the last three digits: 000000002, 000000003, and so forth. In each case, make sure that the value is the same in both files.*

To set the file names correctly

1. In <**egate>\data\TP\feeder**, change the name of the **orders.~in** file to **orders.fin**.
2. In <**egate>\data\internal\feeder**, change the name of the **order_response.~in** file to **order_response.fin**.

That completes the data setup. The next step is to run the scenario.

Conditional—to reset the file names

Once you have your schema running, you can run the file again by performing the following steps, in sequence:

1. Increment the last nine digits of the control number by 1. For example, if the control number is **ORDERS_000000001**, change it to **ORDERS_000000002**. Make sure that both files match.
2. Change the extension from .**~in** to .**fin** in both files.

8.9 Running the Scenario

There are two parts to running the scenario:

1. Processing the purchase order message received from the trading partner
2. Sending the response message back to the trading partner

To process the purchase order message

1. Start the Control Broker. At the command line, enter:

   ```
   stccb.exe -rh localhost -rs <schema_name> -ln localhost_cb -un
   Administrator -up STC
   ```

2. Open the Schema Manager. Select the UN/EDIFACT schema.

Note: *If you have imported the sample schema then all the e*Ways are set to start automatically.*

3. Start the **TP_Order_Feeder** e*Way

   This e*Way retrieves the incoming message and sends it to e*Xchange.

4. Rename **<eGate>\data\TP\Feeder\ORDERS.~in** to **ORDERS.fin**.
5. Look in the **<egate>\data\TP\feeder** folder. The file name changes from **orders.fin** to **orders.~in** as the file is picked up.
6. Start the **eX_Batch_to_Trading_Partner** e*Way

   This e*Way sends the control message back to the trading partner.

7. Start the **Internal_Order_Eater** e*Way

   This e*Way sends the message to the internal system.

That completes the first part of the exercise. You can view the results in Message Tracking, in e*Xchange Partner Manager.

Viewing the Results in Message Tracking

You can view the results of the message processing by using the Message Tracking feature of e*Xchange.

Message Tracking shows two entries for the incoming message. This is because a control message is sent out immediately, and a response message will be sent out later. These two responses to the trading partner are tracked separately.

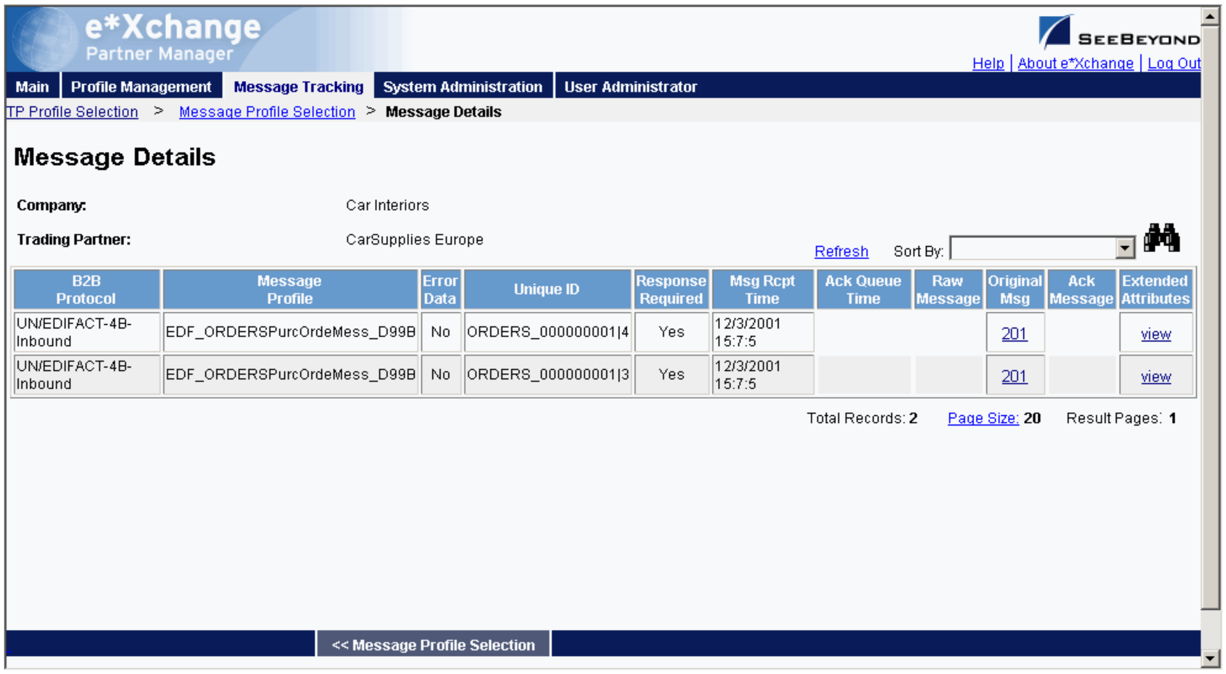
To view the inbound message in Message Tracking

1. From the e*Xchange Web interface, **Main** page, select **Message Tracking**.

   The **TP Profile Selection** page appears.
2. In the **Company Profile** field, select **Car Interiors**.
3. In the **Trading Partner Profile** field, select **CarSupplies Europe**.
4. In the **eBusiness Protocol** field, select **UN/EDIFACT**.
5. In the **Direction** field, select **Inbound**.
6. Click the **Message Profile Selection**.
7. Select the **EDF_ORDERSPurcOrdeMess_D99B** message.
8. Click the **Message Details** link to view the resulting list.

   The results are shown in Figure 56.

Figure 56 Message Tracking: Inbound


e*Xchange
Partner Manager
SeeBeyond
Help | About e*Xchange | Log Out
Main
Profile Management
Message Tracking
System Administration
User Administrator
TP Profile Selection > Message Profile Selection > Message Details
Refresh
Sort By:
<< Message Profile Selection

Message Details

Company: Car Interiors

Trading Partner: CarSupplies Europe

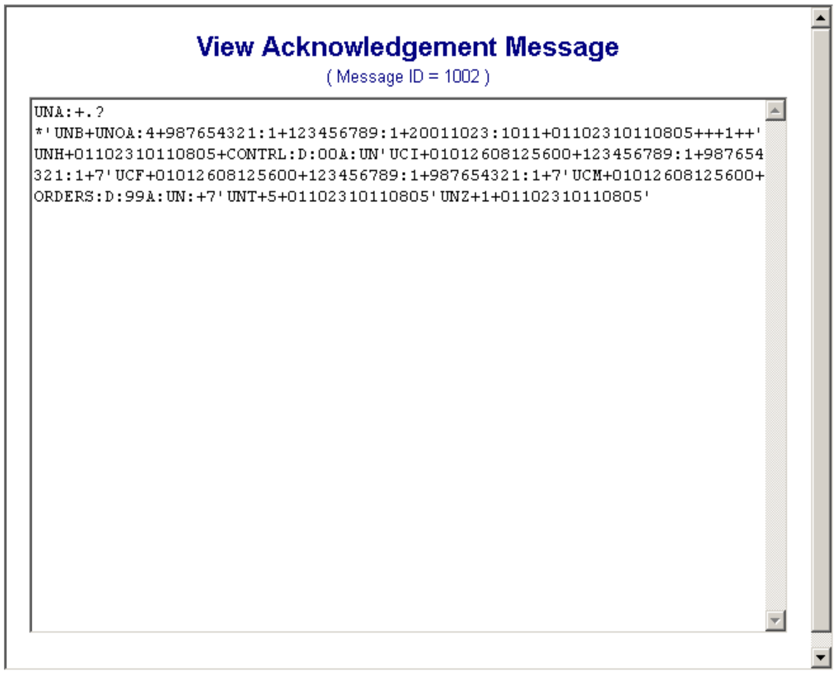
B2B Protocol	Message Profile	Error Data	Unique ID	Response Required	Msg Rcpt Time	Ack Queue Time	Raw Message	Original Msg	Ack Message	Extended Attributes
UN/EDIFACT-4B-Inbound	EDF_ORDERSPurcOrdeMess_D99B	No	ORDERS_000000001|4	Yes	12/3/2001 15:7:5			201		view
UN/EDIFACT-4B-Inbound	EDF_ORDERSPurcOrdeMess_D99B	No	ORDERS_000000001|3	Yes	12/3/2001 15:7:5			201		view

Total Records: **2** Page Size: **20** Result Pages: **1**

As shown in Figure 56, e*Xchange records two entries for the message. The top entry is for the original message, for which a response message will be sent. The second entry is for the control message.

For one entry, the **Ack Message** column has a link to the message information. Click it to view the acknowledgment message.

Figure 57 Control Message viewed in Message Tracking


View Acknowledgement Message
(Message ID = 1002)

```
UNA:+.?
*'UNB+UNOA:4+987654321:1+123456789:1+20011023:1011+01102310110805+++1++'
UNH+01102310110805+CONTRL:D:00A:UN'UCI+01012608125600+123456789:1+987654
321:1+7'UCF+01012608125600+123456789:1+987654321:1+7'UCM+01012608125600+
ORDERS:D:99A:UN:+7'UNT+5+01102310110805'UNZ+1+01102310110805'
```

Later, when the response message is sent out, you will be able to view it in Message Tracking. For the moment, the **Ack Message** column is not showing a link for the other message, since the response has not been sent out yet.

If you look in the <**egate>\data\TP\eater** folder, you see the following output file:

- output1.dat—control message sent in response to the original message.

8.10 Sending the Response

This section builds on the UN/EDIFACT implementation example. You are now simulating sending a response message to the Trading Partner and e*Xchange receiving a control message back from the Trading Partner after you send out the response message.

Figure 58 e*Xchange Scenario Data Flow

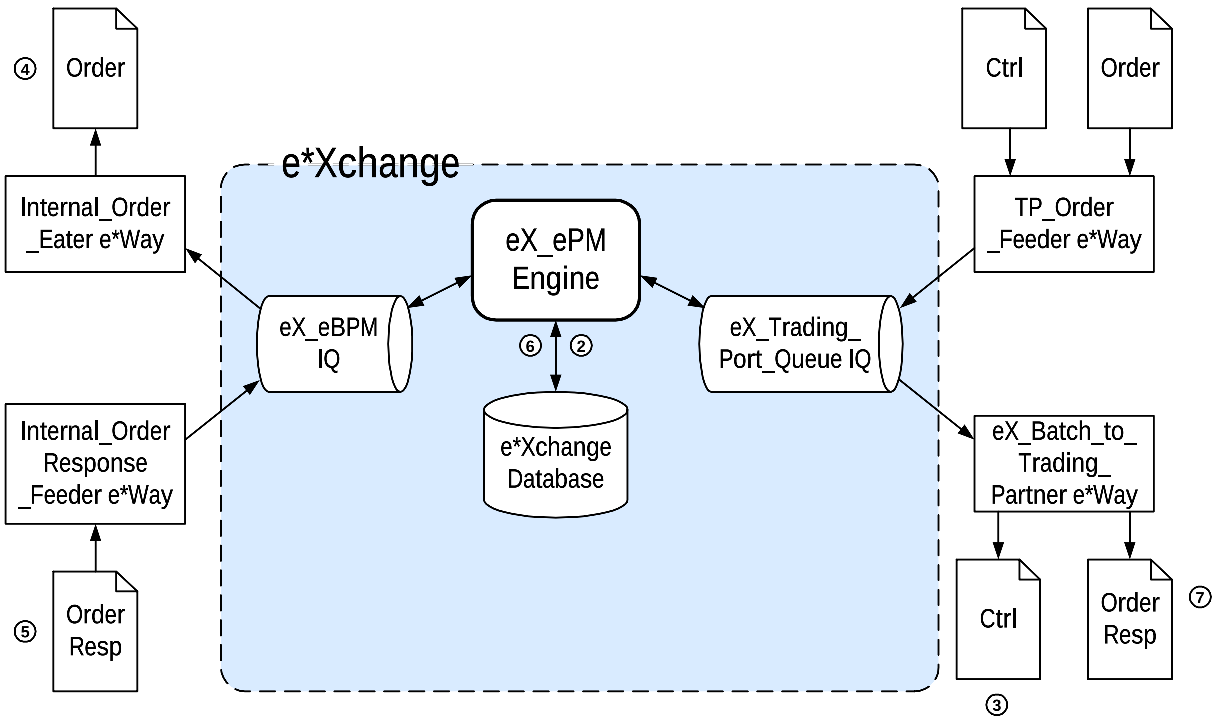


Figure 48 data flow description

① The **TP_Order_Feeder** e*Way picks up the order message and publishes it to the eX_trading_Port_Queue IQ.

② e*Xchange engine picks up from the IQ, validates it, saves it to the database, and publishes two messages:

- Control message to the eX_Trading_Port_Queue IQ
- Order message to the eX_eBPM IQ.

③ eX_Batch_to_Trading_Partner e*Way sends out the control message to the trading partner.

④ Internal_Order_Eater e*Way picks up the message from the eX_eBPM IQ and sends it to the internal system.

⑤ Internal_OrderReponse_Feeder e*Way picks up the response message and publishes it to the eX_eBPM IQ.

⑥ e*Xchange engine picks up the message from the eX_eBPM IQ, validates it, envelopes it, and saves it to the database, and publishes it to the eX_Trading_Port_Queue IQ.

⑦ eX_Batch_to_Trading_Partner e*Way picks up the message from the eX_Trading_Port_Queue IQ and sends it to the trading partner.

8.11 Configure the Internal_OrderResponse_Feeder e*Way

The component (e*Way or BOB) that feeds data into e*Xchange must put the data into the appropriate business protocol format. It must also populate the required fields in the e*Xchange Event that is processed by e*Xchange.

This component is entirely user-defined and must be added to the eXSchema. The type of component to use depends on whether a connection to a system outside e*Gate must be made, and if so, what type of system. Typically, this component is an e*Way that connects to a business application such as SAP that sends out electronic messages. These messages may or may not be in the format required by the trading partner to which they are being sent. If the data is not in the correct format, the e*Way must translate the data into the required format before it is sent to the e*Xchange system for enveloping and forwarding to the trading partner.

The e*Xchange Internal_OrderResponse_Feeder e*Way

The e*Xchange example simulates sending the response message from the internal system.

Configuration Steps

Follow these steps to configure Internal_OrderResponse_Feeder e*Way.

1. Create the configuration file.
2. Create the ETDs.
3. Create the Collaboration.

8.11.1 Step 1: Create and Configure the Internal_OrderResponse_Feeder e*Way

1. Create a new e*Way named **Internal_OrderResponse_Feeder**.
2. In the **Executable file** area of the **General** tab, in the **e*Way Properties** dialog box, browse for **stcewfile.exe.**
3. In the **Configuration file** area of the **General** tab, in the **e*Way Properties** dialog box click **New**.
4. Configure the **Internal_OrderResponse_Feeder** e*Way parameters using Table 42.

Table 42 Internal_OrderResponse_Feeder e*Way Parameters

Screen	Parameter	Setting
General Settings	(All)	(Default)
Outbound (send) settings	(All)	(Default)
Poller (inbound) settings	PollDirectory	<eGate>\data\internal\feeder
	MultipleRecordsPerFile	NO
	(All others)	(Default)

Table 42 Internal_OrderResponse_Feeder e*Way Parameters

Screen	Parameter	Setting
Performance Testing	(All)	(Default)

5 When finished editing the e*Way configuration file, save your work and close the e*Way editor.

6 Click **OK** to close the **e*Way Properties** dialog box.

8.11.2 Step 2: Create the Internal_OrderResponse_Feeder Collaboration

The **Internal_OrderResponse_Feeder** Collaboration must prepare the data coming into the e*Xchange system. How complicated this task is depends on the state of the data before the **Internal_OrderResponse_Feeder** Collaboration processes it.

The **Internal_OrderResponse_Feeder** Collaboration must do the following:

- put the data into the appropriate EDI format
- convert the data to base 64 encoding
- populate the required nodes in the e*Xchange Event sent to e*Xchange for processing

The e*Xchange Internal_OrderResponse_Feeder CRS

The **Internal_OrderResponse_Feeder.tsc** CRS does the following:

- Converts the UN/EDIFACT message to base 64 encoding, and copies it to the Payload node of the TP_EVENT section of the e*Xchange standard Event.
- Copies “O” for outbound to the direction node of the TP_EVENT section.
- Copies the trading partner logical name “TP_001” to the PartnerName node of the TP_EVENT section.

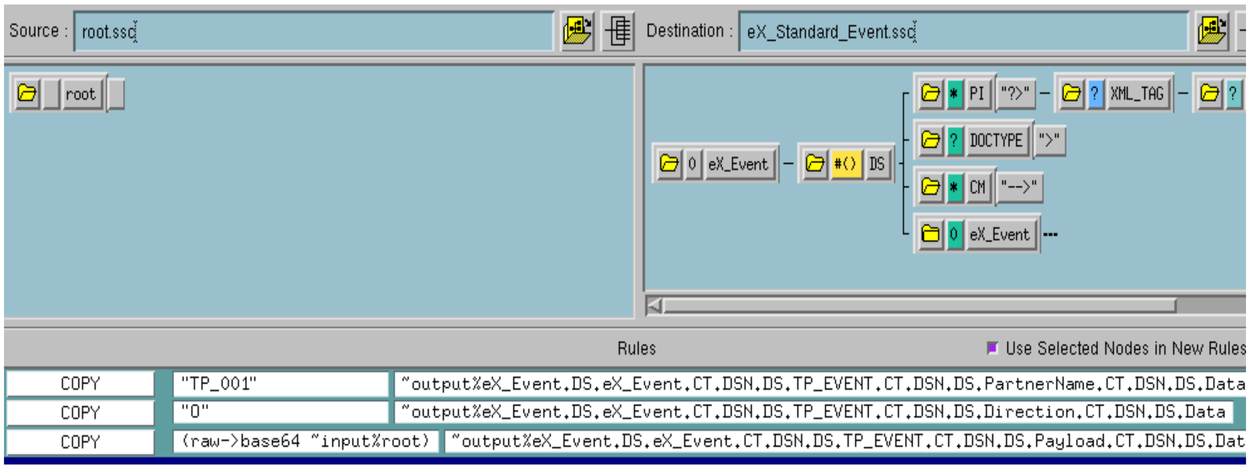
To create and configure the Internal_OrderResponse_Feeder Collaboration Rule Script

1 Open the Collaboration Editor.

2 Create a new Collaboration Rules script named **Internal_OrderResponse_Feeder.tsc**. The Source Event Type Definition is **root.ssc**. The Destination Event Type Definition is **eX_Standard_Event.ssc**.

3 Add the rules shown in Figure 59.

Figure 59 Internal_OrderResponse_Feeder.tsc



```
COPY   "TP_001"                  ~output%eX_Event.DS.eX_Event.CT.DSN.DS.TP_EVENT.CT.DSN.DS.PartnerName.CT.DSN.DS.Data
COPY   "O"                       ~output%eX_Event.DS.eX_Event.CT.DSN.DS.TP_EVENT.CT.DSN.DS.Direction.CT.DSN.DS.Data
COPY   (raw->base64 ~input%root) ~output%eX_Event.DS.eX_Event.CT.DSN.DS.TP_EVENT.CT.DSN.DS.Payload.CT.DSN.DS.Dat
```

Internal_OrderResponse_Feeder Collaboration Properties Setup

Once the CRS has been created, you must set up the Collaboration and Collaboration Rules Properties for the **Internal_OrderResponse_Feeder** Component in the Schema Designer GUI.

To create and configure the Internal_OrderResponse_Feeder Collaboration Rule

1. Create a new Collaboration Rule named **Internal_OrderResponse_Feeder**.
2. From Internal_OrderResponse_Feeder Collaboration Rule properties, select the **General** tab. Configure as shown in Table 43.

Table 43 Internal_OrderResponse_Feeder CR configuration - General Tab

Section	Value
Service	Monk
Collaboration Rule	Internal_OrderResponse_Feeder
Initialization File	monk_scripts\common\load_ext

Important: *To use the Monk function **raw->base64**, you must make sure the file containing this function has been loaded.*

3. Select the Subscriptions tab. Select **eX_External_Evt** and move it to the right pane.
4. Select the Publications tab. Select **eX_to_ePM** and move it to the right pane.

To create and configure the Internal_OrderResponse_Feeder Collaboration

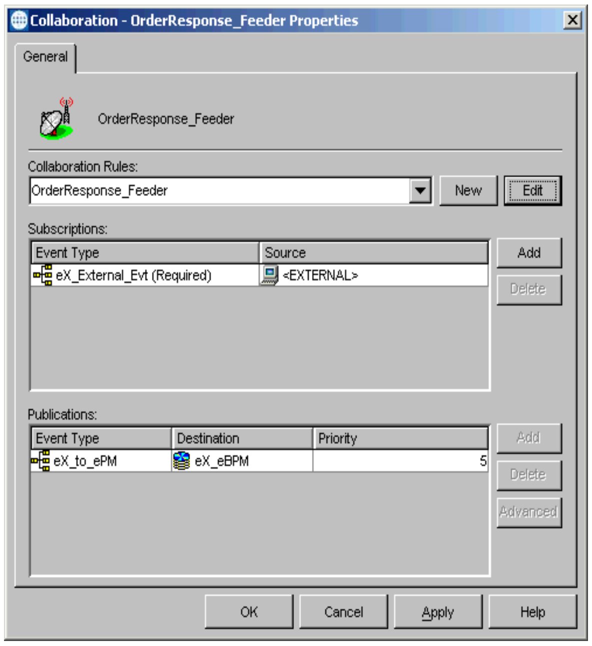
1. Select the **Internal_OrderResponse_Feeder** e*Way.
2. Create a new Collaboration named **Internal_OrderResponse_Feeder**.
3. Configure the **Internal_OrderResponse_Feeder** Collaboration properties using Table 44.

Table 44 Internal_OrderResponse_Feeder Collaboration configuration

Section	Value
Collaboration Rule	Internal_OrderResponse_Feeder
Subscriptions	Event Type: eX_External_Evt Source: <EXTERNAL>
Publications	Event Type: eX_to_ePM Destination: eX_eBPM

Verify the information in the **Collaboration Properties** dialog box as shown in Figure 60.

Figure 60 Internal_OrderResponse_Feeder Collaboration Properties


Collaboration - OrderResponse_Feeder Properties

General

OrderResponse_Feeder

Collaboration Rules: OrderResponse_Feeder

Subscriptions:

Event Type	Source
eX_External_Evt (Required)	<EXTERNAL>

Publications:

Event Type	Destination	Priority
eX_to_ePM	eX_eBPM	5

8.11.3 Sending and Viewing the Response Message

The next step is to send the response message.

The input file for the response message is the **<egate>\data\internal\feeder\order_response.~in** file. Instructions for preparing this file for running the first time were given in **"Editing the Data Files" on page 118**.

To send the response message:

1. In the Schema Manager, start the Internal_OrderResponse_Feeder e*Way.
2. Look in the **<egate>\data\internal\feeder** folder. The file name changes from **order_response.fin** to **order_response.~in** as the file is picked up.
3. Look in the **<egate>\data\TP\eater** folder. The following output file has been created:
   - order_response#.dat—message sent out for the response.

That completes the second part of the exercise. You can view the results in Message Tracking.

Viewing the Results in Message Tracking

You can view the results of the message processing in Message Tracking.

To view the association of the response message to the original inbound message in Message Tracking

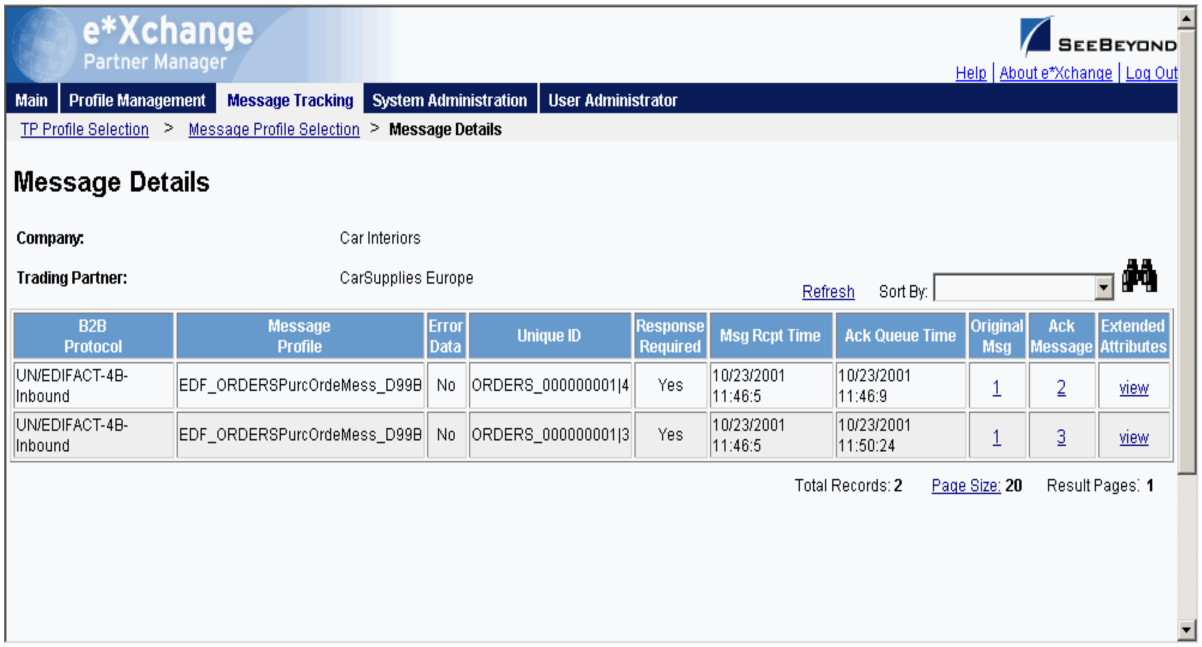
1. From the e*Xchange Web interface, **Main** page, select **Message Tracking**.

   The **TP Profile Selection** page appears.
2. In the **Company Profile** field, select **Car Interiors**.
3. In the **Trading Partner Profile** field, select **CarSupplies Europe**.
4. In the **eBusiness Protocol** field, select **UN/EDIFACT**.
5. In the **Direction** field, select **Inbound**.
6. Click the **Message Profile Selection**.
7. Select the **EDF_ORDERSPurcOrdeMess_D99B** message.
8. Click the **Message Details** link to view the resulting list.

   Notice that both entries now have responses available for viewing: one is the control message, the other is the full response message.

   The results are shown in Figure 61.

Figure 61 Message Tracking: Inbound with response


e*Xchange
Partner Manager
SeeBeyond
Help | About e*Xchange | Log Out
Main | Profile Management | Message Tracking | System Administration | User Administrator
TP Profile Selection > Message Profile Selection > Message Details
Refresh
Sort By:

Message Details

Company: Car Interiors

Trading Partner: CarSupplies Europe

B2B Protocol	Message Profile	Error Data	Unique ID	Response Required	Msg Rcpt Time	Ack Queue Time	Original Msg	Ack Message	Extended Attributes
UN/EDIFACT-4B-Inbound	EDF_ORDERSPurcOrdeMess_D99B	No	ORDERS_000000001|4	Yes	10/23/2001 11:46:5	10/23/2001 11:46:9	1	2	view
UN/EDIFACT-4B-Inbound	EDF_ORDERSPurcOrdeMess_D99B	No	ORDERS_000000001|3	Yes	10/23/2001 11:46:5	10/23/2001 11:50:24	1	3	view

Total Records: 2 Page Size: 20 Result Pages: 1

8.12 Receiving a Control Message from the Trading Partner

8.12.1 Editing the Data File

Before running the scenario, you must make some changes to your message files.

Since the control numbers in the message that comes in must match the control numbers in the message you sent out to your trading partner, you must manually update the control numbers.

There are three control numbers, one in each of three segments:

- Interchange response (UCI) segment
- Group response (UCF) segment
- Message/package response (UCM) segment

For the purposes of this scenario, the same number is used for each of these. Because of this, you can copy one number from the UNB (interchange header) segment of the outgoing response message and paste it in three places in the file that will serve for the incoming control message.

However, you must first have the outgoing response message available. Run the first two parts of the previous scenario again so that e*Xchange sends out the response message to the trading partner.

8.12.2 Preparing the Data File

The next step is to prepare your data file for running this scenario. The steps are:

- Copy the control numbers from the outgoing response message to the UCF, UCI and UCM segments of the incoming control message.
- Update the unique control numbers in the UNB and UNZ segments of the incoming control message.

8.12.3 Copying the Response Control Numbers

Next, you must copy the control number from the response message that e*Xchange sends out.

To copy the control number:

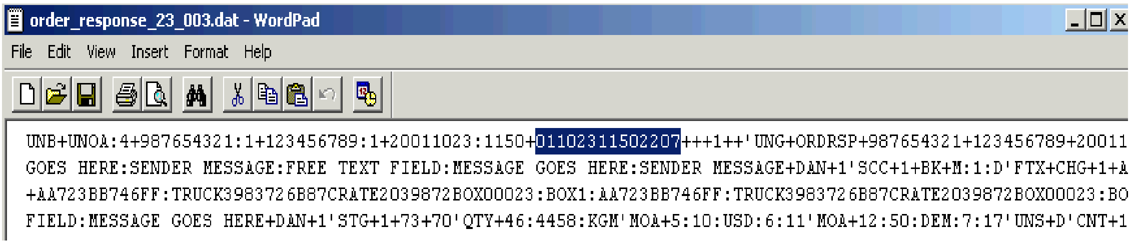
1. Go to <**egate>\data\TP\eater**.
2. Locate the output file that represents the response message that was just sent out. It looks similar to the file shown in Figure 62.

Note: *The response message has a larger file size than the control message. Also, since the control message is normally sent first, the response message is likely to be output2.dat. However, this depends on what files were already there.*

3 Copy the Interchange Control Reference.

It is the fifth element of the UNB segment, as shown in Figure 62.

Figure 62 Response Message


order_response_23_003.dat - WordPad
File Edit View Insert Format Help

```
UNB+UNOA:4+987654321:1+123456789:1+20011023:1150+01102311502207+++1++'UNG+ORDRSP+987654321+123456789+20011
GOES HERE:SENDER MESSAGE:FREE TEXT FIELD:MESSAGE GOES HERE:SENDER MESSAGE+DAN+1'SCC+1+BK+M:1:D'FTX+CHG+1+A
+AA723BB746FF:TRUCK3983726B87CRATE2039872BOX00023:BOX1:AA723BB746FF:TRUCK3983726B87CRATE2039872BOX00023:BO
FIELD:MESSAGE GOES HERE+DAN+1'STG+1+73+70'QTY+46:4458:KGM'MOA+5:10:USD:6:11'MOA+12:50:DEM:7:17'UNS+D'CNT+1
```

4 Close the message file.

5 Open up the file **<egate>\data\TP\feeder\INB_CONTROL.~in**.

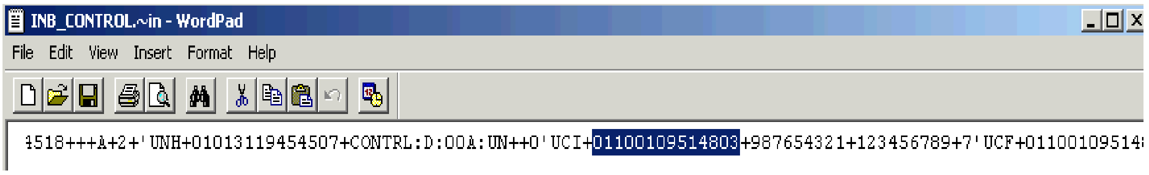
This is the inbound control message.

6 Search for **UCI**.

7 Change the next element (between + signs) to the string that you copied, as shown in Figure 63.

This updates the interchange response control number.

Figure 63 Inbound Control Message



```
4518+++A+2+'UNH+01013119454507+CONTRL:D:00A:UN++0'UCI+01100109514803+987654321+123456789+7'UCF+0110010951
```

8 Search for **UCF**.

9 Change the next element (between + signs) to the string that you copied.

This updates the functional group response control number.

10 Search for **UCM**.

11 Change the next element (between + signs) to the string that you copied.

This updates the message/package response control number.

12 Save the changes, but leave the file open.

8.12.4 Incrementing the UNB/UNZ Control Numbers

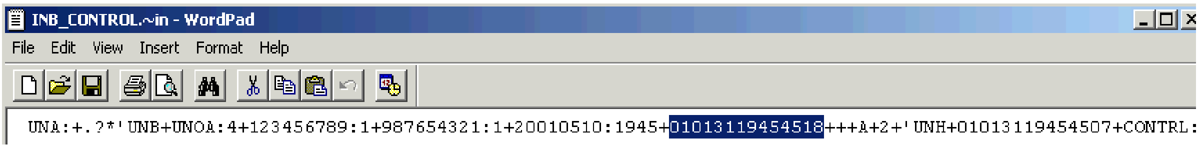
You must also increment the UNB and UNZ control numbers in the incoming control message to ensure they are unique. Make sure both control numbers are set to the same value.

To increment the UNB/UNZ control numbers:

1 In **<egate>\data\TP\feeder\inb_control.~in**, search for UNB.

2 Go to the fifth element of the UNB segment (see Figure 64) and increment it.

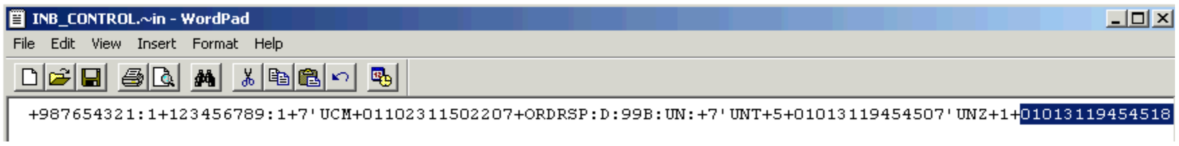
Figure 64 Control Message: Incrementing the UNB Control Number



```
UNA:+.?*'UNB+UNOA:4+123456789:1+987654321:1+20010510:1945+01013119454518+++A+2+'UNH+01013119454507+CONTRL:
```

3 Go to the last segment (after UNZ) and increment it so that it matches the value for the UNB segment.

Figure 65 Control Message: Incrementing the UNZ Control Number



```
+987654321:1+123456789:1+7'UCM+01102311502207+ORDRSP:D:99B:UN:+7'UNT+5+01013119454507'UNZ+1+01013119454518
```

4 Save your change and close the file.

8.12.5 Sending and Viewing the Control Message

The final step is to send the control message.

The input file for the response message is the **<egate>\data\TP\feeder\INB_CONTROL.~in** file. Instructions for preparing this file for running were given in **"Editing the Data File" on page 128**.

To send the control message

1 Rename **INB_CONTROL.~in** to **INB_CONTROL.fin**.

2 Look in the **<egate>\data\TP\feeder** folder. The file name changes from ***INB_CONTROL.fin*** to ***INB_CONTROL.~in*** as the file is picked up.

That completes the final part of the exercise. You can view the results in Message Tracking.

To view the association of the control message to the original outbound response message in Message Tracking

1 From the e*Xchange Web interface, **Main** page, select **Message Tracking**.

The **TP Profile Selection** page appears.

2 In the **Company Profile** field, select **Car Interiors**.

3 In the **Trading Partner Profile** field, select **CarSupplies Europe**.

4 In the **eBusiness Protocol** field, select **UN/EDIFACT**.

5 In the **Direction** field, select **Outbound**.

6 Click the **Message Profile Selection**.

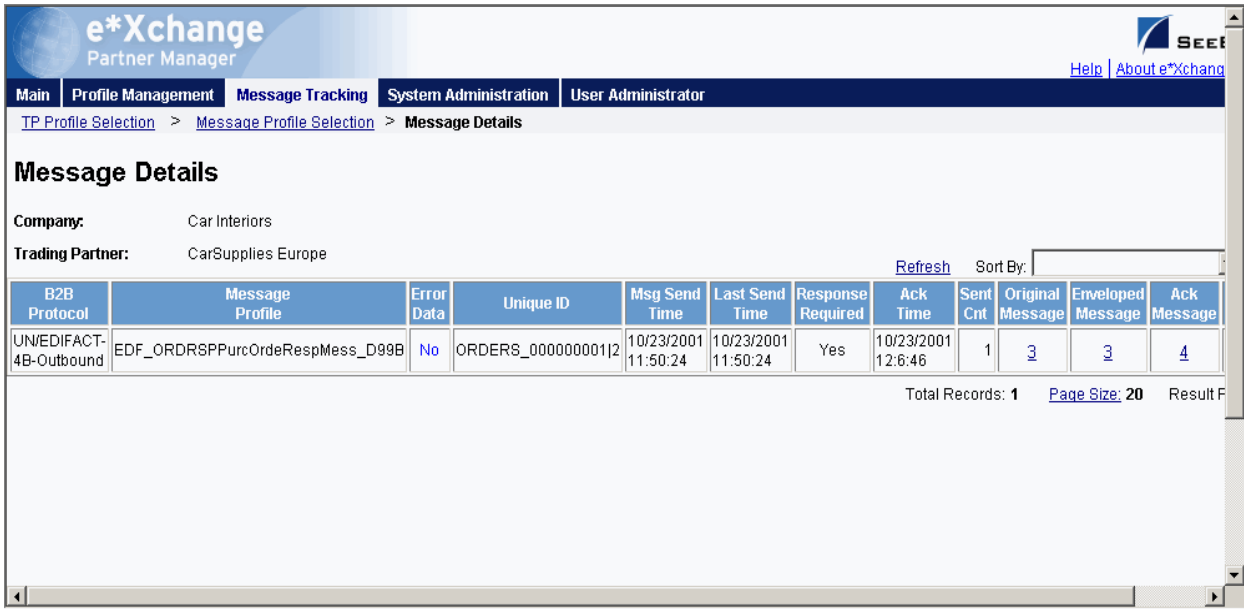
7 Select the **EDF_ORDRSPPurcOrdeRespMess_D99B** message.

8 Click the **Message Details** link to view the resulting list.

Notice that response message now has an acknowledgment available for viewing: this is the control message.

The results are shown in Figure 66.

Figure 66 Message Tracking: Outbound



Message Details

Company: Car Interiors

Trading Partner: CarSupplies Europe

Refresh Sort By:

B2B Protocol	Message Profile	Error Data	Unique ID	Msg Send Time	Last Send Time	Response Required	Ack Time	Sent Cnt	Original Message	Enveloped Message	Ack Message
UN/EDIFACT-4B-Outbound	EDF_ORDRSPPurcOrdeRespMess_D99B	No	ORDERS_000000001|2	10/23/2001 11:50:24	10/23/2001 11:50:24	Yes	10/23/2001 12:6:46	1	3	3	4

Total Records: **1** Page Size: **20** Result F

Chapter 9

e*Xchange Implementation—RosettaNet

This chapter discusses the steps involved to create an e*Xchange implementation that transfers RosettaNet data.

The components for this implementation are provided on your installation CD. For instructions on installing and using the implementation components, see **“Using the Implementation Sample” on page 136**.

9.1 Overview

An e*Xchange implementation makes use of the features designed to add and remove enveloping information for messages exchanged between trading partners.

In an e*Xchange implementation, use the e*Xchange Web interface to set up trading partner information, and the e*Gate Schema Designer GUI to add user-defined e*Gate components to provide connectivity to the business application or trading partner. Once this is done, the pre-configured e*Xchange Schema components handle enveloping and de-enveloping Events as they travel through the e*Xchange system.

The major steps for the implementation are as follows:

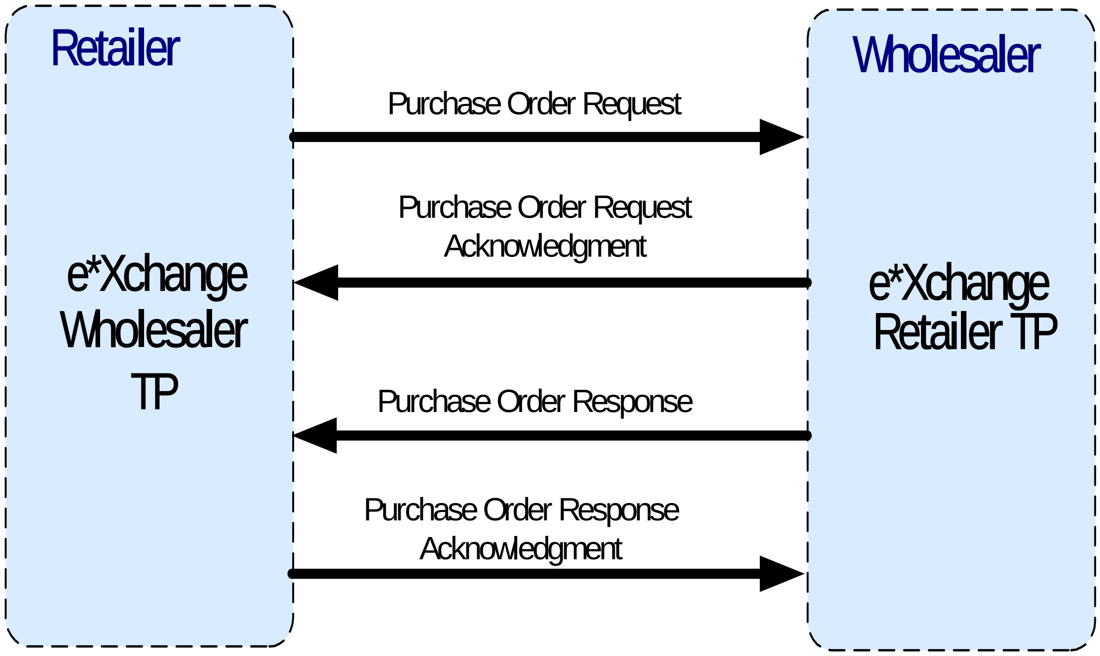
1. Create the trading partner profiles.
2. Configure the user-defined e*Ways that connect the business application to e*Xchange and exchange messages with the trading partner.
3. Configure the e*Xchange e*Way.
4. Run and test the scenario.

9.1.1 Case Study: Sending a RosettaNet Purchase Order

The case study discussed in this chapter illustrates one possible implementation of sending a purchase order to a trading partner.

In this example, a RosettaNet purchase order is sent to an external trading partner and the response is sent back. This is achieved by configuring a “loopback” using two trading partners. The flow of messages between the two trading partners is shown in Figure 67.

Figure 67 RosettaNet Implementation - Message Flow



Typically the two trading partners would be located on separate machines and transport the messages using a communication protocol such as HTTP. However, for this example you can define both trading partners on the same machine and use local files to transfer the messages between systems.

The RosettaNet enveloping is automatically added to the message by e*Xchange based on trading partner information retrieved from the e*Xchange database, and then it is sent to an external system.

Typically, the purchase order information would be provided by a business application and may or may not be in RosettaNet format. A user-defined e*Way must be created to connect to a business application in order to receive the data and put it into the proper RosettaNet format. In order to simplify this example, the purchase order information is provided in the form of a text file that is already in RosettaNet format.

Figure 68 e*Xchange Scenario Data Flow

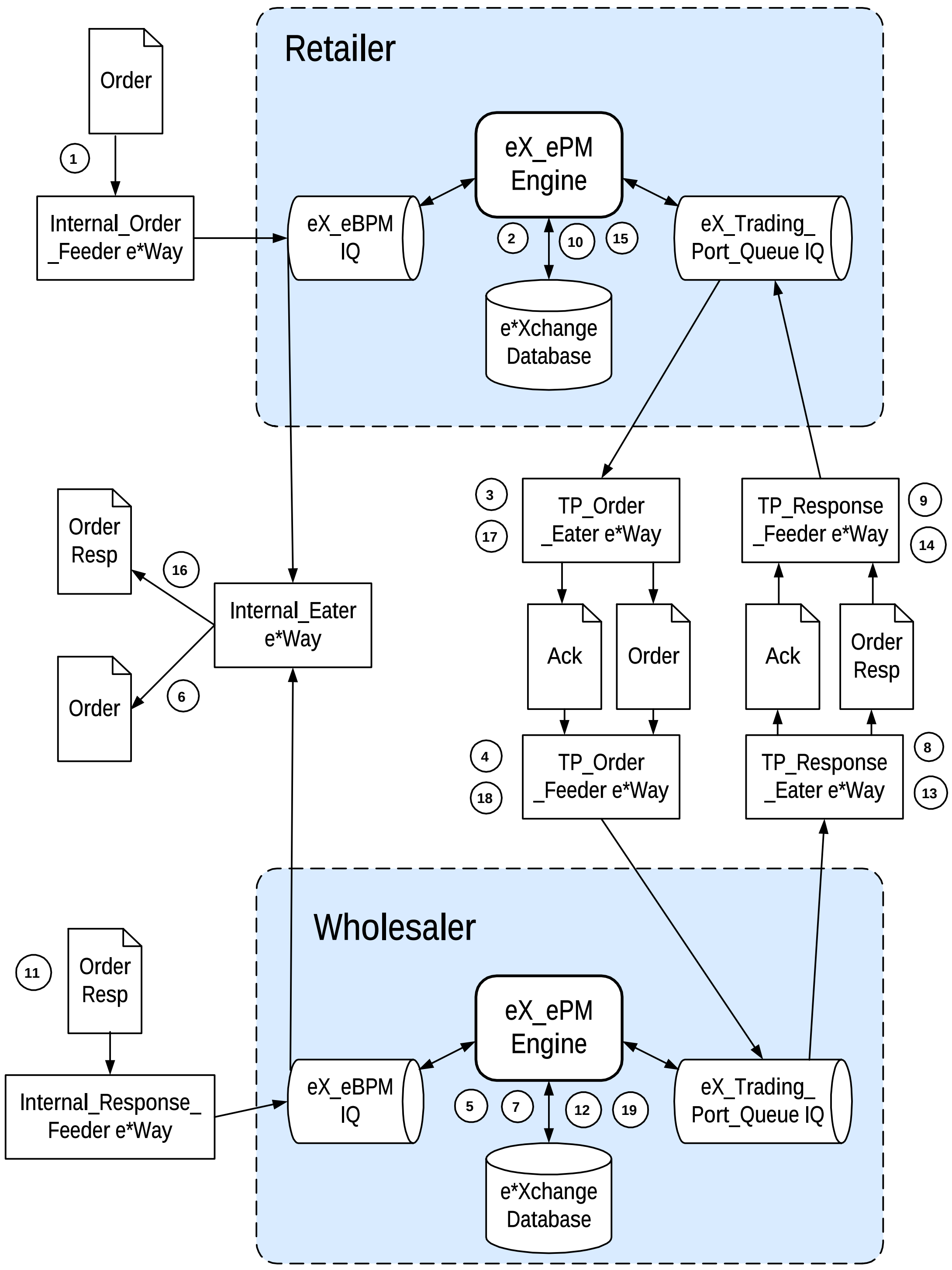


Figure 68 data flow description

1 The **Internal_Order_Feeder** e*Way picks up the purchase order message and publishes it to the Buyer **eX_eBPM** IQ.

2 The Retailer e*Xchange engine picks the purchase order message up from the IQ, validates it, saves it to the database, and publishes the purchase order message to the Retailer **eX_Trading_Port_Queue** IQ.

3 The **TP_Order_Eater** e*Way sends out the purchase order message to the Wholesaler trading partner by writing the purchase order message to file.

4 The **TP_Order_Feeder** e*Way picks up the message from the file and publishes it to the Wholesaler **eX_Trading_Port_Queue** IQ.

5 The Wholesaler e*Xchange engine picks the purchase order message up from the IQ, validates it, saves it to the database, and publishes the purchase order message to the Wholesaler **eX_eBPM** IQ.

6 The **Internal_Eater** e*Way sends out the purchase order message to the internal system by writing the purchase order message to file.

7 The Wholesaler e*Xchange engine publishes a purchase order acknowledgment message to the Wholesaler **eX_Trading_Port_Queue** IQ.

8 The **TP_Response_Eater** e*Way sends out the purchase order acknowledgment message to the Retailer trading partner by writing the purchase order acknowledgment message to file.

9 The **TP_Response_Feeder** e*Way picks up the purchase order acknowledgment message from the file and publishes it to the Retailer **eX_Trading_Port_Queue** IQ.

10 The Retailer e*Xchange engine picks the purchase order acknowledgment message up from the IQ, validates it, saves it to the database.

11 The **Internal_Response_Feeder** e*Way picks up the purchase order response message and publishes it to the Wholesaler **eX_eBPM** IQ.

12 The Wholesaler e*Xchange engine picks the purchase order response message up from the IQ, validates it, saves it to the database, and publishes the purchase order response message to the Wholesaler **eX_Trading_Port_Queue** IQ.

13 The **TP_Response_Eater** e*Way sends out the purchase order response message to the Retailer trading partner by writing the purchase order response message to file.

14 The **TP_Response_Feeder** e*Way picks up the purchase order response message from the file and publishes it to the Retailer **eX_Trading_Port_Queue** IQ.

15 The Retailer e*Xchange engine picks the purchase order response message up from the IQ, validates it, saves it to the database, and publishes the purchase order response message to the Retailer **eX_eBPM** IQ. The Retailer e*Xchange engine also publishes the purchase order response acknowledgment message to the Retailer **eX_Trading_Port_Queue** IQ.

16 The **Internal_Eater** e*Way sends out the purchase order response message to the internal system by writing the purchase order response message to file.

17 The **TP_Order_Eater** e*Way sends out the purchase order response message to the Wholesaler trading partner by writing the purchase order response message to file.

18 The **TP_Order_Feeder** e*Way picks up the message from the file and publishes it to the Wholesaler **eX_Trading_Port_Queue** IQ.

19 The Wholesaler e*Xchange engine picks the purchase order response message up from the IQ, validates it and updates database.

9.2 Using the Implementation Sample

The components for this implementation are provided on your installation CD, and are located in **\setup\eXchange\sample\ROSETTANET_SAMPLE_IMPLEMENTATION.zip**.

To install the components

1 Unzip the file to a local directory.

2 Install the e*Gate schema using one of the following commands. The schema name is user defined.

Note: *The default registry port number is 23001.*

A For UNIX:

```
sh install_rosettanet_po.sh <egate_registry_host_name>
<schema_name> <user_name> <password> <egate_registry_port_num>
```

B For Windows:

```
install_rosettanet_po.bat <egate_registry_host_name> <schema_name>
<user_name> <password> <egate_registry_port_num>
```

3 Use the e*Xchange Import function to import **ROSETTANET.exp** into e*Xchange Partner Manager.

4 Copy the **demos** folder to the **<egate>** directory.

5 Configure the **eX_ePM** e*Way as described in **"Configure the eX_ePM e*Way" on page 179**.

The steps on the following pages describe how the components for this implementation were created. See **"Running the Scenario" on page 180** for instructions to run the implementation.

9.3 Create the Trading Partner Profiles

The trading partner profiles in e*Xchange act as the repositories for the information necessary to send messages back and forth between the entities. They contain all of the information to properly envelope an Event and forward it to its correct destination.

When creating trading partner profiles, check your values carefully before saving or leaving a section/screen, because many values cannot be changed once they are committed to the database due to auditing restrictions. You can inactivate erroneous information and add the correct information under a different company, B2B Protocol section, and so on.

Refer to the *e*Xchange Partner Manager User's Guide* for detailed assistance with the process of creating trading partner profiles.

Trading Partner Information Hierarchy

e*Xchange stores trading partner information at various levels. The process of creating a trading partner profile proceeds from the most general inclusive level, that of a company with which you do business, to the most specific information regarding an message that you wish to send (the message profile).

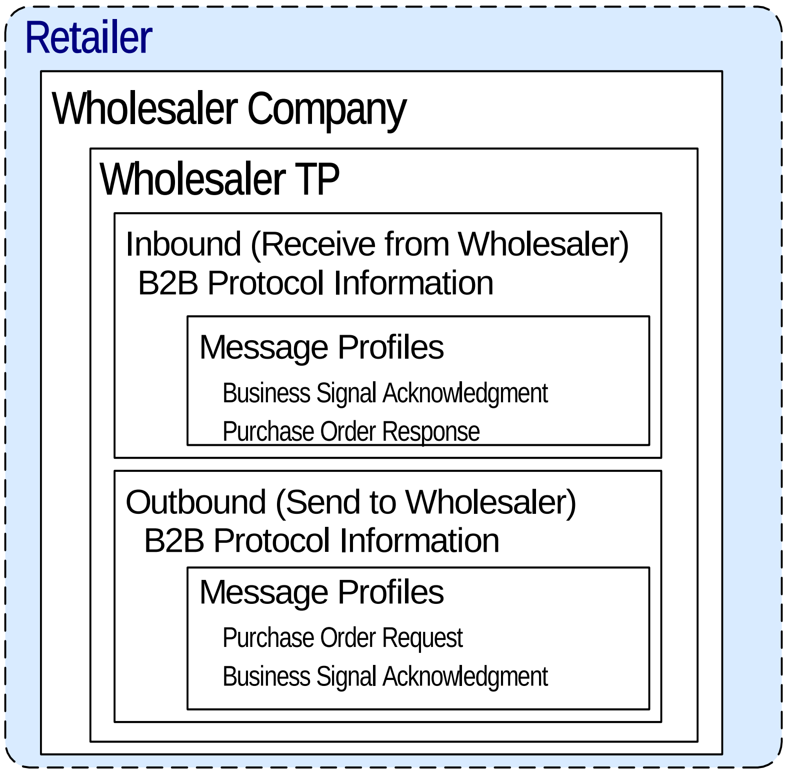
9.3.1 The Retailer Company

The Retailer Company uses the RosettaNet format to exchange business data with its customers. In our example we send a purchase order from the Retailer Company to the Wholesaler Company.

On the Retailer, you configure the trading partner profile for the Wholesaler company. Figure 69 shows an overview of the components that you need to create for this example, including:

- Company
- Trading Partner
- B2B Protocol Information
- Message Profiles

Figure 69 Wholesaler Trading Partner Configuration on the Retailer Company


Retailer
Wholesaler Company
Wholesaler TP
Inbound (Receive from Wholesaler) B2B Protocol Information
Message Profiles
Business Signal Acknowledgment
Purchase Order Response
Outbound (Send to Wholesaler) B2B Protocol Information
Message Profiles
Purchase Order Request
Business Signal Acknowledgment

To configure the Wholesaler trading partner profile follow the steps listed below:

- **Step 1: Create the Wholesaler Company** on page 138
- **Step 2: Create the Wholesaler Trading Partner** on page 139
- **Step 3: Set Up Inbound B2B Protocol Information (Wholesaler TP)** on page 139
- **Step 4: Create the Inbound Message Profiles (Wholesaler TP)** on page 140
- **Step 5: Set Up Outbound B2B Protocol Information (Wholesaler TP)** on page 142
- **Step 6: Create the Outbound Message Profiles (Wholesaler TP)** on page 142
- **Step 7: Configure Return Messages for Inbound (Wholesaler TP)** on page 144

The following procedure and accompanying tables were used to create the Wholesaler Company trading partner for this example.

Step 1: Create the Wholesaler Company

1. Log in to the e*Xchange Web interface.
2. From the **Main** page, click **Profile Management**.
3. From the **Company** page, click **New**.
4. In the **Company - adding** page, enter the **Company** name, “Wholesaler Company”.
5. Click **Next**.

This saves your changes and returns to the **Company** page.

Note: *The security information is automatically configured for the current user.*

Step 2: Create the Wholesaler Trading Partner

1. From the **Company** page, ensure that the “Wholesaler Company” is selected, and click **Continue: Trading Partner**.
2. From the **Trading Partner** page, click **New** to access the **Trading Partner - adding** page.
3. Enter the **Trading Partner Name**, “Wholesaler TP”.
4. Click **Next**.

   This saves your changes and returns to the **Trading Partner** page.

The required security information defaults from the company level.

Step 3: Set Up Inbound B2B Protocol Information (Wholesaler TP)

To set up the inbound B2B Protocol Information

1. From the **Trading Partner** page, ensure that the “Wholesaler TP” is selected, and click **Continue: B2B Protocol**.
2. From the **B2B Protocol** page, click **New** to access the **B2B Protocol - adding** page.
3. Enter the information listed in Table 45.

   In an actual implementation, your local administrator can provide you with the B2B Protocol information. For an explanation of the B2B Protocol parameters, see the *e*Xchange Partner Manager User's Guide*.

Table 45 B2B Protocol Information

Parameter	Value
eBusiness Protocol	RosettaNet
Version	2.0
Direction	Inbound

4. Click **Next** to save your changes and access the **General** section.
5. Enter the information listed in Table 46.

Table 46 B2B Protocol Information, General Page

Parameter	Value
Logical Name	Wholesaler
Status	Active
Communication Protocol	HTTP

6 Click **Next** to save your changes and access the **Transport Component** section.

7 No changes are required. Click **Next** to access the **Message Security** section.

8 No changes are required. Click **Finish** to save the information and return to the **B2B Protocol** page.

Step 4: Create the Inbound Message Profiles (Wholesaler TP)

For the purposes of this scenario, you must set up the following inbound message profiles:

- Purchase Order Response Message (3A4 Response - Manage Purchase Order)
- Control (Business Signal - Receipt Acknowledge)

To set up the 3A4 Response - Manage Purchase Order inbound message profile

1 From the **B2B Protocol** page, click **Continue: Message Profile**.

2 From the **Message Profile** page, click the **New** button to access the **Message Profile - adding** page.

3 In the **Name** window, type **3A4 Response - Manage Purchase Order**, and leave all other parameters with their default values.

4 Click **Next** to access the **Delivery Header** section. Enter the information listed in Table 47.

Table 47 Delivery Header (3A4 Response - Manage Purchase Order)

Name	Value
From Global Partner Business Identification	6264712002
To Global Partner Business Identification	6264716002

5 Click **Next** to access the **Service Header** section. Enter the information listed in Table 48.

Note: *This table only lists the attributes required to make this scenario work.*

Table 48 Service Header (3A4 Response - Manage Purchase Order)

Name	Value
Activity Identifier	1
From Global Partner Role Classification	Seller
From Global Business Service Code	Seller Service
Global Business Action/Signal Code	Purchase Order Acceptance Action
Global Business Action/Signal Version Identifier	01.02
Global Process Code (PIP)	3A4
PIP Version Identifier	01.02
To Global Partner Role Classification	Buyer

Name	Value
To Global Business Service Code	Buyer Service
Usage Code	Test

6 Click **Next** to access the **Return Messages** section.

7 No changes are required. Click **Finish** to save the information and return to the **Message Profile** page.

Note: *Setup of the return messages is done later, after the Outbound message profiles have been set up.*

To set up the Business Signal - Receipt Acknowledge inbound message profile

1 From the **Message Profile** page, click the **New** button to access the **Message Profile - adding** page.

2 In the **Name** window, type **Business Signal - Receipt Acknowledge**, and leave all other parameters with their default values.

3 Click **Next** to access the **Delivery Header** section. The information should appear as listed in Table 49.

Table 49 Delivery Header (Business Signal - Receipt Acknowledge)

Name	Value
From Global Partner Business Identification	6264712002
To Global Partner Business Identification	6264716002

4 Click **Next** to access the **Service Header** section. Enter the information listed in Table 50.

Note: *This table only lists the attributes required to make this scenario work.*

Table 50 Service Header (Business Signal - Receipt Acknowledge)

Name	Value
Activity Identifier	1
From Global Partner Role Classification	Seller
From Global Business Service Code	Seller Service
Global Business Action/signal Code	Receipt Acknowledge
Global Business Action/Signal Version Identifier	01.02
To Global Partner Role Classification	Buyer
To Global Business Service Code	Buyer Service
Usage Code	Test

5 Click **Next** to access the **Return Messages** section.

6 No changes are required. Click **Finish** to save the information and return to the **Message Profile** page.

Step 5: Set Up Outbound B2B Protocol Information (Wholesaler TP)

To set up the outbound B2B Protocol Information

As a shortcut, you can copy the Inbound B2B protocol information as a model for the Outbound B2B protocol information.

1 On the **B2B Protocol** page, select the RosettaNet-2.0-Inbound protocol that you created in **"To set up the inbound B2B Protocol Information" on page 139**.

2 Click **Copy**.

The **B2B Protocol - copying** page appears.

3 In the **Direction** field, ensure that **Outbound** is selected.

4 Click **Next**.

The **B2B Protocol - copying**, **General** page appears.

5 No changes are needed: click **Next** to accept the values and access the **Transport Component** page.

6 No changes are needed: click **Next** to accept the values and access the **Message Security** page.

7 No changes are required. Click **Finish** to save the information and return to the **B2B Protocol** page.

Step 6: Create the Outbound Message Profiles (Wholesaler TP)

For the purposes of this scenario, you must set up the following outbound message profiles:

- Purchase Order Message (3A4 Request - Manage Purchase Order)
- Control (Business Signal - Receipt Acknowledge)

To set up the 3A4 Request - Manage Purchase Order outbound message profile

1 From the **B2B Protocol** page, click **Continue: Message Profile**.

2 From the **Message Profile** page, click the **New** button to access the **Message Profile - adding** page.

3 In the **Name** window, type **3A4 Request - Manage Purchase Order**. Leave all other parameters with their default values.

4 Click **Next** to access the **Delivery Header** section. Enter the information listed in Table 51.

Table 51 Delivery Header (3A4 Request - Manage Purchase Order)

Name	Value
From Global Partner Business Identification	6264716002

Name	Value
To Global Partner Business Identification	6264712002

5 Click **Next** to access the **Service Header** section. Enter the information listed in Table 52.

Table 52 Service Header (3A4 Request - Manage Purchase Order)

Name	Value
Activity Identifier	1
From Global Partner Role Classification	Buyer
From Global Business Service Code	Buyer Service
Global Business Action/signal Code	Purchase Order Request Action
Global Business Action/Signal Version Identifier	01.02
Global Process Code(PIP)	3A4
PIP Version Identifier	01.02
To Global Partner Role Classification	Seller
To Global Business Service Code	Seller Service
Usage Code	Test

6 Click **Next** to access the **Return Messages** section.

7 Select the return message (select the check box), and enter the values, as shown in Table 53.

Table 53 Return Message Values: Outbound

Name	Response Time	Period	# Retries
Business Signal - Receipt Acknowledge	2	Minutes	1
3A4 Response - Manage Purchase Order	5	Minutes	1

8 Click **Finish** to save the information and return to the **Message Profile** page.

To set up the Business Signal - Receipt Acknowledge outbound message profile

1 From the **Message Profile** page, click the **New** button to access the **Message Profile - adding** page.

2 In the **Name** window, type **Business Signal - Receipt Acknowledge**, leave all other parameters with their default values.

3 Click **Next** to access the **Delivery Header** section. The information should appear as listed in Table 54.

Table 54 Delivery Header (Business Signal - Receipt Acknowledge)

Name	Value
From Global Partner Business Identification	6264716002
To Global Partner Business Identification	6264712002

4 Click **Next** to access the **Service Header** section. Enter the information listed in Table 55.

Note: *This table only lists the attributes required to make this scenario work.*

Table 55 Service Header (Business Signal - Receipt Acknowledge)

Name	Value
Activity Identifier	1
From Global Partner Role Classification	Buyer
From Global Business Service Code	Buyer Service
Global Business Action/Signal Code	Receipt Acknowledge
Global Business Action/Signal Version Identifier	01.02
To Global Partner Role Classification	Seller
To Global Business Service Code	Seller Service
Usage Code	Test

5 Click **Next** to access the **Return Messages** section.

6 No changes are required. Click **Finish** to save the information and return to the **Message Profile** page.

Step 7: Configure Return Messages for Inbound (Wholesaler TP)

To set up the Return Messages for Inbound

Once you have set up inbound and outbound message profiles, you can specify return messages.

1 From the **B2B Protocol** page, select **RosettaNet-2.0-Inbound**.

2 Click **Continue: Message Profile**.

3 From the **Message Profile** page, select **3A4 Response - Manage Purchase Order** from the drop-down list.

4 Click the **Return Messages** link to access the **Return Messages** section.

5 Click **Edit**.

6 Select the return messages (select the check boxes), and enter the values, as shown in Table 56.

Table 56 Return Message Values: Inbound

Name	Response Time	Period	# Retries
Business Signal - Receipt Acknowledge	10	Minutes	0

7 Click **Apply** to save the information and return to the **Message Profile** page.

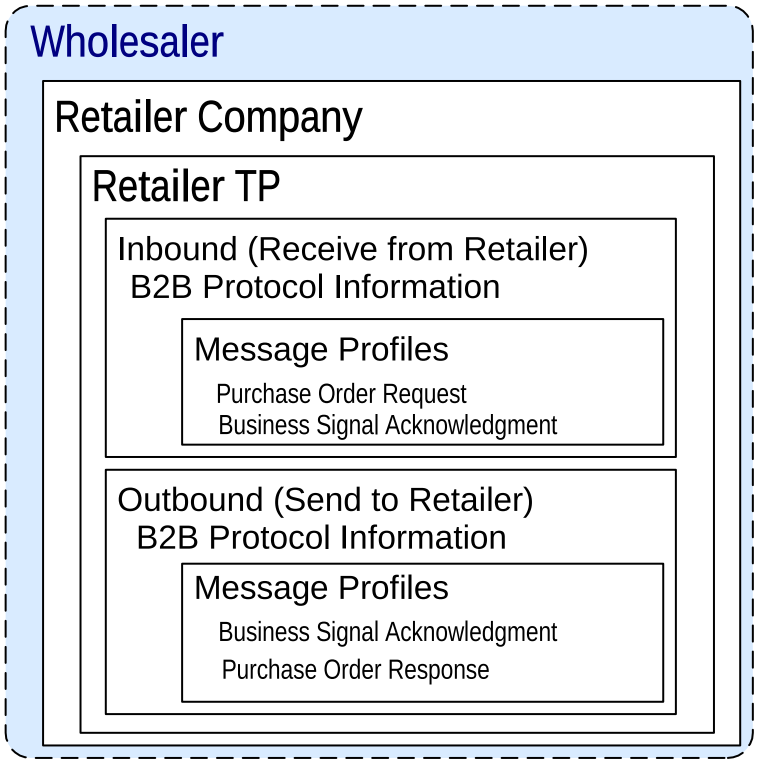
9.4 The Wholesaler

The Wholesaler is the supplier that uses the RosettaNet format to exchange business data with its customers. In our example the Wholesalers receive a purchase order from the Retailer and sends a purchase order response back.

On the Wholesaler, you configure the Trading Partner Profile for the Retailer company. Figure 70 shows an overview of the components that you need to create for this example, including:

- Company
- Trading Partner
- B2B Protocol Information
- Message Profiles

Figure 70 Retailer Trading Partner Configuration on the Wholesaler Company



To configure the Retailer Trading Partner Profile you must follow the steps listed below:

- **Step 1: Create the Retailer Company** on page 146
- **Step 2: Create the Retailer Trading Partner** on page 146
- **Step 3: Set Up Inbound B2B Protocol Information (Retailer TP)** on page 146
- **Step 4: Create the Inbound Message Profiles (Retailer TP)** on page 147
- **Step 5: Set Up the Outbound B2B Protocol Information (Retailer TP)** on page 149
- **Step 6: Set Up the Outbound Message Profiles (Retailer TP)** on page 150
- **Step 7: Configure Return Messages for Inbound (Retailer TP)** on page 152

The following procedure and accompanying tables were used to create the Retailer Company trading partner for this example.

Step 1: Create the Retailer Company

1. Log in to the e*Xchange Web Interface.
2. From the **Main** page, click **Profile Management**.
3. From the **Company** page, click **New**.
4. In the **Company - adding** page, enter the **Company** name, “Retailer Company”.
5. Click **Next**.

   This saves your changes and returns to the **Company** page.

Note: The security information is automatically configured for the current user.

Step 2: Create the Retailer Trading Partner

1. From the **Company** page, ensure that the “Retailer Company” is selected, and then click **Continue: Trading Partner**.
2. From the **Trading Partner** page, click **New** to access the **Trading Partner - adding** page.
3. Enter the **Trading Partner Name**, “Retailer TP”.
4. Click **Next**.

   This saves your changes and returns to the **Trading Partner** page.

The required security information defaults from the company level.

Step 3: Set Up Inbound B2B Protocol Information (Retailer TP)

To set up the inbound B2B Protocol Information

1. From the **Trading Partner** page, ensure that the “Retailer TP” is selected, and click **Continue: B2B Protocol**.
2. From the **B2B Protocol** page, click **New** to access the **B2B Protocol - adding** page.
3. Enter the information listed in Table 57.

In an actual implementation, your local administrator can provide you with the B2B Protocol information. For an explanation of the B2B Protocol parameters, see the *e*Xchange Partner Manager User's Guide*.

Table 57 B2B Protocol Information

Parameter	Value
eBusiness Protocol	RosettaNet
Version	2.0
Direction	Inbound

4 Click **Next** to save your changes and access the **General** section.

5 Enter the information listed in Table 58.

Table 58 B2B Protocol Information, General Page

Parameter	Value
Logical Name	Retailer
Status	Active
Communication Protocol	HTTP

6 Click **Next** to save your changes and access the **Transport Component** section.

7 No changes are required. Click **Next** to access the **Message Security** section.

8 No changes are required. Click **Finish** to save the information and return to the **B2B Protocol** page.

Step 4: Create the Inbound Message Profiles (Retailer TP)

For the purposes of this scenario, you must set up the following inbound message profiles:

- Purchase Order Message (3A4 Request - Manage Purchase Order)
- Control (Business Signal - Receipt Acknowledge)

To set up the 3A4 Request - Manage Purchase Order inbound message profile

1 From the **B2B Protocol** page, click **Continue: Message Profile**.

2 From the **Message Profile** page, click the **New** button to access the **Message Profile - adding** page.

3 In the **Name** window, type **3A4 Request - Manage Purchase Order**, and leave all other parameters with their default values.

4 Click **Next** to access the **Delivery Header** section. Enter the information listed in Table 59.

Table 59 Delivery Header (3A4 Request - Manage Purchase Order)

Name	Value
From Global Partner Business Identification	6264716002
To Global Partner Business Identification	6264712002

5 Click **Next** to access the **Service Header** section. Enter the information listed in Table 60.

Table 60 Service Header (3A4 Request - Manage Purchase Order)

Name	Value
Activity Identifier	1
From Global Partner Role Classification	Buyer
From Global Business Service Code	Buyer Service
Global Business Action/signal Code	Purchase Order Request Action
Global Business Action/Signal Version Identifier	01.02
Global Process Code(PIP)	3A4
PIP Version Identifier	01.02
To Global Partner Role Classification	Seller
To Global Business Service Code	Seller Service
Usage Code	Test

6 Click **Next** to access the **Return Messages** section.

7 No changes are required. Click **Finish** to save the information and return to the **Message Profile** page.

Note: *Setup of the return messages is done later, after the Outbound message profiles have been set up.*

To set up the Business Signal - Receipt Acknowledge inbound message profile

1 From the **Message Profile** page, click the **New** button to access the **Message Profile - adding** page.

2 In the **Name** window, type **Business Signal - Receipt Acknowledge**, and leave all other parameters with their default values.

3 Click **Next** to access the **Delivery Header** section. The information should appear as listed in Table 61.

Table 61 Delivery Header (Business Signal - Receipt Acknowledge)

Name	Value
From Global Partner Business Identification	6264716002
To Global Partner Business Identification	6264712002

4 Click **Next** to access the **Service Header** section. Enter the information listed in Table 62.

Note: *This table only lists the attributes required to make this scenario work.*

Table 62 Service Header (Business Signal - Receipt Acknowledge)

Name	Value
Activity Identifier	1
From Global Partner Role Classification	Buyer
From Global Business Service Code	Buyer Service
Global Business Action/signal Code	Receipt Acknowledge
Global Business Action/Signal Version Identifier	01.02
To Global Partner Role Classification	Seller
To Global Business Service Code	Seller Service
Usage Code	Test

5 Click **Next** to access the **Return Messages** section.

6 No changes are required. Click **Finish** to save the information and return to the **Message Profile** page.

Step 5: Set Up the Outbound B2B Protocol Information (Retailer TP)

To set up the outbound B2B Protocol information

As a shortcut, you can copy the inbound B2B Protocol information as a model for the Inbound B2B Protocol information.

1 On the **B2B Protocol** page, select the RosettaNet-2.0-Inbound protocol that you created in **"To set up the inbound B2B Protocol Information" on page 146**. Click **Copy**.

The **Copy Type** page appears.

2 Clear the **Include Sub-components** check box and then click **OK**.

The **Copy Type** page appears.

3 Clear the **Include Sub-components** check box and then click **OK**.

The **B2B Protocol - Copying** page appears.

4 In the **Direction** field, ensure that **Outbound** is selected.

5 Click **Next**.

The **B2B Protocol - copying**, **General** page appears.

6 No changes are needed: click **Next** to accept the values and access the **Transport Component** page.

7 No changes are needed: click **Next** to accept the values and access the **Message Security** page.

8 No changes are required. Click **Finish** to save the information and return to the **B2B Protocol** page.

Step 6: Set Up the Outbound Message Profiles (Retailer TP)

To set up the 3A4 Response - Manage Purchase Order outbound Message Profile

1 From the **B2B Protocol** page, click **Continue: Message Profile**.

2 From the **Message Profile** page, click the **New** button to access the **Message Profile - adding** page.

3 In the **Name** window, type **3A4 Response - Manage Purchase Order**, and leave all other parameters with their default values.

4 Click **Next** to access the **Delivery Header** section. Enter the information listed in Table 63.

Table 63 Delivery Header (3A4 Response - Manage Purchase Order)

Name	Value
From Global Partner Business Identification	6264712002
To Global Partner Business Identification	6264716002

5 Click **Next** to access the **Service Header** section. Enter the information listed in Table 64.

Note: *This table only lists the extended attributes required to make this scenario work.*

Table 64 Service Header (3A4 Response - Manage Purchase Order)

Name	Value
Activity Identifier	1
From Global Partner Role Classification	Seller
From Global Business Service Code	Seller Service
Global Business Action/signal Code	Purchase Order Acceptance Action
Global Business Action/Signal Version Identifier	01.02
Global Process Code(PIP)	3A4
PIP Version Identifier	01.02
To Global Partner Role Classification	Buyer
To Global Business Service Code	Buyer Service
Usage Code	Test

6 Click **Next** to access the **Return Messages** section.

7 Select the return message (select the check box), and enter the values, as shown in Table 65.

Table 65 Return Message Values: Outbound

Name	Response Time	Period	# Retries
Business Signal - Receipt Acknowledge	2	Minutes	1

8 Click **Finish** to save the information and return to the **Message Profile** page.

To set up the Business Signal - Receipt Acknowledge outbound message profile

1 From the **Message Profile** page, click the **New** button to access the **Message Profile - adding** page.

2 In the **Name** window, type **Business Signal - Receipt Acknowledge**, and leave all other parameters with their default values.

3 Click **Next** to access the **Delivery Header** section. The information should appear as listed in Table 66.

Table 66 Delivery Header (Business Signal - Receipt Acknowledge)

Name	Value
From Global Partner Business Identification	6264712002
To Global Partner Business Identification	6264716002

4 Click **Next** to access the **Service Header** section. Enter the information listed in Table 67.

Note: *This table only lists the extended attributes required to make this scenario work.*

Table 67 Service Header (Business Signal - Receipt Acknowledge)

Name	Value
Activity Identifier	1
From Global Partner Role Classification	Seller
From Global Business Service Code	Seller Service
Global Business Action/signal Code	Receipt Acknowledge
Global Business Action/Signal Version Identifier	01.02
To Global Partner Role Classification	Buyer
To Global Business Service Code	Buyer Service
Usage Code	Test

5 Click **Next** to access the **Return Messages** section.

6 No changes are required. Click **Finish** to save the information and return to the **Message Profile** page.

Step 7: Configure Return Messages for Inbound (Retailer TP)

To set up the return messages for Inbound

Once you have set up inbound and outbound message profiles, you can specify return messages.

1. From the **B2B Profile** page, select **RosettaNet-2.0-Inbound**.
2. Click **Continue: Message Profile**.
3. From the **Message Profile** page, select **3A4 Request - Manage Purchase Order** from the drop-down list.
4. Click the **Return Messages** link to access the **Return Messages** section.
5. Click **Edit**.
6. Select the return messages (select the check boxes), and enter the values, as shown in Table 68.

Table 68 Return Message Values: Inbound

Name	Response Time	Period	# Retries
3A4 Response - Manage Purchase Order	10	Minutes	0
Business Signal - Receipt Acknowledge	5	Minutes	0

7. Click **Apply** to save the information and return to the **Message Profile** page.

9.5 Clone the eXSchema

The supplied schema named eXSchema contains the components required to run e*Xchange. Make a copy of this schema and then configure the copy for this implementation.

To make a copy of eXSchema

1. Open eXSchema in the e*Gate Schema Designer GUI.
2. Export eXSchema.
3. Create a new schema named **RosettaNet** using the exported file.

9.6 Configure the Internal_Order_Feeder e*Way

The component (e*Way or BOB) that feeds data into e*Xchange must put the data into the appropriate business protocol format. It must also populate the required fields in the e*Xchange Event that is processed by e*Xchange.

This component is entirely user-defined and must be added to the RosettaNet schema. The type of component to use depends on whether a connection to a system outside e*Gate must be made, and if so, what type of system. Typically, this component is an e*Way that connects to a business application such as SAP that sends out electronic messages. These messages may or may not be in the format required by the trading partner to which they are being sent. If the data is not in the correct format, the e*Way must translate the data into the required format before it is sent to the e*Xchange system for enveloping and forwarding to the trading partner.

The e*Xchange Internal_Order_Feeder e*Way

This example simulates the publication of an electronic purchase order from a trading partner. This file, which is already in RosettaNet format, is picked up by a file e*Way and moved into the e*Xchange system.

Configuration Steps

Follow these steps to configure the **Internal_Order_Feeder** e*Way.

1. Create and configure the e*Way.
2. Create the ETDs.
3. Create the Collaboration.

9.6.1 Step 1: Create and configure the Internal_Order_Feeder e*Way

1. Create an e*Way called **Internal_Order_Feeder**.
2. In the **e*Way Properties** dialog box, in the **Executable file** area of the **General** tab, browse for **stcewfile.exe.**
3. In the **e*Way Properties** dialog box, in the **Configuration file** area of the **General** tab, click **New**.
4. Use the following table to set the e*Way parameters for the **Internal_Order_Feeder** e*Way:

Table 69 Internal_Order_Feeder e*Way Parameters

Screen	Parameter	Setting
General Settings	(All)	(Default)
Outbound (send) settings	(All)	(Default)
Poller (inbound) settings	PollDirectory	<eGate>\Demos\RosettaNet\input\order
	MultipleRecordsPerFile	NO
	(All others)	(Default)
Performance Testing	(All)	(Default)

5. When finished editing the e*Way configuration file, save your work and close the e*Way editor.
6. Click **OK** to close the **e*Way Properties** dialog box.

9.6.2 Step 2: Create the Internal_Order_Feeder ETDs

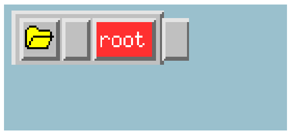
In the present example, since the data is already in standard RosettaNet format for a purchase order, you can bring in the Event without parsing it. To do this, all that is required is an ETD with a root node.

*Note: If **root.ssc** already exists, you do not need to create the ETD.*

To create the root ETD

1. Create a new ETD called **root.ssc**. In the **Type** box, select Delimited, and select **Other** from the drop-down list.
2. Add a single node to the structure. The ETD is shown in Figure 71.

Figure 71 root.ssc Event Type Definition



3. Save the ETD.

9.6.3 Step 3: Create the Internal_Order_Feeder Collaboration

The **Internal_Order_Feeder** Collaboration must prepare the data coming into the e*Xchange system. How complicated this task is depends on the state of the data before the **Internal_Order_Feeder** Collaboration processes it.

The **Internal_Order_Feeder** Collaboration must do the following:

- convert the data to base 64 encoding
- populate the required nodes in the e*Xchange Event sent to e*Xchange for processing

Convert the Event to Base 64 Encoding

The **Internal_Order_Feeder** Collaboration must ensure that the data going into e*Xchange doesn’t include any characters that cause problems for the XML structure of the standard e*Xchange Event (for example, characters that are the same as the XML control characters). This is done by converting the entire message to base 64 encoding using the Monk function **raw->base64**, and then copying it to the payload node of the **eX_Standard_Event** ETD.

Populate the Required e*Xchange Nodes

In addition to copying the base 64 encoded message to the payload node of the TP_EVENT portion of the e*Xchange standard Event, you must provide e*Xchange with tracking information about the message.

e*Xchange Tracking Information

e*Xchange needs to know certain things about an message before processing. The **Internal_Order_Feeder** Collaboration must supply this information by populating certain required nodes in the Event that is sent to e*Xchange. At a minimum you must tell e*Xchange:

- Direction (inbound or outbound)
- Partner Name (logical name from the B2B Protocol section in e*Xchange)

All of these requirements can be met by copying the appropriate information to the corresponding nodes in the TP section of the e*Xchange ETD (**eX_Standard_Event.ssc**).

The **TP_EVENT.CT.DSN.DS.Direction.CT.DSN.DS.Data** node must contain the direction of the Event: "O" for outbound to the trading partner or "I" for inbound from a trading partner.

The **TP_EVENT.CT.DSN.DS.PartnerName.CT.DSN.DS.Data** node must contain the name (case-sensitive) of the trading partner as defined in the **B2B Protocol Information**, **General** page.

The e*Xchange Payload

In addition to the tracking information, the **TP_EVENT.CT.DSN.DS.Payload.CT.DSN.DS.Data** node must be filled with the entire base 64 encoded message.

The e*Xchange Internal_Order_Feeder CRS

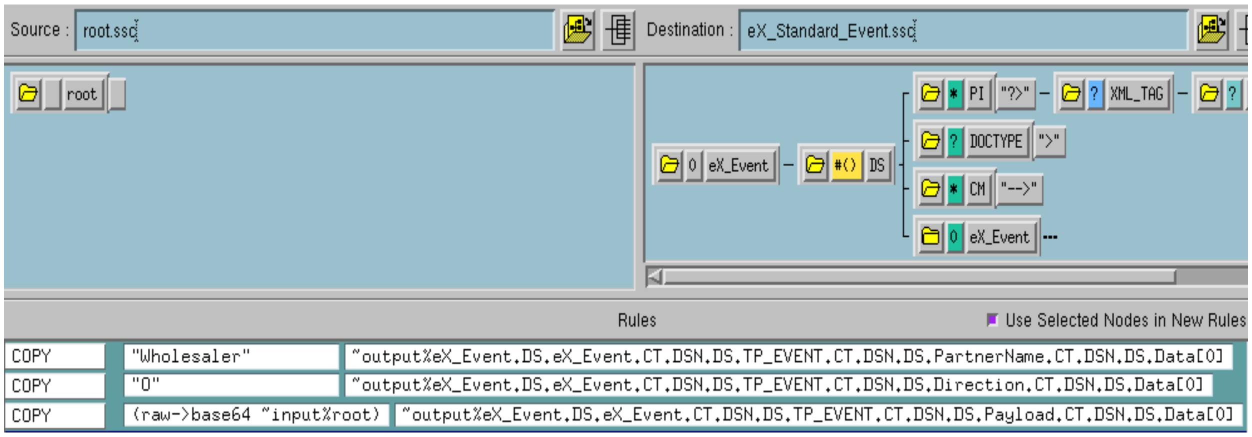
The CRS, **Internal_Order_Feeder.tsc**, used in the present example is shown in Figure 72. It does the following:

- Converts the RosettaNet message to base 64 encoding, and copies it to the Payload node of the TP_EVENT section of the e*Xchange standard Event.
- Copies "O" for outbound to the direction node of the TP_EVENT section.
- Copies the trading partner logical name "Wholesaler" to the PartnerName node of the TP_EVENT section.

To create and configure the Internal_Order_Feeder Collaboration Rule

1. Open the Collaboration Editor.
2. Create a new Collaboration Rules script named **Internal_Order_Feeder.tsc**. The Source Event Type Definition is **root.ssc**. The Destination Event Type Definition is **eX_Standard_Event.ssc**.
3. Add the rules shown in Figure 72.

Figure 72 Internal_Order_Feeder.tsc



```
COPY  "Wholesaler"              ~output%eX_Event.DS.eX_Event.CT.DSN.DS.TP_EVENT.CT.DSN.DS.PartnerName.CT.DSN.DS.Data[0]
COPY  "O"                       ~output%eX_Event.DS.eX_Event.CT.DSN.DS.TP_EVENT.CT.DSN.DS.Direction.CT.DSN.DS.Data[0]
COPY  (raw->base64 ~input%root) ~output%eX_Event.DS.eX_Event.CT.DSN.DS.TP_EVENT.CT.DSN.DS.Payload.CT.DSN.DS.Data[0]
```

Internal_Order_Feeder Collaboration Properties Setup

Once the CRS has been created, you must set up the Collaboration and Collaboration Rules Properties for the **Internal_Order_Feeder** Component in the Schema Designer GUI.

To create and configure the Internal_Order_Feeder Collaboration Rule

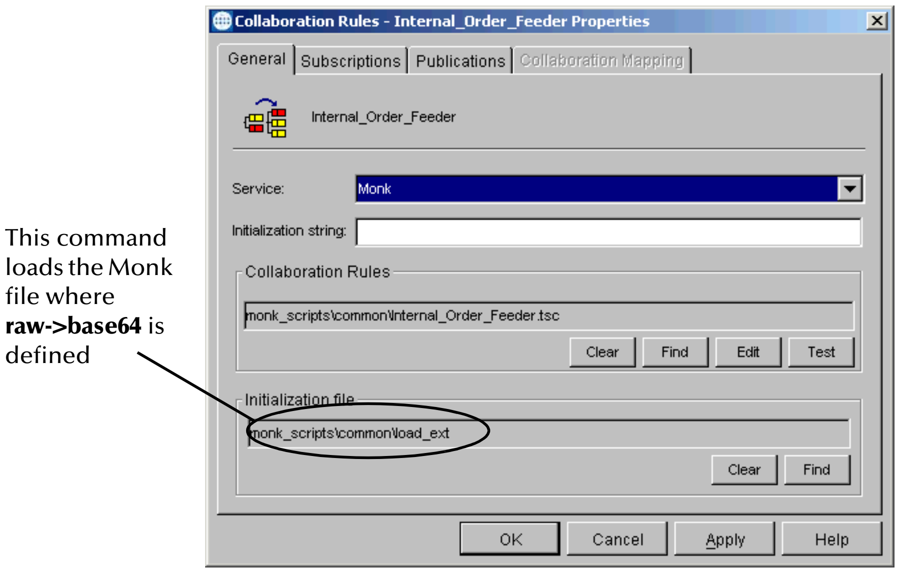
1. Create a new Collaboration Rule named **Internal_Order_Feeder**.
2. From **Internal_Order_Feeder** Collaboration Rule properties, select the **General** tab. Configure as shown in Table 70.

Table 70 Internal_Order_Feeder CR configuration - General Tab

Section	Value
Service	Monk
Collaboration Rule	Internal_Order_Feeder
Initialization File	monk_scripts\common\load_ext

Important: *To use the Monk function* ***raw->base64****, you must make sure the file containing this function has been loaded.*

Figure 73 Internal_Order_Feeder Collaboration Rules Properties Dialog Box


This command loads the Monk file where **raw->base64** is defined
Collaboration Rules - Internal_Order_Feeder Properties
General
Subscriptions
Publications
Collaboration Mapping
Clear
Find
Edit
Test
Clear
Find
OK
Cancel
Apply
Help

Internal_Order_Feeder

Service: Monk

Initialization string:

Collaboration Rules: monk_scripts\common\Internal_Order_Feeder.tsc

Initialization file: monk_scripts\common\load_ext

3 Select the **Subscriptions** tab. Select **eX_External_Evt** and move it to the right pane.

4 Select the **Publications** tab. Select **eX_to_ePM** and move it to the right pane.

To create and configure the Internal_Order_Feeder Collaboration

1 Select the **Internal_Order_Feeder** e*Way.

2 Create a new Collaboration named **Internal_Order_Feeder**.

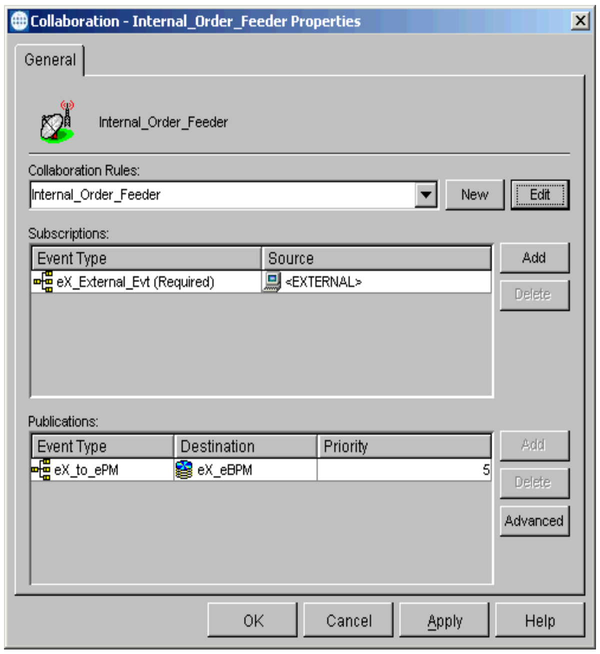
3 Configure the Internal_Order_Feeder Collaboration properties using Table 71.

Table 71 Internal_Order_Feeder Collaboration configuration

Section	Value
Collaboration Rules	Internal_Order_Feeder
Subscriptions	Event Type: eX_External_Evt Source: <EXTERNAL>
Publications	Event Type: eX_to_ePM Destination: eX_eBPM

Verify the information in the **Collaboration Properties** dialog box as shown in Figure 74.

Figure 74 Internal_Order_Feeder Collaboration Properties


Collaboration - Internal_Order_Feeder Properties

General

Internal_Order_Feeder

Collaboration Rules: Internal_Order_Feeder

Subscriptions:

Event Type	Source
eX_External_Evt (Required)	<EXTERNAL>

Publications:

Event Type	Destination	Priority
eX_to_ePM	eX_eBPM	5

9.7 Configure the TP_Order_Eater e*Way

The component (e*Way or BOB) sends the message to the external system.

The e*Xchange TP_Order_Eater e*Way

The e*Xchange example simulates the publication of the message to the external system.

Configuration Steps

Follow these steps to configure the TP_Order_Eater e*Way.

1 Create the configuration file.

2 Create the ETDs.

3 Create the Collaboration.

9.7.1 Step 1: Create and configure the TP_Order_Eater e*Way

1 Create an e*Way called **TP_Order_Eater**.

2 In the **e*Way Properties** dialog box **General** tab, in the **Executable file** area browse for **stcewfile.exe**.

3 In the **e*Way Properties** dialog box **General** tab, in the **Configuration file** area, click **New**.

4 Use Table 72 to set the e*Way parameters for the **TP_Order_Eater** e*Way.

Table 72 TP_Order_Eater e*Way Parameters

Screen	Parameter	Setting
General Settings	AllowIncoming	NO
	AllowOutgoing	YES
Outbound (send) settings	OutputDirectory	<eGate>\Demos\RosettaNet\output\Order_Out\TP
	OutputFileName	order%d.dat
	MultipleRecordsPerFile	NO
	(All others)	(Default)
Poller (inbound) settings	(All)	(Default)
Performance Testing	(All)	(Default)

5 When finished editing the e*Way configuration file, save your work and close the e*Way editor.

6 Click **OK** to close the **e*Way Properties** dialog box.

9.7.2 Step 2: Create the TP_Order_Eater Collaboration

The **TP_Order_Eater** Collaboration must prepare the data leaving the e*Xchange system. How complicated this task is depends on the state of the data before the **TP_Order_Eater** Collaboration processes it.

The **TP_Order_Eater** Collaboration must do the following:

- put the data into the appropriate format
- convert the data to raw data

The e*Xchange TP_Order_Eater CRS

The CRS, **TP_Order_Eater.tsc**, checks that the message is for the Wholesaler Trading Partner (Wholesaler). If it is, it converts the RosettaNet message to raw data, and then copies it from the Payload node of the TP_EVENT section of the e*Xchange standard Event to the output ETD.

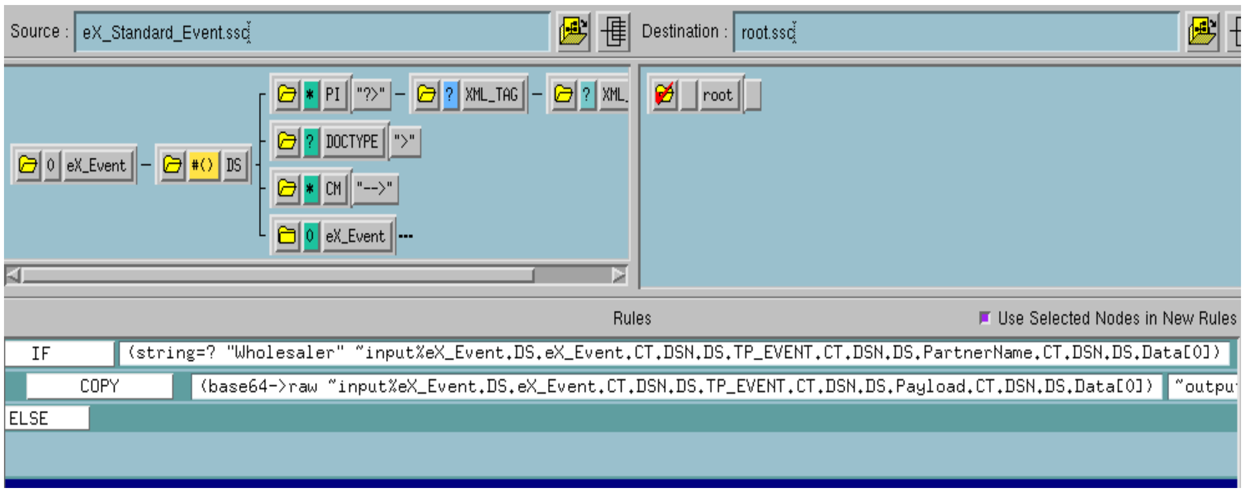
To create and configure the TP_Order_Eater Collaboration Rule

1 Open the Collaboration Editor.

2 Create a new Collaboration Rules script named **TP_Order_Eater.tsc**. The Source Event Type Definition is **eX_Standard_Event.ssc**. The Destination Event Type Definition is **root.ssc**.

3 Add the rule shown in Figure 75.

Figure 75 TP_Order_Eater.tsc



```
IF      (string=? "Wholesaler" ~input%eX_Event.DS.eX_Event.CT.DSN.DS.TP_EVENT.CT.DSN.DS.PartnerName.CT.DSN.DS.Data[0])
  COPY    (base64->raw ~input%eX_Event.DS.eX_Event.CT.DSN.DS.TP_EVENT.CT.DSN.DS.Payload.CT.DSN.DS.Data[0])   ~outpu
ELSE
```

TP_Order_Eater Collaboration Properties Setup

Once the CRS has been created, you must set up the Collaboration and Collaboration Rules Properties for the **TP_Order_Eater** Component in the Schema Designer GUI.

To create and configure the TP_Order_Eater Collaboration Rule

1. Create a new Collaboration Rule named **TP_Order_Eater**.
2. From the **Internal_Order_Eater** Collaboration Rule properties, select the **General** tab. Configure as shown in Table 73.

Table 73 TP_Order_Eater CR Configuration - General Tab

Section	Value
Service	Monk
Collaboration Rule	TP_Order_Eater
Initialization File	monk_scripts\common\load_ext

Important: *To use the Monk function* ***base64->raw****, you must make sure the file containing this function has been loaded.*

3. Select the **Subscriptions** tab. Select **eX_HTTP** and move to the right pane.
4. Select the **Publications** tab. Select **eX_External_Evt** and move to the right pane.

To create and configure the TP_Order_Eater Collaboration

1. Select the **TP_Order_Eater** e*Way.
2. Create a new Collaboration named **TP_Order_Eater**.
3. Configure the Internal_Order_Eater Collaboration properties using Table 74.

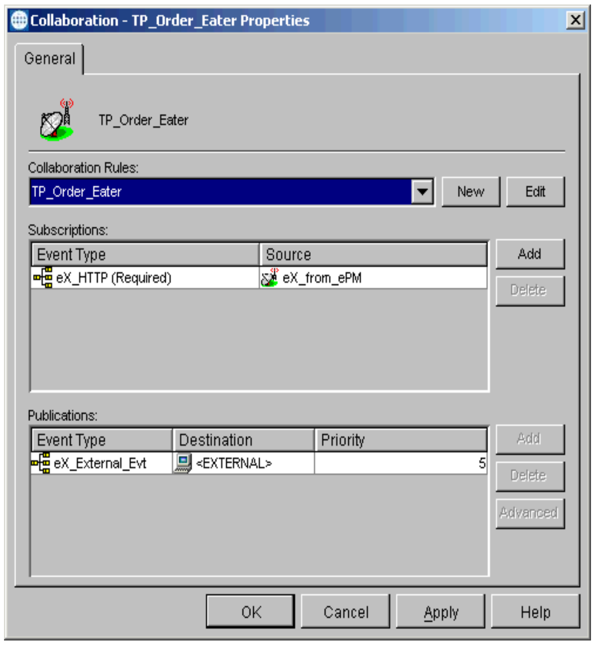
Table 74 TP_Order_Eater Collaboration configuration

Section	Value
Collaboration Rule	TP_Order_Eater

Section	Value
Subscriptions	Event Type: eX_HTTP Source: eX_from_ePM
Publications	Event Type: eX_External_Evt Destination: <EXTERNAL>

Verify the information in the **Collaboration Properties** dialog box as shown in Figure 76.

Figure 76 TP_Order_Eater Collaboration Properties



Subscriptions:

Event Type	Source
eX_HTTP (Required)	eX_from_ePM

Publications:

Event Type	Destination	Priority
eX_External_Evt	<EXTERNAL>	5

9.8 Configure the TP_Order_Feeder e*Way

This component feeds the data that was sent to the Wholesaler Trading Partner into e*Xchange.

The e*Xchange TP_Order_Feeder e*Way

The e*Xchange example simulates the publication of an electronic purchase order from a trading partner. This file, which is already in RosettaNet format, is picked up by a file e*Way and moved into the e*Xchange system.

Configuration Steps

Follow these steps to configure the Internal_Order_Feeder e*Way.

1 Create and configure the e*Way.

2 Create the Collaboration.

9.8.1 Step 1: Create and configure the TP_Order_Feeder e*Way

1. Create an e*Way called **TP_Order_Feeder**.
2. In the **e*Way Properties** dialog box, in the **Executable file** area of the **General** tab, browse for **stcewfile.exe**.
3. In the **e*Way Properties** dialog box, in the **Configuration file** area of the **General** tab, click **New**.
4. Use Table 75 to set the e*Way parameters for the **TP_Order_Feeder** e*Way.

Table 75 TP_Order_Feeder e*Way Parameters

Screen	Parameter	Setting
General Settings	(All)	(Default)
Outbound (send) settings	(All)	(Default)
Poller (inbound) settings	PollDirectory	<eGate>\Demos\RosettaNet\output\order_out\TP
	MultipleRecordsPerFile	NO
	(All others)	(Default)
Performance Testing	(All)	(Default)

5. When finished editing the e*Way configuration file, save your work and close the e*Way editor.
6. Click **OK** to close the **e*Way Properties** dialog box.

9.8.2 Step 2: Create the TP_Order_Feeder Collaboration

The **TP_Order_Feeder** Collaboration must prepare the data coming into the e*Xchange system. How complicated this task is depends on the state of the data before the **TP_Order_Feeder** Collaboration processes it.

The **TP_Order_Feeder** Collaboration must do the following:

- convert the data to base 64 encoding
- populate the required nodes in the e*Xchange Event sent to e*Xchange for processing

Convert the Event to Base 64 Encoding

The **TP_Order_Feeder** Collaboration must ensure that the data going into e*Xchange doesn't include any characters that cause problems for the XML structure of the standard e*Xchange Event (for example, characters that are the same as the XML control characters). This is done by converting the entire message to base 64 encoding using the Monk function **raw->base64**, before copying it to the payload node of the **eX_Standard_Event** ETD.

Populate the Required e*Xchange Nodes

In addition to copying the base 64 encoded message to the payload node of the TP_EVENT portion of the e*Xchange standard Event, you must provide e*Xchange with tracking information about the message.

The e*Xchange TP_Order_Feeder CRS

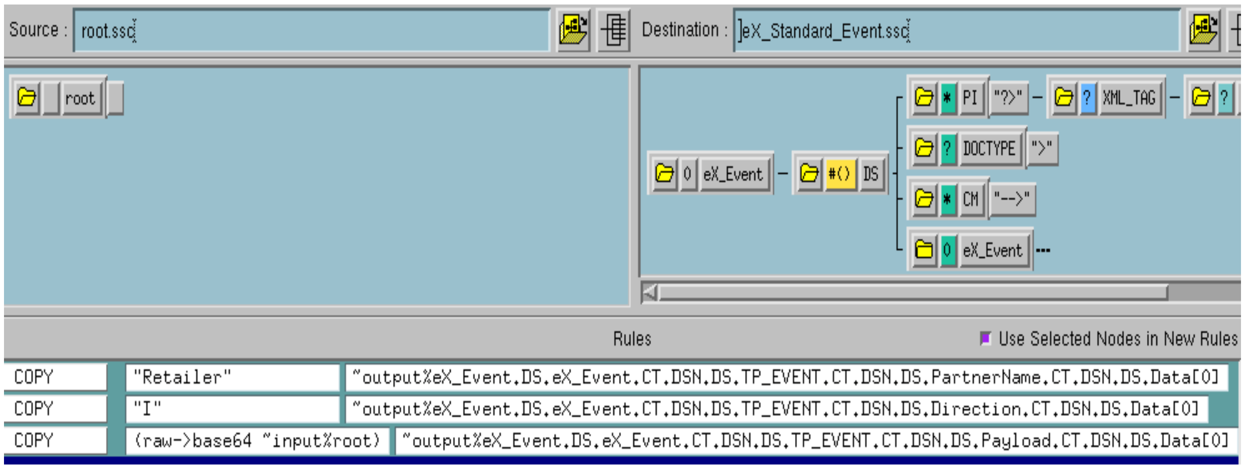
The CRS, **TP_Order_Feeder.tsc** does the following:

- Converts the RosettaNet message to base 64 encoding, and copies it to the Payload node of the TP_EVENT section of the e*Xchange standard Event.
- Copies "I" for outbound to the direction node of the TP_EVENT section.
- Copies the trading partner logical name "Retailer" to the PartnerName node of the TP_EVENT section.

To create and configure the TP_Order_Feeder Collaboration Rule

1. Open the Collaboration Editor.
2. Create a new Collaboration Rules script named **TP_Order_Feeder.tsc**. The Source Event Type Definition is **root.ssc**. The Destination Event Type Definition is **eX_Standard_Event.ssc**.
3. Add the rules shown in Figure 77.

Figure 77 TP_Order_Feeder.tsc



```
COPY  "Retailer"                 "output%eX_Event.DS.eX_Event.CT.DSN.DS.TP_EVENT.CT.DSN.DS.PartnerName.CT.DSN.DS.Data[0]
COPY  "I"                        "output%eX_Event.DS.eX_Event.CT.DSN.DS.TP_EVENT.CT.DSN.DS.Direction.CT.DSN.DS.Data[0]
COPY  (raw->base64 "input%root)  "output%eX_Event.DS.eX_Event.CT.DSN.DS.TP_EVENT.CT.DSN.DS.Payload.CT.DSN.DS.Data[0]
```

TP_Order_Feeder Collaboration Properties Setup

Once the CRS has been created, you must set up the Collaboration and Collaboration Rules Properties for the **TP_Order_Feeder** Component in the Schema Designer GUI.

To create and configure the TP_Order_Feeder Collaboration Rule

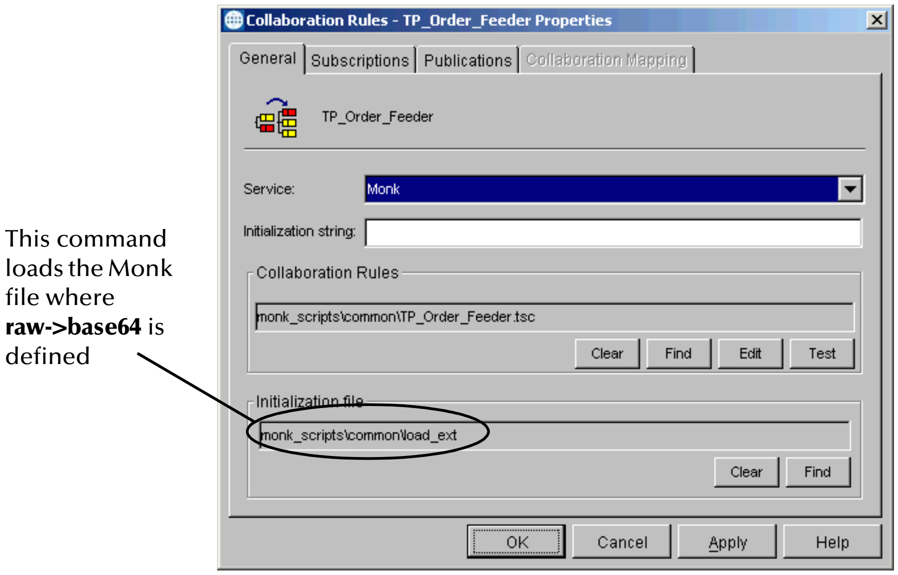
1. Create a new Collaboration Rule named **TP_Order_Feeder**.
2. From **TP_Order_Feeder** Collaboration Rule properties, select the **General** tab. Configure as shown in Table 76.

Table 76 TP_Order_Feeder CR Configuration - General Tab

Section	Value
Service	Monk
Collaboration Rule	TP_Order_Feeder
Initialization File	monk_scripts\common\load_ext

Important: *To use the Monk function **raw->base64**, you must make sure the file containing this function has been loaded.*

Figure 78 TP_Order_Feeder Collaboration Rules Properties Dialog Box


This command loads the Monk file where **raw->base64** is defined
Collaboration Rules - TP_Order_Feeder Properties
General
Subscriptions
Publications
Collaboration Mapping
TP_Order_Feeder
Clear
Find
Edit
Test
Clear
Find
OK
Cancel
Apply
Help

Service: Monk
Initialization string:
Collaboration Rules: monk_scripts\common\TP_Order_Feeder.tsc
Initialization file: monk_scripts\common\load_ext

3 Select the **Subscriptions** tab. Select **eX_External_Evt** and move it to the right pane.

4 Select the **Publications** tab. Select **eX_to_ePM** and move it to the right pane.

To create and configure the TP_Order_Feeder Collaboration

1 Select the **TP_Order_Feeder** e*Way.

2 Create a new Collaboration named **TP_Order_Feeder**.

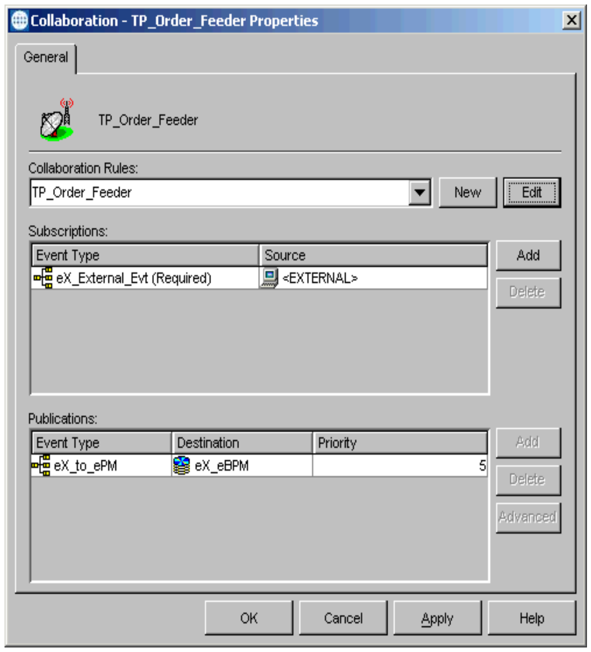
3 Configure the TP_Order_Feeder Collaboration properties as shown in Table 77.

Table 77 TP_Order_Feeder Collaboration Configuration

Section	Value
Collaboration Rules	TP_Order_Feeder
Subscriptions	Event Type: eX_External_Evt Source: <EXTERNAL>
Publications	Event Type: eX_to_ePM Destination: eX_eBPM

Verify the information in the **Collaboration Properties** dialog box as shown in Figure 79.

Figure 79 TP_Order_Feeder Collaboration Properties



Event Type	Source
eX_External_Evt (Required)	<EXTERNAL>

Event Type	Destination	Priority
eX_to_ePM	eX_eBPM	5

9.9 Configure the Internal_Eater e*Way

This component eats messages sent to the internal system. It is used for both purchase orders and purchase order responses.

The e*Xchange Internal_Eater e*Way

The e*Xchange example simulates the publication of the message to the internal system.

Configuration Steps

Follow these steps to configure the Internal_Eater e*Way.

1. Create the configuration file.
2. Create the ETDs.
3. Create the Collaboration.

9.9.1 Step 1: Create and configure the Internal_Eater e*Way

1. Create an e*Way called **Internal_Eater**.
2. In the **e*Way Properties** dialog box **General** tab, in the **Executable file** area browse for **stcewfile.exe**.

3 In the **e*Way Properties** dialog box, **General** tab, in the **Configuration file** area, click **New**.

4 Use the following table to set the e*Way parameters for the **Internal_Eater** e*Way.

Table 78 Internal_Eater e*Way Parameters

Screen	Parameter	Setting
General Settings	AllowIncoming	NO
	AllowOutgoing	YES
Outbound (send) settings	OutputDirectory	<eGate>\Demos\RosettaNet\output\Order_Out
	OutputFileName	order%d.dat
	MultipleRecordsPerFile	NO
	(All others)	(Default)
Poller (inbound) settings	(All)	(Default)
Performance Testing	(All)	(Default)

5 When finished editing the e*Way configuration file, save your work and close the e*Way editor.

6 Click **OK** to close the **e*Way Properties** dialog box.

9.9.2 Step 2: Create the Internal_Eater Collaboration

The **Internal_Eater** Collaboration routes the data without changing its format.

Internal_Eater Collaboration Properties Setup

You must set up the Collaboration and Collaboration Rules Properties for the **Internal_Eater** Component in the Schema Designer GUI.

To create and configure the Internal_Eater Collaboration Rule

1 Create a new Collaboration Rule named **Internal_Eater**.

2 From Internal_Eater Collaboration Rule properties, select the **General** tab. Configure as shown in Table 79.

Table 79 Internal_Order_Eater CR configuration - General Tab

Section	Value
Service	PassThrough

3 Select the **Subscriptions** tab. Select **eX_to_eBPM** and move to the right pane.

4 Select the **Publications** tab. Select **eX_External_Evt** and move to the right pane.

To create and configure the Internal_Order_Eater Collaboration

1 Select the **Internal_Eater** e*Way.

2 Create a new Collaboration named **Internal_Eater**.

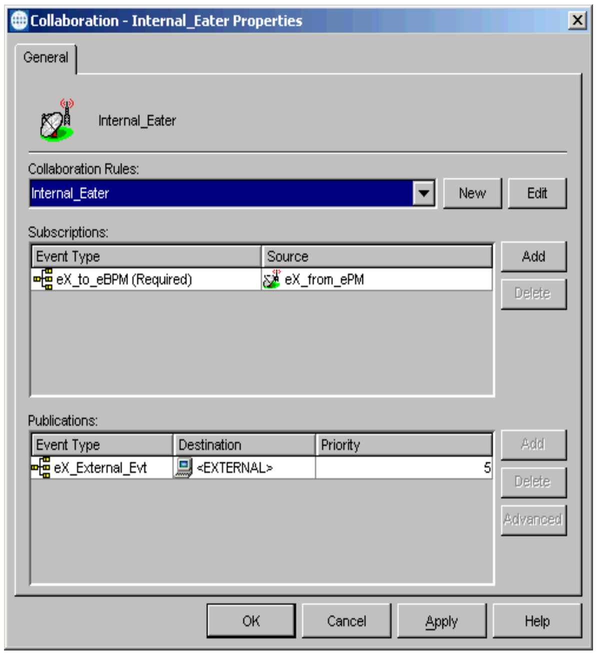
3 Configure the Internal_Eater Collaboration properties using Table 80.

Table 80 Internal_Eater Collaboration configuration

Section	Value
Collaboration Rule	Internal_Eater
Subscriptions	Event Type: eX_to_eBPM Source: eX_from_ePM
Publications	Event Type: eX_External_Evt Destination: <EXTERNAL>

Verify the information in the **Collaboration Properties** dialog box as shown in Figure 80.

Figure 80 Internal_Eater Collaboration Properties



Event Type	Source
eX_to_eBPM (Required)	eX_from_ePM

Event Type	Destination	Priority
eX_External_Evt	<EXTERNAL>	5

9.10 Configure the Internal_Response_Feeder e*Way

This component feeds the purchase order response to e*Xchange to be sent to the Retailer Trading Partner.

The e*Xchange Internal_Response_Feeder e*Way

The e*Xchange example simulates the publication of an electronic purchase order response to a trading partner. This file, which is already in RosettaNet format, is picked up by a file e*Way and moved into the e*Xchange system.

Configuration Steps

Follow these steps to configure the Internal_Response_Feeder e*Way.

1 Create and configure the e*Way.

2 Create the Collaboration.

9.10.1 Step 1: Create and configure the Internal_Response_Feeder e*Way

1 Create an e*Way called **Internal_Response_Feeder**.

2 In the **e*Way Properties** dialog box, in the **Executable file** area of the **General** tab, browse for **stcewfile.exe.**

3 In the **e*Way Properties** dialog box, in the **Configuration file** area of the **General** tab, click **New**.

4 Configure the **Internal_Response_Feeder** e*Way parameters using Table 81.

Table 81 Internal_Response_Feeder e*Way Parameters

Screen	Parameter	Setting
General Settings	(All)	(Default)
Outbound (send) settings	(All)	(Default)
Poller (inbound) settings	PollDirectory	<eGate>\Demos\RosettaNet\input\response
	MultipleRecordsPerFile	NO
	(All others)	(Default)
Performance Testing	(All)	(Default)

5 When finished editing the e*Way configuration file, save your work and close the e*Way editor.

6 Click **OK** to close the **e*Way Properties** dialog box.

9.10.2 Step 2: Create the Internal_Response_Feeder Collaboration

The **Internal_Response_Feeder** Collaboration must prepare the data coming into e*Xchange. How complicated this task is depends on the state of the data before the **Internal_Response_Feeder** Collaboration processes it.

The **Internal_Response_Feeder** Collaboration must do the following:

- convert the data to base 64 encoding
- populate the required nodes in the e*Xchange Event sent to e*Xchange for processing

Convert the Event to Base 64 Encoding

The **Internal_Response_Feeder** Collaboration must ensure that the data going into e*Xchange doesn't include any characters that cause problems for the XML structure of the standard e*Xchange Event (for example, characters that are the same as the XML control characters). This is done by converting the entire message to base 64 encoding using the Monk function **raw->base64**, before copying it to the payload node of the **eX_Standard_Event** ETD.

Populate the Required e*Xchange Nodes

In addition to copying the base 64 encoded message to the payload node of the TP_EVENT portion of the e*Xchange standard Event, you must provide e*Xchange with tracking information about the message.

The e*Xchange Internal_Response_Feeder CRS

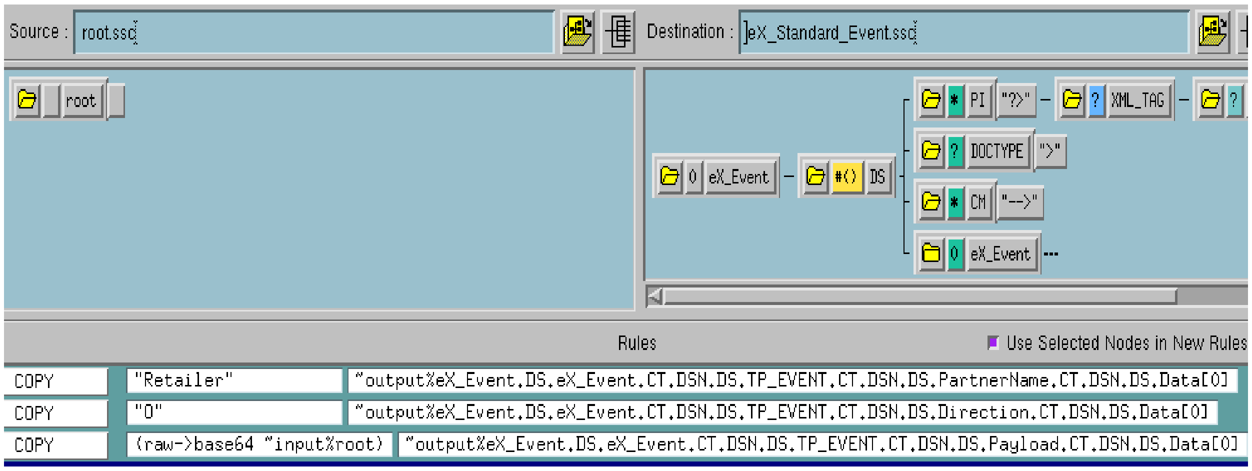
The **Internal_Response_Feeder.tsc** CRS does the following:

- Converts the RosettaNet message to base 64 encoding, and copies it to the Payload node of the TP_EVENT section of the e*Xchange standard Event.
- Copies "O" for outbound to the direction node of the TP_EVENT section.
- Copies the trading partner logical name "Retailer" to the PartnerName node of the TP_EVENT section.

To create and configure the Internal_Response_Feeder Collaboration Rule Script

1. Open the Collaboration Editor.
2. Create a new Collaboration Rules script named **Internal_Response_Feeder.tsc**. The Source Event Type Definition is **root.ssc**. The Destination Event Type Definition is **eX_Standard_Event.ssc**.
3. Add the rules shown in Figure 81.

Figure 81 Internal_Response_Feeder.tsc



```
COPY  "Retailer"                  ~output%eX_Event.DS.eX_Event.CT.DSN.DS.TP_EVENT.CT.DSN.DS.PartnerName.CT.DSN.DS.Data[0]
COPY  "0"                         ~output%eX_Event.DS.eX_Event.CT.DSN.DS.TP_EVENT.CT.DSN.DS.Direction.CT.DSN.DS.Data[0]
COPY  (raw->base64 ~input%root)   ~output%eX_Event.DS.eX_Event.CT.DSN.DS.TP_EVENT.CT.DSN.DS.Payload.CT.DSN.DS.Data[0]
```

Internal_Response_Feeder Collaboration Properties Setup

Once the CRS has been created, you must set up the Collaboration and Collaboration Rules Properties for the **Internal_Response_Feeder** Component in the Schema Designer GUI.

To create and configure the Internal_Response_Feeder Collaboration Rule

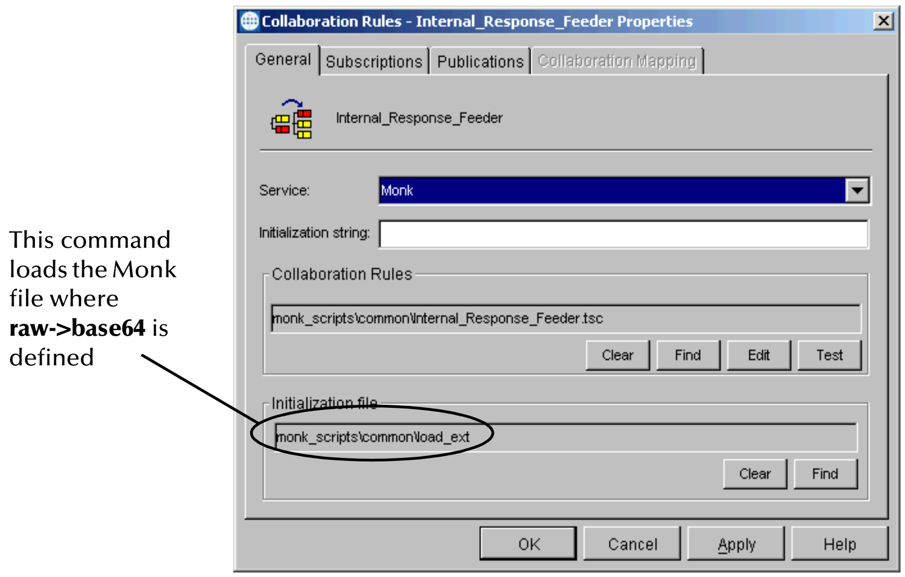
1. Create a new Collaboration Rule named **Internal_Response_Feeder**.
2. From **Internal_Response_Feeder** Collaboration Rule properties, select the **General** tab. Configure as shown in Table 82.

Table 82 Internal_Response_Feeder CR Configuration - General Tab

Section	Value
Service	Monk
Collaboration Rule	Internal_Response_Feeder
Initialization File	monk_scripts\common\load_ext

Important: *To use the Monk function **raw->base64**, you must make sure the file containing this function has been loaded.*

Figure 82 Internal_Response_Feeder Collaboration Rules Properties Dialog Box


This command loads the Monk file where **raw->base64** is defined
Collaboration Rules - Internal_Response_Feeder Properties
General
Subscriptions
Publications
Collaboration Mapping
Clear
Find
Edit
Test
Clear
Find
OK
Cancel
Apply
Help

Internal_Response_Feeder

Service: Monk

Initialization string:

Collaboration Rules: monk_scripts\common\Internal_Response_Feeder.tsc

Initialization file: monk_scripts\common\load_ext

3 Select the **Subscriptions** tab. Select **eX_External_Evt** and move it to the right pane.

4 Select the **Publications** tab. Select **eX_to_ePM** and move it to the right pane.

To create and configure the Internal_Response_Feeder Collaboration

1 Select the **Internal_Response_Feeder** e*Way.

2 Create a new Collaboration named **Internal_Response_Feeder**.

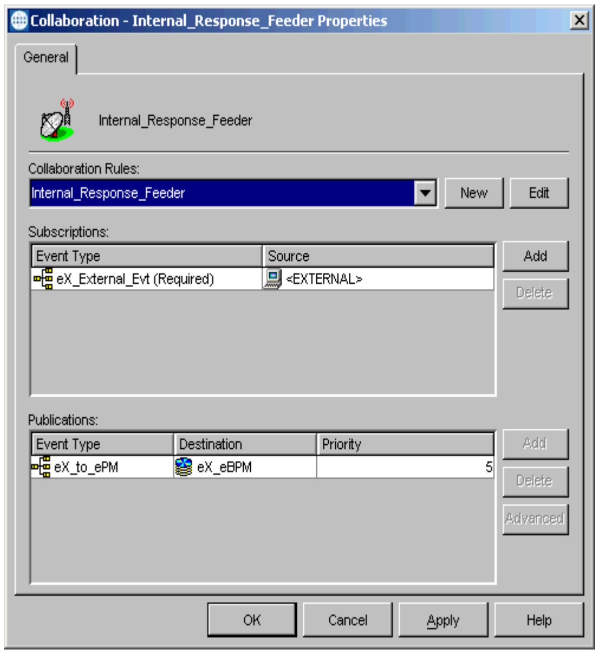
3 Configure the Internal_Response_Feeder Collaboration properties using Table 83.

Table 83 Internal_Response_Feeder Collaboration Configuration

Section	Value
Collaboration Rules	Internal_Response_Feeder
Subscriptions	Event Type: eX_External_Evt Source: <EXTERNAL>
Publications	Event Type: eX_to_ePM Destination: eX_eBPM

Verify the information in the **Collaboration Properties** dialog box as shown in Figure 83.

Figure 83 Internal_Response_Feeder Collaboration Properties


Collaboration - Internal_Response_Feeder Properties

General

Internal_Response_Feeder

Collaboration Rules: Internal_Response_Feeder

Subscriptions:

Event Type	Source
eX_External_Evt (Required)	<EXTERNAL>

Publications:

Event Type	Destination	Priority
eX_to_ePM	eX_eBPM	5

9.11 Configure the TP_Response_Eater e*Way

The component (e*Way or BOB) sends the message to the external system.

The e*Xchange TP_Response_Eater e*Way

This example simulates the publication of the message to the external system.

Configuration Steps

Follow these steps to configure the TP_Response_Eater e*Way.

1. Create the configuration file.
2. Create the Collaboration.

9.11.1 Step 1: Create and configure the TP_Response_Eater e*Way

1. Create an e*Way called **TP_Response_Eater**.
2. In the **e*Way Properties** dialog box, **General** tab, in the **Executable file** area, browse for **stcewfile.exe**.
3. In the **e*Way Properties** dialog box, **General** tab, in the **Configuration file** area, click **New**.

4 Configure the **TP_Response_Eater** e*Way parameters using Table 84.

Table 84 TP_Response_Eater e*Way Parameters

Screen	Parameter	Setting
General Settings	AllowIncoming	NO
	AllowOutgoing	YES
Outbound (send) settings	OutputDirectory	<eGate>\Demos\RosettaNet\output\Response_Out\TP
	OutputFileName	order%d.dat
	MultipleRecordsPerFile	NO
	(All others)	(Default)
Poller (inbound) settings	(All)	(Default)
Performance Testing	(All)	(Default)

5 When finished editing the e*Way configuration file, save your work and close the e*Way editor.

6 Click **OK** to close the **e*Way Properties** dialog box.

9.11.2 Step 2: Create the TP_Response_Eater Collaboration

The **TP_Response_Eater** Collaboration must prepare the data leaving the e*Xchange system. How complicated this task is depends on the state of the data before the **TP_Response_Eater** Collaboration processes it.

The **TP_Response_Eater** Collaboration must do the following:

- put the data into the appropriate format
- convert the data to raw data

The e*Xchange TP_Response_Eater CRS

The CRS, **TP_Response_Eater.tsc** checks that the message is for the Wholesaler Trading Partner (Retailer). If it is, it converts the RosettaNet message to raw data, and copies it from the Payload node of the TP_EVENT section of the e*Xchange standard Event to the output ETD.

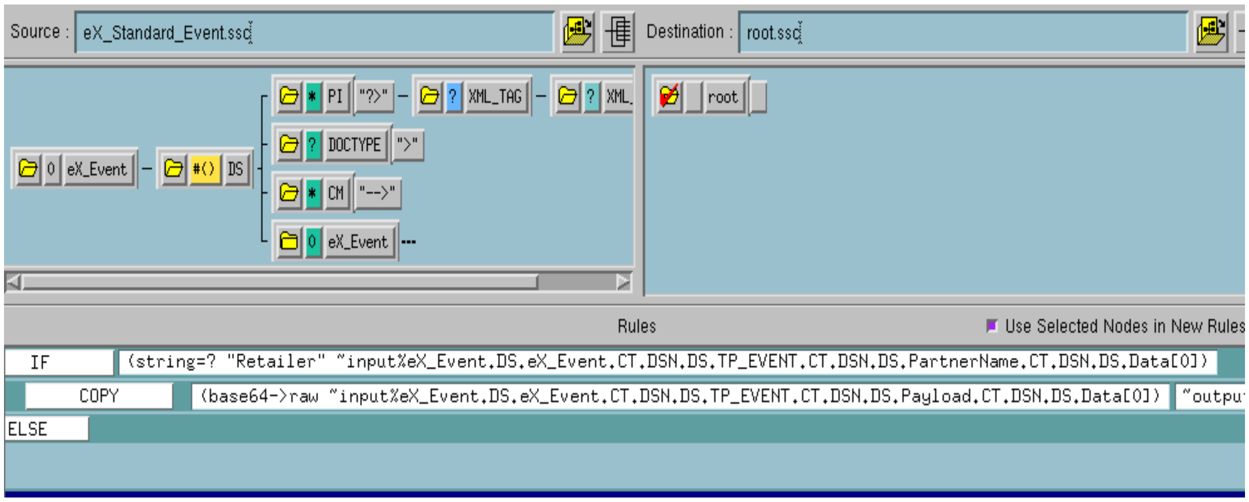
To create and configure the TP_Response_Eater Collaboration Rule Script

1 Open the Collaboration Editor.

2 Create a new Collaboration Rules script named **TP_Response_Eater.tsc**. The Source Event Type Definition is **eX_Standard_Event.ssc**. The Destination Event Type Definition is **root.ssc**.

3 Add the rule shown in Figure 84.

Figure 84 TP_Response_Eater.tsc



```
IF      (string=? "Retailer" ~input%eX_Event.DS.eX_Event.CT.DSN.DS.TP_EVENT.CT.DSN.DS.PartnerName.CT.DSN.DS.Data[0])
  COPY    (base64->raw ~input%eX_Event.DS.eX_Event.CT.DSN.DS.TP_EVENT.CT.DSN.DS.Payload.CT.DSN.DS.Data[0])  ~outpu
ELSE
```

TP_Response_Eater Collaboration Properties Setup

Once the CRS has been created, you must set up the Collaboration and Collaboration Rules Properties for the **TP_Response_Eater** Component in the Schema Designer GUI.

To create and configure the TP_Response_Eater Collaboration Rule

1 Create a new Collaboration Rule named **TP_Response_Eater**.

2 From Internal_Order_Eater Collaboration Rule properties, select the **General** tab. Configure as shown in Table 85.

Table 85 TP_Response_Eater CR configuration - General Tab

Section	Value
Service	Monk
Collaboration Rule	TP_Response_Eater
Initialization File	monk_scripts\common\load_ext

Important: *To use the Monk function **base64->raw**, you must make sure the file containing this function has been loaded.*

3 Select the **Subscriptions** tab. Select **eX_HTTP** and move to the right pane.

4 Select the **Publications** tab. Select **eX_External_Evt** and move to the right pane.

To create and configure the TP_Response_Eater Collaboration

1 Select the **TP_Response_Eater** e*Way.

2 Create a new Collaboration named **TP_Response_Eater**.

3 Configure the TP_Response_Eater Collaboration properties using Table 86.

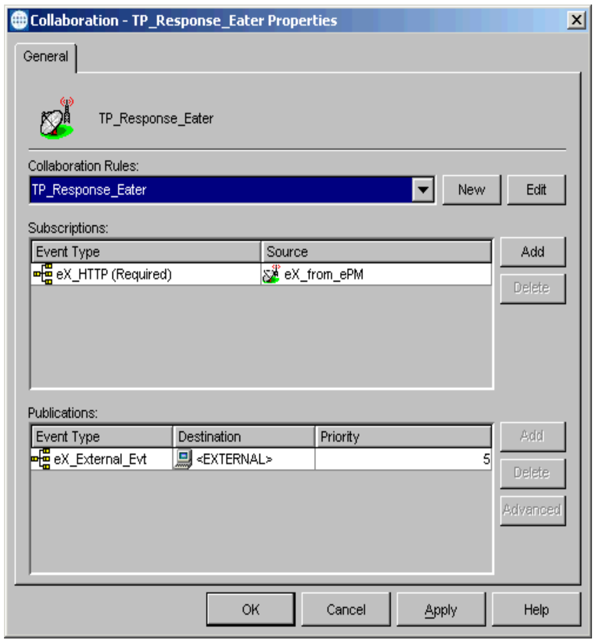
Table 86 TP_Response_Eater Collaboration configuration

Section	Value
Collaboration Rules	TP_Response_Eater

Section	Value
Subscriptions	Event Type: eX_HTTP Source: eX_from_ePM
Publications	Event Type: eX_External_Evt Destination: <EXTERNAL>

Verify the information in the **Collaboration Properties** dialog box as shown in Figure 85.

Figure 85 TP_Response_Eater Collaboration Properties



TP_Response_Eater

Collaboration Rules: TP_Response_Eater

Subscriptions:

Event Type	Source
eX_HTTP (Required)	eX_from_ePM

Publications:

Event Type	Destination	Priority
eX_External_Evt	<EXTERNAL>	5

9.12 Configure the TP_Response_Feeder e*Way

This component feeds the data that was sent to the Retailer Trading Partner into e*Xchange.

The e*Xchange TP_Response_Feeder e*Way

The e*Xchange example simulates the publication of an electronic purchase order from a trading partner. This file, which is already in RosettaNet format, is picked up by a file e*Way and moved into the e*Xchange system.

Configuration Steps

Follow these steps to configure the TP_Response_Feeder e*Way.

1 Create and configure the e*Way.

2 Create the Collaboration.

9.12.1 Step 1: Create and Configure the TP_Response_Feeder e*Way

1. Create an e*Way called **TP_Response_Feeder**.
2. In the **e*Way Properties** dialog box, in the **Executable file** area of the **General** tab, browse for **stcewfile.exe**.
3. In the **e*Way Properties** dialog box, in the **Configuration file** area of the **General** tab, click **New**.
4. Configure the **TP_Response_Feeder** e*Way parameter using Table 87.

Table 87 TP_Response_Feeder e*Way Parameters

Screen	Parameter	Setting
General Settings	(All)	(Default)
Outbound (send) settings	(All)	(Default)
Poller (inbound) settings	PollDirectory	<eGate>\Demos\RosettaNet\Output\Response_Out\TP
	InputFileMask	*.dat
	MultipleRecordsPerFile	NO
	(All others)	(Default)
Performance Testing	(All)	(Default)

5. When finished editing the e*Way configuration file, save your work and close the e*Way editor.
6. Click **OK** to close the **e*Way Properties** dialog box.

9.12.2 Step 2: Create the TP_Response_Feeder Collaboration

The **TP_Response_Feeder** Collaboration must prepare the data coming into e*Xchange. How complicated this task is depends on the state of the data before the **TP_Response_Feeder** Collaboration processes it.

The **TP_Response_Feeder** Collaboration must do the following:

- convert the data to base 64 encoding
- populate the required nodes in the e*Xchange Event sent to e*Xchange for processing

Convert the Event to Base 64 Encoding

The **TP_Response_Feeder** Collaboration must ensure that the data going into e*Xchange doesn't include any characters that cause problems for the XML structure of the standard e*Xchange Event (for example, characters that are the same as the XML control characters). This is done by converting the entire message to base 64 encoding using the Monk function **raw->base64**, before copying it to the payload node of the **eX_Standard_Event** ETD.

Populate the Required e*Xchange Nodes

In addition to copying the base 64 encoded message to the payload node of the TP_EVENT portion of the e*Xchange standard Event, you must provide e*Xchange with tracking information about the message.

The e*Xchange TP_Response_Feeder CRS

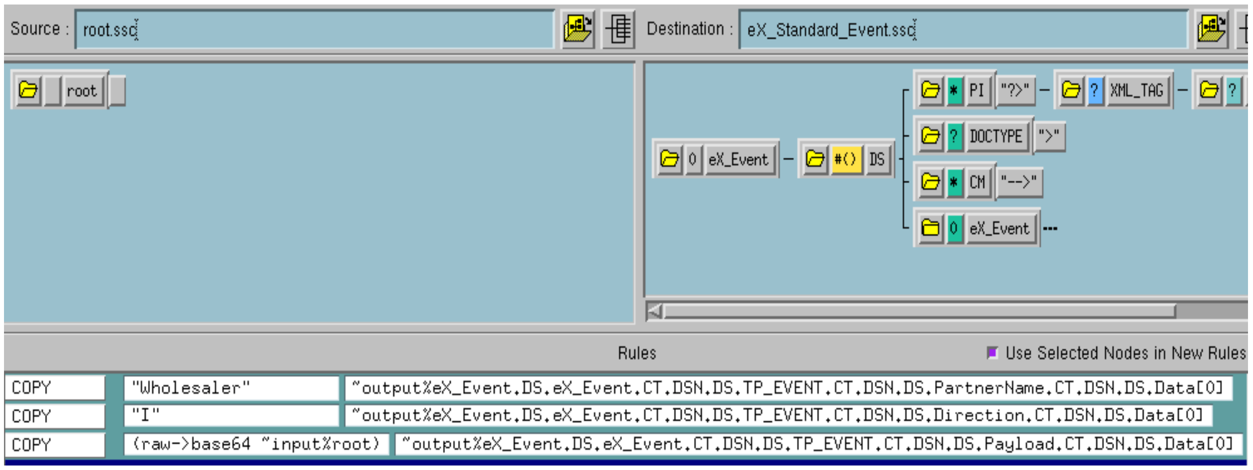
The **TP_Response_Feeder.tsc** CRS does the following:

- Converts the RosettaNet message to base 64 encoding, and copies it to the Payload node of the TP_EVENT section of the e*Xchange standard Event.
- Copies “I” for outbound to the direction node of the TP_EVENT section.
- Copies the trading partner logical name “Wholesaler” to the PartnerName node of the TP_EVENT section.

To create and configure the TP_Response_Feeder Collaboration Rule Script

1. Open the Collaboration Editor.
2. Create a new Collaboration Rules script named **TP_Response_Feeder.tsc**. The Source Event Type Definition is **root.ssc**. The Destination Event Type Definition is **eX_Standard_Event.ssc**.
3. Add the rules shown in Figure 86.

Figure 86 TP_Response_Feeder.tsc



```
COPY   "Wholesaler"               ~output%eX_Event.DS.eX_Event.CT.DSN.DS.TP_EVENT.CT.DSN.DS.PartnerName.CT.DSN.DS.Data[0]
COPY   "I"                        ~output%eX_Event.DS.eX_Event.CT.DSN.DS.TP_EVENT.CT.DSN.DS.Direction.CT.DSN.DS.Data[0]
COPY   (raw->base64 ~input%root)  ~output%eX_Event.DS.eX_Event.CT.DSN.DS.TP_EVENT.CT.DSN.DS.Payload.CT.DSN.DS.Data[0]
```

TP_Response_Feeder Collaboration Properties Setup

Once the CRS has been created, you must set up the Collaboration and Collaboration Rules Properties for the **TP_Response_Feeder** Component in the Schema Designer GUI.

To create and configure the TP_Response_Feeder Collaboration Rule

1. Create a new Collaboration Rule named **TP_Response_Feeder**.

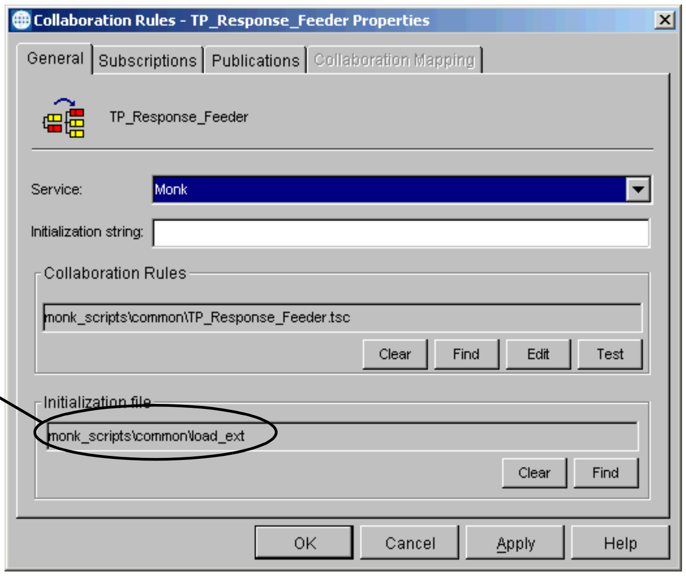
2 From TP_Response_Feeder Collaboration Rule properties, select the **General** tab. Configure as shown in Table 88.

Table 88 TP_Response_Feeder CR configuration - General Tab

Section	Value
Service	Monk
Collaboration Rule	TP_Response_Feeder
Initialization File	monk_scripts\common\load_ext

Important: *To use the Monk function raw->base64, you must make sure the file containing this function has been loaded.*

Figure 87 TP_Response_Feeder Collaboration Rules Properties Dialog Box



Service: Monk
Initialization string:
monk_scripts\common\TP_Response_Feeder.tsc
monk_scripts\common\load_ext

This command loads the Monk file where **raw->base64** is defined

3 Select the **Subscriptions** tab. Select **eX_External_Evt** and move it to the right pane.

4 Select the **Publications** tab. Select **eX_to_ePM** and move it to the right pane.

To create and configure the Internal_Order_Feeder Collaboration

1 Select the **TP_Response_Feeder** e*Way.

2 Create a new Collaboration named **TP_Response_Feeder**.

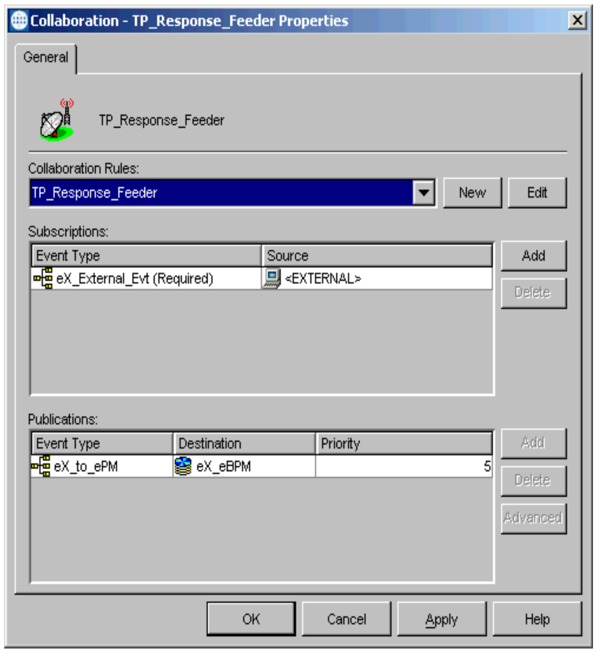
3 Configure the TP_Response_Feeder Collaboration properties using Table 89.

Table 89 TP_Response_Feeder Collaboration configuration

Section	Value
Collaboration Rules	TP_Response_Feeder
Subscriptions	Event Type: eX_External_Evt Source: <EXTERNAL>
Publications	Event Type: eX_to_ePM Destination: eX_eBPM

Verify the information in the **Collaboration Properties** dialog box as shown in Figure 88.

Figure 88 TP_Response_Feeder Collaboration Properties



Event Type	Source
eX_External_Evt (Required)	<EXTERNAL>

Event Type	Destination	Priority
eX_to_ePM	eX_eBPM	5

9.13 Configure the eX_ePM e*Way

The **eX_ePM** e*Way requires only minimal configuration. You must give it the logon information for the e*Xchange database.

To configure the eX_ePM configuration file

1. In the **eX_ePM** e*Way properties, select the **General** tab.
2. In the **Configuration File** area, click **Edit**.
3. Configure the parameters as shown in Table 90.

Table 90 eX_ePM e*Way Parameters

Screen	Parameter	Setting
General Settings	(All)	(Default)
Communication Setup	(All)	(Default)
Monk Configuration	(All)	(Default)

Table 90 eX_ePM e*Way Parameters

Screen	Parameter	Setting
Database Setup	Database Name	(service name of the e*Xchange database)
	User name	ex_admin
	Password	ex_admin
	(All others)	(Default)

To set the file names correctly

1. In **<egate>\Demos\RosettaNet\input\order**, change the name of the **orders.~in** file to **orders.fin**.
2. In **<egate>\Demos\RosettaNet\input\order_response**, change the name of the **order_response.~in** file to **order_response.fin**.

That completes the data setup. The next step is to run the scenario.

9.14 Running the Scenario

There are five parts to running the scenario:

A The Retailer trading partner sends the purchase order to the Wholesaler trading partner.

B The Wholesaler trading partner processes the purchase order message received from the Retailer trading partner

C The Wholesaler trading partner sends the acknowledgment back to the Retailer trading partner

D The Wholesaler trading partner sends the response message back to the Retailer trading partner

E The Retailer trading partner sends the acknowledgment back to the Wholesaler trading partner

Parts A, B, and C are performed in **"To process the purchase order message"**. Parts D and E are performed in **"To send the response message" on page 184**.

To process the purchase order message

1. Rename the file **<egate>\Demos\RosettaNet\input\Orders.~in** to **Orders.fin**.

   Once your data file is in place, start the following e*Gate components:

2. Start the Control Broker. At the command line, enter:

```
stccb.exe -rh localhost -rs RosettaNet -ln localhost_cb -un
Administrator -up STC
```

3. Open the Schema Manager and select the RosettaNet schema.

4 Start the **eX_ePM** e*Way

This starts the e*Xchange engine.

5 Start the **Internal_Order_Feeder** e*Way

This e*Way retrieves the purchase order from the internal system and sends it to the e*Xchange Partner Manager.

6 Look in the **<egate>\Demos\RosettaNet\Input\Order** folder. The file name changes from **Order.fin** to **Order.~in** as the file is picked up.

7 Start the **TP_Order_Eater** e*Way.

This e*Way sends the purchase order to a file which is then retrieved and sent to the Wholesaler trading partner.

8 Look in the **<egate>\Demos\RosettaNet\Output\Order_Out\TP** folder. The file **Order1.dat** is created.

9 Start the **TP_Order_Feeder** e*Way.

This e*Way sends the message to the Wholesaler trading partner.

10 Look in the **<egate>\Demos\RosettaNet\Output\Order_Out\TP** folder. The file name changes from **Order1.dat** to **Order1.~in** as the file is picked up.

11 Start the **Internal_Eater** e*Way.

This e*Way sends the message to a file (simulating sending to an internal system).

12 Look in the **<egate>\Demos\RosettaNet\Output\Order_Out** folder. The file **Order1.dat** is created.

13 Start the **TP_Response_Eater** e*Way.

This e*Way sends the purchase order acknowledgment to a file which is then retrieved and sent to the Retailer trading partner.

14 Look in the **<egate>\Demos\RosettaNet\Output\Response_Out\TP** folder. The file **Order1.dat** is created.

15 Start the **TP_Response_Feeder** e*Way

This e*Way sends the purchase order acknowledgment to the Retailer trading partner.

16 Look in the **<egate>\Demos\RosettaNet\Output\Response_Out\TP** folder. The file name changes from **Order1.dat** to **Order1.~in** as the file is picked up.

The message is processed by **Internal_Eater** e*Way. This e*Way sends the message to a file (simulating sending to an internal system).

Note: *Look in the **<egate>\Demos\RosettaNet\Output\Order_Out** folder. The file **Order1.dat** is created.*

That completes sending the purchase order. You can view the results in Message Tracking, in e*Xchange Web interface.

Viewing the Results in Message Tracking

You can view the results of the message processing by using the Message Tracking feature of the e*Xchange Partner Manager.

Message Tracking shows two entries for the incoming message. This is because a control message is sent out immediately, and a response message is sent out later. These two responses to the trading partner are tracked separately.

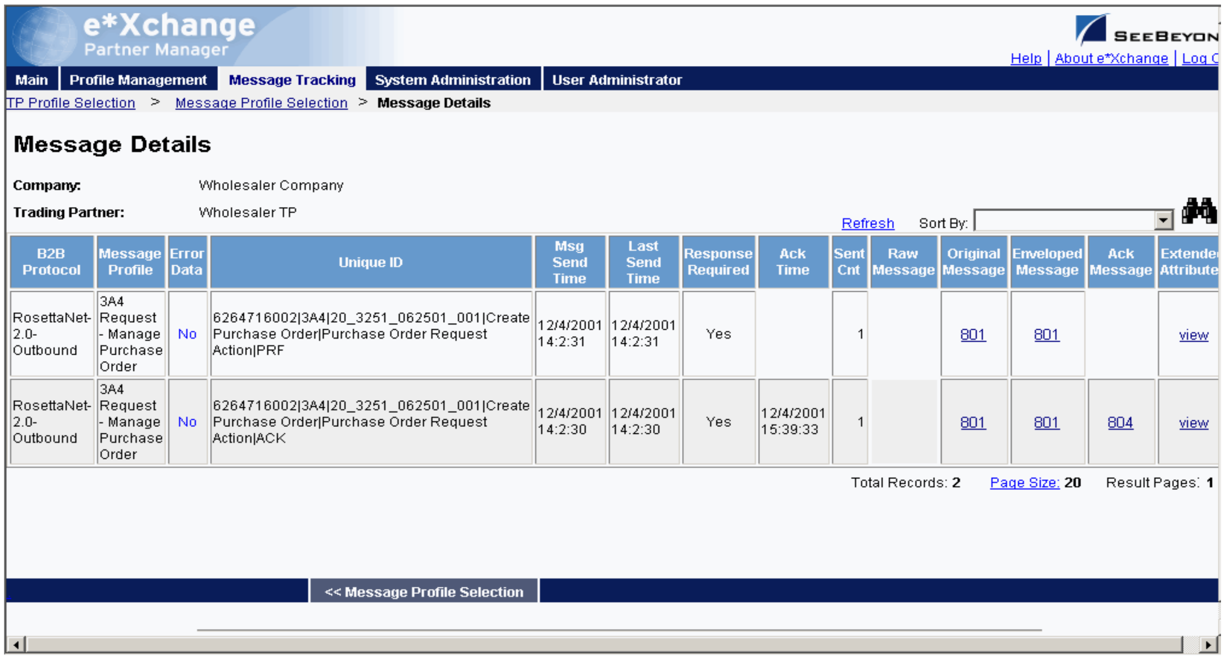
To view the outbound message in Message Tracking for the Wholesaler Trading Partner

1. From the e*Xchange Web interface, **Main** page, select **Message Tracking**.

   The **TP Profile Selection** page appears.
2. In the **Company Profile** field, select **Wholesaler Company**.
3. In the **Trading Partner Profile** field, select **Wholesaler TP**.
4. In the **eBusiness Protocol** field, select **RosettaNet**.
5. In the **Direction** field, select **Outbound**.
6. Click the **Message Profile Selection**.
7. Select the **3A4 Request - Manage Purchase Order** message.
8. Click the **Message Details** link to view the resulting list.

   The results are shown in Figure 89.

Figure 89 Message Tracking: Outbound



e*Xchange
Partner Manager
SeeBeyond
Help | About e*Xchange | Log O
Main | Profile Management | Message Tracking | System Administration | User Administrator
TP Profile Selection > Message Profile Selection > Message Details

Message Details

Company: Wholesaler Company

Trading Partner: Wholesaler TP

B2B Protocol	Message Profile	Error Data	Unique ID	Msg Send Time	Last Send Time	Response Required	Ack Time	Sent Cnt	Raw Message	Original Message	Enveloped Message	Ack Message	Extende Attribute
RosettaNet-2.0-Outbound	3A4 Request - Manage Purchase Order	No	6264716002|3A4|20_3251_062501_001|Create Purchase Order|Purchase Order Request Action|PRF	12/4/2001 14:2:31	12/4/2001 14:2:31	Yes		1		801	801		view
RosettaNet-2.0-Outbound	3A4 Request - Manage Purchase Order	No	6264716002|3A4|20_3251_062501_001|Create Purchase Order|Purchase Order Request Action|ACK	12/4/2001 14:2:30	12/4/2001 14:2:30	Yes	12/4/2001 15:39:33	1		801	801	804	view

Total Records: **2** Page Size: **20** Result Pages: **1**

As shown in Figure 89, e*Xchange records two entries for the message. One entry is for the original message, for which a response message is sent. The other entry is for the acknowledgment message.

For one entry, the **Ack Message** column has a link to the message information. Click it to view the acknowledgment message.

Later, when the response message is sent out, you are able to view it in Message Tracking. For the moment, the **Ack Message** column is not showing a link for the other message, since the response has not been sent out yet.

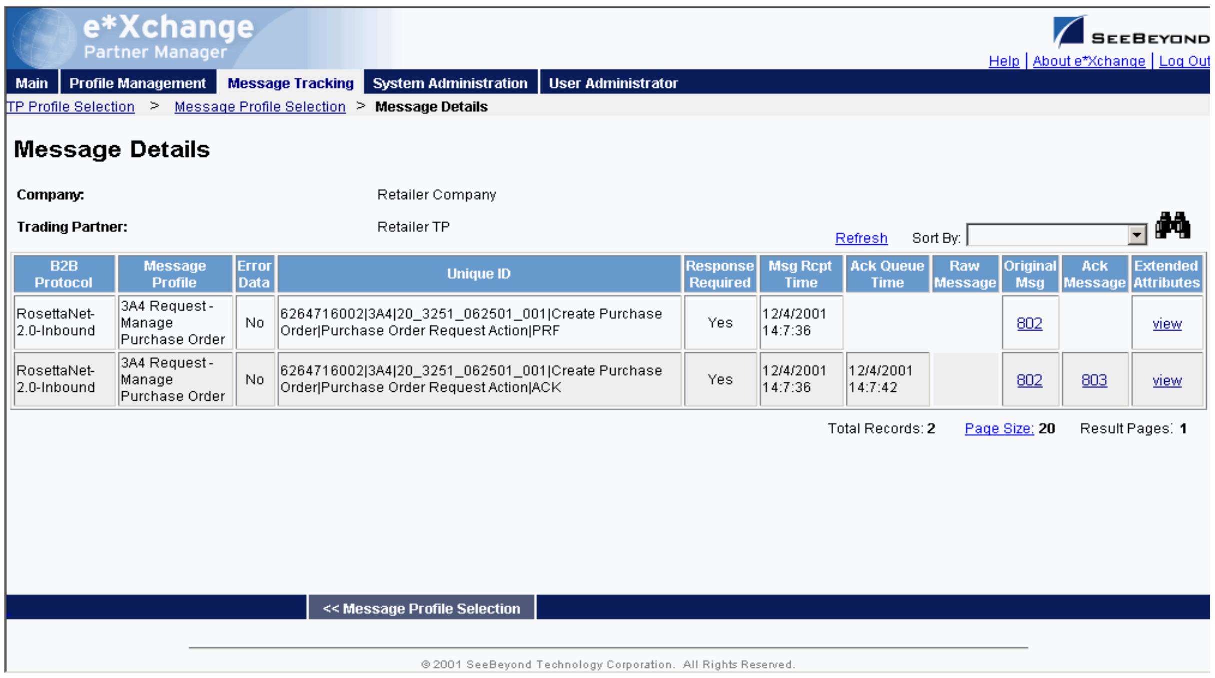
To view the inbound message in Message Tracking for the Retailer Trading Partner

1. From the e*Xchange Web interface, **Main** page, select **Message Tracking**.

   The **TP Profile Selection** page appears.
2. In the **Company Profile** field, select **Retailer Company**.
3. In the **Trading Partner Profile** field, select **Retailer TP**.
4. In the **eBusiness Protocol** field, select **RosettaNet**.
5. In the **Direction** field, select **Inbound**.
6. Click the **Message Profile Selection**.
7. Select the **3A4 Request - Manage Purchase Order** message.
8. Click the **Message Details** link to view the resulting list.

   The results are shown in Figure 90.

Figure 90 Message Tracking: Inbound


e*Xchange
Partner Manager
SeeBeyond
Help | About e*Xchange | Log Out
Main
Profile Management
Message Tracking
System Administration
User Administrator
TP Profile Selection > Message Profile Selection > Message Details
Refresh
Sort By:
<< Message Profile Selection

Message Details

Company: Retailer Company

Trading Partner: Retailer TP

B2B Protocol	Message Profile	Error Data	Unique ID	Response Required	Msg Rcpt Time	Ack Queue Time	Raw Message	Original Msg	Ack Message	Extended Attributes
RosettaNet-2.0-Inbound	3A4 Request - Manage Purchase Order	No	6264716002|3A4|20_3251_062501_001|Create Purchase Order|Purchase Order Request Action|PRF	Yes	12/4/2001 14:7:36			802		view
RosettaNet-2.0-Inbound	3A4 Request - Manage Purchase Order	No	6264716002|3A4|20_3251_062501_001|Create Purchase Order|Purchase Order Request Action|ACK	Yes	12/4/2001 14:7:36	12/4/2001 14:7:42		802	803	view

Total Records: **2**   Page Size: **20**   Result Pages: **1**

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As shown in Figure 90, e*Xchange records two entries for the message. One entry is for the original message, for which a response message is sent later. The other entry is for the acknowledgment message.

9.15 Sending the Response

The next step is to send the response message.

To send the response message

1. Rename the file **<egate>\Demos\RosettaNet\Input\Order_Response\order_response.~in** to **order_response.fin**.
2. In the Schema Manager, start the **Internal_Response_Feeder** e*Way.
3. Look in the **<egate>\Demos\RosettaNet\input\order_response** folder. The file name changes from **order_response.fin** to **order_response.~in** as the file is picked up.

   The message is processed by **TP_Response_Eater** e*Way. This e*Way sends the purchase order response to a file which is then retrieved and sent to the Retailer trading partner.
4. Look in the **<egate>\Demos\RosettaNet\Output\Response_Out\TP** folder. The file **Order2.dat** is created. This is immediately renamed in the following step.

   The message is processed by **TP_Response_Feeder** e*Way. This e*Way sends the purchase order response to the Retailer trading partner.
5. Look in the **<egate>\Demos\RosettaNet\Output\Response_Out\TP** folder. The file name changes from **Order2.dat** to **Order2.~in** as the file is picked up.

   The message is process by **Internal_Eater** e*Way. This e*Way sends the message to a file (simulating sending to an internal system).
6. Look in the **<egate>\Demos\RosettaNet\Output\Order_Out** folder. The file **Order2.dat** is created.

   The message is processed by **TP_Order_Eater** e*Way. This e*Way sends the purchase order response acknowledgment to a file which is then retrieved and sent to the Wholesaler trading partner.
7. Look in the **<egate>\Demos\RosettaNet\Output\Order_Out\TP** folder. The file **Order2.dat** is created.

   The message is processed by **TP_Order_Feeder** e*Way. This e*Way sends the purchase order response acknowledgment to the Wholesaler trading partner.
8. Look in the **<egate>\Demos\RosettaNet\Output\Order_Out\TP** folder. The file name changes from **Order2.dat** to **Order2.~in** as the file is picked up.

That completes the second part of the exercise. You can view the results in Message Tracking.

Viewing the Results in Message Tracking

You can view the results of the message processing in Message Tracking.

To view the association of the response message to the original outbound message in Message Tracking for the Retailer Trading Partner

1 From e*Xchange Web Interface, **Main** page, select **Message Tracking**.

The **TP Profile Selection** page appears.

2 In the **Company Profile** field, select **Retailer Company**.

3 In the **Trading Partner Profile** field, select **Retailer TP**.

4 In the **eBusiness Protocol** field, select **RosettaNet**.

5 In the **Direction** field, select **Inbound**.

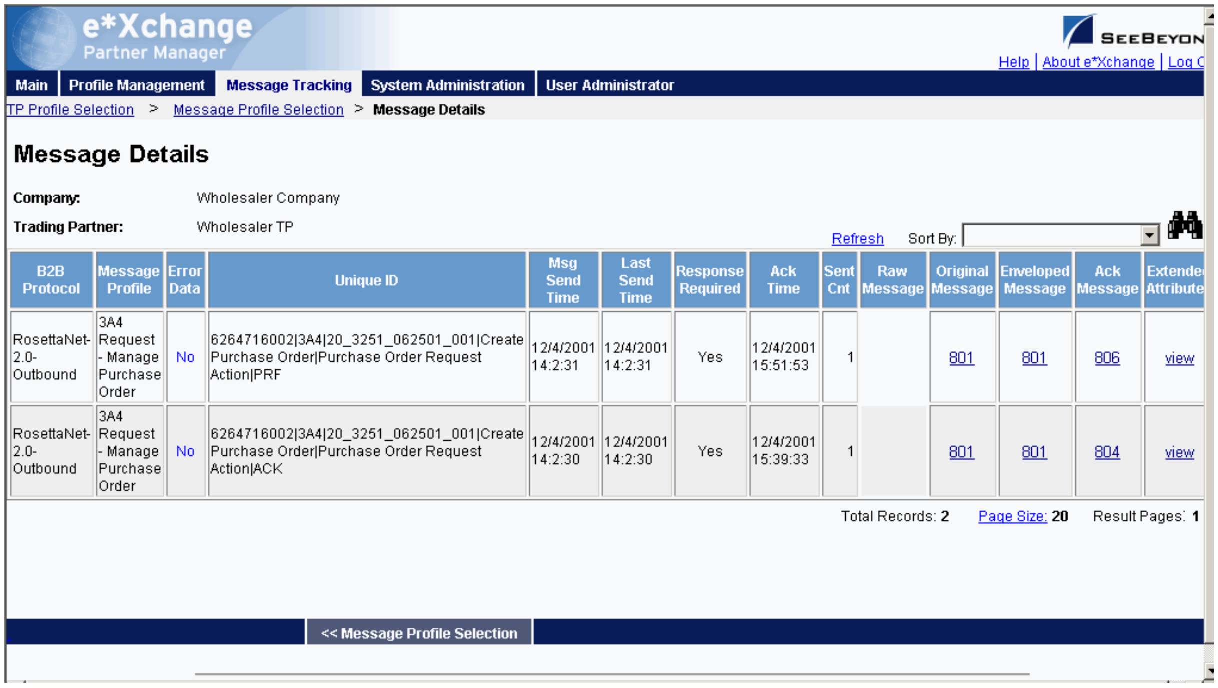
6 Click the **Message Profile Selection**.

7 Select the **3A4 Request - Manage Purchase Order** message.

8 Click the **Message Details** link to view the resulting list.

The results are shown in Figure 91.

Figure 91 Message Tracking: Outbound Completed


e*Xchange
Partner Manager
SeeBeyon
Help | About e*Xchange | Log C
Main | Profile Management | Message Tracking | System Administration | User Administrator
TP Profile Selection > Message Profile Selection > Message Details
Refresh
Sort By:
<< Message Profile Selection

Message Details

Company: Wholesaler Company

Trading Partner: Wholesaler TP

B2B Protocol	Message Profile	Error Data	Unique ID	Msg Send Time	Last Send Time	Response Required	Ack Time	Sent Cnt	Raw Message	Original Message	Enveloped Message	Ack Message	Extende Attribute
RosettaNet-2.0-Outbound	3A4 Request - Manage Purchase Order	No	6264716002|3A4|20_3251_062501_001|Create Purchase Order|Purchase Order Request Action|PRF	12/4/2001 14:2:31	12/4/2001 14:2:31	Yes	12/4/2001 15:51:53	1		801	801	806	view
RosettaNet-2.0-Outbound	3A4 Request - Manage Purchase Order	No	6264716002|3A4|20_3251_062501_001|Create Purchase Order|Purchase Order Request Action|ACK	12/4/2001 14:2:30	12/4/2001 14:2:30	Yes	12/4/2001 15:39:33	1		801	801	804	view

Total Records: **2** Page Size: **20** Result Pages: **1**

Notice that both entries now have responses available for viewing: one is the acknowledgment message, the other is the full response message.

To view the association of the response message to the original inbound message in Message Tracking for the Retailer trading partner

1 From the e*Xchange Web interface, **Main** page, select **Message Tracking**.

The **TP Profile Selection** page appears.

2 In the **Company Profile** field, select **Retailer Company**.

3 In the **Trading Partner Profile** field, select **Retailer TP**.

4 In the **eBusiness Protocol** field, select **RosettaNet**.

5 In the **Direction** field, select **Inbound**.

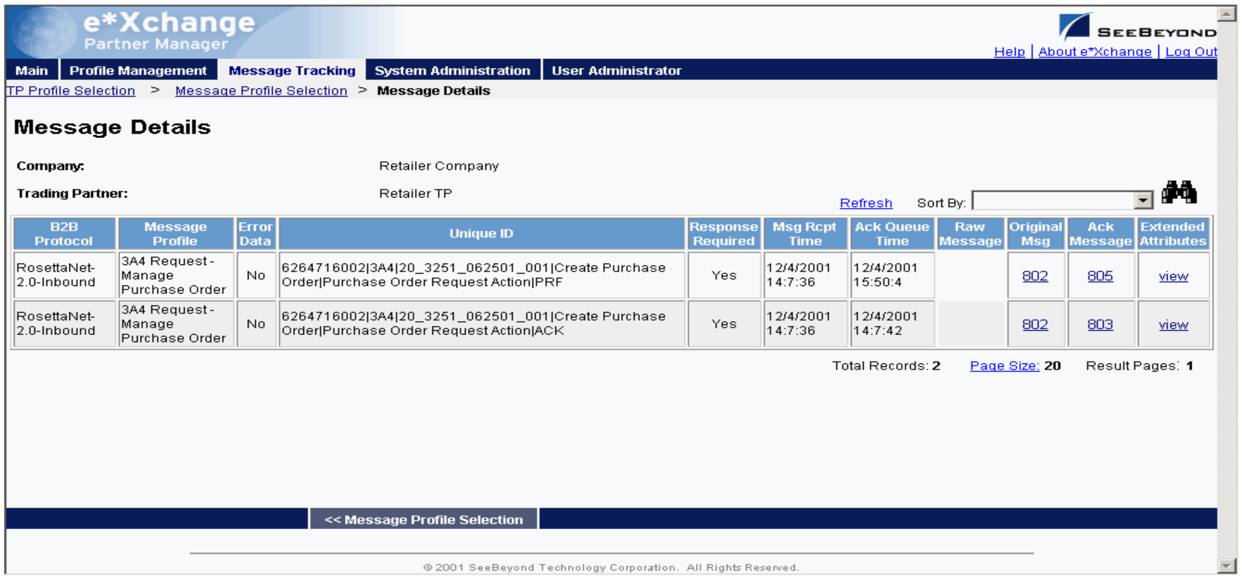
6 Click the **Message Profile Selection**.

7 Select the **3A4 Request - Manage Purchase Order** message.

8 Click the **Message Details** link to view the resulting list.

The results are shown in Figure 92.

Figure 92 Message Tracking: Inbound Completed


e*Xchange
Partner Manager
SeeBeyond
Help | About e*Xchange | Log Out
Main | Profile Management | Message Tracking | System Administration | User Administrator
TP Profile Selection > Message Profile Selection > Message Details
Refresh
Sort By:
<< Message Profile Selection
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Message Details

Company: Retailer Company

Trading Partner: Retailer TP

B2B Protocol	Message Profile	Error Data	Unique ID	Response Required	Msg Rcpt Time	Ack Queue Time	Raw Message	Original Msg	Ack Message	Extended Attributes
RosettaNet-2.0-Inbound	3A4 Request - Manage Purchase Order	No	6264716002|3A4|20_3251_062501_001|Create Purchase Order|Purchase Order Request Action|PRF	Yes	12/4/2001 14:7:36	12/4/2001 15:50:4		802	805	view
RosettaNet-2.0-Inbound	3A4 Request - Manage Purchase Order	No	6264716002|3A4|20_3251_062501_001|Create Purchase Order|Purchase Order Request Action|ACK	Yes	12/4/2001 14:7:36	12/4/2001 14:7:42		802	803	view

Total Records: **2** Page Size: **20** Result Pages: **1**

Notice that both entries now have responses associated with them: one is the acknowledgment message, the other is the full response message.

9.16 Editing the Data Files

Before rerunning the scenario, you must make sure that the unique ID in the order file matches that in the response file, and that both files have the expected filename and extension.

Knowing how to set these values also gives you the capability to reset the unique ID to an appropriate new value so that you can run the scenario multiple times.

To ensure the unique ID in both files matches

1 Open up the file **order.~in** (in the **<egate>\Demos\RosettaNet\input\order** folder) in a text editor such as Notepad or Wordpad.

2 Search for the following string, which is the unique ID in the files provided:

```
20_3251_062501_001
```

3 Replace that string with the following string:

```
20_3251_062501_002
```

4 Save and close.

5 Open up the file order_response.~in (in the **<egate>\Demos\RosettaNet\input\order_response** folder) in a text editor such as Notepad or Wordpad.

6 Repeat steps 2 through 4 for this file. Make sure that the string is updated throughout the file.

Note: *The last three digits of the unique ID indicate that this is the first instance for this date. For a second and subsequent running of this scenario, increment the last three digits: 002, 003, and so forth. In each case, make sure that the value is the same in both files.*

Chapter 10

e*Xchange Implementation—CIDX

This chapter discusses the steps involved to create an e*Xchange implementation that transfers CIDX data.

The components for this implementation are provided on your installation CD. For instructions on installing and using the implementation components, see **"Using the Implementation Sample" on page 215**.

10.1 Overview

An e*Xchange implementation makes use of the features designed to add and remove the EDI enveloping information for messages exchanged between trading partners.

In an e*Xchange implementation, use the e*Xchange Partner Manager Web interface to set up the trading partner information, and the e*Gate Schema Designer GUI to add user-defined e*Gate components to provide connectivity to the business application or trading partner. Once this is done, the pre-configured e*Xchange e*Gate schema components handle enveloping and de-enveloping Events as they travel through the e*Xchange system.

The major steps for an e*Xchange implementation are as follows:

1. Create any needed validation Collaborations.
2. Create the Trading Partner profiles.
3. Configure the user-defined e*Ways that will connect the business application to e*Xchange.
4. Configure the e*Xchange e*Way.
5. Run and test the scenario.

e*Xchange Partner Manager supports the Chemical Industry Data Exchange (CIDX) format. CIDX is an XML-based data interchange based on RosettaNet version 1.1. CIDX uses the RosettaNet 1.1 Preamble and Service Headers with a few minor changes. CIDX provides its own Service Contents for CIDX specific business process flows. All signals and the Failure Notification Action are used by CIDX just as they are used for RosettaNet 1.1.

This chapter describes the requirements within e*Xchange to support CIDX. CIDX profiles are set up using the e*Xchange Web Interface. These profiles include the relationship of response messages and possible failure or exception transactions that may be received or sent out. Hence, it is important that all messages that could flow to or from e*Xchange be included in the e*Xchange profiles.

For example, the profile could contain an Order Create that is sent outbound, and a Receipt Acknowledge and Order Response are expected in response inbound. The profiles must include these three message types, and also any failure messages that may flow, such as a Failure Notification or Receipt Acknowledgment Exception.

10.2 CIDX Inbound

All CIDX data flowing inbound to e*Xchange is from the trading partner. e*Xchange receives the CIDX Inbound message encoded in base64 within the payload of the Standard Event XML format.

10.2.1 e*Xchange Profiles for CIDX Inbound

All e*Xchange Profiles are set up by a user through the e*Xchange Web Interface. CIDX Inbound profiles represent what e*Xchange expects to receive from a Trading Partner. It is important to include all the possible transactions, both signals and actions that can be sent by the Trading Partner to e*Xchange. For example, a Receipt Acknowledge, Receipt Acknowledgement Exception, or Notification of Failure can be sent by the Trading Partner for CIDX, so all these transactions should be included as inbound message profiles.

A return message association page is within the e*Xchange Web Interface message profile section. This page is used to specify which outbound messages should be associated as responses for the inbound transactions. This association is used to determine which messages are expected as responses from e*Xchange and the internal system for the Trading Partner. The association can only take place once all the expected responses are included within the message profile section for the outbound direction.

10.2.2 B2B Protocol settings for CIDX Inbound

The B2B Protocol has three sections: **General**, **Transport Component**, and **Message Security**. For CIDX Inbound the values in the three sections should match the following.

Note: *Assume to use the default for any components in a section that are not mentioned below.*

General

Table 91 General Settings

Name	Description	Value	Location
eBusiness Protocol Type		CIDX	es_tpic.tran_type
eBusiness Protocol Version	e*Xchange is implemented for this version.	2.0.1	es_tpic.version
Direction		Inbound	es_tpic.direction
Logical Name	A unique name used for both Inbound and Outbound CIDX with same Trading Partner		es_tpic.logical_name
Communication Protocol		HTTP or HTTPS	es_tpic.comm_port

Transport Component

Table 92 Transport Component

Name	Description	Value	Location
URL	URL for where the Trading Partner POSTs the data for e*Xchange		es_tpic.file_name
UserName	Only needed if the URL specified requires a username		es_tpic.user_name
Password	Only needed if the URL specified requires a password		es_tpic.password

Message Security

Table 93

Name	Description	Value	Location
Signature Verification Certificate Name	Certificate name if signature is expected		es_tpic.sec_key_type includes "V" and the cert is stored in es_security_key

10.2.3 Message Profile settings for CIDX Inbound

The Message Profile has four sections: **General**, **Preamble**, **Service Header**, and **Return Messages**. For CIDX Inbound the values in the four sections should match the following.

Note: *Use the default for any components in a section that are not mentioned below.*

General

Table 94 Message Profile — General

Name	Description	Value	Location
Name	A name that represents the message type, such as Order Create E41		es_tpts.name
Digital Signature Required	Y if expect digital signature, otherwise N		es_ext_data.ext_data_value corresponding to SIGNATURE_REQUIRED
Non-Repudiation	Y if want non-repudiation turned on, otherwise N.		es_ext_data.ext_data_value corresponding to NON_REPUD
Translation Collaboration	Name of Translation collaboration (not including .tsc). Only needed if the data going out of e*Xchange to Internal needs to be transformed into a custom format.		es_tpts.db_collab
Event Type	Name of Event to send to e*Gate for Internal. Optional value. If not included then this defaults to eX_to_eBPM		es_tpts.alt_id
Validation Collaboration	Name of Validation collaboration (not including .tsc) to use to validate the service content. Not required		es_tpts.bus_collab
Store Raw Message	Y if want to store message that results after translation (if Translation Collaboration is included). Otherwise, N is set, which is the default.		es_ext_data.ext_data_value corresponding to STORE_RAW
Transfer Mode	Interactive	I	es_tpts.tran_mode

Preamble

Table 95 Message Profile — Preamble

Name	Description	Value	Location
Global Administering Authority Code		CIDX	es_ext_data.ext_data_value corresponding to GLOBAL_ADMIN_AUTH_CODE
Global Usage Code	Test or Production		es_ext_data.ext_data_value corresponding to GLOBAL_USAGE_CODE
CIDX Version Identifier		1.1	es_ext_data.ext_data_value corresponding to CIDX_VERSION_ID

Service Header

Table 96 Message Profile — Service Header

Name	Description	Value	Location
Global From Business Identifier	Identifier for Sender - Trading Partner		es_ext_data.ext_data_value corresponding to FROM_GLOBAL_BUS_ID
Global To Business Identifier	Identifier for Receiver - Internal System		es_ext_data.ext_data_value corresponding to TO_GLOBAL_BUS_ID
From Global Business Service Code	Value from list for Trading Partner		es_ext_data.ext_data_value corresponding to FROM_GLOBAL_BUS_SVC_CODE
From Global Partner Classification Code	Value from list for Trading Partner		es_ext_data.ext_data_value corresponding to FROM_GLOBAL_PART_CLASS_CODE

Table 96 Message Profile — Service Header

Name	Description	Value	Location
From Global Partner Role Classification Code	Value from list for Trading Partner		es_ext_data.ext_data_value corresponding to FROM_GLOBAL_PART_ROLE_CLASS_CODE
Global Business Action/Signal Code	Value from list		es_ext_data.ext_data_value corresponding to GLOBAL_BUS_ACT_SIG_CODE
Global Document Function Code	Value from list		es_ext_data.ext_data_value corresponding to GLOBAL_DOC_FUNC_CODE
Global Process Code	Value from list		es_ext_data.ext_data_value corresponding to GLOBAL_PROC_CODE
Global Process Ind. Code	Value from list		es_ext_data.ext_data_value corresponding to GLOBAL_PROC_IND_CODE
Global Tran Code	Value from list		es_ext_data.ext_data_value corresponding to GLOBAL_TRAN_CODE
To Global Business Service Code	Value from list for Internal System		es_ext_data.ext_data_value corresponding to TO_GLOBAL_BUS_SVC_CODE
To Global Partner Classification Code	Value from list for Internal System		es_ext_data.ext_data_value corresponding to TO_GLOBAL_PART_CLASS_CODE
To Global Partner Role Classification Code	Value from list for Internal System		es_ext_data.ext_data_value corresponding to TO_GLOBAL_PART_ROLE_CLASS_CODE

Table 96 Message Profile — Service Header

Name	Description	Value	Location
Business Action/ Signal Version Identifier	version of service content most likely 2.0.1		es_ext_data.ext_data_value corresponding to GLOBAL_BUS_SIGACT_VER_ID

10.2.4 Return Messages

Set the following for each expected response -

Include = Yes

Response Time & Period = <amount of time expected for this response specified by the CIDX business process>

# of Retries = <maximum number of resends for the Inbound request that this Outbound response is associated with as specified by the CIDX business process>

10.2.5 CIDX Inbound Required Values

Inbound messages sent to e*Xchange from the Trading Partner must include certain values within the ServiceHeader and/or Standard Event attribute section to allow for proper retrieval of e*Xchange database profile information. All Inbound messages are expected in CIDX Object format matching the CIDX specifications. There are three types of messages that can flow through e*Xchange Inbound. These three types are listed below including which message components are required, in order to successfully process the transaction.

1 Request action message must have

   A eX_Event.TP_EVENT.Direction

   B eX_Event.TP_EVENT.CommProt

   C eX_Event.TP_EVENT.Url

   Following values in ServiceHeader:

   D initiatingPartner.GlobalBusinessIdentifier

   E GlobalProcessIndicatorCode

   F ProcessIdentity.InstanceIdentifier

   G TransactionIdentity.GlobalTransactionCode

   H TransactionIdentity.InstanceIdentifier

   I GlobalBusinessActionCode

   J ActionIdentity.InstanceIdentifier

2 Response action message must have

   A eX_Event.TP_EVENT.Direction

B eX_Event.TP_EVENT.CommProt

C eX_Event.TP_EVENT.Url

Following values in ServiceHeader:

D initiatingPartner.GlobalBusinessIdentifier

E GlobalProcessIndicatorCode

F ProcessIdentity.InstanceIdentifier

G TransactionIdentity.GlobalTransactionCode

H TransactionIdentity.InstanceIdentifier

I GlobalBusinessActionCode

J ActionIdentity.InstanceIdentifier

K ActionControl.inResponseTo.ActionIdentity.GlobalBusinessActionCode

L ActionControl.inResponseTo.ActionIdentity.InstanceIdentifier

3 Response signal message must have

A eX_Event.TP_EVENT.Direction

B eX_Event.TP_EVENT.CommProt

C eX_Event.TP_EVENT.Url

Following values in ServiceHeader:

D initiatingPartner.GlobalBusinessIdentifier

E GlobalProcessIndicatorCode

F ProcessIdentity.InstanceIdentifier

G TransactionIdentity.GlobalTransactionCode

H TransactionIdentity.InstanceIdentifier

I GlobalBusinessSignalCode

J SignalControl.InstanceIdentifier

K SignalControl.inResponseTo.ActionIdentity.GlobalBusinessActionCode

L SignalControl.inResponseTo.ActionIdentity.InstanceIdentifier

10.2.6 Processing CIDX Inbound within e*Xchange

Messages inbound through e*Xchange originate within the trading partner. When an inbound message comes into e*Xchange from the MUX e*Way communicating with the trading partner, the message's B2B protocol information is loaded from the e*Xchange database.

Attributes used for loading B2B protocol information for a profile:

- eX_Event.TP_EVENT.Direction
- eX_Event.TP_EVENT.CommProt

- eX_Event.TP_EVENT.Url

The only attribute required is Direction (I for Inbound), however both URL and the communication protocol (CommProt) are also filled in based on the environment information received by the MUX e*Way from the trading partner HTTP post.

Once the B2B protocol is retrieved, then the appropriate Monk script is loaded based on the direction and tran_type. Hence, **eX_CIDX_Inb_main.dsc** is run for CIDX Inbound transactions. All inbound transactions must be in CIDX Object format (described in **"Processing CIDX Outbound within e*Xchange" on page 206**). e*Xchange converts the CIDX Object format into a Content-Signature format, such that the binary values are removed from the message, and the content (Preamble Header, Service Header, and Service Content) and digital signature are separated by a readable boundary. The Message Profile is retrieved from the e*Xchange database based on the type of inbound message received. For more information on types, see **"CIDX Inbound Required Values" on page 194**).

Once the message profile is loaded, many attributes are loaded from that profile including its B2B protocol. The attributes loaded are

- Logical_name
- CIDX_VERSION_ID
- GLOBAL_ADMIN_AUTH_CODE
- GLOBAL_USAGE_CODE
- VERSION_ID
- GLOBAL_PROC_CODE
- GLOBAL_TRAN_CODE
- INTERNAL_FORMAT
- STORE_RAW
- FROM_GLOBAL_BUS_ID
- TO_GLOBAL_BUS_ID
- FROM_GLOBAL_PART_ROLE_CLASS_CODE
- TO_GLOBAL_PART_ROLE_CLASS_CODE
- FROM_GLOBAL_PART_CLASS_CODE
- TO_GLOBAL_PART_CLASS_CODE
- FROM_GLOBAL_BUS_SVC_CODE
- TO_GLOBAL_BUS_SVC_CODE
- GLOBAL_DOC_FUNC_CODE
- SIGNATURE_REQUIRED
- NUM_RETRY
- RESP_TM
- RTN_TS_ID

If SIGNATURE_REQUIRED is set to Y, then the digital signature in the message is verified. If the digital signature and content do not match, or the signature is expected and it is missing, then the message generates an error. Otherwise, processing continues. If an Event Type was not specified in the **Message Profile — General** section, then it defaults to **eX_to_eBPM**. If **RTN_TS_ID** contains some values (meaning there are response messages that are expected for this transaction), then the response times and retry maximum values are retrieved for each of the expected responses. The possible responses are Performance, such as Order Response for Order Create, Receipt Acknowledge, and Acceptance Acknowledge.

Once the signature is verified, the **PerformanceControlRequest** times are extracted from the Service Header (if they are included). These times are optional, so if they are not included in the message, then they are retrieved from the database. The times are only included for each expected response.

Times extracted from:

- ServiceHeader. ProcessControl. TransactionControl. ActionControl. PerformanceControlRequest.timeToAcknowledgeReceipt.TimeDuration
- ServiceHeader. ProcessControl. TransactionControl. ActionControl. PerformanceControlRequest.timeToAcknowledgeAcceptance.TimeDuration
- ServiceHeader. ProcessControl. TransactionControl. ActionControl. PerformanceControlRequest.timeToPerform.TimeDuration

Next, the transaction goes through some validation steps. First, the Preamble Header is validated based on the values in the Message Profile. Then, the Service Header goes through validation based on the Message Profile values and lookup files. If the Validation Collaboration is specified in the Message Profile, then the Service Content also goes through validation based on the specified script. If any values fail the validations, then an error is captured that will be stored with the data in the database.

If the Translation Collaboration is specified in the Message Profile, then the data is transformed using the specified collaboration. The resulting message is considered the Raw message, which eventually gets passed on to the Internal System through e*Gate.

After the translation, a duplicate check is performed based on the direction set to I, level T, and unique_id (g_cidx_init_partner_id | g_cidx_proc_id | g_cidx_sigact_id |%). Each of the components of the unique_id are based on the following values in the Service Header.

- g_cidx_init_partner_id = initiatingPartner.GlobalBusinessIdentifier
- g_cidx_proc_id = ProcessIdentity.InstanceIdentifier
- g_cidx_sigact_id = SignalControl.InstanceIdentifier for signal

or

ActionControl.ActionIdentity.InstanceIdentifier for action

% = PRF or REC

A transaction is a duplicate if a message tracking row in es_mtrk_inb has the same unique_id and level. If the message is found to be a duplicate, then it is stored in the duplicate log file, client/logs/duplicate.log, and not processed any further.

If the transaction is not a duplicate, then the transaction is stored in the database with its associated attributes. The message tracking attributes that are stored with the message are based off of values in the CIDX Service Header. The values are:

- PROC_ID based off of g_cidx_proc_id
- TRAN_ID based off of g_cidx_trans_id (described earlier)
- ACT_SIG_ID based off of g_cidx_sigact_id (described earlier)
- BP_EVENT_TYPE (optional) based on eX_Event.BP_EVENT.TYPE
- BP_EVENT_ID (optional) based on eX_Event.BP_EVENT.ID
- BP_EVENT_BPI_ID (optional) based on eX_Event.BP_EVENT.BPI_ID
- BP_EVENT_NAME (optional) based on eX_Event.BP_EVENT.NAME
- BP_EVENT_ACT_ID (optional) based on eX_Event.BP_EVENT.ACTIVITY.ID
- BP_EVENT_STATUS (optional) based on eX_EVENT.BP_EVENT.STATUS
- BP_EVENT_ACT_NAME (optional) based on eX_EVENT.BP_EVENT.ACTIVITY.NAME

If the processing of the message encountered errors, then these errors are also stored in the database (es_mtrk_error). If **STORE_RAW** is **Y**, and the message was translated by the Message Profile Translation Collaboration, then the resulting translated message is also stored with the inbound message in the database.

If the inbound transaction is a signal, then it is stored as an original message in **es_mtrk_inb**, and then associated with the original request using **ux-ack-handler**. If the signal received is an exception, then a failure message is also sent to e*Gate.

If the inbound transaction is an action, then it is stored as an original message in **es_mtrk_inb**, and a row is created in **es_mtrk_inb** to represent each response expected. Hence, the **unique_id** ends in the code representing the expected response, such as **PRF**, **REC**, or **ACC**. If the action expects a Receipt Acknowledge in return, then the row in the es_mtrk_inb table will contain a unique_id with a trailing **|REC**. Later in the processing, e*Xchange creates a Receipt Acknowledge if expected by the trading partner in response to the message just received. Also, e*Xchange creates an Acceptance Acknowledge if expected by the trading partner in response to the message just received. e*Xchange does create a performance acknowledge transaction, but instead it is the internal system's responsibility to develop that message. If the inbound action is a response, then **ux-ack-handler** is called to associate this response with the original request.

Once the message has been stored in the database and associated with its request, if it is a response, then certain transactions are created and forwarded on by e*Xchange to either the internal system or trading partner. If a Receipt Acknowledge or Acceptance Acknowledge are expected by the trading partner, then they are created by e*Xchange and forwarded onto e*Gate for the trading partner as long as the processing was successful. If the processing was not successful, and a response is expected, then either a Receipt Acknowledge Exception, Acceptance Acknowledge Exception, Failure Notification, or General Exception is created by e*Xchange and sent to the Trading partner.

Also, on successful processing, the inbound transaction is also forwarded onto the internal system. The inbound transaction is sent to the internal based on the **Translation Collaboration** and **INTERNAL_FORMAT** settings. If the **Translation Collaboration** is specified, then the **Raw** message is sent to e*Gate for the internal system. Otherwise, the **INTERNAL_FORMAT** is considered, such that if it is set to **GEN**, then the data is forwarded in **CIDX Generic** format. And if the **INTERNAL_FORMAT** is set to **CIDXO**, then the data is kept in the format sent by the trading partner, and forwarded on to the internal system.

10.2.7 e*Ways for e*Xchange Inbound messages

Trading Partners communicate with e*Gate via HTTP(S) as required by CIDX. The MUX e*Way receives HTTP(S) posts from the Trading Partner. If the CIDX transaction is xml-encoded, then the MUX Collaboration xml-decodes the data. The CIDX data is converted to base64, and placed in the payload of the Standard Event. The direction is set to I in the Standard Event, and the communication protocol is set to **HTTP** or **HTTPS** depending upon how the HTTPS environment setting is set.

SERVER_NAME, **SERVER_PORT** (optional), and **SCRIPT_NAME** environment settings are used together to create the URL, which is placed in the Standard Event to help retrieve the correct trading partner profile in e*Xchange. Then the Standard Event forwards to e*Xchange for processing. The MUX e*Way returns **Status: 200 (OK)** to the web server on success. If **SCRIPT_NAME** or **SERVER_NAME** are missing, then **Status: 400 (Bad Request)** returns to the Web server, and the message is not forwarded to e*Gate for e*Xchange.

10.3 CIDX Outbound

All CIDX transactions flowing outbound from e*Xchange are either from the Internal System or created by e*Xchange itself. e*Xchange receives the CIDX Outbound message encoded in base64 within the payload of the Standard Event XML format.

10.3.1 e*Xchange Profiles for CIDX Outbound

CIDX Outbound profiles are set up by a user through the e*Xchange Web Interface. CIDX Outbound profiles represent what e*Xchange expects to receive from a Internal System or creates itself. It is important to include all the possible transactions, both signals and actions that can be sent by the internal system or created by e*Xchange. For example, a Receipt Acknowledge, Receipt Acknowledgement Exception, or Notification of Failure can be created by e*Xchange in response to a CIDX inbound message sent by a Trading Partner. Hence, all these transactions should be included as outbound message profiles.

A return message association page is within the e*Xchange Web Interface message profile section. This page is very important for specifying which inbound messages should be associated as responses for the outbound transactions. This association is used by the e*Xchange backend to determine which messages are expected as responses from the trading partner. The association can only take place once all the expected responses are included within the message profile section for the inbound direction.

10.3.2 B2B Protocol settings for CIDX Outbound

The B2B Protocol has three sections: **General**, **Transport Component**, and **Message Security**. For CIDX outbound the values in the three sections should match the following.

Note: *Use the default value for any components in a section that are not mentioned below.*

General

Table 97 B2B Protocol — General

Name	Description	Value	Location
eBusiness Protocol Type		CIDX	es_tpic.tran_type
eBusiness Protocol Version	e*Xchange is implemented for this version.	2.0.1	es_tpic.version
Direction		Outbound	es_tpic.direction
Logical Name	Unique name used for both Inbound and Outbound CIDX with same Trading Partner		es_tpic.logical_name
Communication Protocol		HTTP or HTTPS	es_tpic.comm_port

Transport Component

Table 98 B2B Protocol — Transport Component

Name	Description	Value	Location
URL	URL for where to POST data for Trading Partner		es_tpic.file_name
UserName	Only needed if the URL specified requires a username		es_tpic.user_name
Password	Only needed if the URL specified requires a password		es_tpic.password

Message Security

Table 99

Name	Description	Value	Location
Signature Key Name	key name if digital signature is to be included		es_tpic.sec_key_type includes "S" and the key is stored in es_security_key
Signature Algorithm	Select the algorithm from the drop-down list.		es_tpic.sec_key_type includes "A" and the algorithm name is stored in es_security_key
Signature Key Password	Password for key, if required.		es_tpic.sec_key_type includes "I" and the password is stored encrypted in es_security_key

10.3.3 Message Profile settings for CIDX Outbound

The Message Profile has four sections: **General**, **Preamble**, **Service Header**, and **Return Messages**. For CIDX outbound the values in the four sections should match the following.

Note: *Use the default value for any components in a section that are not mentioned below.*

General

Table 100 Message Profile — General (Outbound)

Name	Description	Value	Location
Name	A name that represents the message type, such as Order Create E41.		es_tpts.name
Digital Signature Required	Y if must include a digital signature, otherwise N.		es_ext_data.ext_data_value corresponding to SIGNATURE_REQUIRED
Non-Repudiation	Y if want non-repudiation turned on, otherwise N.		es_ext_data.ext_data_value corresponding to NON_REPUD

Table 100 Message Profile — General (Outbound)

Name	Description	Value	Location
Translation Collaboration	name of Translation collaboration (not including .tsc). Only needed if the data coming into e*Xchange from the Internal system needs to be transformed from a custom format into CIDX Generic or Object format.		es_tpts.db_collab
Message Alt ID	ID used to retrieve the Translation Collaboration from the database when a translation is required before e*Xchange can process the message from the Internal. ID must be unique within the e*Xchange database. If translation is not needed, then this value is empty.		es_tpts.alt_id
Validation Collaboration	Name of Validation collaboration (not including .tsc) to use to validate the service content. Not required.		es_tpts.bus_collab
Store Raw Message	Y if want to store message that comes in before translation (if Translation Collaboration is included. Otherwise, N is set, which is the default.		es_ext_data.ext_data_value corresponding to STORE_RAW
Transfer Mode	Must be interactive.	I	es_tpts.tran_mode

Preamble

Table 101 Message Profile — Preamble (Outbound)

Name	Description	Value	Location
Global Administering Authority Code		CIDX	es_ext_data.ext_data_value corresponding to GLOBAL_ADMIN_AUTH_CODE

Table 101 Message Profile — Preamble (Outbound)

Name	Description	Value	Location
Global Usage Code	Test or Production		es_ext_data.ext_data_value corresponding to GLOBAL_USAGE_CODE
CIDX Version Identifier		1.1	es_ext_data.ext_data_value corresponding to CIDX_VERSION_ID

Service Header

Table 102

Name	Description	Value	Location
Global From Business Identifier	Identifier for Sender - Internal System		es_ext_data.ext_data_value corresponding to FROM_GLOBAL_BUS_ID
Global To Business Identifier	Identifier for Receiver - Trading Partner		es_ext_data.ext_data_value corresponding to TO_GLOBAL_BUS_ID
From Global Business Service Code	Value from list for Internal System		es_ext_data.ext_data_value corresponding to FROM_GLOBAL_BUS_SVC_CODE
From Global Partner Classification Code	Value from list for Internal System		es_ext_data.ext_data_value corresponding to FROM_GLOBAL_PART_CLASS_CODE
From Global Partner Role Classification Code	Value from list for Internal System		es_ext_data.ext_data_value corresponding to FROM_GLOBAL_PART_ROLE_CLASS_CODE

Table 102

Name	Description	Value	Location
Global Business Action/Signal Code	Value from list		es_ext_data.ext_data_value corresponding to GLOBAL_BUS_ACT_SIG_CODE
Global Document Function Code	Value from list		es_ext_data.ext_data_value corresponding to GLOBAL_DOC_FUNC_CODE
Global Process Code	Value from list		es_ext_data.ext_data_value corresponding to GLOBAL_PROC_CODE
Global Process Ind Code	Value from list		es_ext_data.ext_data_value corresponding to GLOBAL_PROC_IND_CODE
Global Tran Code	Value from list		es_ext_data.ext_data_value corresponding to GLOBAL_TRAN_CODE
To Global Business Service Code	Value from list for Trading Partner		es_ext_data.ext_data_value corresponding to TO_GLOBAL_BUS_SVC_CODE
To Global Partner Classification Code	Value from list for Trading Partner		es_ext_data.ext_data_value corresponding to TO_GLOBAL_PART_CLASS_CODE
To Global Partner Role Classification Code	Value from list for Trading Partner		es_ext_data.ext_data_value corresponding to TO_GLOBAL_PART_ROLE_CLASS_CODE
Business Action/ Signal Version Identifier	Version of service content (most likely 2.0.1)		es_ext_data.ext_data_value corresponding to GLOBAL_BUS_SIGACT_VER_ID

Return Messages

Set the following for each expected response:

Include = Yes

Response Time & Period = <amount of time expected for this response specified by the CIDX business process>

# of Retries = <maximum number of resends for the Outbound request that this Inbound response is associated with as specified by the CIDX business process>

10.3.4 CIDX Outbound Required Values

Outbound messages sent to e*Xchange from the internal system must include certain values within the Service Header and/or Standard Event attribute section to allow for proper retrieval of e*Xchange database profile information. There are six types of messages that can flow through e*Xchange outbound. These six types are listed below including which message components are required, in order to successfully process the transaction.

1 Request message in GEN or CIDXO format must have:

   A eX_Event.TP_EVENT.Direction

   B eX_Event.TP_EVENT.PartnerName (Logical Name in profile)

   C GlobalBusinessActionCode in ServiceHeader

   D GlobalProcessIndicatorCode in ServiceHeader

   E (Optional) ServiceHeader.ProcessControl.ProcessIdentity.InstanceIdentifier (If this value is not included, the e*Xchange will generate it as a timestamp including milliseconds.)

2 Request message in custom (raw) format must have:

   A eX_Event.TP_EVENT.Direction

   B eX_Event.TP_EVENT.PartnerName (Logical Name in profile)

   C eX_Event.TP_EVENT.TPAttribute.NameValuePair."MSG_ALT_ID" (event type in profile)

   D Can have eX_Event.TP_EVENT.TPAttribute.NameValuePair."PROC_ID", however if this value is not included, the e*Xchange will generate it as a timestamp including milliseconds.

3 Response action message in GEN or CIDXO format must have:

   A eX_Event.TP_EVENT.Direction

   B eX_Event.TP_EVENT.PartnerName (Logical Name in profile)

   C ServiceHeader.ProcessControl.ProcessIdentity.InstanceIdentifier that matches with original Request

   D GlobalBusinessActionCode in ServiceHeader

   E GlobalProcessIndicatorCode in ServiceHeader

   F InResponseTo.GlobalBusinessActionCode in ServiceHeader

4 Response action message in custom (raw) format must have:
   A eX_Event.TP_EVENT.Direction
   B eX_Event.TP_EVENT.PartnerName (Logical Name in profile)
   C eX_Event.TP_EVENT.TPAttribute.NameValuePair."MSG_ALT_ID" (event type in profile)
   D eX_Event.TP_EVENT.TPAttribute.NameValuePair."PROC_ID" that matches with original Request
   E InResponseTo.GlobalBusinessActionCode must be placed in ServiceHeader through the translation into CIDX Generic format.

5 Response signal message in GEN or CIDXO format must have:
   A eX_Event.TP_EVENT.Direction
   B eX_Event.TP_EVENT.PartnerName (Logical Name in profile)
   C ServiceHeader.ProcessControl.ProcessIdentity.InstanceIdentifier that matches with original Request
   D GlobalBusinessActionCode in ServiceHeader
   E InResponseTo.GlobalBusinessActionCode in ServiceHeader

6 Response signal message in custom (raw) format must have:
   A eX_Event.TP_EVENT.Direction
   B eX_Event.TP_EVENT.PartnerName (Logical Name in profile)
   C eX_Event.TP_EVENT.TPAttribute.NameValuePair."MSG_ALT_ID" (event type in profile)
   D eX_Event.TP_EVENT.TPAttribute.NameValuePair."PROC_ID" that matches with original Request
   E InResponseTo.GlobalBusinessActionCode must be placed in ServiceHeader through the translation into CIDX Generic format.

10.3.5 Processing CIDX Outbound within e*Xchange

Messages outbound through e*Xchange either originate within the Internal System or e*Xchange itself. When a outbound message comes into e*Xchange from the Internal System, the message's B2B protocol information is loaded from the e*Xchange database.

Attributes used for loading B2B protocol information for a profile:

- eX_Event.TP_EVENT.Direction
- eX_Event.TP_EVENT.CommProt
- eX_Event.TP_EVENT.PartnerName (Logical Name in profile)
- eX_Event.TP_EVENT.Url

The only attribute required is Direction (O for Outbound), however it is highly recommended that PartnerName also be included to be sure the correct profile is loaded for that direction.

Once the B2B protocol is loaded, then appropriate Monk script is loaded based on the direction and tran_type. Hence, eX_CIDX_Outb_main.dsc is loaded and run for CIDX Outbound transactions. These transactions can come into e*Xchange in either:

- CIDX Generic format (GEN = Preamble Header, Service Header, and Service Content, but no leading binary characters and no digital signature)
- CIDX Object format (CIDXO = Same as CIDX Generic, but has 8 leading binary characters and four trailing binary nulls)
- A custom format.

If a custom format is to be passed into e*Xchange, then **MSG_ALT_ID** in the **TPAttribute** section of the **eX_Event.TP_EVENT** must contain a value matching the Event Type specified in the message profile section. **MSG_ALT_ID** is used to retrieve the message profile, which in turn allows the script to retrieve a translation collaboration name. The translation collaboration is then loaded and used to translate the custom format to CIDX Generic format. Not only is the translation collaboration name retrieved from the message profile, but also the **GLOBAL_BUS_ACT_SIG_CODE** and the **GLOBAL_PROC_IND_CODE**. Therefore, a translated message does not have to contain these attributes since they are retrieved from the e*Xchange profile database.

If **MSG_ALT_ID** is not specified, then the transaction is assumed to be in either **GEN** or **CIDXO** format. The **Internal Format** attribute specified within the **B2B Protocol** is used to determine which format the message should be in. If **Internal Format** is not specified or is not set to **GEN**, then no translation of the data is required. If **Internal Format** is set to **CIDXO**, then the CIDXO format is converted to GEN format, so e*Xchange can continue to process the data.

Once the data is in **GEN** format, then the following values are retrieved from the **ServiceHeader** section. These values are required to be within the ServiceHeader unless the data was translated from a custom format as already explained above.

Signals

- ServiceHeader.ProcessControl.TransactionControl.SignalControl.SignalIdentity.GlobalBusinessSignalCode

  (stored as GLOBAL_BUS_ACT_SIG_CODE in e*Xchange database)

This value (GLOBAL_BUS_ACT_SIG_CODE) along with the B2B protocol information previously loaded are used to load the proper message profile for the signal.

Actions

- ServiceHeader. ProcessControl.TransactionControl.ActionControl.ActionIdentity.GlobalBusinessActionCode

  (stored as GLOBAL_BUS_ACT_SIG_CODE in e*Xchange database)
- ServiceHeader. ProcessControl.ProcessIdentity.GlobalProcessIndicatorCode

  (stored as GLOBAL_PROC_IND_CODE in e*Xchange database)

These values (GLOBAL_BUS_ACT_SIG_CODE and GLOBAL_PROC_IND_CODE) along with the B2B protocol information previously loaded are used to load the proper message profile for the action.

Once the message profile is loaded, many attributes are loaded from that profile. The attributes loaded are

- VERSION_ID
- GLOBAL_PROC_CODE
- GLOBAL_TRAN_CODE
- FROM_GLOBAL_PART_ROLE_CLASS_CODE
- TO_GLOBAL_PART_ROLE_CLASS_CODE
- FROM_GLOBAL_PART_CLASS_CODE
- TO_GLOBAL_PART_CLASS_CODE
- FROM_GLOBAL_BUS_SVC_CODE
- TO_GLOBAL_BUS_SVC_CODE
- GLOBAL_DOC_FUNC_CODE
- NUM_RETRY
- RESP_TM
- RTN_TS_ID
- msg_compressed
- ts_version
- STORE_RAW
- SIGNATURE_REQUIRED

After loading the attributes, then the message profile is checked to see if a validation collaboration is specified. If the validation collaboration is included, then it is loaded and run on the Service Content. If the Service Content fails the validation, then the message is logged in the database with an error, logged in a journal file with an error, and a failure message is sent back to e*Gate for the internal system.

If the message has passed the validation collaboration or there is not a validation collaboration specified, then the **PerformanceControlRequest** times are extracted from the Service Header if they are included. These times are optional, so if they are not included in the message, then they are retrieved from the database. And these times are only included for each expected response.

The times are extracted from the following:

- ServiceHeader. ProcessControl. TransactionControl. ActionControl. PerformanceControlRequest.timeToAcknowledgeReceipt.TimeDuration
- ServiceHeader. ProcessControl. TransactionControl. ActionControl. PerformanceControlRequest.timeToAcknowledgeAcceptance.TimeDuration

- ServiceHeader. ProcessControl. TransactionControl. ActionControl. PerformanceControlRequest.timeToPerform.TimeDuration

A trailing code is added to the unique_id for the responses expected, which are based on the values from the **ServiceHeader** and/or e*Xchange database profile. For example, if a Receipt Acknowledge is expected, then a row in the **es_mtrk_outb** table would have a **unique_id** ending in **|REC**. If a performance acknowledge, such as a Order Response for a Order Create, is expected, then the trailing characters in the **unique_id** would be **|PRF**.

If the following values are not in the ServiceHeader of the received message (including a message that has been translated from raw format), then they are created by using a timestamp including milliseconds.

- ServiceHeader.ProcessControl.ProcessIdentity.InstanceIdentifier or
- eX_Event.TP_EVENT.TPAttribute.NameValuePair."PROC_ID" stored in g_cidx_proc_id. This value is stored as PROC_ID in the message tracking.
- ServiceHeader. ProcessControl.TransactionControl.ActionControl. ActionIdentity.InstanceIdentifier for Action messages, and stored in g_cidx_sigact_id. This value is stored as ACT_SIG_ID in the message tracking.
- ServiceHeader.ProcessControl.TransactionControl.SignalControl.
- InstanceIdentifier for Signal messages, and stored in g_cidx_sigact_id. This value is stored as ACT_SIG_ID in the message tracking.
- ServiceHeader.ProcessControl.TransactionControl.TransactionIdentity.
- InstanceIdentifier, and stored in g_cidx_trans_id. This value is stored as TRAN_ID in the message tracking.

Some of the above values along with the initiating partner ID (g_cidx_init_partner_id) are used to compose the **unique_id** for storing the transaction in the e*Xchange database. If the outbound message received is a request, then the initiating partner ID is set to the **FROM_GLOBAL_BUS_ID** value in the message profile. Otherwise, the initiating partner ID is set to the **TO_GLOBAL_BUS_ID** since the message is a response.

The unique_id format is:

```
g_cidx_init_partner_id|g_cidx_proc_id|g_cidx_sigact_id|NNN
```

where NNN = PRF, REC, or ACC.

If a message received is a Response (GLOBAL_DOC_FUNC_CODE in database and g_cidx_doc_function_code in e*Xchange monk scripts), then the profile for the original Request is loaded based on the following values.

- Direction is set to I
- Tran_type is CIDX (same as the Response tran_type)
- Set TO_GLOBAL_BUS_ID to be the value in FROM_GLOBAL_BUS_ID from the Response profile.
- Set FROM_GLOBAL_BUS_ID to be the value in TO_GLOBAL_BUS_ID from the Response profile.

- Set GLOBAL_BUS_ACT_SIG_CODE to be the GlobalBusinessActionCode from the InResponseTo section of the Response message.

Note: *The GlobalDocumentFunctionCode is not extracted from the ServiceHeader (ServiceHeader.ProcessControl.TransactionControl.ActionControl.*

GlobalDocumentFunctionCode) for outbound messages. Instead, this value is used from the B2B protocol section of the e*Xchange database profile. The value is populated in the message going out of e*Xchange. Therefore, if the value is not there or incorrect, it will be overwritten with the correct value.

After retrieving the Request database profiles, then the message tracking attributes are retrieved based on the following unique_id.

```
g_cidx_init_partner_id|g_cidx_proc_id|%|PRF
```

The % takes the place of the Action Instance Identifier for the Request since it is not known, and is going to be retrieved.

ACT_SIG_ID (Action Instance Identifier for the Request) and TRAN_ID (Transaction Control Instance Identifier for the Request) are retrieved for the Request. ACT_SIG_ID gets stored as g_cidx_inrespto_id and TRAN_ID is stored as g_cidx_trans_id in the e*Xchange monk scripts.

Note: *TransactionControl.TransactionIdentity.InstanceIdentifier is not required in the message. If the message is a Response, then the Request TRAN_ID is used instead, if it exists. If the TRAN_ID is missing, then the value is extracted from the ServiceHeader. If the ServiceHeader is missing the value, then the value is generated based on a timestamp including milliseconds.*

Now that the profile values have been retrieved from the database, the Outbound Preamble and Service Headers are created. The following values are populated in each of the headers.

Preamble Header

- Preamble.VersionIdentifier based on the CIDX_VERSION_ID from the message profile.
- Preamble.DateTimeStamp set to current Greenwich Mean Time
- Preamble.GlobalAdministeringAuthorityCode based on the GLOBAL_ADMIN_AUTH_CODE from the message profile.
- Preamble.GlobalUsageCode based on the GLOBAL_USAGE_CODE from the message profile.

Note: *If the Outbound message contained any of these values in the Preamble when e*Xchange received it, the values are overwritten as explained above.*

Service Header

- ServiceHeader.ProcessControl.ProcessIdentity.GlobalProcessCode based on the GLOBAL_PROC_CODE in the B2B protocol.

- ServiceHeader.ProcessControl.ProcessIdentity.InstanceIdentifier is based on eX_Event.TP_EVENT.TPAttribute.NameValuePair."PROC_ID". If that is missing, then would keep the value already in the ServiceHeader. If the value is missing in the ServiceHeader, then would place a generated value based on a timestamp including milliseconds.

Note: *If both PROC_ID in the TP_EVENT and the ServiceHeader id are included, then the PROC_ID in the TP_EVENT takes precedence, and overwrites the ServiceHeader value.*

- ServiceHeader.ProcessControl.TransactionControl.TransactionIdentity.InstanceIdentifier based on the TRAN_ID stored in message tracking for request if message is response. If TRAN_ID does not exist in the database, then keeps the value already in the ServiceHeader. If the value is missing in the ServiceHeader, then would place a generated value based on a timestamp including milliseconds.
- ServiceHeader.ProcessControl.TransactionControl.TransactionIdentity.GlobalTransactionCode based on the GLOBAL_TRAN_CODE in the B2B protocol.
- ServiceHeader.ProcessControl.TransactionControl.AttemptCount is set to 1
- ServiceHeader.ProcessControl.ProcessIdentity.VersionIdentifier based on the VERSION_ID in the B2B protocol.
- ServiceHeader.ProcessControl.TransactionControl.PartnerRoleRoute.fromRole.PartnerRoleDescription.GlobalPartnerRoleClassificationCode based on the FROM_GLOBAL_PART_ROLE_CLASS_CODE in the B2B protocol.
- ServiceHeader.ProcessControl.TransactionControl.PartnerRoleRoute.toRole.PartnerRoleDescription.GlobalPartnerRoleClassificationCode based on the TO_GLOBAL_PART_ROLE_CLASS_CODE in the B2B protocol.
- ServiceHeader.ProcessControl.ServiceRoute.fromService.BusinessServiceDescription.GlobalBusinessServiceCode based on the FROM_GLOBAL_BUS_SVC_CODE in the B2B protocol.
- ServiceHeader.ProcessControl.ServiceRoute.toService.BusinessServiceDescription.GlobalBusinessServiceCode based on theTO_GLOBAL_BUS_SVC_CODE in the B2B protocol.
- ServiceHeader.ProcessControl.ProcessIdentity.initiatingPartner.GlobalBusinessIdentifier based on the FROM_GLOBAL_BUS_ID in the message profile if this message is a Request (GLOBAL_DOC_FUNC_CODE = Request). Otherwise, based on TO_GLOBAL_BUS_ID in the message profile since this message is a Response (GLOBAL_DOC_FUNC_CODE = Request).
- ServiceHeader.ProcessControl.TransactionControl.ActionControl.GlobalDocumentFunctionCode based on the GLOBAL_DOC_FUNC_CODE in the B2B Protocol.
- ServiceHeader.ProcessControl.TransactionControl.ActionControl.PerformanceControlRequest.timeToAcknowledgeAcceptance.TimeDuration is set to the value that is already there in the ServiceHeader. If the value is missing, then would place the response time set in the e*Xchange database if a Acceptance Acknowledge is expected for the message. If not expected, then the time would be left blank (not set).

- ServiceHeader.ProcessControl.TransactionControl.ActionControl.PerformanceControlRequest.timeToAcknowledgeReceipt.TimeDuration is set to the value that is already there in the ServiceHeader. If the value is missing, then would place the response time set in the e*Xchange database if a Receipt Acknowledge is expected for the message. If not expected, then the time would be left blank (not set).
- ServiceHeader.ProcessControl.TransactionControl.ActionControl.PerformanceControlRequest.timeToPerform.TimeDuration is set to the value that is already there in the ServiceHeader. If the value is missing, then would place the response time set in the e*Xchange database if a performance response is expected for the message. If not expected, then the time would be left blank (not set).

If a signal then:

- ServiceHeader.ProcessControl.TransactionControl.SignalControl.SignalIdentity.GlobalBusinessSignalCode based on GLOBAL_BUS_ACT_SIG_CODE in the B2B Protocol if provided MSG_ALT_ID to load the profile. Otherwise, keeps the value that is already in the ServiceHeader.
- ServiceHeader.ProcessControl.TransactionControl.SignalControl.InstanceIdentifier is set to the value that is already there in the ServiceHeader. If the value is missing, then would place a generated value based on a timestamp including milliseconds.
- ServiceHeader.ProcessControl.TransactionControl.SignalControl.inResponseTo.ActionIdentity.GlobalBusinessActionCode is set to the value that is already there in the ServiceHeader.
- ServiceHeader.ProcessControl.TransactionControl.SignalControl.inResponseTo.ActionIdentity.InstanceIdentifier based on the ACT_SIG_ID stored in message tracking for Request if message is Response.
- ServiceHeader.ProcessControl.TransactionControl.SignalControl.PartnerRoute.fromPartner.PartnerDescription.BusinessDescription.GlobalBusinessIdentifier based on the FROM_GLOBAL_BUS_ID in the message profile.
- ServiceHeader.ProcessControl.TransactionControl.SignalControl. PartnerRoute.toPartner.PartnerDescription.BusinessDescription.GlobalBusinessIdentifier based on the TO_GLOBAL_BUS_ID in the message profile.
- ServiceHeader.ProcessControl.TransactionControl.SignalControl.PartnerRoute.fromPartner.PartnerDescription.GlobalPartnerClassificationCode based on the FROM_GLOBAL_PART_CLASS_CODE in the B2B protocol.
- ServiceHeader.ProcessControl.TransactionControl.SignalControl.PartnerRoute.toPartner.PartnerDescription.GlobalPartnerClassificationCode based on the TO_GLOBAL_PART_CLASS_CODE in the B2B protocol.
- ServiceHeader.ProcessControl.TransactionControl.SignalControl.SignalIdentity.VersionIdentifier based on the VERSION_ID in the B2B protocol.

Else (an action)

- ServiceHeader.ProcessControl.TransactionControl.ActionControl.ActionIdentity.GlobalBusinessActionCode based on GLOBAL_BUS_ACT_SIG_CODE in the B2B Protocol if provided MSG_ALT_ID to load the profile. Otherwise, keeps the value that is already in the ServiceHeader.

- ServiceHeader.ProcessControl.TransactionControl.ActionControl.ActionIdentity.InstanceIdentifier is set to the value that is already there in the ServiceHeader. If the value is missing, then would place a generated value based on a timestamp including milliseconds.
- ServiceHeader.ProcessControl.TransactionControl.ActionControl.inResponseTo.ActionIdentity.GlobalBusinessActionCode is set to the value that is already there in the ServiceHeader, which could be empty if this action is a Request not a Response.
- ServiceHeader.ProcessControl.TransactionControl.ActionControl.inResponseTo.ActionIdentity.InstanceIdentifier based on the ACT_SIG_ID stored in message tracking for Request if message is Response.
- ServiceHeader.ProcessControl.TransactionControl.ActionControl.PartnerRoute.fromPartner.PartnerDescription.BusinessDescription.GlobalBusinessIdentifier based on the FROM_GLOBAL_BUS_ID in the message profile.
- ServiceHeader.ProcessControl.TransactionControl.ActionControl.PartnerRoute.toPartner.PartnerDescription.BusinessDescription.GlobalBusinessIdentifier based on the TO_GLOBAL_BUS_ID in the message profile.
- ServiceHeader.ProcessControl.TransactionControl.ActionControl.PartnerRoute.fromPartner.PartnerDescription.GlobalPartnerClassificationCode based on the FROM_GLOBAL_PART_CLASS_CODE in the B2B protocol.
- ServiceHeader.ProcessControl.TransactionControl.ActionControl.PartnerRoute.toPartner.PartnerDescription.GlobalPartnerClassificationCode based on the TO_GLOBAL_PART_CLASS_CODE in the B2B protocol.
- ServiceHeader.ProcessControl.TransactionControl.ActionControl.ActionIdentity.VersionIdentifier based on the VERSION_ID in the B2B protocol.

A duplicate check is performed based on the **unique_id** (documented earlier in this section), direction set to "O", and message tracking level set to "T". A transaction is a duplicate if a message tracking row in **es_mtrk_outb** has the same **unique_id** and **level**. If the message is found to be a duplicate, then it is stored in the duplicate log file, client/logs/duplicate.log, and not processed any further.

If the e*Xchange profile has **SIGNATURE_REQUIRED** set to "Y", then a digital signature is created based on the outgoing content, which includes Preamble Header, Service Header, and Service Content. The signature-key, signature algorithm, and signature-key passphrase (optional) is retrieved from the e*Xchange profile, and used to create the digital signature.

The outgoing message is then reformatted in CIDX Object format.

The CIDX Object format

4 byte binary value representing the version, CIDX_VERSION_ID in the B2B Protocol

4 byte binary value representing the length of the content

content includes Preamble Header, Service Header, and Service Content

4 byte binary value representing the length of the signature (4 nulls if no signature)

digital signature in PKCS #7 binary format

Once the message is in CIDX Object format, then it is stored in the **es_mtrk_outb** table with its associated extended attributes in the **es_mtrk_outb_data** table. If there are errors in processing the data, then those errors are stored in **es_mtrk_error**.

The message tracking attributes that are stored with the message are based off of values in the Standard Event, CIDX Service Header, and possibly the response's request message tracking attributes already stored in the database. The values are

- PROC_ID based off of g_cidx_proc_id (described earlier)
- TRAN_ID based off of g_cidx_trans_id (described earlier)
- ACT_SIG_ID based off of g_cidx_sigact_id (described earlier)
- BP_EVENT_TYPE (optional) based on eX_Event.BP_EVENT.TYPE
- BP_EVENT_ID (optional) based on eX_Event.BP_EVENT.ID
- BP_EVENT_BPI_ID (optional) based on eX_Event.BP_EVENT.BPI_ID
- BP_EVENT_NAME (optional) based on eX_Event.BP_EVENT.NAME
- BP_EVENT_ACT_ID (optional) based on eX_Event.BP_EVENT.ACTIVITY.ID
- BP_EVENT_STATUS (optional) based on eX_EVENT.BP_EVENT.STATUS
- BP_EVENT_ACT_NAME (optional) based on eX_EVENT.BP_EVENT.ACTIVITY.NAME

If the message is a response, then ux-ack-handler is called to associate this response with the appropriate request already stored in the database. The association is based on the request unique_id and TRAN_ID. The request unique_id is

g_cidx_init_partner_id|g_cidx_proc_id|g_cidx_inrespto_id|%

where **g_cidx_inrespto_id** is the InstanceIdentifier from the inResponseTo section of the message, and % is a wildcard used to match **PRF**, **REC**, or **ACC**.

The association places the response in the **es_mtrk_inb.ack_msg_id** and removes any **es_waiting_ack** rows in the database that are configured for that response.

If the message is a request, then **ux-wait-for-ack** is called for each response expected. It is important to be sure the Message Profile for a request in the e*Xchange database has only the expected positive responses configured in the Return Messages section. The Return Messages section represents a positive business cycle. Hence, do not include possible negative or failure responses in the return messages for the request since those are not expected as part of a positive business process flow. If no responses are expected, then the request never has a value in **es_mtrk_outb.ack_msg_id**, and the Ack Monitor does not monitor responses expected for the request.

Finally, the CIDX Object encoded in base64 and stuffed within the payload of a Standard Event is sent out of e*Xchange to e*Gate. e*Gate forwards the Standard Event to the HTTP(S) Java e*Way. The only supported protocols for CIDX are HTTP and HTTPS.

10.3.6 e*Ways for e*Xchange Outbound messages

An internal system communicating with e*Gate provides the Outbound messages for e*Xchange that are to be sent to a Trading Partner. e*Gate communicates with a trading partner via HTTP(S) as required by CIDX. All outbound messages go out of e*Gate through the HTTP(S) Java e*Way. The HTTP(S) Java e*Way sets the Content-Type header to "application/x-rosettanet-agent". Since the mode for CIDX is asynchronous, no Response messages, other than a status code, are expected in return from the POST of an outbound message. All inbound response messages go through the MUX e*Way since that e*Way is used to receive HTTP(S) posts from the trading partner.

10.3.7 CIDX Ack Monitor

The CIDX Acknowledgment Monitor (Ack Monitor) tracks responses that are expected for outbound messages. If an outbound message expects a response, then a row is created in the es_waiting_ack table containing the retry maximum and when the outbound message should be resent if a response is not received. The Ack Monitor will check the es_waiting_ack table every 10 seconds (based on the configuration setting) to see which responses are overdue. If a response is overdue, and the retry max has not been exceeded, then the original Outbound message is retrieved from the database and sent out to the trading partner. If the retry maximum has been exceeded, then the original Outbound message is marked with the **error = Response Overdue** (error code 9100), the row representing this expected response is removed from es_waiting_ack, and a Failure Notification is created, stored in the database, and sent out to the trading partner.

10.4 CIDX Sample

The major steps for this implementation are as follows:

1. Create the trading partner profiles.
2. Configure the user-defined e*Ways that connect the business application to e*Xchange and exchange messages with the trading partner.
3. Configure the e*Xchange e*Way.
4. Run and test the scenario.

10.5 Using the Implementation Sample

The components for this implementation are provided on your installation CD, and are located in **\setup\eXchange\sample\CIDX_SAMPLE_IMPLEMENTATION.zip**.

To install the components

1. Unzip the file to a local directory.

2 Install the e*Gate schema using one of the following commands. The schema name is user defined.

Note: *The default registry port number is 23001.*

A For UNIX:

```
sh install_cidx_oc.sh <egate_registry_host_name> <schema_name>
<user_name> <password> <egate_registry_port_num>
```

B For Windows:

```
install_cidx_oc.bat <egate_registry_host_name> <schema_name>
<user_name> <password> <egate_registry_port_num>
```

3 Use the e*Xchange Import function to import **CIDX.exp** into e*Xchange Partner Manager.

4 Copy the **demos** folder to the **<egate>** directory.

5 Configure the **eX_ePM** e*Way.

The steps on the following pages describe how the components for this implementation were created. See the next section for instructions to run the implementation.

10.6 Running the Scenario

There are five parts to running the scenario:

A The Retailer trading partner sends the order create to the Wholesaler trading partner.

B The Wholesaler trading partner processes the order create message received from the Retailer trading partner.

C The Wholesaler trading partner sends the acknowledgment back to the Retailer trading partner.

Parts A, B, and C are performed in **"To process the purchase order message"**.

To process the purchase order message

1 Rename the file **<egate>\Demos\CIDX\input\Orders.~in** to **Orders.fin**.

Once your data file is in place, start the following e*Gate components:

2 Start the Control Broker. At the command line, enter:

```
stccb.exe -rh localhost -rs CIDX -ln localhost_cb -un Administrator -
up STC
```

3 Open the Schema Manager and select the CIDX schema.

4 Start the **eX_ePM** e*Way

This starts the e*Xchange engine.

5 Start the **Internal_Order_Feeder** e*Way

This e*Way retrieves the purchase order from the internal system and sends it to the e*Xchange Partner Manager.

6 Look in the **<egate>\Demos\CIDX\Input\Order** folder. The file name changes from **Order.fin** to **Order.~in** as the file is picked up.

7 Start the **TP_Order_Eater** e*Way.

This e*Way sends the purchase order to a file which is then retrieved and sent to the Wholesaler trading partner.

8 Look in the **<egate>\Demos\CIDX\Output\Order_Out\TP** folder. The file **Order1.dat** is created.

9 Start the **TP_Order_Feeder** e*Way.

This e*Way sends the message to the Wholesaler trading partner.

10 Look in the **<egate>\Demos\CIDX\Output\Order_Out\TP** folder. The file name changes from **Order1.dat** to **Order1.~in** as the file is picked up.

11 Start the **Internal_Eater** e*Way.

This e*Way sends the message to a file (simulating sending to an internal system).

12 Look in the **<egate>\Demos\CIDX\Output\Order_Out** folder. The file **Order1.dat** is created.

13 Start the **TP_Response_Eater** e*Way.

This e*Way sends the purchase order acknowledgment to a file which is then retrieved and sent to the Retailer trading partner.

14 Look in the **<egate>\Demos\CIDX\Output\Response_Out\TP** folder. The file **Order1.dat** is created.

15 Start the **TP_Response_Feeder** e*Way

This e*Way sends the purchase order acknowledgment to the Retailer trading partner.

16 Look in the **<egate>\Demos\CIDX\Output\Response_Out\TP** folder. The file name changes from **Order1.dat** to **Order1.~in** as the file is picked up.

The message is processed by **Internal_Eater** e*Way. This e*Way sends the message to a file (simulating sending to an internal system).

Note: *Look in the **<egate>\Demos\CIDX\Output\Order_Out** folder. The file **Order1.dat** is created.*

That completes sending the purchase order. You can view the results in Message Tracking, in e*Xchange Web interface.

Viewing the Results in Message Tracking

You can view the results of the message processing by using the Message Tracking feature of the e*Xchange Partner Manager.

To view the outbound message in Message Tracking for the Wholesaler Trading Partner

1. From the e*Xchange Web interface, **Main** page, select **Message Tracking**.

   The **TP Profile Selection** page appears.
2. In the **Company Profile** field, select **Wholesaler Company**.
3. In the **Trading Partner Profile** field, select **Wholesaler TP**.
4. In the **eBusiness Protocol** field, select **CIDX**.
5. In the **Direction** field, select **Outbound**.
6. Click the **Message Profile Selection**.
7. Select the **Order Create** message.
8. Click the **Message Details** link to view the resulting list.

e*Xchange records two entries for the message. One entry is for the original message, for which a response message is sent. The other entry is for the acknowledgment message.

For one entry, the **Ack Message** column has a link to the message information. Click it to view the acknowledgment message.

Later, when the response message is sent out, you are able to view it in Message Tracking. For the moment, the **Ack Message** column is not showing a link for the other message, since the response has not been sent out yet.

To view the inbound message in Message Tracking

1. From the e*Xchange Web interface, **Main** page, select **Message Tracking**.

   The **TP Profile Selection** page appears.
2. In the **Company Profile** field, select **Retailer Company**.
3. In the **Trading Partner Profile** field, select **Retailer TP**.
4. In the **eBusiness Protocol** field, select **CIDX**.
5. In the **Direction** field, select **Inbound**.
6. Click the **Message Profile Selection**.
7. Select the **Order Create** message.
8. Click the **Message Details** link to view the resulting list.

e*Xchange records two entries for the message. One entry is for the original message, for which a response message is sent later. The other entry is for the acknowledgment message.

Chapter 11

e*Xchange Implementation—AS2

This chapter discusses the steps involved to create an e*Xchange implementation that transfers data using AS2 security.

The components for this implementation are provided on your installation CD. For instructions on installing and using the implementation components, see **"Using the Implementation Sample" on page 220**.

11.1 Overview

An e*Xchange implementation makes use of the features designed to add and remove the information for messages exchanged between trading partners.

In an e*Xchange implementation, use the e*Xchange Web Interface to set up trading partner information, and the e*Gate Schema Designer GUI to add user-defined e*Gate components to provide connectivity to the business application or trading partner. Once this is done, the pre-configured e*Xchange e*Gate schema components handle enveloping and de-enveloping Events as they travel through the e*Xchange system.

The major steps for an e*Xchange implementation are as follows:

1. Create the trading partner profiles.
2. Install the e*Gate schema.
3. Configure the user-defined e*Ways that connect the business application to e*Xchange.
4. Configure the Transport Component for trading partner profiles.
5. Configure the e*Gate schema components.
6. Run and test the scenario.

11.2 Using the Implementation Sample

The components for this implementation are provided on your installation CD, and are located in **\setup\eXchange\sample\X12_AS2_SAMPLE_IMPLEMENTATION.zip**. Follow these steps to install the components:

1 Unzip the file to a local directory.

2 Install the e*Gate schema using one of the following commands. The schema name is user-defined.

Note: *The default registry port number is 23001.*

A For UNIX

```
sh install_sample_x12_as2.sh <egate_registry_host_name>
<schema_name> <user_name> <password> <egate_registry_port_num>
```

B For Windows

```
install_sample_x12_as2.bat <egate_registry_host_name>
<schema_name> <user_name> <password> <egate_registry_port_num>
```

3 Set up the HTTP server for the Java HTTP e*Way.

Refer to the *HTTP(S) e*Way Intelligent Adapter User's Guide (Java version)*.

4 Import trading partner profiles into the database using the e*Xchange Repository Manager.

5 Configure the HTTP settings for two companies in both directions (inbound and outbound).

6 Copy the data folder to the **<egate>** directory.

7 If e*Gate is not installed on your C drive, update the **Transport Component** file location.

8 Configure the **eX_ePM** e*Way.

9 Configure **eX_Mux_from_Trading_Partner** e*Way and set the port number for the **HTTP** e*Way.

11.2.1 Running the Scenario

The steps on the following pages describe how to run the implementation.

1 Start the Control Broker. At the command line, enter:

```
stccb.exe -rh localhost -rs <schema_name> -ln localhost_cb -un
Administrator -up STC
```

2 Open the Schema Manager. Select the AS2 schema.

3 Verify that the following components started:

- eX_ePM e*Way
- send_to_ePM_x12 e*Way

- ewHipaaValidation
- eXHttps_to_Trading_Partner
- eX_Mux_from_Trading_partner

4 Rename the request data file to ***.fin**.

The asterisk represents your data request file name.

5 View the results in Message Tracking, in e*Xchange Partner Manager.

Viewing the Results in Message Tracking

You can view the results of the message processing by using the Message Tracking feature of e*Xchange.

Message Tracking shows two entries for the incoming message. This is because a control message is sent out immediately, and a response message will be sent out later. These two responses to the trading partner are tracked separately.

To view the inbound message in Message Tracking

1 From the e*Xchange Web interface, **Main** page, select **Message Tracking**.

The **TP Profile Selection** page appears.

2 In the **Company Profile** field, select your company profile name.

3 In the **Trading Partner Profile** field, select your Trading Partner Profile.

4 In the **eBusiness Protocol** field, select **X12**.

5 Click **B2B Protocol/Message Profile**, select **Message Profile**.

6 In the **Direction** field, select **Inbound**.

7 Select the message name.

8 Click the **Message Details** link to view the resulting list.

Chapter 12

e*Xchange Implementation—NCPDP

This chapter discusses the steps involved to create an e*Xchange implementation that transfers data using the NCPDP protocol. e*Xchange supports HIPAA NCPDP transactions.

Note: *For more information on HIPAA NCPDP transactions, please refer to the HIPAA Implementation Guide.*

The components for this implementation are provided on your installation CD in the sample directory.

12.1 Overview

This e*Xchange implementation uses the e*Xchange Web Interface to set up trading partner information. The e*Gate Schema Designer GUI adds user-defined e*Gate components and provides connectivity to the business application or trading partner.

The major steps for this e*Xchange implementation are as follows:

1. Create the trading partner profiles.
2. Install the e*Gate schema.
3. Configure the user-defined e*Ways that send data to e*Xchange.
4. Configure the e*Xchange e*Way.
5. Run and test the scenario.

12.2 Using the Implementation Sample

The components for this implementation are provided on your installation CD, and are located in:

```
\setup\eXchange\sample\NCPDP_Implementation_Sample.zip.
```

Follow these steps to install the components:

1. Extract the contents of the **NCPDP_Implementation_Sample.zip** file to a temporary location.

2 Start e*Gate Schema Designer.

3 Click **New** and enter a schema name (for example, ncpdp_sample).

4 Select **Create from Export**.

5 Click **Find** and select **NCPDP_Implementation_Sample.exp** from the temporary directory in step 1.

6 Import trading partner profiles into the database using the e*Xchange Repository Manager.

7 Use the **NCPDP.exp** file located in the export directory, to import the schema.

8 Configure the **feeder_ncpdp_request** and **feeder_ncpdp_response** e*Ways to get data from the user-defined directories.

9 In the schema, the NCPDP request data file is located in

```
data\request\PR_I_B3_REQ_ib.~in
```

10 The NCPDP response data file is located in

```
data\response\PR_I_B3_RSP_ob.~in
```

11 Configure the **eX_ePM** e*Way with the database type and name.

12.2.1 Running the Scenario

1 Start the Control Broker. At the command line, enter:

```
stccb.exe -rh localhost -rs <schema_name> -ln localhost_cb -un
Administrator -up STC
```

2 Open the Schema Manager. Select the NCPDP sample schema.

3 Verify that the following components started:

- **eX_ePM** e*Way
- **feeder_ncpdp_request** e*Way
- **feeder_ncpdp_response** e*Way

4 Rename the request data file to :

```
PR_I_B3_REQ_ib.fin.
```

5 View the results in Message Tracking in e*Xchange Partner Manager.

6 Rename the response data file to:

```
PR_I_B3_RSP_ob.fin.
```

7 View the results in Message Tracking in e*Xchange Partner Manager.

To rerun the scenario, change the value in the D2 segment of the sample data. The value in the D2 segment of the request and the response must match in order to make the association.

Viewing the Results in Message Tracking

You can view the results of the message processing by using the Message Tracking feature of e*Xchange.

To view the inbound message in Message Tracking

1. From the e*Xchange Web interface, Main page, select **Message Tracking**.

   The TP Profile Selection page appears.
2. In the Company Profile field, select your company profile name (NCPDP-Sample).
3. In the Trading Partner Profile field, select your Trading Partner Profile (Int-Processor).
4. In the eBusiness Protocol field, select **NCPDP**.
5. In the Direction field, select **Inbound**.
6. Click **Message Profile Selection**.
7. Select the message name.
8. Click the **Message Details** link to view the resulting list after sending the request message.
9. On the same page, click **Refresh** after sending the response message.

   You have completed the NCPDP sample implementation.

Chapter 13

Advanced Configuration

This chapter provides a information on manually creating a Validation Collaboration and adding a custom communication protocol.

13.1 Manually Creating a Validation Rules Collaboration

Validation Collaborations can be created for X12 and UN/EDIFACT using the Validation Collaborations Rules Builder. However, it is possible to build the Validation Collaboration manually.

Validation Collaborations for RosettaNet must be created manually.

13.1.1 Creating a Validation Rules Collaboration for X12 or UN/EDIFACT

The steps required to create the Validation Collaboration are as follows:

1. Create the validation ETD.
2. Create the validation collaboration rules script.

Creating the Validation ETD

The Event Type Definition used for the Validation Collaboration is based on the ETD for the message type. For example, if you were working with X12 4010, then base your validation ETD on X12_4010_100.ssc.

To create a validation ETD

1. Open the generic ETD (for example, X12_4010_100.ssc).
2. Save as a new ETD with a different name (for example, X12_4010_valid_100.ssc).
3. The nodes required for this ETD are those between **ST** and **SE** (ST and SE are required in the structure) for X12 and between **UNH** and **UNT** (UNH and UNT are required in the structure) for UN/EDIFACT. Other nodes should be deleted.
4. Add a node above ST or UNH called **Delimiter**.
5. From the **File** menu, select **Default Delimiters**. Set the following:

Table 103 X12 below Version 4020

Level	Delimiter
1	[2]
2	[0]
3	[1]

Table 104 X12 Version 4020 and above

Level	Delimiter
1	[3]
2	[0]
3	[2]
4	[1]

Table 105 UN/EDIFACT

Level	Delimiter
1	[3]
2	[0]
3	[2]
4	[1]

6 Save the ETD.

Creating the Validation Collaboration

The validation collaboration rule script is used to validate the incoming or outgoing message. The minimum requirement for this script is to create a unique identifier. Additional functionality that can be used as required, for example, to add user defined tests on the data and to send a 997 response.

There is a variable named **error** that is used to determine whether the message has been validated. The default value of error is #f, and this value should be set to #t if an error has occurred and the message should not be processed.

To create the Validation Collaboration

1 Create a new Collaboration Rule Script using the structure created in **"To create a validation ETD" on page 225** as the source ETD. Leave the destination ETD blank.

2 Add a line of code to create a unique identifier for the message. For example:

```
(define unique_id (strftime “%Y%m%d%H$M%S” (time)))
```

Creating a unique identifier for the message is the minimum requirement for the Validation Collaboration.

To reject the message

Set the error variable value to #t if an error has occurred and the message should not be processed using the following line of code.

```
(set! error #t)
```

To send a 997 response

Add the following line of code if you want to send a 997 response, or if you want to reject the message:

```
(define add_997 (ux-track-997-error (list “AK2” (get <ST01 path>) (get <ST02 path>)))
```

where

- <ST01 path> is the path to the ST01 node
- <ST02 path> is the path to the ST02 node

To send a 997 response for an error

When the message is not successfully validated the 997 response can contain AK3 and AK4 information. AK3 contains information about the segment and AK4 contains information about the element in the segment that caused a problem.

To set AK3 information

Add the following line of code:

```
(define add_997 (ux-track-997-error (list “AK3” <SegIDCode> <SegPos> <LoopID>
<SegmentErrorCode>)))
```

where

- <SegIdCode> is the segment ID code, for example “BGN”.
- <SegPos> is the segment position. For example, the first segment has position “1”.
- <LoopID> is the loop identifier.
- <SegmentErrorCode> is a user defined error identifier.

To set AK4 information

Add the following line of code:

```
(define add_997 (ux-track-997-error (list “AK4” <PosInSegment> <DataElementRefNumber>
<DataElementErrorCode> <CopyOfDataElement>)))
```

where

- <PosInSegment> is the element position within the segment.
- <DataElementRefNumber> is the data element reference number as defined for X12.
- <DataElementErrorCode> is a user defined error identifier.
- <CopyOfDataElement> is an optional parameter allowing you to send the data from the element with the error message.

To send information about multiple errors

Error information can be defined in a variable named **error_data**. This needs to be in the format “num^description”, using the ^ character as a delimiter. To send information about multiple errors each number/description pair needs to be delimited by the ~ character. For example:

```
“1^description1~2^description2~3^description3”
```

13.1.2 Creating a Validation Rules Collaboration for RosettaNet

The inbound event for a RosettaNet validation collaboration must represent the format of the Service Content. The Monk ETD files for each RosettaNet PIP Service Content are found in the monk_scripts/templates directory, once you have installed them from the add-on section of the installation CD.

The validation Collaboration Rules Script can be given any name, however it is recommended that it represents what is being validated. For example, eX_ROS_Validate_3A4Request_11_SC.tsc is a RosettaNet 1.1 validation script that checks the 3A4 Request service content. The extension for the validation script must be "tsc", and the script must be located in **monk_scripts/common/ROS/etc**.

To create the Validation Collaboration

1. Create a new Collaboration Rule Script using the required RosettaNet structure as the source ETD. Leave the destination ETD blank.
2. Add the required lines of code.

To reject the message

When creating a validation collaboration, the variable string, **error_data**, should be used to capture all the errors. This variable is defined globally by the calling script, (eX_ROS_main.dsc for RosettaNet 1.1, eX-ROS20-Outb-Main.dsc for RosettaNet 2.0 outbound messages, and eX-ROS20-Inb-Main.dsc for RosettaNet 2.0 inbound messages), so **set!** function should be used each time error_data is reset.

Setting the **error_data** variable to a value other than an empty string causes the message to be rejected. For example:

```
(set! error_data “5101^Missing City Name”)
```

If the variable error_data contains some error information, then the processing takes place with the assumption that there is at least one invalid entry in the Service Content and then the RosettaNet message is rejected. For RosettaNet 1.1, an Inbound message is rejected by sending out a negative Receipt Acknowledgment, and an Outbound message is rejected by sending out an internal failure.

For RosettaNet 2.0 Inbound messages, the validation collaboration should have the following set, in addition to error_data, if an invalid entry is found in the service content:

```
(set! error_code “UNP.SCON.VALERR”)
(set! error_comp “ServiceContent”)
```

If an invalid entry is found for a RosettaNet 2.0 Inbound message, then a Receipt Acknowledgment Exception is sent out if a Receipt Acknowledgment is expected. Also, the invalid message is stored in the e*Xchange database with the associated errors.

For RosettaNet 2.0 Outbound messages, the validation collaboration should set the error_data variable to contain any errors for invalid entries found in the service content. The invalid message is stored in the e*Xchange database with the associated errors. An internal failure message is sent out to the internal application.

To send information about multiple errors

A new error string should be appended to error_data if error_data already contains some errors. Each error must be separated by ~, and within each error, the code and description are separated by ^. For example, error_data may contain "5101^Missing City Name", and then another error is encountered, such as "5118^Invalid Revision Number". A string-append including a ~ separator should be used to be sure both errors are included in error_data. The resulting error_data string would then be

"5101^Missing City Name~5118^Invalid Revision Number"

Using the util-add-to-error function

The **util-add-to-error** function can be used to generate the error string. This function is described below.

Syntax

```
(util-add-to-error existing_error_str new_error_component)
```

Description

util-add-to-error appends the new error component to the existing error string and returns the new error string.

Parameters

Name	Type	Description
existing_error_str	string	The existing error string.
new_error_component	string	The new error component to be appended to the error string.

Return Values

string
Returns the new error string.

Example

The following example first test whether the city name is missing, and then tests if the revision number is invalid. This code assumes that two user defined functions (city-name-missing? and revision-number-invalid?) have been created to test the data.

```
(if (city-name-missing?)
     (set! error_data "5101^Missing City Name")
)
(if (revision-number-invalid?)
     (util-add-to-error (error_data "5118^Invalid Revision Number"))
)

=> sets error_data to "5101^Missing City Name~5118^Invalid Revision Number"
if both errors are found
```

Predefined Validation Scripts

There are some validation scripts included in the installation of e*Gate Schema for e*Xchange scripts. The validation scripts located in monk_scripts/common/ROS/etc for RosettaNet 1.1 are:

- eX_ROS_Validate_3A4Accept_11_SC.tsc
- eX_ROS_Validate_3A4Cancel_11_SC.tsc
- eX_ROS_Validate_3A4Change_11_SC.tsc
- eX_ROS_Validate_3A4Request_11_SC.tsc
- eX_ROS_Validate_PriceAndAvailabilityQuery.tsc
- eX_ROS_Validate_PriceAndAvailabilityResponse.tsc

These validation scripts refer to code files stored in the same location. The file, eX-validation-codes.monk, located in monk_library/eXchange contains reference variables to all the code files used. An example of a variable defined in this file is GLOBAL_COUNTRY_CODES_FILE, which corresponds to the codes file monk_scripts/common/ROS/etc/Global_Country_Codes. Additional code file references can be added to eX-validation-codes.monk, if necessary, for new validation script references. This Monk file gets loaded on startup of e*Xchange.

There are no validation scripts provided for RosettaNet 2.0.

13.2 Adding a Custom Protocol

This section describes how you can define additional protocols to use with e*Xchange.

13.2.1 Adding a Custom Protocol for X12 or UN/EDIFACT

The steps required to create an additional protocol are as follows:

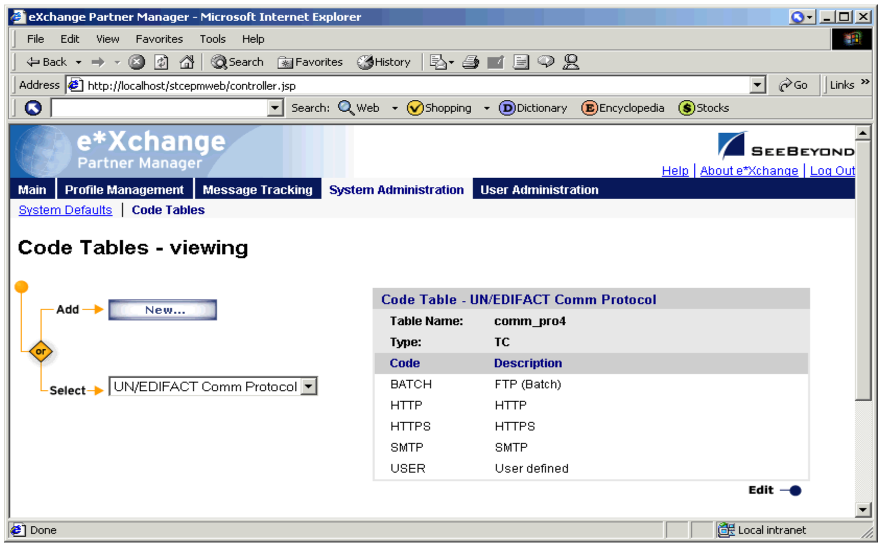
1. Add a Comm Protocol to the Code Table.
2. Add an Event Type for the protocol.
3. Update eX_from_ePM Collaboration Rule to publish the new Event Type.
4. Update eX_from_ePM Collaboration to publish the new Event Type to the eX_Trading_Port_Queue IQ.
5. Edit monk_library\eXchange\eX_ePM_Send_To_External.monk to set the output event.
6. Update eX_from_ePM.tsc to perform an iq-put with the new Event Type, if the new output event is received.

Step 1: Add a Comm Protocol to the Code Table

The UN/EDIFACT and X12 Comm Protocol in the Code table list the protocols that are currently available. Add an additional protocol and assign a name and description.

Figure 93 shows a protocol named USER.

Figure 93 Example Code Table for UN/EDIFACT


eXchange Partner Manager - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Address http://localhost/stcepmweb/controller.jsp
e*Xchange Partner Manager
SeeBeyond
Help | About e*Xchange | Log Out
Main | Profile Management | Message Tracking | System Administration | User Administration
System Defaults | Code Tables
Add New...
or
Select UN/EDIFACT Comm Protocol
Edit
Done
Local intranet

Code Tables - viewing

Code Table - UN/EDIFACT Comm Protocol

Table Name:	comm_pro4
Type:	TC

Code	Description
BATCH	FTP (Batch)
HTTP	HTTP
HTTPS	HTTPS
SMTP	SMTP
USER	User defined

Step 2: Add an Event Type for the Protocol

Use the e*Gate Schema Designer GUI to create a new Event Type in eXSchema. For example, **eX_User**.

Step 3: Update eX_from_ePM Collaboration Rule

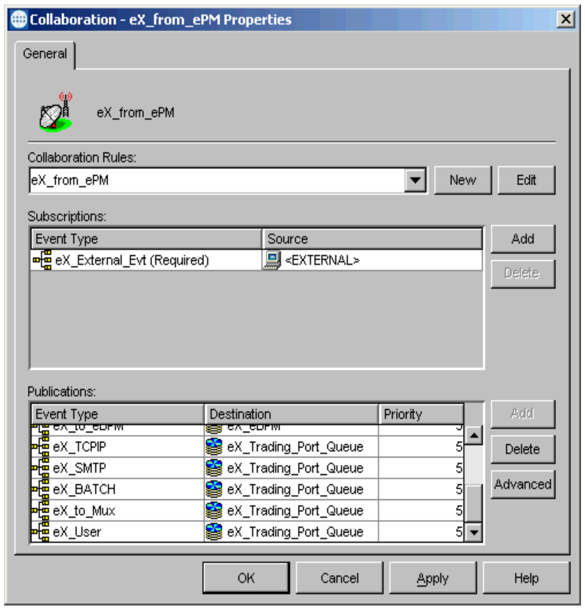
Update the eX_from_ePM Collaboration Rule to publish the Event Type created in Step 2.

Step 4: Update eX_from_ePM Collaboration

Update eX_from_ePM Collaboration to publish the new Event Type to the eX_Trading_Port_Queue IQ.

Figure 94 shows an example configuration using eX_User.

Figure 94 Example eX_from_ePM using eX_User


Collaboration - eX_from_ePM Properties

General

eX_from_ePM

Collaboration Rules: eX_from_ePM

Subscriptions:

Event Type	Source
eX_External_Evt (Required)	<EXTERNAL>

Publications:

Event Type	Destination	Priority
eX_TCPIP	eX_Trading_Port_Queue	5
eX_SMTP	eX_Trading_Port_Queue	5
eX_BATCH	eX_Trading_Port_Queue	5
eX_to_Mux	eX_Trading_Port_Queue	5
eX_User	eX_Trading_Port_Queue	5

Step 5: Update eX_ePM_Send_To_External.monk

Edit monk_libray\eXchange\eX_ePM_Send_To_External.monk to set the output event. Add the following code within the case statement:

```
((<Comm Protocol>)
        (set! out_event "<Comm Protocol Ref>")
    )
```

where

- <Comm Protocol> defines the name given in the code table
- <Comm Protocol Ref> is a used defined name with exactly five characters

Example code for the USER protocol:

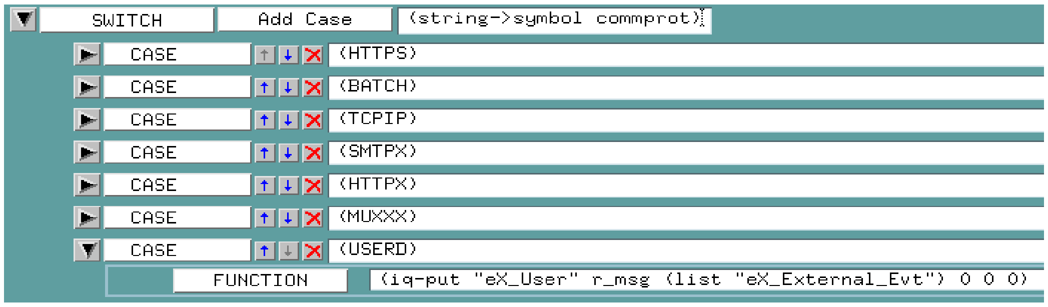
```
((USER)
        (set! out_event "USERD")
    )
```

Step 6: Update eX_from_ePM.tsc

Update eX_from_ePM.tsc to perform an iq-put with the new Event Type, if the new output event is received. This should be added within the case statement that checks for the comm protocol.

Figure 95 shows an example script.

Figure 95 Example eX_from_ePM.tsc



```
SWITCH    Add Case    (string->symbol commprot)
    CASE    (HTTPS)
    CASE    (BATCH)
    CASE    (TCPIP)
    CASE    (SMTPX)
    CASE    (HTTPX)
    CASE    (MUXXX)
    CASE    (USERD)
        FUNCTION    (iq-put "eX_User" r_msg (list "eX_External_Evt") 0 0 0)
```

13.2.2 Adding a Customer Protocol for RosettaNet 1.1

The steps required to create an additional protocol are as follows:

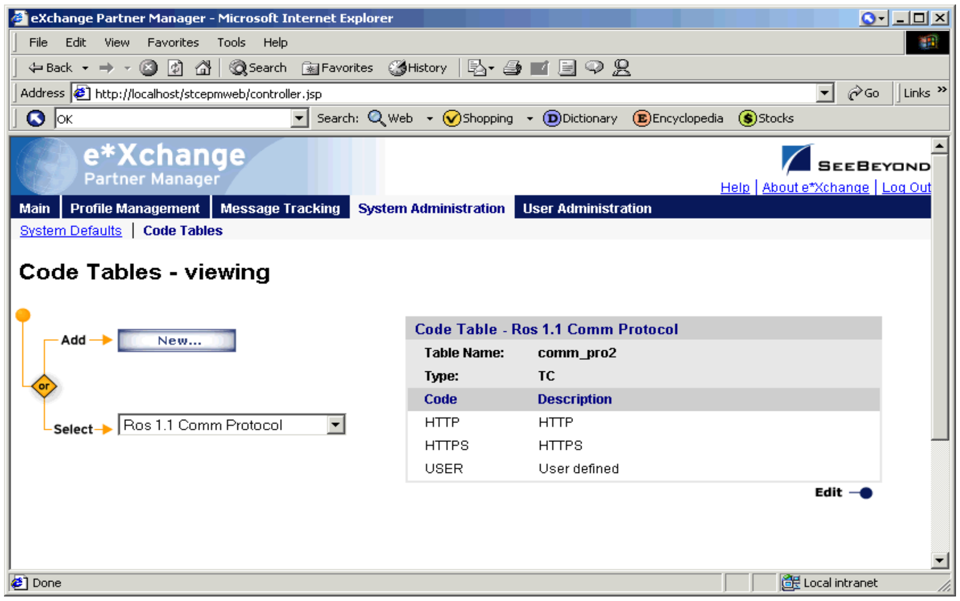
1. Add a Comm Protocol to the Code Table.
2. Add an Event Type for the protocol.
3. Update eX_from_ePM Collaboration Rule to publish the new Event Type.
4. Update eX_from_ePM Collaboration to publish the new Event Type to the eX_Trading_Port_Queue IQ.
5. Edit monk_scripts\common\ROS\eX_ROS_main.dsc to set the output event.
6. Update eX_from_ePM.tsc to perform an iq-put with the new Event Type, if the new output event is received.
7. (Optional, for use with Ack Monitor) Update ack_mon.dsc to support resends for RosettaNet.

Step 1: Add a Comm Protocol to the Code Table

The ROS 1.1 Comm Protocol in the Code table lists the protocols that are currently available. Add an addition protocol and assign a name and description.

Figure 96 shows a protocol named USER.

Figure 96 Example Code Table for RosettaNet 1.1


eXchange Partner Manager - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Address http://localhost/stcepmweb/controller.jsp
e*Xchange Partner Manager
SeeBeyond
Help | About e*Xchange | Log Out
Main | Profile Management | Message Tracking | System Administration | User Administration
System Defaults | Code Tables
Code Tables - viewing
Add New...
or
Select Ros 1.1 Comm Protocol
Edit
Done
Local intranet

Code Table - Ros 1.1 Comm Protocol

Table Name:	comm_pro2
Type:	TC
Code	**Description**
HTTP	HTTP
HTTPS	HTTPS
USER	User defined

Step 2: Add an Event Type for the Protocol

Use the e*Gate Schema Designer GUI to create a new Event Type in eXSchema. For example, **eX_User**.

Step 3: Update eX_from_ePM Collaboration Rule

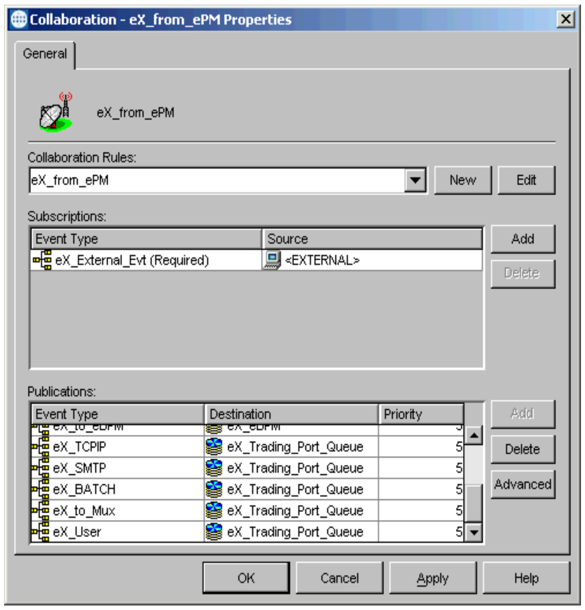
Update the eX_from_ePM Collaboration Rule to publish the Event Type created in Step 2.

Step 4: Update eX_from_ePM Collaboration

Update eX_from_ePM Collaboration to publish the new Event Type to the eX_Trading_Port_Queue IQ.

Figure 97 shows an example configuration using eX_User.

Figure 97 Example eX_from_ePM using eX_User



Collaboration - eX_from_ePM Properties

General

eX_from_ePM

Collaboration Rules: eX_from_ePM

Subscriptions:

Event Type	Source
eX_External_Evt (Required)	<EXTERNAL>

Publications:

Event Type	Destination	Priority
eX_to_eBPM	eX_eBPM	5
eX_TCPIP	eX_Trading_Port_Queue	5
eX_SMTP	eX_Trading_Port_Queue	5
eX_BATCH	eX_Trading_Port_Queue	5
eX_to_Mux	eX_Trading_Port_Queue	5
eX_User	eX_Trading_Port_Queue	5

Step 5: Update eX_ROS_main.dsc

Modify **monk_scripts/common/ROS/eX_ROS_main.dsc**. Search for lines that specify "HTTPS". Replace all incidences of HTTPS with g_commport, so the new communication protocol just added is included in the outgoing message, and does not default to HTTPS.

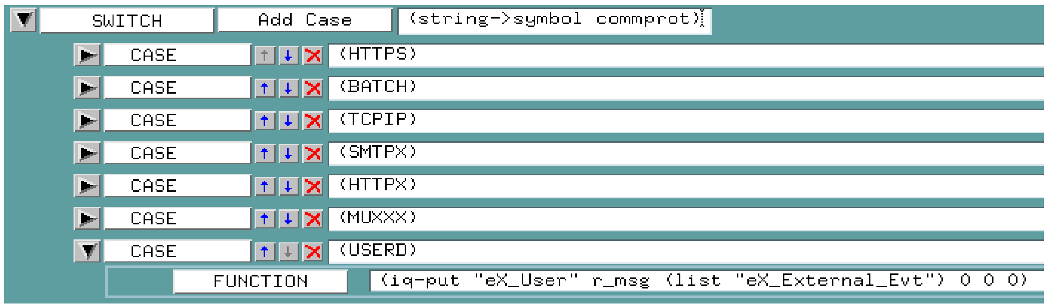
It is necessary to ensure that g_commport has exactly 5 characters. If the new protocol name is not exactly five characters then reset g_commport to a five character string in this script. For example, reset g_commport from “USER” to “USERD”.

Step 6: Update eX_from_ePM.tsc

Update eX_from_ePM.tsc to perform an iq-put with the new Event Type, if the new output event is received. This should be added within the case statement that checks for the comm protocol.

Figure 98 shows an example script.

Figure 98 Example eX_from_ePM.tsc



```
SWITCH      Add Case    (string->symbol commprot)
    CASE    (HTTPS)
    CASE    (BATCH)
    CASE    (TCPIP)
    CASE    (SMTPX)
    CASE    (HTTPX)
    CASE    (MUXXX)
    CASE    (USERD)
        FUNCTION    (iq-put "eX_User" r_msg (list "eX_External_Evt") 0 0 0)
```

Step 7: Modify ack_mon.dsc

Modify the event-send-to-egate function in ack_mon.dsc to support RosettaNet resends from Ack Monitor. You need to add support for the new comm protocol since the default is HTTPS in the file.

Find the following section in the code:

```
(event-send-to-egate (string-append “R|O|HTTPS” (get ~output%eX_Event)))
```

Replace HTTPS with g_commport, so the new communication protocol just added is included in the outgoing message, and does not default to HTTPS.

It is necessary to ensure that g_commport has exactly 5 characters. If the protocol name is not exactly five characters then reset g_commport to a five character string in this script. For example, reset g_commport from “USER” to “USERD”, or from “HTTP” to “HTTPS”.

13.2.3 Adding a Customer Protocol for RosettaNet 2.0

The steps required to create an additional protocol are as follows:

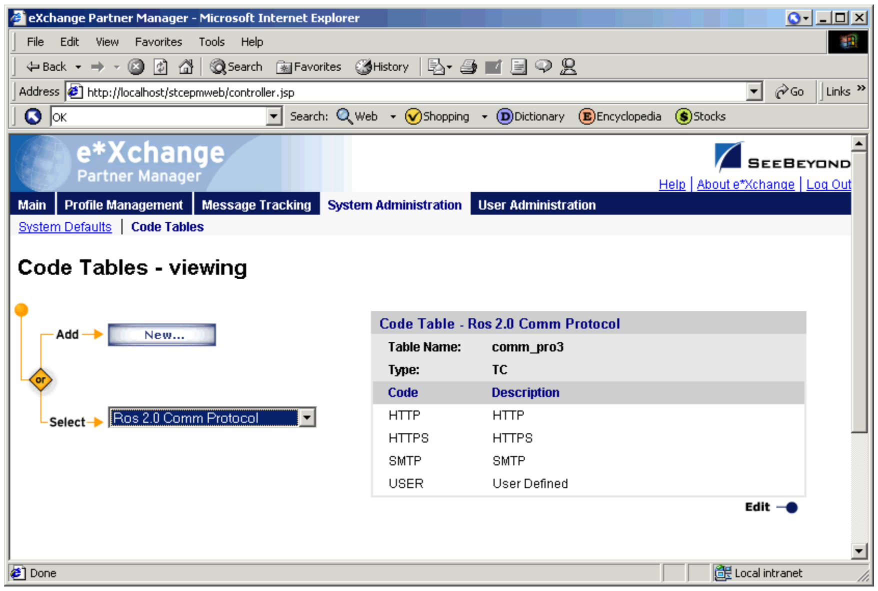
1. Add a Comm Protocol to the Code Table.
2. Add an Event Type for the protocol.
3. Update eX_from_ePM Collaboration Rule to publish the new Event Type.
4. Update eX_from_ePM Collaboration to publish the new Event Type to the eX_Trading_Port_Queue IQ.
5. Edit monk_scripts/common/ROS/eX-ROS20-Send-To-Egate.monk to set the output event.
6. Update eX_from_ePM.tsc to perform an iq-put with the new Event Type, if the new output event is received.

Step 1: Add a Comm Protocol to the Code Table

The Comm Protocol in the Code table lists the protocols that are currently available. Add an addition protocol and assign a name and description.

Figure 99 shows a protocol named USER.

Figure 99 Example Code Table for RosettaNet 2.0


eXchange Partner Manager - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites History
Address http://localhost/stcepmweb/controller.jsp
Go Links
e*Xchange Partner Manager
SEEBEYOND
Help | About e*Xchange | Log Out
Main | Profile Management | Message Tracking | System Administration | User Administration
System Defaults | Code Tables
Code Tables - viewing
Add New...
or
Select Ros 2.0 Comm Protocol
Edit
Done
Local intranet

Code Table - Ros 2.0 Comm Protocol

Table Name:	comm_pro3
Type:	TC
Code	**Description**
HTTP	HTTP
HTTPS	HTTPS
SMTP	SMTP
USER	User Defined

Step 2: Add an Event Type for the Protocol

Use the e*Gate Schema Designer GUI to create a new Event Type in eXSchema. For example, **eX_User**.

Step 3: Update eX_from_ePM Collaboration Rule

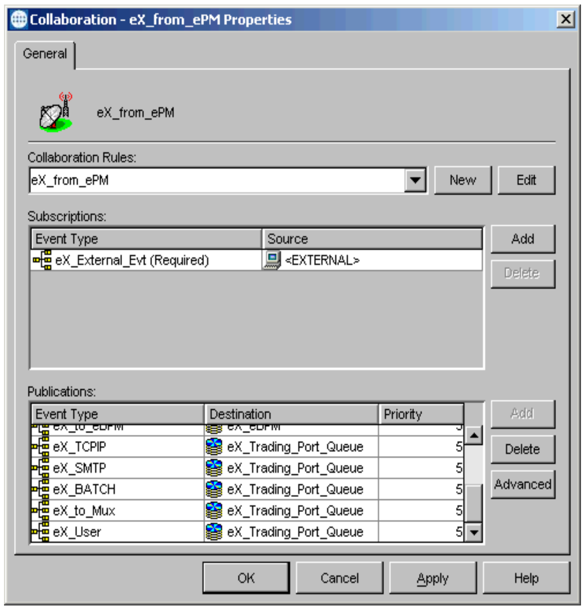
Update the eX_from_ePM Collaboration Rule to publish the Event Type created in Step 2.

Step 4: Update eX_from_ePM Collaboration

Update eX_from_ePM Collaboration to publish the new Event Type to the eX_Trading_Port_Queue IQ.

Figure 100 shows an example configuration using eX_User.

Figure 100 Example eX_from_ePM using eX_User



Collaboration Rules: eX_from_ePM

Subscriptions:

Event Type	Source
eX_External_Evt (Required)	<EXTERNAL>

Publications:

Event Type	Destination	Priority
eX_to_ePM	eX_ePM	5
eX_TCPIP	eX_Trading_Port_Queue	5
eX_SMTP	eX_Trading_Port_Queue	5
eX_BATCH	eX_Trading_Port_Queue	5
eX_to_Mux	eX_Trading_Port_Queue	5
eX_User	eX_Trading_Port_Queue	5

Step 5: Update eX_ROS_Send_To_Egate.monk

Edit monk_scripts/common/ROS/eX_ROS20_Send_To_Egate.monk to set the output event. This step also enables Ack Monitor to handle the new protocol. Find eX-ROS20-Forward-To-TP function and add the following if statement:

```
(if (string-ci=? comm_port "<Comm Protocol>")
    (begin
      (set! comm_port "<Comm Protocol Ref>")
    )
    (begin
    )
  )
```

where

- <Comm Protocol> defines the name given in the code table
- <Comm Protocol Ref> is a used defined name with exactly five characters

Example code for the USER protocol:

```
(if (string-ci=? comm_port "USER")
    (begin
      (set! comm_port "USERD")
    )
    (begin
    )
  )
```

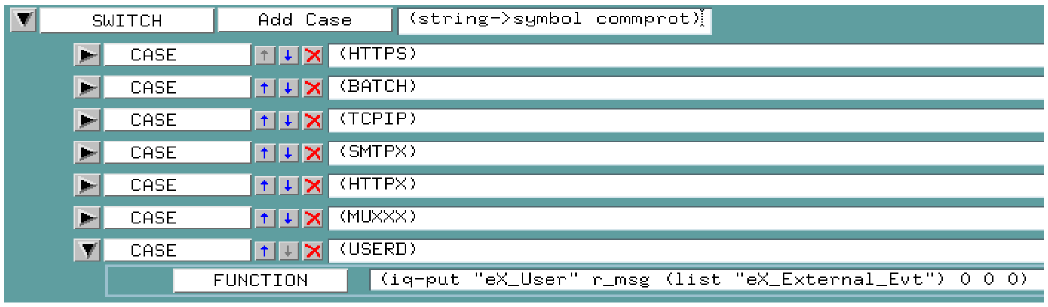
In addition to setting the comm_port, rules for copying and setting values in the outgoing message should be added within the if statement for this new protocol.

Step 6: Update eX_from_ePM.tsc

Update eX_from_ePM.tsc to perform an iq-put with the new Event Type, if the new output event is received. This should be added within the case statement that checks for the comm protocol.

Figure 101 shows an example script.

Figure 101 Example eX_from_ePM.tsc



```
SWITCH      Add Case      (string->symbol commprot)
    CASE      (HTTPS)
    CASE      (BATCH)
    CASE      (TCPIP)
    CASE      (SMTPX)
    CASE      (HTTPX)
    CASE      (MUXXX)
    CASE      (USERD)
        FUNCTION      (iq-put "eX_User" r_msg (list "eX_External_Evt") 0 0 0)
```

Chapter 14

e*Xchange Partner Manager Functions

This chapter provides information on the e*Xchange APIs. These APIs are divided into three groups based on their use within e*Xchange. These groups are:

- e*Xchange helper functions (used when working with the e*Xchange ETD) see **"e*Xchange Helper Monk Functions" on page 241**
- e*Xchange Partner Manager functions (used by the e*Xchange) see **"e*Xchange Functions" on page 248**
- Validation Rules Builder functions (used by the validation Collaborations created by the VRB) see **"Monk Functions Used by the Validation Rules Builder" on page 363**
- Mime functions, see **"e*Xchange MIME Functions" on page 373**
- RosettaNet 2.0 functions, see **"e*Xchange RosettaNet 2.0 Functions" on page 380**
- Security functions, see **"e*Xchange Security Functions" on page 418** and **"AS2 Security Functions" on page 433**.
- e*Xchange NCPDP supported functions, see **"NCPDP Functions" on page 449**.

14.1 e*Xchange Helper Monk Functions

A number of Monk functions have been added to make it easier to set information in the e*Xchange Event (eX_Standard_Event.ssc ETD) and to get information from it. These functions are contained in two files:

- **eX-ePM-utils.monk**

Important: *Make sure that the Monk file **eX-ePM-utils.monk**, containing the e*Xchange helper functions, are loaded before calling them in a Collaboration Rules Script. You can do this in several ways, by putting them in the root of the **monk_library** directory, loading them explicitly in your CRS, or using the **eX-init-eXchange** bootstrap file to load them via the Collaboration Rule. See* **"Convert the Event to Base 64 Encoding" on page 62** *for an example of how to use the **eX-init-eXchange** bootstrap file in a Collaboration Rule.*

eX-set-TP_EVENT

Syntax

```
(eX-set-TP_EVENT root-path event-type value)
```

Description

eX-set-TP_EVENT sets the value of the specified event type.

Parameters

Name	Type	Description
root-path	path	Either ~input%eX_Event or ~output%eX_Event
event-type	string	Either PARTNERNAME, MESSAGEID, ORIGEVENTCLASS, USAGEINDICATOR, COMMPROT, URL, INTERNALNAME, or DIRECTION
value	string	The value to which you want to set the event type. For event-type "DIRECTION" value must be I or O. For event-type "USAGEINDICATOR" value must be P or T.

Return Values

Boolean

Returns **#t** (true) except when an invalid parameter is passed, then **#f** (false) is returned.

Throws

None.

Example

```
(eX-set-TP_EVENT ~input%eX_Event "PARTNERNAME" "Acme Inc.")

=> sets the trading partner name to "Acme Inc."
```

eX-get-TP_EVENT

Syntax

```
(eX-get-TP_EVENT root-path event-type)
```

Description

eX-get-TP_EVENT finds the path to the value of the specified event type in the e*Xchange Event named in the root-path.

Parameters

Name	Type	Description
root-path	path	Either ~input%eX_Event or ~output%eX_Event
event-type	string	Either PARTNERNAME, MESSAGEID, ORIGEVENTCLASS, USAGEINDICATOR, COMMPROT, URL, INTERNALNAME, DIRECTION, or PAYLOAD

Return Values

Returns one of the following values:

Boolean
Returns **#f** (false) if the value for TP_EVENT is not found.

Returns **#f** (false) if the attribute is not found.

path
Returns the path to the value found at the TP_EVENT node location. Use **get** to return the actual value.

Throws

None.

Example

For an Event with a partner name of "Acme Inc.":

```
(get (eX-get-TP_EVENT ~input%eX_Event "PARTNERNAME"))

=> Acme Inc.
```

eX-set-Payload

Syntax

```
(eX-set-Payload root-path encrypt-type value)
```

Description

eX-set-Payload sets the value of the payload.

Parameters

Name	Type	Description
root-path	path	Either ~input%eX_Event or ~output%eX_Event
encrypt-type	string	RAW, PROCESSED, ENCRYPTED.
value	string	The value to which you want to set the payload.

Return Values

Returns one of the following values:

Boolean

Returns **#t** (true) except when an invalid parameter is passed, then **#f** (false) is returned.

Throws

None.

Example

```
(eX-set-Payload ~input%eX_Event "RAW" "Have a nice day!")

=> sets the payload to "Have a nice day!"
```

eX-count-TP-attribute

Syntax

```
(eX-count-TP-attribute root-node)
```

Description

eX-count-TP-attribute searches the e*Xchange Event for the number of trading partner attributes using the name/value pair format stored in the repeating **TPAttribute** node in the TP_EVENT portion of the e*Xchange Event.

Parameters

Name	Type	Description
root-node	path	Either ~input%eX_Event or ~output%eX_Event

Return Values

Returns the following:

integer
Number of TPAttribute name/value pairs.

Throws

None.

Example

For a e*Xchange Event that has 3 TPAttributes:

```
(eX-count-TP-attribute ~input%eX_Event)

=> 3
```

eX-get-TP-attribute

Syntax

```
(eX-get-TP-attribute root-node name)
```

Description

eX-get-TP-attribute finds the attribute value in the e*Xchange Event named in the root-node.

Parameters

Name	Type	Description
root-node	path	Either ~input%eX_Event or ~output%eX_Event
name	string	Name of the trading partner attribute you want to get.

Return Values

Returns the following:

string
Returns the value associated with the TPAttribute name.

Throws

None.

Example

```
(eX-get-TP-attribute ~input%eX_Event "COMM_PROT")

=> "X12"
```

eX-set-TP-attribute

Syntax

```
(eX-set-TP-attribute root-node name value)
```

Description

eX-set-TP-attribute creates an entry in the e*Xchange Event under the TPAttribute repeating node for the specified name/value pair.

Parameters

Name	Type	Description
root-node	path	Either ~input%eX_Event or ~output%eX_Event
name	string	The name of the TP attribute whose value you want to set.
attribute	string	The value to which you want to set the TP attribute.

Return Values

None.

Throws

None.

Example

```
(eX-set-TP-attribute ~output%eX_Event "COMM_PROT" "X12")

=> creates an entry in the e*Xchange Event under TPAttribute for the
name/value pair COMM_PROT/X12.
```

14.2 e*Xchange Functions

The specialized e*Xchange Monk functions used by e*Xchange are:

ux-ack-handler

Syntax

```
(ux-ack-handler connection-handle ack-stat)
```

Description

ux-ack-handler performs message association for an inbound or outbound business message.

Note: *If the acknowledgment is to be stored in the database, then **ux-store-msg** should be called before **ux-ack-handler** to store the ack.*

Parameters

Name	Type	Description
connection-handle	connection-handle	Required. The previously established connection to the database.
ack-stat	list: ack_tm ack_type level mtrk_id unique_id error_data direction out_queue resp_id sub-list	Required. Information about the acknowledgment. All list arguments must be strings, except for the sub-lists which are lists containing strings. All elements before the sub-list section are required, but can be empty strings (""), with the exception of ack_type, level, unique_id and direction, which return an error if no value is provided. The first sub-list is required.

Name	Type	Description
ack-stat	**List member**	**Description**
	ack_tm	The date and time (yyyymmddhhmmss format).
	ack_type	Identifies the kind of acknowledgment (positive or negative): P—Positive acknowledgment N—Negative acknowledgment
	level	Required. Specifies the level of the original message: I—B2B Protocol level information T—Message Profile level information
	mtrk_id	Optional—future versions may use this value to store messages.
	unique_id	The unique identifier for the original message.
	error_data	Error information—code^description~code^description (^ separates the values for an error and ~ separates the errors).
	direction	Required. Indicates the direction of the message: I—Inbound O—Outbound
	out_queue	Indicates whether the message is placed in es_out_queue: Y—Yes N—No
	resp_id	Optional—tpts_id for Message Profile or tpic_id for B2B Protocol This needed when the message received by e*Xchange is not known to be an original message or response.

Return Values

Returns one of the following values:

String
Returns **mtrk_id**, if found and the row is updated.

Boolean
Returns **#t** (true) if the acknowledgment processed successfully; otherwise, returns **#f** (false). Use the **ux-get-error-str** API to retrieve the corresponding error message.

Throws

Exception-InvalidArg, Exception-Mapping, Exception-Catastrophic (can't be caught).

Additional Information

ux-ack-handler updates es_mtrk_outb or es_mtrk_inb, es_waiting_ack, and es_mtrk_error database tables based on the global transact info associated with the acknowledgment just received.

ux-ack-handler does the following:

- Receives a database connection handle and a list of information about the acknowledgment from the calling process.
- Updates es_mtrk_inb.ack_que_tm and es_mtrk_inb.ack_msg_id if direction is "I". For direction = "O", updates es_mtrk_outb.ack_tm and es_mtrk_outb.ack_msg_id, and deletes a row from es_waiting_ack table corresponding to the original mtrk_outb_id.
- If the acknowledgment tran_set_id does not match the expected tran_set_id and the ack_type = "P", then the acknowledgment is ignored.
- Returns a value to the calling process that indicates whether or not it was successful.

Based on values of mtrk_id and resp_id in ack-stat, **ux-ack-handler** performs the following:

- If mtrk_id is provided, but resp_id is not provided, then **ux-ack-handler** uses mtrk_id to update the correct mtrk row in the database
- If resp_id is provided, but mtrk_id is not provided, then **ux-ack-handler** tries to find the corresponding request_ids (es_ids) by looking to see if the resp_id is part of RTN_TS_ID values. Then it uses any found request_ids (es_ids), unique_id, and extended list after ID part to find mtrk_id. If no corresponding request_ids (es_ids) are found or no mtrk_id is found, then the resp_id is treated as a request_id (es_id).
- If mtrk_id is provided and resp_id is provided, then **ux-ack-handler** ignores resp_id and uses only mtrk_id to update the correct row in the mtrk table.
- If mtrk_id is not provided and resp_id is not provided, then **ux-ack-handler** uses the given criteria (unique_id, global structures, and extended data) to find the correct mtrk row to update.

Example

The following Monk script example calls **ux-ack-handler**. This script makes two assumptions:

- That **ux-init-trans** was executed successfully for the given acknowledgment.
- That a connection to the database, **conn-handle**, has been established before **ux-ack-handler** is called.

ux-ack-handler uses the unique_id "TESTVAL129" to find the appropriate row to update in es_mtrk_outb.

If successful, then ack-msg is placed in es_mtrk_outb.ack_msg_id in the same row as the original message. Ack-code "Negative" and ack-tm set as the current time are also stored in es_mtrk_outb.

If **ux-ack-handler** fails, then the error, **ux-get-error-str**, is displayed.

```
(define ack-stat (list "" ; ack_tm
         "N" ; ack_type
         "T"; level
         ""  ; mtrk_id
         "TESTVAL129" ; unique_id
         "12345^Bad dept code~56789^Invalid bed" ; error_data
         "O" ; direction
         "N" ; out_queue
         ""  ; resp_id
         ""
        ))
(if (not (ux-ack-handler connection-handle ack-stat))
(begin
    (display "Ack Handler failed!\n")
    (display (ux-get-error-str))
    (newline)
)
    (display "Ack Handler succeeded!\n")
)
```

ux-ack-monitor

Syntax

```
(ux-ack-monitor connection-handle wa-id)
```

Description

ux-ack-monitor processes messages that have overdue acknowledgments.

Parameters

Name	Type	Description
connection-handle	connection-handle	Required. The previously established connection to the database.
wa-id	string	Required. The ID of an es_waiting_ack record.

ux-ack-monitor processes messages as described below:

Return Values

Returns one of the following values:

Boolean

Returns #t (true) if the API is successful and no records exceeded the retry max; otherwise, returns #f (false) if an error occurs and the API is not successful. Use ux-get-error-str to retrieve the corresponding error message.

Vector

Returns a vector of mtrk_outb_ids and associated original msgs for all mtrk_outb_ids associated with the waiting_ack_id that achieved the retry max.

This vector should not contain duplicate msgs. Therefore it is possible that one mtrk_outb_id represents all the mtrk_outb_ids that have the same orig_msg_id.

This vector takes the following form: (mtrk_outb_id1 msg1 mtrk_outb_id2 msg2 ...)

Throws

Exception-InvalidArg, Exception-Catastrophic (can't be caught).

Additional Information

ux-ack-monitor receives, as a parameter, the record ID of a record in the es_waiting_ack table that has an expired acknowledgment time. This occurs when e*Xchange Partner Manager did not receive an acknowledgment message within the time allotted by the trading partner profile. The API determines the transaction type (X12 or RosettaNet), the transfer mode (Interactive or Batch), and the message send count as compared to the maximum resend count allowed.

For interactive messages:

If the passed in waiting_ack_id has not hit the maximum allowable retries then the following occurs:

1 The next send time is updated for this waiting_ack_id and all es_waiting_ack rows that refer to the same original message (es_mtrk_outb.orig_msg_id).

2 **ux-ack-monitor** increments send count for this row all rows with same es_mtrk_outb.orig_msg_id.

3 The send count is updated in the es_waiting_ack and es_mtrk_outb tables, and an entry is inserted into the es_out_queue so that the message is resent to the trading partner by the e*Xchange Transaction Polling e*Way.

If the waiting_ack_id that was passed in has exceeded the maximum allowable retries then:

1 **ux-ack-monitor** stores an error for each es_mtrk_outb row that has the same es_mtrk_outb.env_msg_id as the waiting_ack_id, and the es_mtrk_outb.ack_msg_id is NULL (have not received an ack).

2 All rows in es_waiting_ack that have the same es_mtrk_outb.orig_msg_id as the passed in waiting_ack_id are deleted.

For batch messages:

If the passed in waiting_ack_id has not hit the maximum allowable retries then:

1 X12 (TS level) - Removes all env_msg_id rows associated with passed in waiting_ack_id and nulls out control numbers, so batch process resends.

X12 (IC level) - All TS records that are subsets of IC es_mtrk_outb record referred to by waiting_ack_id passed in, and those records that have rtn_rcpt set to 'N' have all similar env_msg_id rows removed, IC_CONTROL_NUM is set to the value held in IC_BATCH, and FGI_CONTROL_NUM is set to the value held in FGI_BATCH. This allows the batch process to perform a resend. **ux-ack-monitor** stores an error for the IC level es_mtrk_outb record that it has timed out.

EDF - Removes all env_msg_id rows associated with passed in waiting_ack_id, IC_CONTROL_REF is set to the value held in IC_BATCH, and FGI_CONTROL_REF is set to the value held in FGI_BATCH, so batch process resends.

2 all rows in es_waiting_ack that have the same es_mtrk_outb.orig_msg_id as the passed in waiting_ack_id are deleted.

If the passed in waiting_ack_id has exceeded the maximum allowable retries then:

1 **ux-ack-monitor** stores an error for each es_mtrk_outb row that has the same es_mtrk_outb.env_msg_id as the waiting_ack_id, and the es_mtrk_outb.ack_msg_id is NULL (have not received an ack).

2 all rows in es_waiting_ack that have the same es_mtrk_outb.orig_msg_id as the passed in waiting_ack_id are deleted.

Example

The following example passes a record ID of 75 from the es_waiting_ack table. The function assumes that the record has already been identified as having timed out. If a vector is returned then information about each mtrk_outb_id is written to the log and the database changes made are committed. If the function returns **#t** (true), the database changes made are committed. If **#f** (false) is returned (indicating an error) a rollback is committed to roll back any database changes that may have occurred before the error was encountered.

```
(define mtrk_outb_id_msgs (ux-ack-monitor connection-handle "75"))
(cond ((not (boolean? mtrk_outb_id_msgs))
 (do ((i 0 (+ i 1)) (value-count (vector-length mtrk_outb_id_msgs)))
     ((= i value-count))
            (display "mtrk_outb_id <")
            (display i)
            (display "> = ")
            (display (vector-ref mtrk_outb_id_msgs i))
            (newline)
            (set! i (+ i 1))
            (display "msg = ")
            (display (vector-ref mtrk_outb_id_msgs i))
            (newline)
  )
  (db-commit connection-handle)
 )
 (else
       (begin
        (if (eq? #t mtrk_outb_id_msgs)
          (begin
           (display "ux-ack-monitor succeeded - no mtrk_outb_ids hit
retry max")
           (db-commit connection-handle)
          )
          (begin
           (display (ux-get-error-str))
           (db-rollback connection-handle)
          )
        )
      )
 )
)
```

ux-check-shutdown-uid

Syntax

```
(ux-check-shutdown-uid connection-handle id level unique_id)
```

Description

ux-check-shutdown-uid compares unique_id provided with ones in es_sd_data. If there is a match, then it returns a full unique_id and deletes the row from es_sd_data table.

Parameters

Name	Type	Description
connection-handle	connection-handle	Required. The previously established connection to the database.
id	string	Required. Either tpic_id or tpts_id.
level	string	Required. The level of the control number. Valid values: I—Indicates ID is tpic_id T—Indicates ID is tpts_id
unique_id	string	Required. The string that uniquely identifies the transaction.

Return Values

Returns one of the following values:

string
Returns a string containing the unique_id from es_sd_data table if the combination of tpts_id, or tpic_id, level, and unique_id is found.

Boolean
Returns **#t** (true) if the combination of tpts_id, or tpic_id, level, and unique_id is not found in the es_sd_data table.

Returns **#f** (false) if a problem occurs.

Throws

None.

Example

```
(define unique_id "AAAAA")
(define orig_tpts_id "1")
(define check-result (ux-check-shutdown-uid connection-handle
                         orig_tpts_id "T" unique_id)
)
```

ux-control-check

Syntax

```
(ux-control-check control-num level type)
```

Description

ux-control-check determines whether the control number provided in an inbound Message Profile or B2B Protocol is valid.

It does the following:

- Checks the es_ext_detail and es_ext_data tables for the control numbers.
- Determines whether the control number in the message is valid; that is, whether message control num is greater than database control num.

Parameters

Name	Type	Description
control-num	string	Required. The control number to validate.
level	string	Required. The level of the control number. Valid values: I—Interchange control number G—Functional group control number T—Transaction set control number
type	string	O—Original A—Ack

Return Values

Returns one of the following values:

String

Returns "Y" if the control number is valid; otherwise returns "N" if the control number is not valid.

Boolean

Returns **#f** (false) if the API fails. Use **ux-get-error-str** to retrieve the corresponding error message.

Throws

Exception-InvalidArg, Exception-Catastrophic (can't be caught).

Additional Information

ux-control-check compares the control numbers that are found to the values in the global structures, which represent the values in the database. The values should be as follows:

Level	Global Structure Control Number
T	g_ts->ext_data.col_value and g_ts->ext_data.col_name = "T_CONTROL_NUM"

Level	Global Structure Control Number
G	g_ic->ext_data.col_value and g_ic->ext_data.col_name = "G_CONTROL_NUM"
I	g_ic->ext_data.col_value and g_ic->ext_data.col_name = "I_CONTROL_NUM"

The message's control number is valid if either of the following two conditions is true:

- The message's control number is greater than the database control number, or
- The message's control number is 1 or 0 and the database control number is the maximum (9999999999).

If the database control number is at the maximum, the next time it is incremented it starts over.

The control number must contain only numeric characters, and it must be greater than the number stored in the database/global structures. The control number can have leading zeros.

Example

The following Monk script example calls **ux-control-check** with the assumption that **ux-init-trans** was executed successfully for the given message. **ux-control-check** compares the given control-num "1005" and level "G" with the g_control_num stored in the database, g_ic->ext_data.col_value where g_ic->ext_data.col_name = "G_CONTROL_NUM". If "1005" is greater than g_ic->ext_data.col_value where g_ic->ext_data.col_name = "G_CONTROL_NUM", then con-res = "Y", otherwise con-res = "N". If an error occurs, then **#f** is returned and the error string is printed using the display of **ux-get-error-str**.

```
(define control-num "1005")
(define level "G")
(define type "O")

 (define con-res (ux-control-check control-num level type))
   (cond ((not (boolean? con-res))
      (cond ((string-ci=? "Y" con-res)
               (display "Control Number is valid\n")
             )
             (else
               (display "Control Number is NOT valid\n")
             )
           )
    )
    (else
        (display (ux-get-error-str))
        (newline)
    )
 )
```

ux-dbproc-ros-inb

Syntax

```
(ux-dbproc-ros-inb connection-handle msg list_of_rn_pars)
```

Description

ux-dbproc-ros-inb handles message tracking and acknowledgment for an inbound RosettaNet message that e*Xchange receives from a trading partner.

Parameters

Name	Type	Description
connection-handle	connection-handle Required.	The previously established connection to the database.
msg	String	The raw message received from the trading partner.
List_of_rn_pars	list: global_proc_ind_code global_proc_id global_trans_code global_trans_id global_sigact_code global_sigact_id inrespto_sigact_code inrespto_sigact_id rec_ack_time acc_ack_time perform_time ext_data_col_name ext_data_col_value …	Required. RosettaNet transaction information. All list arguments must be strings. Any number of ext_data_col_name---ext_data_col_value pairs can be specified as long as they are specified in pairs. All elements are required, but can be empty strings ("").
	List member	**Description**
	global_proc_ind_code	The RosettaNet global process indicator code.
	global_proc_id	The RosettaNet global process ID.
	global_trans_code	The RosettaNet global transaction code.
	global_trans_id	The RosettaNet global transaction ID.
	global_sigact_code	The RosettaNet global action code or signal code. This depends on whether the message is a RosettaNet business action or business signal.
	global_sigact_id	The RosettaNet global action code or signal ID. This depends on whether the message is a RosettaNet business action or business signal.

Name	Type	Description
	inrespto_sigact_code	If the message is a RosettaNet business signal or an action that is a response to another action, this field is the global action code for the original action.
	inrespto_sigact_id	If the message is a RosettaNet business signal or an action that is a response to another action, this field is the global action ID for the original action.
	rec_ack_time	Time allowed to acknowledge the receipt of the message.
	acc_ack_time	Time allowed to acknowledge the acceptance of the message.
	perform_time	Time to carry out the action specified in the message and provide a response.
	ext_data_col_name	Optional. Field name for any external data to be saved with the message.
	ext_data_col_value	Optional, but must appear in pair with ext_data_col_value. This value is assigned to the external data field with the corresponding ext_data_col_name as the column name. Any external data, if specified, are saved with the message.
	...	More ext_data_col_name --- ext_data_col_value pairs.

Return Values

Returns one of the following values:

String

Returns a string indicating what action to take, when the function executes successfully.

Return String	Action to Take
SEND_BPFAILURE_TO_EGATE	Send a standard event to the eX_eBPM queue indicating failure of the process.
SEND_REC_ACK_TO_TP	Send a receipt acknowledgment to the eX_Trading_Port_Queue.
SEND_ACC_ACK_TO_TP	Send an acceptance acknowledgment to the eX_Trading_Port_Queue.
SEND_MSG_TO_EGATE	Send the original message to the eX_eBPM queue.
SEND_MSG_TO_TP	Send the original message to the eX_Trading_Port_Queue.

Boolean

Returns **#f** (false) when the function fails to complete successfully.

Note: *Before sending an acknowledgment to the eX_Trading_Port_Queue, it is the caller's responsibility to save the acknowledgment message using ux_store_msg and to register it as a response message to the original message using ux_ack_handler.*

Throws

Exception-InvalidArg, Exception-Mapping, Exception-Catastrophic (can't be caught).

Additional Information

ux-dbproc-ros-inb does the following:

- Receives a database connection handle and a list of information about the RosettaNet message from the calling process.
- Store the original message with any external data using **ux-store-msg**.
- If the message is a General Exception in response to an original message, handles all expected acknowledgments and responses for the original message as if a negative ack was received for each. Adds the command "SEND_BPFAILURE_TO_EGATE" to the returned list.
- If the message is a Receipt acknowledgment, handles the expected receipt acknowledgment using ux_ack_handler. If it is a Receipt Acknowledge Exception, adds the command "SEND_BPFAILURE_TO_EGATE" to the returned list.
- If the message is an Acceptance acknowledgment, handles any expected Receipt acknowledgment as if positive ack were received, then handles the expected Acceptance acknowledgment. If it is a Acceptance Acknowledge Exception, adds the command "SEND_BPFAILURE_TO_EGATE" to the returned list.
- If the message is a business action in response to an original action, handle the expected response for the original action message using **ux-ack-handler**.
- For any business action message, sets up message tracking for each response expected by the message.
- If a Receipt acknowledgment is expected by this message, handles the acknowledgment as if a positive ack was received from e*Gate and adds the command "SEND_REC_ACK_TO_TP" to the command list to be returned.
- If a Acceptance acknowledgment is expected by this message, handles the acknowledgment as if a positive ack was received from e*Gate and adds the command "SEND_ACC_ACK_TO_TP" to the command list to be returned.
- For a business action message, adds the command "SEND_MSG_TO_EGATE" to the command list to be returned.
- Commits or rolls back the database depending on the result of the process. Returns to the caller.

Examples

The following Monk script example calls **ux-dbproc-ros-inb**. This script makes three assumptions:

- That **ux-init-trans** was executed successfully for the given message.

- That a connection to the database, **conn-handle**, has been established before **ux-dbproc-ros-inb** is called.
- All variables in the first two statements below have been properly defined with values either from the message itself or from the trading partner profile in the database.

If **ux-dbproc-ros-inb** fails, then a user defined function **SendFailureNotification** is called.

```
(set! dbproc_info
    (list g_ros_proc_ind_code g_ros_proc_id g_ros_trans_code
          g_ros_trans_id g_ros_sigact_code g_ros_sigact_id
          g_ros_inrespto_code g_ros_inrespto_id g_ros_rec_ack_time
          g_ros_acc_ack_time g_ros_perform_time error_data))
(set! dbproc_info
    (append dbproc_info
        (list "ACTIVITY_TYPE" activity_type "ACT_INST_ID" event_id)))
(set! dbproc_info
    (ux-dbproc-ros-inb g_connection_handle
        (get ~input%RosettaNetGeneric) dbproc_info))
(if (boolean? dbproc_info)
    (begin
        (SendFailureNotification g_direction)
        (throw Exception-Monk-Usage
            (string-append "ux-dbproc-ros-inb() failed: <"
                           (ux-get-error-str)
                           ">\n")))
    (begin)
)
(do ((i 0 (+ 1 i)))
    ((>= i (vector-length dbproc_info)))
    (let ((element (vector-ref dbproc_info i)))
    (if (string=? element "SEND_BPFAILURE_TO_EGATE")
        (begin
         …
        )
        (begin)
    )
    (if (string=? element "SEND_MSG_TO_EGATE")
        (begin
         …
        )
        (begin)
    )
… ;Take action for other commands.
)
```

ux-dbproc-ros-outb

Syntax

```
(ux-dbproc-ros-outb connection-handle msg list_of_rn_pars)
```

Description

ux-dbproc-ros-outb handles message tracking and acknowledgment for an outbound RosettaNet message that the e*Xchange receives from e*Gate.

Parameters

Name	Type	Description
connection-handle	connection-handle Required.	The previously established connection to the database.
msg	String	The raw message received from e*Gate
List_of_rn_pars	list: global_proc_ind_code global_proc_id global_trans_code global_trans_id global_sigact_code global_sigact_id inrespto_sigact_code inrespto_sigact_id rec_ack_time acc_ack_time perform_time ext_data_col_name ext_data_col_value …	Required. RosettaNet transaction information. All list arguments must be strings. Any number of ext_data_col_name---ext_data_col_value pairs can be specified as long as they are specified in pairs. All elements are required, but can be empty strings ("").
	List member	**Description**
	global_proc_ind_code	The RosettaNet global process indicator code.
	global_proc_id	The RosettaNet global process ID.
	global_trans_code	The RosettaNet global transaction code.
	global_trans_id	The RosettaNet global transaction ID.
	global_sigact_code	The RosettaNet global action code or signal code, depend on if the message is a RosettaNet business action or business signal.
	global_sigact_id	The RosettaNet global action code or signal ID, depend on if the message is a RosettaNet business action or business signal.

Name	Type	Description
	inrespto_sigact_code	If the message is a RosettaNet business signal or an action that is a response to another action, this field is the global action code for the original action.
	inrespto_sigact_id	If the message is a RosettaNet business signal or an action that is a response to another action, this field is the global action ID for the original action.
	rec_ack_time	Time to acknowledge the receipt of the message.
	acc_ack_time	Time to acknowledge the acceptance of the message.
	perform_time	Time to carry out the action specified in the message and provide a response.
	ext_data_col_name	Optional. Field name for any external data to be saved with the message.
	ext_data_col_value	Optional, but must appear in pair with ext_data_col_value. This value is assigned to the external data field with the corresponding ext_data_col_name as the column name. Any external data, if specified, are saved with the message.
	...	More ext_data_col_name --- ext_data_col_value pairs.

Return Values

Returns one of the following values:

String
Returns a string indicating what action to take when the function executes successfully.

Return String	Action to Take
SEND_MSG_TO_TP	end the original message to the eX_Trading_Port_Queue.

Boolean
Returns **#f** (false) when the function fails to complete successfully.

Throws

Exception-InvalidArg, Exception-Mapping, Exception-Catastrophic (can't be caught).

Additional Information

ux-dbproc-ros-outb does the following:

- Receives a database connection handle and a list of information about the RosettaNet message from the calling process.

- Stores the original message with any external data using **ux-store-msg**.
- If the message is a General Exception, handles all expected acknowledgments and responses for the original message as if a negative ack were received for each.
- If the message is a business action in response to an original action, handles the expected response for the original action message using **ux-ack-handler**.
- For any business action message, sets up message tracking for each response expected by this message.
- Adds the command "SEND_MSG_TO_TP" to the command list to be returned.
- Commits or rolls back the database depending on the result of the process, then returns to the caller.

Examples

The following Monk script example calls **ux-dbproc-ros-outb**. This script makes three assumptions:

- That **ux-init-trans** was executed successfully for the given message.
- That a connection to the database, conn-handle, has been established before **ux-dbproc-ros-outb** is called.
- All variables in the first two statements below have been properly defined with values either from the message itself or from the partner profile in the database.

If **ux-dbproc-ros-outb** fails, then the error, a user defined function **SendFailureNotification** is called.

```
(set! dbproc_info (list g_ros_proc_ind_code g_ros_proc_id
                        g_ros_trans_code g_ros_trans_id
                        g_ros_sigact_code g_ros_sigact_id
                        g_ros_inrespto_code g_ros_inrespto_id
                        g_ros_rec_ack_time g_ros_acc_ack_time
                        g_ros_perform_time error_data))
(set! dbproc_info
    (append dbproc_info
        (list "ACTIVITY_TYPE" activity_type "ACT_INST_ID" event_id)))
(set! dbproc_info
    (ux-dbproc-ros-outb g_connection_handle
                        (get ~input%RosettaNetGeneric)
                        dbproc_info))
(if (boolean? dbproc_info)
    (begin
        (SendFailureNotification g_direction)
        (throw Exception-Monk-Usage
            (string-append "ux-dbproc-ros-outb() failed: <"
                           (ux-get-error-str) ">\n")))
    (begin)
)
(do ((i 0 (+ 1 i))) ((>= i (vector-length dbproc_info)))
(let ((element (vector-ref dbproc_info i)))
    (if (string=? element "SEND_BPFAILURE_TO_EGATE")
        (begin
        …
        )
        (begin)
    )
    (if (string=? element "SEND_MSG_TO_EGATE")
        (begin
        …
        )
        (begin)
    )
… ;Take action for other commands.
)
```

ux-dequeue

Syntax

```
(ux-dequeue connection-handle)
```

Description

ux-dequeue retrieves enveloped, outbound messages that are ready to be routed to a trading partner.

Parameters

Name	Type	Description
connection-handle	connection-handle	Required. The previously established connection to the database.

Return Values

Returns one of the following values:

Vector
If an outbound message was found and no errors were encountered, the mtrk_outb_id and message is returned as string elements in a vector mtrk_outb_id is the first element of the vector and the message is the second element.

Boolean
Returns **#t** (true) if an outbound message was not found and no errors were encountered; otherwise returns **#f** (false) if the process was unsuccessful. Use **ux-get-error-str** to retrieve the corresponding error message.

Throws

Exception-InvalidArg.

Additional Information

ux-dequeue is called by the e*Xchange Transaction Polling e*Way.

It does the following:

- Receives a database connection handle from the e*Xchange Transaction Polling e*Way.
- Searches the Transaction Queue for the identity of the oldest record in the Stored Message table that needs to be sent to a trading partner.
- Decompresses the message before adding it to the Stored Message table.
- Deletes the corresponding identifier in the Transaction Queue.
- Returns a value to the e*Xchange Transaction Polling e*Way to indicate whether or not the process was successful and whether or not an outbound message was found. If successful, and if a message was found, the message is returned as a string to the e*Xchange Transaction Polling e*Way.

Internally within the API, a call is made to **ux-init-trans** to load the trading partner information into global memory. This is useful so that the e*Xchange Transaction

Polling e*Way Collaboration has the information available to determine whether any encryption or digital signatures are required on the message before it is sent to the trading partner.

Example

The following sample Monk script illustrates how the e*Xchange Transaction Polling e*Way:

1. Creates an outbound message structure named tran_poll.
2. Calls **ux-dequeue**, which returns a value stored in the parameter named result.
3. Determines whether the value of the result parameter is a Boolean value or a string, and then performs one of the following actions:
   - If the value is a string, then the message contained in the result parameter is inserted into the output message structure, and then forwarded to the server.
   - If the value is Boolean **#f** (false), **ux-get-error-str** is called to display the error message that was encountered.
   - If the value is Boolean #t (true), a message is displayed indicating that no message was returned from the database.

```
(define input-message-format-file-name "")
 (define output-message-format-file-name "tran_poll.ssc")
 (load "tran_poll.ssc")
 (define  result ( ux-dequeue  connection-handle))
 ( if (boolean? result )
      (begin
         (if (eq? result #f)
           (begin
              (display (ux-get-error-str))
              (newline)
           )
           (begin
              (display "There are no more msgs to retrieve
                  from DB\n")
           )
          )
 )
```

ux-duplicate-check

Syntax

```
(ux-duplicate-check connection-handle unique_id level direction)
```

Description

ux-duplicate-check checks whether the current Message Profile or B2B Protocol is a duplicate.

Parameters

Name	Type	Description
connection-handle	connection-handle	Required. The previously established connection to the database.
unique_id	string	Required. The string that uniquely identifies the transaction. For an incoming message, this is the unique ID created by the Validation Rules Builder tool. For an outgoing message, it is the message ID taken from the message XML.
level	string	Required. The envelope level from which to obtain header segment data to check whether the current message is a duplicate. Valid values: I—Interchange T—Transaction
direction	string	Required. Indicates the direction of the message: I—Inbound O—Outbound

Return Values

Returns one of the following values:

String
Returns "Y" if the message is a duplicate; otherwise returns "N" if the message is not a duplicate.

Boolean
Returns **#f** (false) if the API fails and the message cannot be verified as unique or duplicated. Use **ux-get-error-str** to retrieve the error message.

Throws

Exception-InvalidArg, Exception-Catastrophic (can't be caught).

Additional Information

You can call **ux-duplicate-check** from a Monk script that handles inbound or outbound messages.

The Inbound Message Tracking table (es_mtrk_inb) contains one row of information for each inbound message and acknowledgment that has been processed and stored in the Message Storage table. The Outbound Message Tracking table (es_mtrk_outb) contains one row of information for each outbound message and acknowledgment that has been processed and stored.

Each row of the Inbound and Outbound Message Tracking tables contains a unique identifier for each message or acknowledgment. This identifier may consist of any combination of the following:

- Interchange control, functional group, or (depending on the messaging protocol used) message control numbers. X12 uses control numbers, RosettaNet does not.
- Message identifier code
- Version code
- Sending application or company name; for example, SAP or Sears

ux-duplicate-check looks at the es_mtrk_outb or es_mtrk_inb table to determine if the data just received is a duplicate. It takes a unique_id, direction ("I" or "O"), and level ("T" or "I"), and determines whether the combination of the unique_id, es_id (tpts_id if level = "T" or tpic_id if level = "I"), and es_opt ("TS" if level = "T" or "IC" if level = "I") already exist in the es_mtrk_outb (if direction "O"). If that combination already exists, then the data just received is considered a duplicate.

Example

```
(define unique_id "LA LA LA LA FA")
(define direction "O")
(define level "T")
(display "calling ux-duplicate-check\n")
(define res (ux-duplicate-check connection-handle unique_id level
direction))
(cond ((not (boolean? res))
       (cond ((string-ci=? "Y" res)
(display "It is a duplicate\n")
                )
               (else
(display "It is not a duplicate\n")
               )
        )
      )
      (else
           (display (ux-get-error-str))
           (newline)
       )
)
```

ux-func-ack-handler

Syntax

```
(ux-func-ack-handler connection-handle ext-list mtrk-ext-list
error_data)
```

Description

ux-func-ack-handler associates an inbound functional acknowledgment such as an X12 TA1 or 997 or a UN/EDIFACT CNTRL message with the appropriate outbound message or messages. If there are errors, it adds the error data to the database.

Parameters

Name	Type	Description
connection-handle	connection-handle	Required. The previously established connection to the database.
ext-list	list of sub-lists	Required if the global Message Profile structure has not been previously loaded by ux-init-trans or ux-init-ts. Otherwise, this can be an empty list. Each sub-list being a pair of es_ext_detail.col_name and es_ext_data.ext_data_value. An example of each is given below: ▪ (list) ▪ (list (list "FUNC_ID_CODE" "FA"))
mtrk-ext-list	list of sub-lists	Required. Cannot be an empty list. Each sub-list is a pair of es_mtrk_ext_det.col_name and es_mtrk_ext_data.mtrk_data_value. Example: ▪ (list (list "I_CONTROL_NUM" "000000009"))
error_data	string	Required. Two possible formats: ▪ If there is error information—code^description~code^description (^ separates the values for an error and ~ separates the errors). ▪ If there is no error information—empty string ("").

The valid combination of values for mtrk-ext-list are listed below:

Possible combinations for X12

T_CONTROL_NUM, G_CONTROL_NUM, RESP_ID

T_CONTROL_NUM, G_CONTROL_NUM

G_CONTROL_NUM, RESP_ID

G_CONTROL_NUM

I_CONTROL_NUM

Possible combinations for UN/EDIFACT

IC_CONTROL_REF, TS_CONTROL_REF, RESP_ID

IC_CONTROL_REF, TS_CONTROL_REF

IC_CONTROL_REF, FG_CONTROL_REF, TS_CONTROL_REF, RESP_ID

IC_CONTROL_REF, FG_CONTROL_REF, TS_CONTROL_REF

IC_CONTROL_REF, FG_CONTROL_REF

IC_CONTROL_REF

Return values

returns one of the following values:

Vector

Vector of mtrk_outb_ids (which are strings). For example:

```
#("8440" "8725")
```

Boolean

Returns **#t** (true) if nothing is retrieved; otherwise, returns **#f** (false) if an error is encountered.

Throws

None.

Additional information

ux-func-ack-handler updates the es_mtrk_outb, es_waiting_ack, and es_mtrk_error (if error data is included) database tables based on the message storage info associated with the acknowledgment just received.

The B2B Protocol global structure must be loaded, however the Message Profile global structure is not required. If only the B2B Protocol global structure is loaded, e*Xchange finds the appropriate tpts_ids in the es_tpts table using the ext-list.

ux-func-ack-handler updates es_mtrk_outb.ack_msg_id with the global message storage ID for the rows associated with the mtrk-ext-list, unique_id, and tpts_ids. It deletes any rows in the es_waiting_ack table associated with the es_mtrk_outb.mtrk_outb_id that has been updated with the global message storage ID.

It returns #t if no es_mtrk_outb.mtrk_outb_ids were updated. Otherwise it returns a vector of es_mtrk_outb.mtrk_outb_ids that were updated (using distinct es_mtrk_outb.orig_msg_ids).

If there is error data, ux-func-ack-handler inserts the data into the es_mtrk_error table.

Examples

In the following example, 8440 and 8725 are returned from the es_mtrk_outb table. 8440 and 8551 have the same orig_msg_id so only one of those is returned.

```
mtrk_outb_id     orig_msg_id
8440                 10
8551                 10
8725                 11
```

In the following example, the return value of ux-func-ack-handler is assigned to a variable named **var**, which is then displayed.

```
(define var (ux-func-ack-handler connection-handle (list) (list
  (list "I_CONTROL_NUM" "000000011")) "23^Twenty Three Desc~54^Fifty
  Four Desc"))
(display var)
```

ux-get-env-msg-id

Syntax

```
(ux-get-env-msg-id connection-handle unique_id direction es_id
es_opt)
```

Description

ux-get-env-msg-id retrieves the env_msg_id from a message tracking table using the unique_id, direction, es_id, and es_opt.

Parameters

Name	Type	Description
connection-handle	connection-handle	Required. The previously established connection to the database.
unique_id	string	Required. The unique identifier in the message tracking table.
direction	string	Required. Indicates the direction of the message: ▪ I—Inbound ▪ O—Outbound
es_id	string	Required. Two possible values: ▪ tpts_id if stored at the Message Profile level. ▪ tpic_id if stored at the B2B Protocol level.
es_opt	string	Required. Two possible values: ▪ "TS" if stored at the Message Profile level. ▪ "IC" if stored at the B2B Protocol level

Return Values

String

Returns the env_msg_id if a matching record is found in the e*Xchange database.

Boolean

Returns **#f** (false)—if an error was encountered; otherwise returns **#t** (true)—if no env_msg_id is found for supplied criteria, or the env_msg_id is null or an empty string.

ux-get-error-str

Syntax

```
(ux-get-error-str)
```

Description

ux-get-error-str is used when a function fails. It returns the last error message that was encountered.

Parameters

ux-get-error-str requires no parameters.

Return Values

String

Returns the last error message encountered by an e*Xchange API.

Throws

Exception-InvalidArg.

Additional Information

ux-get-error-str can be used for inbound or outbound messages. It does the following:

- Retrieves the message associated with the last error encountered by another e*Xchange API.
- Returns the error message to the calling API.

If **ux-get-error-str** is included in a display, the error shows in the log file.

When an e*Xchange API encounters a problem and cannot process a message as expected, an error message is stored in the memory buffer. **ux-get-error-str** retrieves this error message from the buffer.

Example

The following sample Monk script calls **ux-get-error-str** to retrieve the message associated with the last error encountered. In this example, the error message is displayed, followed by a new line.

```
(display (ux-get-error-str))
 (newline)
```

ux-get-fb-count

Syntax

```
(ux-get-fb-count connection-handle FB_UNIQUE_ID)
```

Description

ux-get-fb-count returns the total record count from es_mtrk_outb table with the same fast batch unique_id.

Parameters

None.

Name	Type	Description
connection-handle	connection-handle	Required. The previously established connection to the database.
FB_UNIQUE_ID	string	Required. The fast batch unique ID.

Return values

Returns one of the following values:

Number
Returns the total record count.

Throws

None.

Examples

```
(define fb_unique_id "AAAAA")
(define  total_fb_cnt
             (ux-get-fb-count connection-handle fb_unique_id)
)
```

ux-get-header

Syntax

```
(ux-get-header level type)
```

Description

ux-get-header returns values that are stored in the global structures (g_ic, and g_ts). The global structures contain data from the Trading Partner Profile. The B2B Protocol structure contains information about the protocol, version, direction, external trading partner, and communication protocol. The Message Profile structure contains information about the specific message, validation collaboration, transfer mode, and response messages. The structures are populated by calling **ux-init-trans** (**ux-init-ic** or **ux-init-ts**). Therefore, **ux-init-trans** must be called, and have successful execution, before **ux-get-header** is called. Otherwise, **ux-get-header** returns null values (empty strings).

Specifically, **ux-get-header** does the following:

- Returns a list of values retrieved from the global structures or a value that indicates that the API did not process successfully.

Parameters

Name	Type	Description
level	string	Required. The level from which to obtain TP Profile information. Valid values: I—B2B Protocol level information T—Message Profile level information A—Both levels
type	string	Required. O—Original message

Return Values

Returns one of the following values:

Vector

Returns one of three vectors containing header data depending on the value of the level argument.

Level Argument	Vector Element Number	Data Type	Description
I	1	string	tpic_id
	2	string	tph_id
	3	string	tran_type
	4	string	version
	5	string	direction
	6	string	rtn_rcpt
	7	string	test_ind
	8	string	sec_key_type
	9	string	comm_port
	10	string	logical_name
	11	string	file_name
	12	string	user_name
	13	string	password
	14	string	host
	15	string	port
	16	list (of strings)	(ext_data_col_name, ext_data_col_value) These repeat for as may entries as there are in es_ext_data/ ex_ext_detail for this level I. There is an internal limit of 50 col_name/col_value pairs.

Level Argument	Vector Element Number	Data Type	Description
T	1	string	tpts_id
	2	string	tpic_id
	3	string	alt_id
	4	string	version
	5	string	tran_mode
	6	string	bus_collab
	7	string	db_collab
	8	string	msg_compress
	9	string	rtn_ts_id
	10	string	rtn_rcpt
	11	list (of strings)	(ext_data_col_name, ext_data_col_value) These repeat for as may entries as there are in es_ext_data/ ex_ext_detail for this level T. There is an internal limit of 50 col_name/col_value pairs.

Level Argument	Vector Element Number	Data Type	Description
A	1	string	tpic_id
	2	string	tph_id
	3	string	tran_type
	4	string	version
	5	string	direction
	6	string	rtn_rcpt
	7	string	test_ind
	8	string	sec_key_type
	9	string	comm_port
	10	string	logical_name
	11	string	file_name
	12	string	user_name
	13	string	password
	14	string	host
	15	string	port
	16	list (of strings)	(ext_data_col_name, ext_data_col_value) These repeat for as may entries as there are in es_ext_data/ ex_ext_detail for this level I. There is an internal limit of 50 col_name/col_value pairs.
	17	string	tpts_id
	18	string	tpic_id
	19	string	alt_id
	20	string	version
	21	string	tran_mode
	22	string	bus_collab
	23	string	db_collab
	24	string	msg_compress
	25	string	rtn_ts_id
	26	string	rtn_rcpt
	27	list (of strings)	(ext_data_col_name, ext_data_col_value) These repeat for as may entries as there are in es_ext_data/ ex_ext_detail for this level T. There is an internal limit of 50 col_name/col_value pairs.

Boolean

Returns **#f** (false) if the API did not process successfully. Use **ux-get-error-str** to retrieve the corresponding error message.

Throws

Exception-InvalidArg.

Additional Information

You can call **ux-get-header** from a Monk script that handles inbound or outbound TP Profiles. The ePM Batching e*Way calls this API to retrieve the enveloping information needed to process outbound batch messages.

A global TP Profile structure is a structure in memory that stores information for validating or assembling the message as required by its eBusiness Protocol during the processing of the message. The global structures are populated with information retrieved from trading partner profiles in the database with the **ux-init-trans**, **ux-init-ic**, or **ux-init-ts** APIs.

Example

The following sample Monk script calls the **ux-get-header** API with the assumption that the **ux-init-trans** processed successfully for the current original message. The **ux-get-header** API returns a list that contains data for the current message B2B Protocol level. The sample DO loop displays each string in the data list. If an error occurs, then **#f** is returned. The error can be identified by calling the **ux-get-error-str** API.

```
(define type "o")
 (define level "i")
 (define header-values (ux-get-header level type))
 (cond ((not (boolean? header-values))
        (do ((i 0 (+ i 1)) (value-count (vector-length
                                 header-values)))
       ((= i value-count))
          (display "header value <")
          (display i)
          (display "> = ")
          (display (vector-ref header-values i))
          (newline)
       )
     )
     (else
          (display (ux-get-error-str))
          (newline)
     )
 )
```

ux-get-key-cert

Syntax

```
(ux-get-key-cert connection-handle key-type [tpic-id])
```

Description

ux-get-key-cert retrieves security keys from the database. Use the **ux-get-key-cert** API for inbound or outbound messages.

Parameters

Name	Type	Description
connection-handle	connection-handle	Required. The previously established connection to the database.
key-type	string	The type of security key, certificate, or algorithm retrieved. Use the value obtained using sec_key_type in es_tpic. Only one key-type single character can be passed in. If sec_key_type contains more than one security trait, then these traits are separated by a vertical bar "|" and must be parsed into single characters before passing the value to **ux-get-key-cert**. Possible values are: E—Encryption certificate name S—Signature key name I — Signature Key Passphrase D—Decryption key name B—Decryption key passphrase V—Signature verification certificate name F—SSL Keystore Name G—SSL Keystore Type H—SSL Keystore Passphrase K—SSL Client Key Name T—SSL Client Key Type (only key name returned) C—SSL Client Certificate Name P—SSL Client Certificate Type (only key name returned) Y—Encryption algorithm (only key name returned) A—Signature algorithm (only key name returned) N—None
tpic-id	string	(Optional) The ID of the B2B Protocol for the trading partner profile. If you do not provide this parameter, then the value of tpic-id from the main global B2B Protocol structure stored in memory is used.

Return Value

Returns one of the following:

Boolean

Returns **#f** (false)—if an error was encountered; otherwise returns **#t** (true)—if no security certificate was found for supplied criteria.

vector

Returns a vector containing the following three elements if a security certificate was found:

Element Number	Type	Description
1	string	Security key name.
2	integer	Length of security key. This element is zero if there is no security key.
3	string	Security key. This element is empty if there is no security key associated with the security key name stored in the database.

Throws

Exception-InvalidArg, Exception-Catastrophic (can't be caught).

Example 1

This example passes in key-type of "K" and tpic_id of "161" and expects back a key-values vector containing three elements: SSL Client Key name in the first position, security key length in the second position, and SSL Client Key value in the last position.

```
(define key-type "K")
(define tpic-id "161")
(define key-values
    (ux-get-key-cert connection-handle key-type tpic-id))
(cond
    ((not (boolean? key-values))
        (do ((i 0 (+ i 1)) (value-count (vector-length key-values)))
            ((= i value-count))
            (display "key value <")
            (display i)
            (display "> = ")
            (display (vector-ref key-values i))
            (newline)))
            ; retrieve key-values
    (else
        (cond
            (key-values (display "No security key found\n"))
            (else (display (ux-get-error-str))
                (newline)))))
```

Example 2

Using a key-type of "A", this example relies on the global structure in memory, loaded from either **ux-init-trans** or **ux-init-ic**, to obtain tpic_id. It expects back only one useful value: the Signature Algorithm in the first position of the key-values vector, the second position contains 0, and the third position is empty.

```
(define key-type "A")
(define key-values (ux-get-key-cert connection-handle key-type))
(cond
    ((not (boolean? key-values))
        (do ((i 0 (+ i 1)) (value-count (vector-length key-values)))
            ((= i value-count))
            (display "key value <")
            (display i)
            (display "> = ")
            (display (vector-ref key-values i))
            (newline))
        ; retrieve key-values
    )
    (else
        (cond
            (key-values (display "No security key found\n"))
            (else
                (display (ux-get-error-str))
                (newline)))))
(define key-values
    (ux-get-key-cert conn-handle "E" "ENCRYPT_CERT_NAME"))
(cond
    ((not (boolean? key-values))
        (define sec-key-len (vector-ref key-values 0))
        (define sec-key (vector-ref key-values 1)))
    (else
        (if  key-values
            (display "No security was found for supplied criteria\n")
            (begin
                (display (ux-get-error-str))
                (newline)))))
(display "Testing ux-get-key-cert\n")
(define key-vec (ux-get-key-cert connection-handle "V"  "STC SIG" ))
(if (eq? key-vec #f)
    (begin
        (display (ux-get-error-str))
        (newline ))
    (begin
        (if (= 0 (string->number (vector-ref key-vec 0)))
            (begin
                (comment "No keys retrieved from the DB" ))
            (begin
                (display "Size of Key is = <")
                (display (vector-ref key-vec 0))
                (display ">\n\n")))))
```

ux-get-lock-ext-attrib-db

Syntax

```
(ux-get-lock-ext-attrib-db connection-handle column-name level)
```

Description

ux-get-lock-ext-attrib-db performs an insignificant update to the table first. This blocks if an external update is occurring to the record and also locks the record for the current process. Once the update has been performed, the specified attribute is retrieved from the DB and updated in the global structures and returned.

Parameters

Name	Type	Description
connection-handle	connection-handle	Required. The previously established connection to the database.
column-name	string	Required. The name of the attribute to be retrieved.
level	string	Required. Indicates the level the value should be retrieved from. I - B2B Protocol level T - Message Profile level

Return Value

string

Returns a string containing the column value if found and successfully retrieved.

Boolean

Returns **#t** (true) if no values could be found for retrieval; otherwise returns **#f** (false)—if an error was encountered.

Throws

None.

Example

```
(define col-value (ux-get-lock-ext-attrib-db connection-handle
                    "IC_CONTROL_REF" "I"))
(if (!boolean col-value)
    (display (string-append "Column value: <"col-value">\n"))
    (if (eq? col-value #t)
        (display "No column value could be found in the DB\n")
        (display (string-append "Encountered error: <"(ux-get-
                        error-str)">\n"))
    )
)
```

ux-get-mtrk-attrib

Syntax

```
(ux-get-mtrk-attrib connection-handle list)
```

Description

ux-get-mtrk-attrib retrieves extended attributes for messages (B2B Protocol or Message Profile) stored in either the es_mtrk_inb or es_mtrk_outb tables. Uses of this include retrieving the Response ID or e*Insight Activity ID from an outbound message. This API is very useful when sending response messages back to e*Insight and associating the responses with a specific process and activity.

Use the **ux-get-mtrk-attrib** API for inbound or outbound messages.

Parameters

Name	Type	Description
connection-handle	connection-handle	Required. The previously established connection to the database.
list	list: direction unique_id level mtrk_id sub-list	Required. Information about the message. All list arguments must be strings, except for the sub-lists which are lists containing strings. All elements before the sub-list section are required, but can be empty strings (""), with the exception of direction and level, which return an error if no value is provided.
	List member	**Description**
	direction	Required. Indicates the direction of the message: I—Inbound O—Outbound
	unique_id	Optional only if mtrk_id is provided. The unique identifier for the original message.
	level	Optional only if mtrk_id is provided. Valid values: I—B2BProtocol level T—Message Profile level
	mtrk_id	Optional. Message tracking ID. If there is a list of extended attributes (sub-list), then mtrk_id or an empty string "" must be included.
	sub-list	Optional and repeating. The sub-list format is: "Column_Name" "Column_Value"); may contain some of the extended attributes if already known.

Return Value

Boolean

Returns **#f** (false)—if an error was encountered; otherwise returns **#t** (true)—no extended attributes could be found for the given input data.

vector

Returns a vector containing the following 2*N* elements (where *N* is the number of extended attributes) if a extended attributes are found for the message:

Element Number	Type	Description
1	string	Column 1 name.
2	string	Column 1 value.
3	string	Column 2 name.
4	string	Column 2 value.
2*N*-1	string	Column *N* name.
2*N*	string	Column *N* value.

Throws

Exception-InvalidArg, Exception-Mapping, Exception-Catastrophic (can't be caught).

Example

```
(define unique_id "ACME ELIG1000000134")
(define mtrk-info (list "O"      ; direction
                  unique_id     ; unique-id
                  "T"           ; level
                  ""            ; represents mtrk_id needed
                                ; because of the following sub-lists
                  (list "I_CONTROL_NUM" "000000002")))
(display "calling ux-get-mtrk-attrib\n")
(define ext-values (ux-get-mtrk-attrib connection-handle mtrk-info))
(display ext-values)
(newline)
(cond ((not (boolean? ext-values))
    (do ((i 0 (+ i 1)) (value-count (vector-length ext-values)))
        ((= i value-count))
            (display "mtrk ext value <")
            (display i)
            (display "> = ")
        (display (vector-ref ext-values i))
            (newline)
        )
      )
      (else
    (display (ux-get-error-str))
    (newline)
      )
)
(display "done calling ux-get-mtrk-attrib\n")
```

ux-get-mtrk-attrib-value

Syntax

```
(ux-get-mtrk-attrib-value connection-handle list)
```

Description

ux-get-mtrk-attrib-value returns the message tracking extended attribute value corresponding to the column name, message tracking ID, and direction.

Parameters

Name	Type	Description
connection-handle	connection-handle	Required. The previously established connection to the database.
mtrk_id	string	Required. Message tracking ID.
direction	string	Required. Indicates the direction of the message: ▪ I—Inbound ▪ O—Outbound
col_name	string	Required. Name of the extended attribute column.

Return Value

String

Returns a string containing the column value if found and successfully retrieved.

Boolean

Returns **#f** (false)—if an error was encountered; otherwise returns **#t** (true)—no extended attributes could be found for the given input data.

Example

ux-get-seq-value

Syntax

```
(ux-get-seq-value connection-handle table_name)
```

Description

ux-get-seq-value retrieves the current sequence value for the specified table and returns the value in the seq_value parameter. To handle concurrency with multiple e*Ways accessing the same table sequence value simultaneously, this function catches locking or deadlocking errors up to 10 times and retry until sequence value is returned. If retrieval fails after the 10th time, an error indication is returned.

Parameters

Name	Type	Description
connection-handle	connection-handle	Required. The previously established connection to the database.
table_name	string	Required. The table name for the sequence value.

Return Values

Returns one of the following values:

String
Returns a string containing the incremented sequence value.

Boolean
Returns **#f** (false) if a problem occurs.

Throws

None.

Example

```
(define seq_value (ux-get-seq-value connection-handle "es_sd_msg"))
```

ux-incr-control-num

Syntax

```
(ux-incr-control-num connection-handle level type)
```

Description

ux-incr-control-num increments the specified control number of an outbound Message Profile or B2B Protocol stored in the database and global structure.

Use the **ux-incr-control-num** API for outbound messages.

Parameters

Name	Type	Description
connection-handle	connection-handle	Required. The previously established connection to the database.
level	string	Required. The level of the control number to increment for the current message. Valid values: I—Interchange control number G—Functional group control number T—Transaction set control number
type	string	Required. Indicates which cached profile to update. Valid value: O—original structure

Return Values

Returns one of the following values:

String

string (incremented control number)—if the appropriate control number was successfully incremented.

Boolean

Returns **#f** (false)—if a problem occurred and the control number could not be duplicated. Use the **ux-get-error-str** API to retrieve the error message.

Throws

Exception-InvalidArg, Exception-Catastrophic (can't be caught).

Additional Information

ux-incr-control-num does the following:

- Receives a connection handle to the database and an indicator that specifies the type of control number to increment for the current message (interchange, functional group, or transaction set control number).
- If used at the transaction level, **ux-incr-control-num** increments, by one digit, the control number for the transaction stored in the database and in the global structure (the functional group and interchange control numbers are not changed).

- Returns either the incremented control number or a value indicating that the API did not process successfully.

You can call the **ux-incr-control-num** API from a Monk script that handles outbound TP Profiles. The ePM Batching e*Way calls this API to obtain the control number needed to process an outbound batch message.

All control numbers are stored in the es_ext_data/es_ext_detail tables, which correspond to the global structures.

The control number rolls over to 0 when it reaches 9999999999.

Example

The following sample Monk script calls the **ux-incr-control-num** API with the assumption that the **ux-init-trans** API processed successfully for the current B2B Protocol or Message Profile level. The **ux-incr-control-num** returns a string that contains the incremented functional group control number. If an error occurs, then **#f** (false) is returned. The error can be identified by calling the **ux-get-error-str** API.

```
(define type "O")
(define level "G")
(define control-number(ux-incr-control-num connection-
     handle level type))

  (cond ((not (boolean? control-number))
               (display "incremented control-number = <")
               (display control-number)
               (display ">\n")
        )
        (else
               (display (ux-get-error-str))
               (newline)
        )
  )
```

ux-init-exdb

Syntax

```
(ux-init-exdb connection-handle max_msg_size max_eWay_cnt
                                 eWay_instance_num)
```

Description

ux-init-exdb performs database and global variable initialization and binds for SQL statements and their parameters, and returns system default data stored in sb_defaults table.

Use the **ux-init-exdb** API on connection to the database.

Parameters

Name	Type	Description
connection-handle	connection-handle	Required. The previously established connection to the database.
max_msg_size	string	The maximum size of message that can be stored in one blob. If a message is larger, it is broken into multiple pieces when stored.
max_eWay_cnt	string	The maximum number of ePM Batching e*Ways. This value is populated from the e*Way configuration setting and is set to the total number of ePM Batching e*Ways in the schema. For all other e*Way types the value should be set to "1".
eWay_instance_num	string	The e*Way instance for this particular ePM Batching e*Way. This value is populated from the e*Way configuration setting. For all other e*Way types the value should be set to "1".

Return Value

list

Returns a list containing sub lists of names and values as stored in system defaults, the sb_defaults table.

Boolean

Returns **#f** (false) if something fails. Use **ux-get-error-str** to see the error.

Throws

Exception-InvalidArg.

Additional Information

It is important that **ux-init-exdb** be called every time a connection is made, after login and the connection-handle is created.

Example

```
(if (db-login connection-handle HOSTNAME USERNAME PASSWORD)
    (begin
        (display "Logged in\n")
        (define sys-def (ux-init-exdb connection-handle 500000 5 3))
        (display sys-def)
        (cond ((not (boolean? sys-def))
            (do ((i 0 (+ i 1)) (value-count (vector-length sys-def)))
             ((= i value-count))
             (display "system default value <")
             (display i)
             (display "> = ")
             (display (vector-ref sys-def i))
             (newline)
            )
        (else
            (display (ux-get-error-str))
            (newline)
        )
    )
)
```

ux-init-ic

Syntax

```
(ux-init-ic connection-handle transact-info)
```

Description

ux-init-ic retrieves the trading partner profile, based on the items included in the *transact-info* list. The retrieved information is only for the B2B Protocol level and is stored in global structures. **ux-get-header** with level "I" can be used to extract the data from the global structures.

If the trading partner profile information has previously been loaded into the global structures, the function returns an indicator showing in which global structure the data is located. It does not make a query to the database.

Use the **ux-init-ic** API for inbound or outbound messages.

Parameters

Name	Type	Description
connection-handle	connection-handle	Required. The previously established connection to the database.
transact-info	list: alt_id company_name tran_type tpic_version tpts_version direction tran_mode tpic_id tpts_id rtn_ts_id comm_port logical_name file_name sub-list: (0->many) (optional)	Required. A set of identifying information contained within the current message. This information is matched against corresponding information in the e*Xchange database so that the correct trading partner profile can be retrieved. All list arguments must be strings, except for the sub-lists which are lists containing strings. All elements before the sub-list section are required, but can be empty strings (""), with the exception of **direction** which returns an error if no value is provided.
	List member	**Description**
	alt_id	The identification number of the trading partner, assigned by an external application (1–20 characters).
	company_name	The name of the company to which the message relates. If the trading partner is a subdivision of a larger company, this is the name of the company (1–35 characters).

Name	Type	Description
	tran_type	The code representing the name of the eBusiness Protocol used to format the message: possible values include X12, EDF and ROS. EDF represents UN/ EDIFACT and ROS represents RosettaNet.
	tpic_version	The version of the protocol being used by the trading partner. This is the human-readable version, as used in the es_tpic table, not the code for the version taken directly from the B2B Protocol level. Example: 4040 for X12 version 4040, or 1.1 for RosettaNet version 1.1.
	tpts_version	The version of the protocol being used by the trading partner. This is the human-readable version, as used in the es_tpts table, not the code for the version taken directly from the Message Profile level. Since **ux-init-ic** is only applicable to B2B Protocol levels, any value supplied for this parameter is ignored. However, a placeholder ("") must be supplied.
	direction	Required. Indicates the direction of the message: I—Inbound O—Outbound
	tran_mode	The way in which messages are exchanged with the trading partner: I (interactive)—The message is sent to or from the trading partner individually to facilitate a "question and answer" type of B2B Protocol. B (batch)—The message is accumulated with other messages, which are then transmitted to or from the trading partner as a group. FB (fast batch)—A group of messages that are to be batched together in one interchange and identified by an associating unique ID.
	tpic_id	The record ID of the es_tpic table.

Name	Type	Description
	tpts_id	The record ID for the es_tpts table. Since **ux-init-ic** is only applicable to B2B Protocol levels, any value supplied for this parameter is ignored. However, a placeholder ("") must be supplied.
	rtn_ts_id	The record ID of the return Message Profile set. Since **ux-init-ic** is only applicable to the B2B Protocol level, any value supplied for this parameter is ignored. However, a placeholder ("") must be supplied.
	comm_port	The communications protocol used in the message; for example, HTTP.
	logical_name	The name of the trading partner, as set up in the Logical Name field in the General section of the B2B Protocol properties.
	file_name	The path and file name of the FTP file containing the message.
	(sub-list) (0->many)	Optional. The sub-list format is: level = "I" or "T" col_name col_value

Return Values

Returns one of the following values:

string

Returns "O" if the trading partner profile information was successfully loaded into the global structure.

Boolean

Returns **#f** (false)—if a corresponding trading partner profile was not found, or a problem occurred and the global structures were not initialized successfully. Use the **ux-get-error-str** API to retrieve the error message.

Note: *A failure generally means that the information passed into the function does not match any of the TP Profiles set up. Review this data and verify that it is correct.*

Throws

Exception-InvalidArg, Exception-Catastrophic (can't be caught).

Additional Information

ux-init-trans, **ux-init-ic**, and **ux-init-ts** only retrieve for active trading partners. From the e*Xchange Web Interface, verify the status of the intended TP Profile.

ux-init-ic does the following:

- Receives a set of identifying values contained within the current message and a connection handle to the database from the calling process.
- Retrieves information from the database for the trading partner profile that matches the set of identifying values.
- Populates the B2B Protocol global structure with information from the trading partner profile.
- Returns a value to the calling process that indicates whether or not the global structures were initialized successfully.

Trading partner profiles, which include information required by trading partners, are defined by users and are stored in the following e*Xchange tables: es_company, es_tph, es_tpcat, es_tpic, es_tpts, es_ext_data, and es_ext_detail. The **ux-init-trans** and associated APIs retrieve the information that is stored in these tables and load it into the global structures.

A global structure stores B2B Protocol data in memory, while e*Xchange processes the message. Other APIs access the information stored in the global structure to facilitate in processing the messages.

ux-init-ic includes sec_key_type as part of the global structure.

Example

The following sample Monk script calls the **ux-init-ic** API to populate the global structures. In this sample, the global structures can only be initialized if the following values match the values defined for a trading partner profile in the database:

- The alternate identification of the trading partner must be ACMEDIV1
- The name of the trading partner must be ACME Division ONE
- The sender identification number must be sender_id and the receiver identification number must be the ID number published by the receiver (this varies depending on the industry, but could be the DUNS number or some equivalent).
- The functional identification code of the message must be HB
- The EDI standard used to format the message must be X12
- The version number of the EDI standard used to format the message must be 4010
- The Message Profile identification number for the message must be 271
- The message must be an outbound B2B Protocol level.

If a trading partner profile in the e*Xchange database matches the information specified above, then data is retrieved from the trading partner profile and placed into the global structures. **#t** (true) is returned to indicate that the structures were successfully initialized.

If there is not a match, or if an error occurs, then **#f** (false) is returned. The error can be identified by calling the **ux-get-error-str** API.

```
(define transact-info (list "ACMEDIV1"     ; alt_id
                       "ACME Division ONE" ; name
                       "X12"               ; tran_type
                       "4010"              ; in es_tpic
                       "4010"              ; tpts_version in es_tpts
                       "I"                 ; direction
                       "B"                 ; tran_mode
                       ""                  ; tpic_id
                       ""                  ; tpts_id
                       ""                  ; rtn_ts_id
                       ""                  ; comm_port
                       ""                  ; logical_name
                       ""                  ; file_name
                       (list "I" "SENDER_ID" "sender_id")
                       (list "I" "RCVR_ID" "hliu")
                       (list "T" "FUNC_ID_CODE" "HB")
                       (list "T" "TRAN_SET_ID" "271")
                       (list "I" "VERSION" "00401") ; version to
                                                      match data
))
if (struc (ux-init-ic connection-handle transact-info)
     (display "ux-init-ic was successful\n")
   (begin
    (display "ux-init-ic was not successful\n")
    (display ux-get-error-str)
    (newline)
   )
)
```

ux-init-trans

Syntax

```
(ux-init-trans connection-handle transact-info)
```

Description

ux-init-trans retrieves the trading partner profile based on the items included in the transact-info list. **ux-init-trans** can retrieve information for both the B2B Protocol and Message Profile levels.

The information is stored in global structures. **ux-get-header** can be used to extract the data from the global structures.

Use the **ux-init-trans** API for inbound or outbound messages.

Parameters

Name	Type	Description
connection-handle	connection-handle	Required. The previously established connection to the database.
transact-info	list: alt_id company_name tran_type tpic_version tpts_version direction tran_mode tpic_id tpts_id rtn_ts_id comm_port logical_name file_name sub-list: (0->many) (optional)	A set of identifying information contained within the current message. This information is matched against corresponding information in the e*Xchange database so that the correct trading partner profile can be retrieved. All list arguments must be strings, except for the sub-lists which are lists containing strings. All elements before the sub-list section are required, but can be empty strings (""), with the exception of direction which returns an error if no value is provided.

Name	Type	Description
	List member	**Description**
	alt_id	The identification number of the trading partner, assigned by an external application (1–20 characters).
	company_name	The name of the company to which the message relates. If the trading partner is a subdivision of a larger company, this is the name of the company (1–35 characters).
	tran_type	The code representing the name of the eBusiness Protocol used to format the message: possible values include X12, EDF and ROS. EDF represents UN/ EDIFACT and ROS represents RosettaNet.
	tpic_version	The version of the protocol being used by the trading partner. This is the human-readable version, as used in the es_tpic table, not the code for the version taken directly from the B2B Protocol level. Example: 4040 for X12 version 4040, or 1.1 for RosettaNet version 1.1.
	tpts_version	The version of the protocol being used by the trading partner. This is the human-readable version, as used in the es_tpic table, not the code for the version taken directly from the Message Profile level. Example: 4040 for X12 version 4040, or 1.1 for RosettaNet version 1.1.
	direction	Required. Indicates the direction of the message: I—Inbound O—Outbound

Name	Type	Description
	tran_mode	The way in which messages are exchanged with the trading partner: I (interactive)—The message is sent to or from the trading partner individually to facilitate a "question and answer" type of B2B Protocol level. B (batch)—The message is accumulated with other messages, which are then transmitted to or from the trading partner as a group. FB (fast batch)—A group of messages that are to be batched together in one interchange and identified by an associating unique ID.
	tpic_id	The record ID of the es_tpic table.
	tpts_id	The record ID for the es_tpts table.
	rtn_ts_id	The record ID of the return Message Profile set.
	comm_port	The communications protocol used in the message; for example, HTTP.
	logical_name	The name of the trading partner, as set up in the B2B Protocol General Section, Logical Name field.
	file_name	The path and file name of the FTP file containing the message.
	(sub-list) (0->many)	Optional. The sub-list format is: level = "I" or "T" col_name col_value

Return Values

Returns one of the following values:

string
Returns "O" if the trading partner profile information was successfully loaded into the global structure.

Boolean
Returns **#f** (false)—if a corresponding trading partner profile was not found, or a problem occurred and the global structures were not initialized successfully. Use the **ux-get-error-str** API to retrieve the error message.

Note: *A failure generally means that the information passed into the function does not match any of the TP Profiles set up. Review this data and verify that it is correct.*

Throws

Exception-InvalidArg, Exception-Catastrophic (can't be caught).

Additional Information

ux-init-trans, **ux-init-ic**, and **ux-init-ts** only retrieve for active trading partners. From the ePM Web Interface verify the status of the intended TP Profile.

ux-init-trans does the following:

- Receives a set of identifying values contained within the current message and a connection handle to the database from the calling process.
- Retrieves information from the database for the trading partner profile that matches the set of identifying values.
- Populates the global structure with information from the trading partner profile.
- Returns a value to the calling process that indicates whether or not the global structures were initialized successfully.

Trading partner profiles, which include information required by trading partners, are defined by users and are stored in the following e*Xchange tables:

- es_company
- es_tph,es_tpcat
- es_tpic,es_tpts
- es_ext_data
- es_ext_detail

ux-init-trans retrieves the information that is stored in these tables and loads it into the global structures.

Global structures store TP Profile data in memory while e*Xchange processes the message. Other APIs access the information stored in the global structures to facilitate in processing the messages.

Example

```
(define transact-info (list "ACMEDIV1"      ; alt_id
                       "ACME Division ONE" ; name
                       "X12"               ; tran_type
                       "4010"              ; in es_tpic
                       "4010"              ; in es_tpts
                       "I"                 ; direction
                       "B"                 ; tran_mode
                       ""                  ; tpic_id
                       ""                  ; tpts_id
                       ""                  ; rtn_ts_id
                       ""                  ; comm_port
                       ""                  ; logical_name
                       ""                  ; file_name
                       (list "I" "SENDER_ID" "sender_id")
                       (list "I" "RCVR_ID" "hliu")
                       (list "T" "FUNC_ID_CODE" "HB")
                       (list "T" "TRAN_SET_ID" "271")
                       (list "I" "VERSION" "00401") ; version to
                                                      match data
))
(if (ux-init-trans connection-handle transact-info)
     (display "ux-init-trans was successful\n")
   (begin
    (display "ux-init-trans was not successful\n")
    (display ux-get-error-str)
    (newline)
   )
)
```

ux-init-ts

Syntax

```
(ux-init-ts connection-handle transact-info)
```

Description

ux-init-ts retrieves the trading partner profile from the e*Xchange database based on the items included in the transact-info list. The retrieved information is only used by the Message Profile level and is stored in global structures. **ux-get-header** with level "T" can be used to extract the data from the global structures.

Use the **ux-init-ts** API for inbound or outbound messages.

Parameters

Name	Type	Description
connection-handle	connection-handle	Required. The previously established connection to the database.
transact-info	list: alt_id company_name tran_type tpic_version tpts_version direction tran_mode tpic_id tpts_id rtn_ts_id comm_port logical_name file_name sub-list: (0->many) (optional)	Required. A set of identifying information contained within the current message. This information is matched against corresponding information in the e*Xchange database so that the correct trading partner profile can be retrieved. All list arguments must be strings, except for the sub-lists which are lists containing strings. All elements before the sub-list section are required, but can be empty strings (""), with the exception of direction which returns an error if no value is provided.
	List member	**Description**
	alt_id	The identification number of the trading partner, assigned by an external application (1–20 characters).
	company_name	The name of the company to which the message relates. If the trading partner is a subdivision of a larger company, this is the name of the company (1–35 characters).
	tran_type	The code representing the name of the eBusiness Protocol used to format the message: possible values include X12, EDF and ROS. EDF represents UN/EDIFACT and ROS represents RosettaNet.

Name	Type	Description
	tpic_version	The version of the protocol being used by the trading partner. This is the human-readable version, as used in the es_tpic table. Since **ux-init-ts** is only applicable to Message Profiles, any value supplied for this parameter is ignored. However, a placeholder ("") must be supplied.
	tpts_version	The version of the protocol being used by the trading partner. This is the human-readable version, as used in the es_tpts table. Example: 4040 for X12 version 4040, or 1.1 for RosettaNet version 1.1.
	direction	Required. Indicates the direction of the message: I—Inbound O—Outbound
	tran_mode	The way in which messages are exchanged with the trading partner: I (interactive)—The message is sent to or from the trading partner individually to facilitate a "question and answer" type of B2B Protocol level. B (batch)—The message is accumulated with other messages, which are then transmitted to or from the trading partner as a group. FB (fast batch)—A group of messages that are to be batched together in one interchange and identified by an associating unique ID.
	tpic_id	The record ID of the es_tpic table.
	tpts_id	The record ID for the es_tpts table.
	rtn_ts_id	The record ID of the return message set.
	comm_port	The communications protocol used in the message; for example, HTTP.

Name	Type	Description
	logical_name	The name of the trading partner, as set up in the Logical Name field in the General tab of the B2B Protocol window.
	file_name	The path and file name of the FTP file containing the message.
	(sub-list) (0->many)	Optional. The sub-list format is: level = "I" or "T" col_name col_value

Return Values

Returns one of the following values:

string
Returns "O" if the trading partner profile information is successfully loaded into the global structure.

Boolean
Returns **#f** (false)—if a corresponding trading partner profile was not found, or a problem occurred and the global B2B Protocol structures were not initialized successfully. Use the **ux-get-error-str** API to retrieve the error message.

Note: *A failure generally means that the information passed into the function does not match any of the TP Profiles set up. Review this data and verify that it is correct.*

Throws

Exception-InvalidArg, Exception-Catastrophic (can't be caught).

Additional Information

ux-init-trans, **ux-init-ic**, and **ux-init-ts** only retrieve for active trading partners. From the e*Xchange Web Interface verify the status of the intended TP Profile.

ux-init-ts does the following:

- Receives a set of identifying values contained within the current message and a connection handle to the database from the calling process.
- Retrieves information from the database for the trading partner profile that matches the set of identifying values.
- Populates the Message Profile global structures with information from the trading partner profile.
- Returns a value to the calling process that indicates whether or not the global structures were initialized successfully.

Trading partner profiles, which include the information required by trading partners, are defined by users and are stored in the following e*Xchange tables: es_company, es_tph, es_tpcat, es_tpic, es_tpts, es_ext_data, and es_ext_detail. The **ux-init-trans** and associated APIs retrieve the information that is stored in these tables and loads it into the global structures.

A global structure stores data for TP Profile in memory while e*Xchange processes the message. Other APIs access the information stored in the global structures to facilitate in processing the messages.

Example

```
(define transact-info (list "ACMEDIV1" ; alt_id
       "ACME Division ONE" ; name
       "X12" ; tran_type
       "4010" ; tpic_version in es_tpic
       "4010" ; tpts_version in es_tpts
       "I" ; direction
       "B" ; tran_mode
       "" ; tpic_id
       "" ; tpts_id
       "" ; rtn_ts_id
       "" ; comm_port
       "" ; logical_name
       "" ; file_name
       (list "I" "SENDER_ID" "sender_id")
       (list "I" "RCVR_ID" "hliu")
       (list "T" "FUNC_ID_CODE" "HB")
       (list "T" "TRAN_SET_ID" "271")
       (list "I" "VERSION" "00401") ; version to match data
))
(if (ux-init-ts connection-handle transact-info)
     (display "ux-init-ts was successful\n")
   (begin
    (display "ux-init-ts was not successful\n")
    (display ux-get-error-str)
    (newline)
   )
)
```

ux-mdn-outb-ack

Syntax

```
(ux-mdn-outb-ack connection-handle ack-stat)
```

Description

ux-mdn-outb-ack performs the acknowledgment handling for AS2 MDNs created in eXchange and sent in the outbound direction. This function is unique from the other ack handlers in that the ack msg is stored first. Thus, the global store_message_id can not be used to store in es_mtrk_inb.ack_msg_id. The ack-stat structure was modified to add room to pass in the ack-msg-id of the stored MDN when performing the association.

Parameters

Name	Type	Description
connection-handle	connection-handle	Required. The previously established connection to the database.
ack-stat	list: ack-tm ack-type level mtrk-id unique-id error-data direction out-queue resp-id ack-msg-id	Required. A set of identifying information contained within the current message. This information is matched against corresponding information in the e*Xchange database so that the correct trading partner profile can be retrieved. All list arguments must be strings.
	List member	**Description**
	ack-tm	Optional. The acknowledgment time in the format yyyymmddhhmmss.
	ack-type	Required.The acknowledgment type. Allowed values include: ▪ P ▪ N
	level	Required. Allowed values include: ▪ I for B2B Protocol level ▪ T for Message Profile level
	mtrk-id	Optional. The es_mtrk_inb record to be updated. Note: Although mtrk-id and unique-id are optional, one of these values must be provided.
	unique-id	Optional. The unique-id to be used to find the record to be updated. Note: Although mtrk-id and unique-id are optional, one of these values must be provided.
	error-data	Error information in the format (code1^desc1~code2^desc2...).
	direction	Required. Allowed values include: ▪ I for inbound ▪ O for outbound
	out-queue	Required. Must be “N”.
	resp-id	Trading Partner Profile ID of the acknowledgment message being associated.
	ack-msg-id	Value to be updated in es_mtrk_inb.ack_msg_id.

Return Values

Returns one of the following values:

String

Returns the mtrk_id if the es_ctrk_inb record to be updated is found.

Boolean

Returns **#t** (true) if there are no records to update; otherwise returns **#f** (false) if the request did not process successfully. Use the **ux-get-error-str** API to retrieve the corresponding error message.

Throws

None.

Example

```
(define eX-ePM-Update-MDN-ID-Inb-Msg
 (lambda (mdn-mtrk-id mdn-object-id)
  (let
   (
    (error #f)
    (error_desc "")
    (mdn-outb-ack "")
    (ack_info_list (list "" "P" "T" mdn-mtrk-id "" "" "I" "N" "" mdn-
object-id))
   )
   (set! mdn-outb-ack (ux-mdn-outb-ack connection-handle
ack_info_list))
   (if (not mdn-outb-ack)
    (begin
     (set! error #t)
     (set! error_desc (ux-get-error-str))
    )
   )
   (vector error error_desc)
  )
 )
```

ux-mdn-inb-ack

Syntax

```
(ux-mdn-inb-ack connection-handle mtrk-list error-data)
```

Description

ux-mdn-inb-ack Handles functional acknowledgments for inbound AS2 MDNs. If no error data involved, should pass MESSAGEID and RESPONSE_ID in mtrk_list. If error data is involved, then only expect MESSAGEID.

Parameters

Name	Type	Description
connection-handle	connection-handle	Required. The previously established connection to the database.
mtrk-list	list	Required. A name value pair list that holds values stored in the message tracking extended attributes. All list arguments must be strings.
error-data	string	Error information in the format (code1^desc1~code2^desc2...).

Return Values

Returns one of the following values:

Vector
Returns a vector containing the mtrk_ids found to be updated.

Boolean

Returns **#t** (true) if there are no records to update; otherwise returns **#f** (false) if the request did not process successfully. Use the **ux-get-error-str** API to retrieve the corresponding error message.

Throws

None.

Example

```
(set! tran_info_list (list alt_id name tran_type "" "" "O" "" "" "" ""
communication logical_name "" ))
(set! ic-ret (ux-init-ic connection-handle tran_info_list))
(if ic-ret
  (begin
    (set! mdn-ext-list (append mdn-ext-list (list (list "MESSAGEID"
orig_msg_id))))
    (set! mdn-ack-ret (ux-mdn-inb-ack connection-handle mdn-ext-list
mdn_err_descr)
  )
)
```

ux-md5-digest

Syntax

```
(ux-md5-digest message)
```

Description

ux-md5-digest returns the MD5 digest of the input message.

Parameters

Name	Type	Description
message	string	Required. The message to digest.

Return Values

Returns one of the following values:

String

Returns the digested message, if the message is digested successfully.

Boolean

Returns **#f** (false) if the request did not process successfully. Use the **ux-get-error-str** API to retrieve the corresponding error message.

Throws

None.

Example

```
(define msg "AAAAAAAAAAAAAAAAAAAAAAAAAA")
(define dig-msg (ux-md5-digest msg))
```

ux-ret-edf-batch-ts-msgs

Syntax

```
(ux-ret-edf-batch-ts-msgs connection-handle file_size)
```

Description

ux-ret-edf-batch-ts-msgs returns batch UN/EDIFACT messages to batch out.

Parameters

Name	Type	Description
connection-handle	connection-handle	Required. The previously established connection to the database.
file-size	string	Contains the current size of batched messages. This value is updated and returned.

Return Values

Returns one of the following values:

vector

Returns a vector that contains three elements. The first element indicates the progressive size of the assembled batch message. If the file size exceeds 90% of the size specified in system defaults, this value is reset to “-1”. The second element contains the size of the messages returned in this function call. The third element is a vector with as many elements as there are messages found. Each element of this vector is itself a vector. Each sub-vector has a message as its first element and sub-vectors as its subsequent elements. This contains the associated es_mtrk_outb and es_mtrk_ext_data record IDs.

Element Number	Type	Description
(all)	vector: total file size total message length vector	A vector containing a file size, message length and sub-vector.
(all)	vector: sub-vector 1 sub-vector 2 ... sub-vector N	A sub-vector containing a message and its associated tracking IDs as its elements.

Element Number	Type	Description	
	Sub-vector element	**Type**	**Description**
	message	string	A stored message to be sent using Batch transfer mode.
	vector: mtrk_outb_id fg_control_ref_mtrk_ext_data_id ic_control_ref_mtrk_ext_data_id	vector	A tracking number associated with the message.

Boolean

Returns **#t** when there are no messages to retrieve and no errors are encountered; otherwise returns **#f** (false) if the request did not process successfully. Use the **ux-get-error-str** API to retrieve the corresponding error message.

Throws

None.

Example

```
(define send-file-size "0")
(define mtrks-msgs (ux-ret-edf-batch-ts-msgs connection-handle send-file-
size))
 (cond
  ((> (vector-length mtrks-msgs) 0)
  (define send-immediate (vector-ref mtrks-msgs 0))
  (comment "If send-immediate is -1, the size of retrieved msgs exceeds
Maximum Batch File Size value in System Defaults" "")
  (display "\nSend Immediate : ")
  (display send-immediate)
  (newline)
  (define msg-size (vector-ref mtrks-msgs 1))
  (display "\ntotal_msg_size : ")
  (display msg-size)
  (newline)
  (define msgs-vec (vector-ref mtrks-msgs 2))
  (do ((I 0 (+ I 1)) (value-count (vector-length msgs-vec))) ((= I value-
count))
   (display "\nmtrks-msgs <")
   (display (+ I 1))
   (display "> = ")
   (display (vector-ref (vector-ref msgs-vec I) 0))
   (do ((j 1 (+ j 1)) (sub-val-count (vector-length (vector-ref msgs-vec I))))
((= j sub-val-count))
    (display "\nMtrk Outb Id: ")
    (display (vector-ref (vector-ref (vector-ref msgs-vec I) j) 0))
    (display "\nMtrk Ext Data Id <FG_CONTROL_REF>: ")
    (display (vector-ref (vector-ref (vector-ref msgs-vec I) j) 1))
    (display "\nMtrk Ext Data Id <IC_CONTROL_REF>: ")
    (display (vector-ref (vector-ref (vector-ref msgs-vec I) j) 2))
   )
  )
 )
 (else
  (if (eq? mtrks-msgs #t)
   (display "Nothing to retrieve\n")
   (display (string-append "Encountered error: <" (ux-get-error-str) ">\n"))
  )
 )
)
```

ux-ret-edf-fb-ts-msgs

Syntax

```
(ux-ret-edf-fb-ts-msgs connection-handle file_size)
```

Description

ux-ret-edf-fb-ts-msgs returns fast batch UN/EDIFACT messages to batch out.

Parameters

Name	Type	Description
connection-handle	connection-handle	Required. The previously established connection to the database.
file_size	string	Contains the current size of batched messages. This value is updated and returned.

Return Values

Returns one of the following values:

vector

Returns a vector that contains three elements. The first element indicates the progressive size of the assembled batch message. The second element contains the size of the messages returned in this function call. The third element is a vector with as many elements as there are messages found. Each element of this vector is itself a vector. Each sub-vector has a message as its first element and sub-vectors as its subsequent elements. This contains the associated es_mtrk_outb and es_mtrk_ext_data record IDs.

Element Number	Type	Description
(all)	vector: total file size total message length vector	A vector containing a file size, message length and sub-vector.
(all)	vector: fb_unique_id sub-vector 1 sub-vector 2 ... sub-vector N	A sub-vector containing a message and its associated tracking IDs as its elements.

Element Number	Type	Description	
	Sub-vector element	**Type**	**Description**
	message	string	A stored message to be sent using Batch transfer mode.
	vector: mtrk_outb_id fg_control_ref_mtrk_ext_data_id ic_control_ref_mtrk_ext_data_id	vector	A tracking number associated with the message.

Boolean

Returns **#t** when there are no messages to retrieve and no errors are encountered; otherwise returns **#f** (false)—if the request did not process successfully. Use the **ux-get-error-str** API to retrieve the corresponding error message.

Throws

None.

Example

```
(define mtrks-msgs (ux-ret-edf-fb-ts-msgs connection-handle "0"))
 (cond
  ((not (boolean? mtrks-msgs))
  (define msg-size (vector-ref mtrks-msgs 1))
  (display "\ntotal_msg_size : ")
  (display msg-size)
  (newline)
  (define msgs-vec (vector-ref mtrks-msgs 2))
  (display "Fast Batch Unique ID : ")
  (display (vector-ref msgs-vec 0))
  (newline)
  (do ((i 1 (+ i 1)) (value-count (vector-length msgs-vec))) ((= i value-
count))
   (display "\nmtrks-msgs <")
   (display (+ i 1))
   (display "> = ")
   (display (vector-ref (vector-ref msgs-vec i) 0))
   (do ((j 1 (+ j 1)) (sub-val-count (vector-length (vector-ref msgs-vec i))))
((= j sub-val-count))
    (display "\nMtrk Outb Id: ")
    (display (vector-ref (vector-ref (vector-ref msgs-vec i) j) 0))
    (display "\nMtrk Ext Data Id <FG_CONTROL_REF>: ")
    (display (vector-ref (vector-ref (vector-ref msgs-vec i) j) 1))
    (display "\nMtrk Ext Data Id <IC_CONTROL_REF>: ")
    (display (vector-ref (vector-ref (vector-ref msgs-vec i) j) 2))
   )
  )
 )
 (else
  (if (eq? mtrks-msgs #t)
   (display "Nothing to retrieve\n")
   (display (string-append "Encountered error: <" (ux-get-error-str) ">\n"))
  )
 )
)
```

ux-ret-X12-batch-ts-msgs

Syntax

```
(ux-ret-X12-batch-ts-msgs connection-handle file_size)
```

Description

ux-ret-edf-batch-ts-msgs returns batch X12 messages to batch out.

Parameters

Name	Type	Description
connection-handle	connection-handle	Required. The previously established connection to the database.
file_size	string	Contains the current size of batched messages. This value is updated and returned.

Return Values

Returns one of the following values:

vector

Returns a vector that contains three elements. The first element indicates the progressive size of the assembled batch message. If the file size exceeds 90% of the size specified in system defaults, this value is reset to “-1”. The second element contains the size of the messages returned in this function call. The third element is a vector with as many elements as there are messages found. Each element of this vector is itself a vector. Each sub-vector has a message as its first element and sub-vectors as its subsequent elements. This contains the associated es_mtrk_outb and es_mtrk_ext_data record IDs.

Element Number	Type	Description
(all)	vector: total file size total message length vector	A vector containing a file size, message length, and sub-vector.
(all)	vector: sub-vector 1 sub-vector 2 ... sub-vector N	A sub-vector containing a message and its associated tracking IDs as its elements.

Element Number	Type	Description	
	Sub-vector element	**Type**	**Description**
	message	string	A stored message to be sent using Batch transfer mode.
	vector: mtrk_outb_id ts_control_num_mtrk_ext_data_id fg_control_num_mtrk_data_id ic_control_num_mtrk_ext_data_id	vector	A tracking number associated with the message.

Boolean

Returns **#t** when there are no messages to retrieve and no errors are encountered; otherwise returns **#f** (false)—if the request did not process successfully. Use the **ux-get-error-str** API to retrieve the corresponding error message.

Throws

None.

Example

```
(define send-file-size "0")
(define mtrks-msgs (ux-ret-x12-batch-ts-msgs connection-handle send-file-
size))
(cond
 ((> (vector-length mtrks-msgs) 0)
  (define send-immediate (vector-ref mtrks-msgs 0))
  (comment "If send-immediate is -1, the size of retrieved msgs exceeds
Maximum Batch File Size value in System Defaults" "")
  (display "\nSend Immediate : ")
  (display send-immediate)
  (newline)
  (define msg-size (vector-ref mtrks-msgs 1))
  (display "\ntotal_msg_size : ")
  (display msg-size)
  (newline)
  (define msgs-vec (vector-ref mtrks-msgs 2))
  (do ((I 0 (+ I 1)) (value-count (vector-length msgs-vec))) ((= I value-
count))
   (display "\nmtrks-msgs <")
   (display (+ I 1))
   (display "> = ")
   (display (vector-ref (vector-ref msgs-vec I) 0))
   (do ((j 1 (+ j 1)) (sub-val-count (vector-length (vector-ref msgs-vec I))))
((= j sub-val-count))
    (display "\nMtrk Outb Id: ")
    (display (vector-ref (vector-ref (vector-ref msgs-vec I) j) 0))
    (display "\nMtrk Ext Data Id <T_CONTROL_NUM>: ")
    (display (vector-ref (vector-ref (vector-ref msgs-vec I) j) 1))
    (display "\nMtrk Ext Data Id <G_CONTROL_NUM>: ")
    (display (vector-ref (vector-ref (vector-ref msgs-vec I) j) 2))
    (display "\nMtrk Ext Data Id <I_CONTROL_NUM>: ")
    (display (vector-ref (vector-ref (vector-ref msgs-vec I) j) 3))
   )
  )
 )
 (else
  (if (eq? mtrks-msgs #t)
   (display "Nothing to retrieve\n")
   (display (string-append "Encountered error: <" (ux-get-error-str) ">\n"))
  ) ))
```

ux-ret-X12-fb-ts-msgs

Syntax

```
(ux-ret-X12-fb-ts-msgs connection-handle file_size)
```

Description

ux-ret-edf-fb-ts-msgs returns fast batch X12 messages to batch out.

Parameters

Name	Type	Description
connection-handle	connection-handle	Required. The previously established connection to the database.
file_size	string	Contains the current size of batched messages. This value is updated and returned.

Return Values

Returns one of the following values:

Vector

Returns a vector that contains three elements. The first element indicates the progressive size of the assembled batch message. The second element contains the size of the messages returned in this function call. The third element is a vector with as many elements as there are messages found. Each element of this vector is itself a vector. Each sub-vector has a message as its first element and sub-vectors as its subsequent elements. This contains the associated es_mtrk_outb and es_mtrk_ext_data record IDs.

Element Number	Type	Description
(all)	vector: total file size total message length vector	A vector containing a file size, message length, and sub-vector.
(all)	vector: fb_unique_id sub-vector 1 sub-vector 2 ... sub-vector N	A sub-vector containing a message and its associated tracking IDs as its elements.

Element Number	Type		Description
	Sub-vector element	**Type**	**Description**
	message	string	A stored message to be sent using Batch transfer mode.
	vector: mtrk_outb_id ts_control_num_mtrk_ext_data_id fg_control_num_mtrk_data_id ic_control_num_mtrk_ext_data_id	vector	A tracking number associated with the message.

Boolean

Returns **#t** when there are no messages to retrieve and no errors are encountered; otherwise returns **#f** (false)—if the request did not process successfully. Use the **ux-get-error-str** API to retrieve the corresponding error message.

Throws

None.

Example

```
(define mtrks-msgs (ux-ret-x12-fb-ts-msgs connection-handle "0"))
(cond
 ((not (boolean? mtrks-msgs))
  (define msg-size (vector-ref mtrks-msgs 1))
  (display "\ntotal_msg_size : ")
  (display msg-size)
  (newline)
  (define msgs-vec (vector-ref mtrks-msgs 2))
  (display "Fast Batch Unique ID : ")
  (display (vector-ref msgs-vec 0))
  (newline)
  (do ((i 1 (+ i 1)) (value-count (vector-length msgs-vec))) ((= i value-
count))
   (display "\nmtrks-msgs <")
   (display (+ i 1))
   (display "> = ")
   (display (vector-ref (vector-ref msgs-vec i) 0))
   (do ((j 1 (+ j 1)) (sub-val-count (vector-length (vector-ref msgs-vec i))))
((= j sub-val-count))
    (display "\nMtrk Outb Id: ")
    (display (vector-ref (vector-ref (vector-ref msgs-vec i) j) 0))
    (display "\nMtrk Ext Data Id <T_CONTROL_NUM>: ")
    (display (vector-ref (vector-ref (vector-ref msgs-vec i) j) 1))
    (display "\nMtrk Ext Data Id <G_CONTROL_NUM>: ")
    (display (vector-ref (vector-ref (vector-ref msgs-vec i) j) 2))
    (display "\nMtrk Ext Data Id <I_CONTROL_NUM>: ")
    (display (vector-ref (vector-ref (vector-ref msgs-vec i) j) 3))
   )
  )
 )
 (else
  (if (eq? mtrks-msgs #t)
   (display "Nothing to retrieve\n")
   (display (string-append "Encountered error: <" (ux-get-error-str) ">\n"))
  )
 )
)
```

ux-retrieve-997-error

Syntax

```
(ux-retrieve-997-error)
```

Description

ux-retrieve-997-error retrieves information from a 997 functional acknowledgment. It retrieves a vector containing 997 segment (AK2, AK3, AK4, or AK5) elements, originally stored by calling **ux-track-997-errors**. Segments are returned in the order stored. **ux-retrieve-997-error** returns a vector of segment elements from the head of the error linked-list and deletes that segment from the list. Hence, the head of the list is shifted to the next segment.

Use the **ux-retrieve-997-error** API for inbound messages.

Parameters

None.

Return Values

Returns one of the following values:

vector

Returns one of four types of vectors containing 997 segment information, if there are segments to retrieve.

Vector Type	Element Number	Type	Description
AK2	1	string	"AK2"
	2	string	tran_set_id
	3	string	ts_control_num
AK3	1	string	"AK3"
	2	string	seg_id_code
	3	string	seg_position
	4	string	loop_id_code
	5	string	syntax_error_code
AK4	1	string	"AK4"
	2	string	position_in_segment
	3	string	data_element_ref_no
	4	string	syntax_error_code
	5	string	bad_data

Vector Type	Element Number	Type	Description
AK5	1	string	"AK5"
	2	string	ts_ack_code
	3	string	ts_syntax_error_code_1
	4	string	ts_syntax_error_code_2
	5	string	ts_syntax_error_code_3
	6	string	ts_syntax_error_code_4
	7	string	ts_syntax_error_code_5

Note: *Each segment and element is returned in the order stored by **ux-track-997-errors**.*

Boolean

Returns **#t** (true)—if there are no more segments to retrieve; otherwise returns **#f** (false)—if the request did not process successfully. Use the **ux-get-error-str** API to retrieve the corresponding error message.

Throws

Exception-InvalidArg.

Example

The following Monk script example calls **ux-retrieve-997-error** with the assumption that **ux-track-997-errors** was executed successfully for at least one 997 segment. **ux-retrieve-997-error** returns a vector containing 997 segment elements. Segment seg_ak2345 contains the vector of returned values, and the internal DO loop displays each string in the vector. The external DO loop keeps calling **ux-retrieve-997-error** to retrieve each of the 997 segments until either **#t** (true) or **#f** (false) is encountered. When there are no more segments to retrieve, then **#t** (true) is returned. If an error occurs, then **#f** (false) is returned and the error string is printed by the display of **ux-get-error-str**.

```
(do  ((i 0 (+ i 1)) (seg_ak2345 ""))
      ((boolean? seg_ak2345))

      (set! seg_ak2345 (ux-retrieve-997-error))

      (cond ((not (boolean? seg_ak2345))
         (do ((i 0 (+ i 1)) (value-count (vector-length
         seg_ak2345)))
              ((= i value-count))
              (display "AK2345 element <")
              (display i)
              (display "> = ")
              (display (vector-ref seg_ak2345 i))
              (newline)
        )
       ; retrieve ak2345 values
      )
      (else
       (if seg_ak2345
             (display "No more to retrieve\n")
         (begin
             (display (ux-get-error-str))
             (newline)
          )
         )
        );else
       );cond
);do
```

ux-retrieve-997-error-tail

Syntax

```
(ux-retrieve-997-error-tail)
```

Description

ux-retrieve-997-error-tail retrieves the 997 segment (AK2, AK3, AK4, or AK5) that is at the end of the list. Once a vector of segment elements is returned, this API also deletes that segment from the list.

Use the **ux-retrieve-997-error-tail** API for inbound messages.

Parameters

None.

Return Values

Returns one of the following values:

Vector

Returns one of four types of vectors containing 997 segment information, if there is a segment to retrieve.

Vector Type	Element Number	Type	Description
AK2	1	string	"AK2"
	2	string	tran_set_id
	3	string	ts_control_num
AK3	1	string	"AK3"
	2	string	seg_id_code
	3	string	seg_position
	4	string	loop_id_code
	5	string	syntax_error_code
AK4	1	string	"AK4"
	2	string	position_in_segment
	3	string	data_element_ref_no
	4	string	syntax_error_code
	5	string	bad_data
AK5	1	string	"AK5"
	2	string	ts_ack_code
	3	string	ts_syntax_error_code_1
	4	string	ts_syntax_error_code_2
	5	string	ts_syntax_error_code_3
	6	string	ts_syntax_error_code_4
	7	string	ts_syntax_error_code_5

Boolean

Returns **#t**—if there are no more segments to retrieve; otherwise returns **#f** (false)—if the request did not process successfully. Use the **ux-get-error-str** API to retrieve the corresponding error message.

Throws

Exception-InvalidArg.

Example

The following Monk script example calls **ux-retrieve-997-error-tail** with the assumption that **ux-track-997-errors** was executed successfully for at least one 997 segment. **ux-retrieve-997-error-tail** returns a vector containing 997 segment elements. Segment seg_ak2345 contains the vector of returned values, and the internal DO loop displays each string in the vector. The external DO loop keeps calling **ux-retrieve-997-error-tail** to retrieve each of the 997 segments until either **#t** or **#f** is encountered. When there are no more segments to retrieve, then **#t** is returned. If an error occurs, then **#f** is returned and the error string is printed by the display of **ux-get-error-str**.

```
(do ((i 0 (+ i 1)) (seg_ak2345 ""))
    ((boolean? seg_ak2345))

    (set! seg_ak2345 (ux-retrieve-997-error-tail))

    (cond ((not (boolean? seg_ak2345))
        (do ((i 0 (+ i 1)) (value-count (vector-length seg_ak2345)))
            ((= i value-count))
            (display "AK2345 element <")
            (display i)
            (display "> = ")
           (display (vector-ref seg_ak2345 i))
            (newline)
            (sleep 5)
        )
       ; retrieve ak2345 values
      )
      (else
        (if seg_ak2345
           (display "No more to retrieve\n")
         (begin
          (display (ux-get-error-str))
           (newline)
         )
        )
      )
    ) ; cond
); do
```

ux-retrieve-message

Syntax

(ux-retrieve-message connection-handle msg-id)

Description

ux-retrieve-message retrieves a message from the es_msg_ascii table or the es_msg_binary table, depending on whether the message is compressed or not. Msg-id is used to identify the message.

Parameters

Name	Type	Description
connection-handle	connection-handle Required.	The previously established connection to the database.
msg-id	String	The message id as saved in the es_msg_storage table.

Return Values

Returns one of the following values:

string
Returns a Monk string representing the found message, when the function executes successfully.

Boolean
Returns **#f** (false) when the function fails to complete successfully.

Throws

Exception-InvalidArg, Exception-Mapping, Exception-Catastrophic (can't be caught).

Additional Information

ux-retrieve-message retrieves the entire message, even though it may be saved in the database in multiple rows.

Examples

The following Monk script example calls **ux-retrieve-message**. This script makes three assumptions:

- That **ux-init-trans** was executed successfully for the given message.
- That a connection to the database, conn-handle, has been established before **ux-retrieve-message** is called.
- That all variables in the first two statements below have been properly defined with values either from the message itself or from the partner profile in the database.

If **ux-retrieve-message** fails, then the error, a user defined function **SendFailureNotification**, is called.

```
(set! msg_content (ux-retrieve-message connection-handle msg_id))
(if msg_content
    (begin
        (display (string-append "Got msg_content=<"
                                msg_content ">\n"))
        (newline)
        (try ($event-parse input msg_content)
             (catch (always (set! success #f)))))
    (begin (set! success #f))
)
```

ux-return-receipt

Syntax

```
(ux-return-receipt level type)
```

Description

ux-return-receipt determines whether a return receipt (response) for an event is expected at the specified level. Use the **ux-return-receipt** API for inbound or outbound messages.

Parameters

Name	Type	Description
level	string	Required. The return receipt level. Acceptable values: I—B2B Protocol level information T—Message Profile level information
type	string	Required. O— original structure

Return Values

Returns one of the following values:

string

Returns "Y" if a return receipt is expected; otherwise returns "N" if a return receipt is not expected.

Boolean

Returns **#f** (false)—if the request did not process successfully. Use the **ux-get-error-str** API to retrieve the corresponding error message.

Throws

Exception-InvalidArg.

Example

The following Monk script example calls **ux-return-receipt** with the assumption that **ux-init-trans** was executed successfully for the given transaction. **ux-return-receipt** sets result to equal "Y" if a return receipt is expected for the B2B Protocol level. Otherwise, result equals "N", which means a return receipt is not expected for the B2B Protocol level. If an error occurs, then **#f** (false) is returned and the error string is printed by the display of **ux-get-error-str**.

```
(define level "I")
  (define res (ux-return-receipt level type))
  (cond ((not (boolean? res))
         (cond ((string-ci=? "Y" res)
              (display "Return receipt expected\n")
              )
              (else
              (display "Return receipt not expected\n")
              )
         )
        )
        (else
              (display (ux-get-error-str))
              (newline)
        )
  )
```

ux-set-fb-overdue

Syntax

```
(ux-set-fb-overdue connection-handle)
```

Description

ux-set-fb-overdue checks the database for fast batch settings. If it finds records that match the specified criteria, it sets the BATCH_SEND_IMM flag to Y. This value represents any fast batch record that has exceeded its time-out used for fast batch transactions.

ux-set-fb-overdue checks for the following values:

- BATCH_SEND_IMM = "N"
- es_mtrk_outb.es_id = g_ts.tpts_id
- es_mtrk_outb.es_opt = "TS"
- es_mtrk_outb.created_time <= current - fb_timeout in sb_defaults

If a record matches the above criteria, then BATCH_SEND_IMM is set to "Y". This criteria represents any (fast) batch record that has exceeded its time-out. The ePM Batching e*Way then picks up the timed out records to send out.

Use the **ux-set-fb-overdue** API for outbound messages.

Parameters

Name	Type	Description
connection-handle	connection-handle	Required. The previously established connection to the database.

Return Values

Boolean

Returns **#t** (true)—if no errors are encountered.

Returns **#f** (false)—if errors are encountered.

Throws

Exception-InvalidArg

Additional Information

ux-init-trans or ux-init-ts must be called before this API is executed.

Example

```
(if (eq? #t (ux-set-fb-overdue connection-handle))
(display "ux-set-fb-overdue was successful! \n")
(display (string-append "ux-set-fb-overdue failed with error: <"(ux-
get-error-str) ">\n"))
)
```

ux-sha1-digest

Syntax

```
(ux-sha1-digest message)
```

Description

ux-sha1-digest returns the SHA1 digest of the input message.

Parameters

Name	Type	Description
message	string	Required. The message used to create the SHA1 digest.

Return Values

String

Returns the digested message (unsigned character string of length 20), if the message is digested successfully.

Boolean

Returns **#f** (false) if errors are encountered.

Example

ux-store-msg

Syntax

```
(ux-store-msg connection-handle msg store-info raw_msg env_msg)
```

Description

ux-store-msg stores a message (Message Profile or B2B Protocol level) in the e*Xchange database, inserting entries in multiple tables in the process. If the message is compressed before it is stored, it is stored in es_msg_binary. If it is not compressed, it is stored in es_msg_ascii. In either case, a record is inserted into es_msg_storage that has a column, "compressed", indicating the table in which the message is stored.

Depending on whether the message is inbound or outbound, **ux-store-msg** makes an additional entry in either the es_mtrk_inb or es_mtrk_outb table. This table indicates send or receive time, send count, transaction count, and so on. If there is information specific to the transaction type (RosettaNet or X12) to store in the message, this data is stored in es_mtrk_ext_data and associated to specific records in es_mtrk_ext_det.

Use the **ux-store-msg** API for inbound or outbound messages.

Parameters

Name	Type	Description
connection-handle	connection-handle	Required. The previously established connection to the database.
msg	string	Required. The processed message to be stored. The processed message must be provided for an inbound message. For an outbound message, the processed message does not need to be stored if the raw message is stored. If you do not want to store the processed message, then use an empty string ("") Note: If both the raw and processed messages are empty strings then ux-store-msg fails. Storage location: Inbound—es_mtrk_inb Outbound—es_mtrk_outb

Name	Type	Description
store-info	list: direction unique_id type error_data level tp_loc msg_being_sent compressed mtrk_id sub-list: Optional: (0->many)	Required. List of items regarding the Message Profile. All list arguments must be strings, except for the sub-lists which are lists containing strings. All elements before the sub-list section are required, but can be empty strings (""), with the exception of direction, unique_id, type, and level, which return an error if no value is provided.
	List member	**Description**
	direction	Required. Indicates the direction of the message: I—Inbound O—Outbound
	unique_id	Required. The unique identifier for the original message.
	type	Required. The kind of message being stored. The following are valid values: "O"—Original (only the original message is stored) "W"—Wrapped (the original message is stored in one location and the wrapped message is stored in another location) "C"—Combined (the wrapped message and the original message are stored in one location)
	error_data	Error information. Optional—code^description~code^description (^ separates the values for an error and ~ separates the errors).
	level	Required. The storage level. Valid values: "I"—B2B Protocol "T"—Message Profile
	msg_being_sent	Required for original and wrapped: "Y"—Message is being sent to e*Gate "N"—Message is not being sent to e*Gate
	compressed	Indicates whether the message is to be compressed before the msg is stored in the database: "Y"—Yes "N"—No

Name	Type	Description
	mtrk_id	Message tracking ID. Can be used for storage type "W" to locate the correct row to update env_msg_id. Should contain an empty string ("") if the message tracking ID is not entered.
	sub-list	Optional. The sub-list format is: col_name col_value Each sub-list containing attribute name and value are stored in the message tracking extended attribute tables. Note: If the col_name is "TRAN_MODE" then the value specified for this attribute overrides the Message Profile setting. Also, this pair is stored in the es_mtrk_outb.tran_mode column rather than the message tracking extended attribute tables.
	tp_loc	location of trading partner. Valid value: "O" —original
raw_msg	string	Optional. The raw transaction to be stored in the database. Note: This must contain at least an empty string ("") is an env_msg is passed in.
env_msg	string	Optional. A string containing the message to store in env_msg_id. If env_msg is passed in, the ID for this message overwrites any value already in the env_msg_id column for this row, even if storage_type is set to "C".

Return Values

Returns one of the following values:

String
Returns string that contains the **mtrk_id** (mtrk_outb_id for outbound or mtrk_inb_id for inbound)—if the message is successfully stored.

Boolean
Returns **#f** (false)—if the message is not successfully stored. Use the **ux-get-error-str** API to retrieve the corresponding error message.

Throws

Exception-InvalidArg, Exception-Mapping, Exception-Catastrophic (can't be caught).

Additional Information

If the length of the message is greater than the max size specified by the **ux-init-exdb** API, the message is broken up and stored in multiple rows in es_msg_binary (if compressed), es_msg_ascii (if not compressed), or es_msg_security (if encrypted or contains a digital signature).

All messages, whether or not they are created by e*Xchange, are stored in the Stored Messages table (es_msg_storage).

Example

The example below shows how to create the store information list.

```
(define store-info (list "O";  direction
              "TESTVAL119"; unique_id
              "W"; type
              "123^Not feeling so good~345^Pain in toe"; error_data
              "T"; level
              "O"; original
              "Y"; msg_being_sent
              "Y" ; compressed
              ""  ; mtrk_id
              (list "I_CONTROL_NUM" "556")
              (list "G_CONTROL_NUM" "776")
              (list "T_CONTROL_NUM" "886")
            )
)
```

The example below shows how to call the API.

```
(define raw_msg "")
(define msg "abcdefghijklmnopqrstuvwxyz1234567890")
(define mtrk-id (ux-store-msg connection-handle msg store-info
                                                        raw_msg))
(if (not (boolean? mtrk-id))
  (begin
   (display "Storing of message succeeded!\n")
   (display "returned mtrk_id = <")
   (display mtrk-id)
   (display ">\n")
  )
  (begin
   (display "Storing of message failed!\n")
   (display (ux-get-error-str))
   (newline)
  )
)
```

ux-store-msg-errors

Syntax

```
(ux-store-msg-errors connection-handle mtrk_id direction errorlist)
```

Description

Stores errors in the e*Xchange database that are associated with a message that is already stored in the database.

Parameters

Name	Type	Description
connection-handle	connection-handle	Required. The previously established connection to the database.
mtrk_id	string	Required. Message tracking ID that errors are associated with.
direction	string	Required. Direction of message. Either O—Outbound I—Inbound
errorlist	string	Required. Use the following format: code1^desc1~code2^desc2 ~code3^desc3... Code is the numeric identifier for the error. Desc explains the error. The code and description are separated by a "^", and each code/desc pair is separated by a "~".

Return Values

Boolean

Returns **#t** (true)—if the errors are stored successfully; otherwise returns **#f** (false)—if the errors do not store properly. Use **ux-get-error-str** to see the error.

Throws

Exception-InvalidArg, Exception-Mapping, Exception-Catastrophic (can't be caught).

Example

```
(if (ux-store-msg-errors conn-handle "12" "O" "45^Invalid Country
    Code~56^Invalid Zipcode")
    (display "Stored errors successfully\n")
    (display "Failed to store errors\n")
)
```

ux-store-msg-ext

Syntax

```
(ux-store-msg-ext connection-handle msg store-info store-mode
                  msg_storage_id raw_msg env_msg env_msg_id)
```

Description

This API is similar to **ux-store-msg** except for the addition of two arguments store-mode and msg_storage_id. **ux-store-msg-ext** stores a message (Message Profile or B2B Protocol) in the e*Xchange database, inserting entries in multiple tables in the process. If the message is compressed before it is stored, it is stored in es_msg_binary. If it is not compressed, it is stored in es_msg_ascii. In either case, a record is inserted into es_msg_storage that has a column, "compressed", indicating the table in which the message is stored.

Depending on whether the message is inbound or outbound, **ux-store-msg-ext** makes an additional entry in either the es_mtrk_inb or es_mtrk_outb table. This table indicates send or receive time, send count, transaction count, and so on. If there is information specific to the transaction type (RosettaNet or X12) to store in the message, this data is stored in es_mtrk_ext_data and associated to specific records in es_mtrk_ext_det.

Use the **ux-store-msg-ext** API for inbound or outbound messages.

Parameters

Name	Type	Description
connection-handle	connection-handle	Required. The previously established connection to the database.
msg	string	Required. The transaction to be stored. Storage location: Inbound—es_mtrk_inb Outbound—es_mtrk_outb
store-info	list: direction unique_id type error_data level tp_loc msg_being_sent compressed mtrk_id sub-list: Optional: (0->many)	Required. List of items regarding the Message Profile. All list arguments must be strings, except for the sub-lists which are lists containing strings. All elements before the sub-list section are required, but can be empty strings (""), with the exception of direction, unique_id, type, and level, which return an error if no value is provided.

Name	Type	Description
	List member	**Description**
	direction	Required. Indicates the direction of the message: I—Inbound O—Outbound
	unique_id	Required. The unique identifier for the original message.
	type	Required. The kind of Message Profile being stored. The following are valid values: "O"—Original (only the original message is stored) "W"—Wrapped (the original message is stored in one location and the wrapped message is stored in another location) "C"—Combined (the wrapped message and the original message are stored in one location)
	error_data	Error information. Optional—code^description~code^description (^ separates the values for an error and ~ separates the errors).
	level	Required. The storage level the control number represents. Valid values: "I"—B2B Protocol level information "T"—Message Profile level information
	tp_loc	location of trading partner "O" original or "A" ack (response structure)
	msg_being_sent	Required for original and wrapped: "Y"—Message is being sent to e*Gate "N"—Message is not being sent to e*Gate
	compressed	Indicates whether the message is to be compressed before the msg is stored in the database: "Y"—Yes "N"—No
	mtrk_id	Message tracking ID. Can be used for storage type "W" to locate the correct row to update env_msg_id. Should contain an empty string ("") if the message tracking ID is not entered.
	sub-list	Optional. The sub-list format is: level = "I" or "T" col_name col_value

Name	Type	Description
store-mode	string	0—Saves the message and updates the message tracking table. 1—Saves the message only (no update to the message tracking table). 2—Updates the message tracking table only (the message is not saved)
msg_storage_id	string	Required for store-mode 2.
raw_msg	string	Optional. The raw transaction to be stored in the database. Note: This must contain at least an empty string (“”) is an env_msg is passed in.
env_msg	string	Optional. A string containing the message to store in env_msg_id. If env_msg is passed in, the ID for this message overwrites any value already in the env_msg_id column for this row, even if storage_type is set to “C”.
env_msg_id	string	Optional. The storage ID for an enveloped message already stored in the e*Xchange database. It is used to populate the env_msg_id column for modes 0 and 2. It is ignored for mode 1.

Return Values

Returns one of the following values:

vector
Returns a vector containing the following elements if a security certificate was found:

Element Number	Type	Description
1	string	mtrk_id (message tracking ID)
2	string	msg_storage_id
3	string	env_msg_id (optional — only returned if env_msg or env_msg_id was passed in)

Boolean
Returns **#f** (false)—if the message is not successfully stored. Use the **ux-get-error-str** API to retrieve the corresponding error message.

Throws

Exception-InvalidArg, Exception-Mapping, Exception-Catastrophic (can’t be caught).

Additional Information

If the length of the message is greater than the max size specified by the **ux-init-exdb** API, the message is broken up and stored in multiple rows in es_msg_binary (if compressed), or es_msg_security (if encrypted or contains a digital signature).

All messages, whether or not they are created by e*Xchange, are stored in the Stored Messages table (es_msg_storage).

Special Notes

If there is the need to store an enveloped message that is different then the original then it should be passed in as a string as the last parameter for ux-store-msg-ext. If the enveloped message is not different then the original, there is no enveloped message to be stored, or env_msg_id is not specified, then don't pass anything after the *raw_msg* parameter.

If you do include the *env_msg* or *env_msg_id*, then you must include at least empty strings for the parameters that precede them. For example, if *env_msg* is being passed in, then there must be at least an empty string for *raw_msg*. If passing in *env_msg_id*, then there must be at least an empty string for *raw_msg* and *env_msg*. Also, if both *env_msg* and *env_msg_id* have values, then *env_msg* will override all other env_msg_id values unless the mode is 2. And *env_msg* or *env_msg_id* will override *storage_type* = "C" unless the mode is 2. For mode set to 2, then only *env_msg_id* would override that storage type.

Since the last three parameters are optional, then ux-store-msg-ext can be called in four different ways:

(ux-store-msg-ext *hdbc processed_msg store-info mode msg_storage_id*)

OR

(ux-store-msg-ext *hdbc processed_msg store-info mode msg_storage_id raw_msg*)

OR

(ux-store-msg-ext *hdbc processed_msg store-info mode msg_storage_id raw_msg env_msg*)

OR

(ux-store-msg-ext *hdbc processed_msg store-info mode msg_storage_id raw_msg env_msg env_msg_id*)

Example

```
(define raw_msg "")
(define store_mode 0)
(define store_rtn_vec (ux-store-msg-ext connection-handle
                       output_data store_orig_info store_mode
                       msg_storage_id raw_msg))
(if (boolean? store_rtn_vec)
    (begin
        (eX-ePM-log "ux-store-msg-ext failed\n"))
    (begin
        (set! msg_storage_id (vector-ref store_rtn_vec 1))
        (set! mtrk-id (vector-ref store_rtn_vec 0))
        (set! store_mode 2)))
```

ux-store-shutdown-uid

Syntax

```
(ux-store-shutdown-uid connection-handle list)
```

Description

ux-store-shutdown-uid inserts a row into the es_sd_data table with es_id, es_opt and unique_id when an eX_ePM shutdown occurs.

Parameters

Name	Type	Description
connection-handle	connection-handle	Required. The previously established connection to the database.
list	list	Required. Contains any number of lists containing es_id, es_opt, and unique_id.
	List member	**Description**
	es_id	Required. This contains the tpts_id if es_opt is "T"; otherwise, this contains the tpic_id if es_opt is "I".
	es_opt	Required. The message level.Valid values: "I"—B2B Protocol level information "T"—Message Profile level information
	unique_id	Required. A string that uniquely identifies the transaction.

Return Values

Boolean

Returns **#t** (true)—if the errors are stored successfully; otherwise returns **#f** (false)—if the errors do not store properly. Use **ux-get-error-str** to see the error.

Throws

None.

Example

```
(define store_result (ux-store-shutdown-uid connection-handle
                         (list    (list "1" "T" "AAAA")
                                  (list "1" "T" "BBBBB")
                         )
                     )
)
```

ux-track-997-errors

Syntax

```
(ux-track-997-errors list of AK2, AK3, AK4, or AK5 elements)
```

Description

ux-track-997-errors stores the error information for a 997 in a linked-list, so errors can be tracked as they are encountered in a validation. The error information is used to create a 997 functional acknowledgment.

Use the **ux-track-997-errors** API for inbound messages.

The head of the linked-list must be an AK2 segment.

Parameters

Name	Type	Description
List of AK2, AK3, AK4, or AK5 elements	list Lists vary based on type provided.	All list elements must be strings. Each list must begin with a segment_code, such as "AK2", "AK3", "AK4", or "AK5". The first segment to store must be an AK2 before an AK3, AK4, or AK5 are accepted. Each segment is stored in the order that **ux-track-997-errors** is called.
	List Type	**Description**
	AK2: tran_set_id ts_control_num	The transaction set (Message Profile) response header.
	AK3: seg_id_code seg_position loop_id_code syntax_error_code	A data segment note. loop_id_code and syntax_error_code are optional; however, "" must be in place if no value is to be stored.
	AK4: position_in_segment data_element_ref_no syntax_error_code bad_data	A data element note. data_element_ref_no and bad_data are optional; however, "" must be in place if no value is to be stored.
	AK5: ts_ack_code ts_syntax_code_error_1 ts_syntax_code_error_2 ts_syntax_code_error_3 ts_syntax_code_error_4 ts_syntax_code_error_5	The transaction set response trailer.

Return Values

Boolean

Returns **#t** (true)—if the strings are successfully stored; otherwise returns **#f** (false)—if the storage attempt is unsuccessful. Use the **ux-get-error-str** API to retrieve the corresponding error message.

Throws

Exception-InvalidArg, Exception-Mapping.

Example

The following Monk script example calls **ux-track-997-errors** with the assumption that **ux-track-997-errors** was executed successfully for an "AK2" and "AK3" previously. **ux-track-997-errors** first validates that the given segment_code "AK4" is valid. If valid, then a node is added to the end of the linked-list of 997 segments containing the provided AK4 information. If successful, then **ux-track-997-errors** returns **#t** and displays "Tracking 997 errors succeeded!". If an error occurs, then **#f** is returned, displays "Tracking 997 errors failed!" and prints the error string by the display of **ux-get-error-str**.

```
(define ak2345_data (list  "AK4" ; segment_code
                            "567" ; postion_in_segment
                            "" ; data_element_ref_no
                            "67" ; syntax_error_code
                            "Weshington, DC" ; bad data
                     )
 )
 (if (ux-track-997-errors ak2345_data)
        (display "Tracking 997 errors succeeded!\n")
        (begin
             (display "Tracking 997 errors failed!\n")
             (display (ux-get-error-str))
             (newline)
        )
 )
```

ux-update-batch-imm

Syntax

```
(ux-update-batch-imm connection-handle update-value type)
```

Description

ux-update-batch-imm updates the value in the e*Xchange database that is used to determine whether a transaction is ready to sent out using batch transfer mode. This corresponds to the value for **SEND BATCH IMMEDIATE** displayed on the **Extended** tab of the Message Profile for a transaction.

Parameters

Name	Type	Description
connection-handle	connection-handle	Required. The previously established connection to the database.
update-value	string	Required. Y—Yes N—No
type	string	O—Original A—Acknowledgment/Response

Return Values

Boolean

Returns **#t** (true)—if the transaction is updated successfully with the update-value; otherwise returns **#f** (false)—if the transaction fails to update. Use **ux-get-error-str** to see the error.

Throws

Exception-InvalidArg, Exception-Mapping, Exception-Catastrophic (can't be caught).

Example

```
(if (ux-update-batch-imm connection-handle "N" message_type)
    (begin)
    (begin
        (eX-ePM-log "ux-update-batch-imm failed")))
```

ux-update-control-num

Syntax

```
(ux-update-control-num connection-handle level type control-num)
```

Description

ux-update-control-num replaces the specified control number in the database and global structure with the one provided. If the control number provided contains leading zeros, they are stripped off before replacing the number.

ux-update-control-num updates the control number provided for the given transaction level (I = i_control_num, G = g_control_num, T = ts_control_num). If the given control number is invalid (contains characters other than digits) then **ux-update-control-num** returns an error.

Use the **ux-update-control-num** API for outbound messages.

Parameters

Name	Type	Description
connection-handle	connection-handle	Required. The previously established connection to the database.
level	string	Required. The level the control number represents. Valid values: I—Interchange control number G—Functional group control number T—Transaction set control number
type	string	Required. Indicates which global structure to query. Acceptable value: O— original structure.
control-num	string	Required. The new control number value which replaces the existing control number in the database.

Return Values

Boolean

Returns **#t** (true)—if the control number is successfully updated; otherwise returns **#f** (false)—if the control number is not successfully updated. Use the **ux-get-error-str** API to retrieve the corresponding error message.

Throws

Exception-InvalidArg, Exception-Catastrophic (can’t be caught).

Example

The following Monk script example calls **ux-update-control-num** with the assumption that **ux-init-trans** was executed successfully for the given Message Profile. **ux-update-control-num** first checks to be sure that the control-num contains all digits.

An update of the database sets es_ext_data.ext_data_value = 55 where es_id = tpid_id in the global structure and es_ext_detail.col_name = "G_CONTROL_NUMBER". A commit immediately follows the update. Also, the control number in the global structure gets updated to 55. If successful, then **ux-update-control-num** returns **#t** and "Update of control-num succeeded!" is displayed. If an error occurs, then **#f** is returned and the error string is printed by the display of **ux-get-error-str**.

```
(define type "O")
(define level "G")
(define control-num "55")
 (if (ux-update-control-num connection-handle level
       control-num)
       (display "Update of control-num succeeded!\n")
       (begin
             (display "Update of control-num failed!\n")
             (display (ux-get-error-str))
             (newline)
       )
```

ux-update-last-batch-send-time

Syntax

```
(ux-update-last-batch-send-time connection-handle send_time type)
```

Description

ux-update-last-batch-send-time updates the batch last send time using input time.

Parameters

Name	Type	Description
connection-handle	connection-handle	Required. The previously established connection to the database.
send_time	string	Required. The time used for updating.
type	string	Required. Indicates which cached profile to update. Acceptable value: O— original structure.

Return Values

Boolean

Returns **#t** (true)—if the batch last send time is successfully updated; otherwise returns **#f** (false)—if the batch last send time is not successfully updated. Use the **ux-get-error-str** API to retrieve the corresponding error message.

Throws

None.

Example

```
(define upd-result    (ux-update-last-batch-send-time
                           connection-handle
                           "01/01/2001 12:00:00"
                           "O"
                      )
)
```

ux-upd-mtrk-data-item

Syntax

```
(ux-upd-mtrk-data-item connection-handle id data_value)
```

Description

ux-upd-mtrk-data-item updates the es_mtrk_ext_data.mtrk_data_value for the specified primary key record id.

Parameters

Name	Type	Description
connection-handle	connection-handle	Required. The previously established connection to the database.
id	string	Required. The es_mtrk_ext_data.mtrk_data_id.
data_value	string	Required. The value to update the table with.

Return Values

Boolean

Returns **#t** (true)—if the value is successfully updated; otherwise returns **#f** (false)—if the value is not successfully updated. Use the **ux-get-error-str** API to retrieve the corresponding error message.

Throws

None.

Example

```
(define ic_ref_id "1000")
(define ic_control_num "000000111")
(define upd-result   (ux-upd-mtrk-data-item
                          connection-handle
                          ic_ref_id
                          ic_control_num
                     )
)
```

ux-upd-mtrk-element

Syntax

```
(ux-upd-mtrk-element connection-handle col_name1 col_value1 col_name2
col_value2)
```

Description

ux-upd-mtrk-element updates the specified column value in the extended msg tracking data elements for the given column name and an additional col name/value pair. This updates across mtrk_id values. The additional name/value pair should be some unique identifier that does not update non-related records.

Parameters

Name	Type	Description
connection-handle	connection-handle	Required. The previously established connection to the database.
col_name1	string	Required. The message tracking extended column name used as a unique identifier.
col_value1	string	Required. The value used as a unique identifier.
col_name2	string	Required. The message tracking extended column name.
col_value2	string	Required. The value used to update column.

Return Values

Boolean

Returns **#t** (true)—if the element is successfully updated; otherwise returns **#f** (false)—if the element is not successfully updated. Use the **ux-get-error-str** API to retrieve the corresponding error message.

Throws

None.

Example

```
(define fb_unique_id "AAAAA11111")
(define upd_element (ux-upd-mtrk-element
                              connection-handle
                              "BATCH_UNIQUE_ID"
                              fb_unique_id
                              "BATCH_SEND_IMM"
                              "Y"
                    )
)
```

ux-upd-mtrk-ext-data

Syntax

(ux-upd-mtrk-ext-data *conn-handle mtrk_id dir col_name col_value es_opt*)

Description

ux-upd-mtrk-element updates the specified column value in the extended msg tracking data elements for the given column name, direction and message tracking id.

Parameters

Name	Type	Description
connection-handle	connection-handle	Required. The previously established connection to the database.
mtrk_id	string	Required. Either mtrk_outb_id, or mtrk_inb_id.
direction	string	Required. Indicates the direction of the message: I—Inbound (mtrk_id is mtrk_inb_id) O—Outbound (mtrk_id is mtrk_outb_id)
col_name	string	Required. The message tracking extended column name.
col_value	string	Required. The value used to update column.
es_opt	string	Optional. Level "TS" or "IC". If not included, then defaults to "TS

Return Values

Boolean

Returns **#t** (true)—if the control number is successfully updated; otherwise returns **#f** (false)—if the control number is not successfully updated. Use the **ux-get-error-str** API to retrieve the corresponding error message.

Throws

None.

Example

```
(define upd-result   (ux-upd-mtrk-ext-data
                         connection-handle
                         "1"
                         "T_CONTROL_NUM"
                         "0004"
                     )
)
```

ux-wait-for-ack

Syntax

```
(ux-wait-for-ack connection-handle tp-loc resp_tm retry_max
                 [mtrk-outb-id])
```

Description

ux-wait-for-ack creates a row in the es_waiting_ack database table for the given Message Profile. The row contains information tied to the wrapped Message Profile already stored in es_mtrk_outb using mtrk_outb_id, if provided. Otherwise uses g_mtrk_id and provides information to the Ack Monitor about the acknowledgment expected.

Use the **ux-wait-for-ack** API for outbound Message Profiles.

Parameters

Name	Type	Description
connection-handle	connection-handle	Required. The previously established connection to the database.
tp-loc	string	Required. Indicates which global structure to query. Acceptable value: O— original structure
resp_tm	string	How long in seconds e*Xchange should wait for an acknowledgment. If resp_tm is NULL or 0, then a row is not put in es_waiting_ack.
retry_max	string	The maximum number of times to resend the data. If retry_max is NULL, then a 0 is put in es_waiting_ack for retry_max.
mtrk-outb-id	string	Optional. ID that corresponds to Message Profile in es_mtrk_outb. If this parameter is not provided, the system uses the g_mtrk_id, which corresponds to the row in es_mtrk_outb where the information for this acknowledgment was stored.

Return Values

Boolean

Returns **#t** (true)—if a row was successfully created in the es_waiting_ack table; otherwise returns **#f** (false)—if a row was not successfully created in the es_waiting_ack table. Use the **ux-get-error-str** API to retrieve the corresponding error message.

Throws

Exception-InvalidArg, Exception-Catastrophic (can’t be caught).

Example

The following Monk script Example call **ux-wait-for-ack** with the assumption that **ux-init-trans** was executed successfully for the given Message Profile. **ux-wait-for-ack** first checks to see if an mtrk_outb_id has been provided. The first example has a value of "75" for mtrk_outb_id, which is used for the insertion into es_waiting_ack. If this ID already exists in es_mtrk_outb and there is not already a row containing this mtrk_outb_id in es_waiting_ack, then a row should be inserted into es_waiting_ack and a **#t** is returned. In this case, "Wait for Ack succeeded!" is displayed. If an error occurs, then **#f** is returned and the error string is printed by the display of **ux-get-error-str**. The second example does not provide an mtrk_outb_id, so g_mtrk_id is used. If g_mtrk_id is invalid or a row already exists in es_waiting_ack with that value in mtrk_outb_id, then the insertion fails and an error string is displayed. Otherwise, on success "Wait for Ack succeeded!" is displayed.

```
(define type "A")
(define mtrk-outb-id "75")
(if (ux-wait-for-ack connection-handle type "20" "" mtrk-outb-id)
      (display "Wait for Ack succeeded!\n")
      (begin
            (display "Wait for Ack failed!\n")
            (display (ux-get-error-str))
            (newline)
      )
 )



 (if (ux-wait-for-ack connection-handle)
      (display "Wait for Ack succeeded!\n")
      (begin
            (display "Wait for Ack failed!\n")
            (display (ux-get-error-str))
            (newline)
      )
 )
```

ux-get-env-msg-id

Syntax

(ux-get-env-msg-id *hdbc unique_id direction es_id es_opt)*

Description

ux-get-env-msg-id retrieves the env_msg_id from a message tracking table using the *unique_id, direction*, *es_id*, and *es_opt*

Parameters

Name	Type	Description
hdbc	string	Handle for connection to the ePM database
unique_id	string	Unique_id in message tracking table
direction	string	"I" for Inbound or "O" for Outbound
es_id	string	tpts_id if stored at message profile level. tpic_id if stored at b2b protocol level
es_opt	string	"IC" for b2b protocol level, or "TS" for message profile level.
hdbc	string	Handle for connection to the ePM database

Return Value

String

Env_msg_id is returned if matching criteria is found in the e*Xchange database

Boolean

#t is returned if no errors were encountered, and the env_msg_id is not found, NULL, or an empty string.

#f if encountered errors.

ux-get-mtrk-attrib-value

Syntax

(ux-get-mtrk-attrib-value *hdbc mtrk_id direction col_name*)

Description

ux-get-mtrk-attrib-value returns the message tracking extended attribute value corresponding to the column name, message tracking id, and direction.

Parameters

Name	Type	Description
hdbc	connection handle	Handle for connection to the ePM database
mtrk_id	string	Message tracking id
direction	string	“O” for outbound or “I” for inbound
col_name	string	Name of extended attribute column

Return Value

string

Returns a string containing the column value if found and successfully retrieved.

Boolean

Returns #f (false), if an error was encountered; otherwise returns #t (true), if no extended attribute was found corresponding to the provided criteria.

ux-store-msg

Syntax

(ux-store-msg hdbc processed_msg store_info raw_msg env_msg)

Description

This function stores messages and associated attributes in the ePM database. (See the more descriptive paragraphs in exchange Implementation Guide).

Parameters

Name	Type	Description
hdbc	connection handle	Handle for connection to the ePM database
processed_msg	string	Required for inbound. Can be empty string for outbound. Message stored in orig_msg_id column when storage type = “O”. Message stored in both orig_msg_id and env_msg_id columns when storage type = “C”, direction = “O”, and *env_msg* is missing or an empty string. Stored in env_msg_id column when storage_type = “W”, direction = “O”, and *env_msg* is missing or an empty string.

store_info	(list *direction unique_id storage_type error_data storage_level tp_location msg_being_sent compress_option mtrk_id optional sub-lists (list col_name col value))*	List of attributes for message being stored. All elements are strings, except that the sub-lists are lists of strings. Direction = "O" for outbound or "I" for inbound Unique_id = unique_id that is stored with msg Storage_type = "O" for original, "C" for combined, and "W" for wrapped. NOTE: "O" is the only valid type for Inbound Error_data = optional, (must be at least an empty string), if present, then must be in the following format: error code1^error desc1~error code2^error desc2... where ^ separates code and description, and ~ separates each pair. Storage_level = "T" for transaction, or message profile level. "I" for interface the b2b protocol level Tp_location = Must be at least an empty string, however no longer used. Just kept for backwards compatibility. Msg_being_sent = "Y" if sent already (updates send_cnt and last_send_tm). "N" if not sent already. Only for outbound messages. Inbound messages should have empty string here. Compress_option = "Y" if want data stored in compressed format. "N" if don't want data compressed. Mtrk_id = Message tracking id. Can be used for storage type "W" to help find the right row to update env_msg_id. Optional, however must be at least an empty string. optional sub-lists: <col name> <col value>> - Each sub-list containing attribute name and value are stored in the message tracking extended attribute tables. NOTE: if the <col name> = "TRAN_MODE", then the value specified for this attribute overrides the message profile setting. Also, this pair is NOT stored in the message tracking extended attribute tables, but instead in the es_mtrk_outb.tran_mode column
raw_msg	string	Optional - String containing message to store in raw_msg_id column. Must be at least an empty string if *env_msg* is passed in.
env_msg	string	Optional - String containing message to store in env_msg_id. If *env_msg* is passed in, then the id for this message will overwrite any value already in env_msg_id column for this row. This includes if *storage_type* "C" (for combined) is set.

Return Value

String

Message tracking id (mtrk_inb_id for Inbound or mtrk_outb_id for Outbound) if successfully stores message(s) and creates message tracking row.

Boolean

#f is returned if an error is encountered.

Additional Information

Since the last two parameters are optional, then ux-store-msg can be called in three different ways:

(ux-store-msg *hdbc processed_msg store_info*)

OR

(ux-store-msg *hdbc processed_msg store_info raw_msg*)

OR

(ux-store-msg *hdbc processed_msg store_info raw_msg env_msg*)

For Outbound, it is required that at least one message (processed, raw, or enveloped) is passed into ux-store-msg. If all are empty strings, then ux-store-msg will return failure with the following error:

```
"UX_X_store_msg: No message (processed, enveloped, or raw) to store/
track. Can't continue"
```

For Inbound, *processed_msg* must be included because the orig_msg_id column in es_mtrk_inb is NOT NULL.

Processed (original), raw, or enveloped messages are treated the same, in terms of fragmentation and storage. All messages will be stored either in es_msg_security (if Non-Repudation is "Y", or for AS2 either ENCRYPT_REQ = "Y" or SIG_REQ = "Y") or es_msg_binary. Messages will no longer be stored in es_msg_ascii.

```
If non_repud = Y  or (for AS2 - SIG_REQ = Y or ENCRYPT_REQ = Y) then
     If compressed = Y then
          store in es_msg_security with SY
     else
          store in es_msg_security with SN
     else
          if compressed = Y then
               store in es_msg_binary with compressed = Y
     else
          store in es_msg_binary with compressed = B
```

The SEC_ID message tracking extended attribute is populated with the es_security_key.sec_ids for that profile.

```
     if tran_type and version = RosettaNet 2.0
     and (SIGNATURE_REQUIRED = 'Y' or ENCRYPTION_TYPE != 0)
or
     if tran_type+version is not (RosettaNet 2.0 or CIDX)
     and (NON_REPUD = 'Y' or SIG_REQ = Y (AS2) or ENCRYPT_REQ = Y
(AS2))
or
     if tran_type is CIDX and SIGNATURE_REQUIRED = 'Y'
```

ux-find-if-bat-msgs

Syntax

(ux-find-if-bat-msgs <conn-handle>) <conn-handle> - connection to database

Returns

"Y" if there are messages to be batched

"N" if there are no messages to be batched

#f if errors were encountered.

ux-ret-batch-pro-ids

Syntax

(ux-ret-batch-pro-ids <conn-handle> <tran_type> <tran_mode>) <conn-handle> - connection to database <tran_type> - type of batch profiles to retrieve ("X12" or "EDF") <tran_mode> - type of transport ("B" or "FB")

Returns

Vector containing results of query

```
#( bat_count #( #(tpic_id1 tpts_id1)
#(tpic_id2 tpts_id2)
#(tpic_idN tpts_idN)
)
)
```

UX_TRUE - if no profiles fit query
UX_FALSE - if error encountered

ux-get-req-mtrk-attrib

Syntax

(ux-get-req-mtrk-attrib *hdbc list*)

Description

Obtains extended attribute values for a request message, given input for that message, and that the message profile is loaded with the response information.

Parameters

Name	Type	Description
connection-handle	connection-handle	Required. The previously established connection to the database.
list	list: direction unique_id level mtrk_id sub-list	Required. Information about the message. All list arguments must be strings, except for the sub-lists which are lists containing strings. All elements before the sub-list section are required, but can be empty strings (""), with the exception of direction and level, which return an error if no value is provided.
	List member	**Description**
	direction	Required. Indicates the direction of the message: I—Inbound O—Outbound
	unique_id	Optional only if mtrk_id is provided. The unique identifier for the original message.
	level	Optional only if mtrk_id is provided. Valid values: I—B2BProtocol level T—Message Profile level
	mtrk_id	Optional. Message tracking ID. If there is a list of extended attributes (sub-list), then mtrk_id or an empty string "" must be included.
	sub-list	Optional and repeating. The sub-list format is: "Column_Name" "Column_Value"); may contain some of the extended attributes if already known.

ux-get-msg

Syntax

(ux-get-msg *hdbc msg_storage_id*)

Description

Given a msg_storage_id, ux-get-msg returns the message length and message itself.

Parameters

Name	Type	Description

hdbc	connection handle	Handle for connection to the ePM database
msg_storage_id	string	Id for a message in es_msg_storage table

Return Value

Vector

Returns a vector containing message length (a string) and message on success.

Boolean

#f is returned if an error is encountered.

ux-set-fb-overdue

Syntax

(ux-set-fb-overdue *hdbc*)

Description

Sets all overdue fastbatch messages to be sent immediately.

Parameters

Name	Type	Description
hdbc	connection handle	Handle for connection to the ePM database.

Return Value

Boolean

#t on success. #f is returned if an error is encountered.

ux-get-reg-info

Syntax

(ux-get-reg-info)

Description

Obtains username, password, schema name, hostname, and registry port from the e*Gate registry.

Parameters

None.

Return Value

Vector

If successful, returns a vector containing five strings:

- username
- password

- registry hostname
- schema name
- registry port

Boolean

#f is returned if an error is encountered.

ux-mdn-inb-ack

Description

To associate inbound MDN (Message Disposition Notifications) message with outbound AS2 messages.

Parameters

Name	Type	Description
conn-handle	connection handle	SQL connection handle
mtrk_list	string	List of es_mtrk_ext_data.col_name, es_mtrk_outb_data.mtrk_data_value pairs (list (list 'MESSAGEID', 'ABC') (...))
error_data	string	Error Data information (code1^desc1~code2^desc2...)

Return Values

One of the following:

- Vector of mtrk_outb_id
- Boolean: #t (true) if nothing is retrieved. #f (false) if an error is encountered during the update.

Example

```
 (define mdn-ext-list (list (list "MESSAGEID" “98M6790202”))
 (define mdn_err_descr “”)
 (define mdn-ack-ret (ux-mdn-inb-ack
connection-handle
mdn-ext-list
mdn_err_descr
)
)
```

ux-mdn-outb-ack

Description

This function performs the acknowledgment handling for AS2 MDNs (Message Disposition Notifications) created in e*Xchange and sent in the outbound direction. This function is unique from the other ack handlers in that the ack msg is stored first. Thus, the global store_message_id can not be used to store in es_mtrk_inb.ack_msg_id. The ack-stat structure was modified to add room to pass in the ack-msg-id of the stored MDN when performing the association.

Parameters

Name	Type	Description
conn-handle	connection handle	SQL connection handle
ack_status	string	List of es_mtrk_ext_data.col_name, es_mtrk_outb_data.mtrk_data_value pairs (list (list 'MESSAGEID', 'ABC') (...))
ack_tm		(optional) the date and time (yyyymmddhhmmss format)
ack_type		(optional) type of ack - P = positive or N = negative
level		(required) (I = interchange, G = group, T = transaction)
mtrk_id		(optional) id of record in es_mtrk_inb to update
unique_id		Unique ID to find rec in es_mtrk_inb to update. Required if mtrk_id is not provided\
direction		(required) direction of original message
out_queue		place ack in out_queue if 'Y'
resp_id		TP Profile id of acknowledgement msg
ack_msg_id		value to store in es_mtrk_inb.ack_msg_id. If not provided, will use value stored in the global msg_storage_id
error_data	string	Error information associated with ack. If provided, then must be in the format code1^detail1~code2^detail2... There must be a code and detail for each error provided.

Return Values

- mtrk_outb_id if found.

Boolean

#t (true) if nothing is retrieved. #f (false) if an error is encountered during the update.

Example

```
(define ack_info_list (list "" "P" "T" mdn-mtrk-id "" "" "I" "N" ""
mdn-object-id))
(define mdn-outb-ack (ux-mdn-outb-ack connection-handle
ack_info_list))
(if (not mdn-outb-ack)
(begin
(define error #t)
(define error_desc (ux-get-error-str))
)
)
```

14.3 Monk Functions Used by the Validation Rules Builder

A set of monk functions has been provided for the Validation Rules Builder. These functions are used within the validation Collaborations created by the VRB. These Collaborations are used by e*Xchange to validate the EDI data it receives from e*Gate.

The validations are based on the implementation guidelines specified in the SEF file that is converted to e*Gate ETD and Collaboration files.

compare-equal

Syntax

```
(compare=? string1 string2)
```

Description

compare-equal determines whether the two strings contained in the parameters are equal. If the string values are numeric, it converts the strings to numbers before making the comparison so that a valid numeric comparison is made.

Parameters

Name	Type	Description
string1	string	The first of the string values to be compared.
string2	string	The second of the string values to be compared.

Return Values

Boolean

Returns **#t** (true) if the two strings are equal; otherwise returns **#f** (false) if they are not equal.

Throws

None.

Example

```
(if (compare=? "A0B" "A1B")
   (display "A0B = A1B\n")
   (display "A0B != A1B\n")
)

=> A0B != A1B
```

compare-ge

Syntax

```
(compare>=? string1 string2)
```

Description

compare-ge determines whether *string1* is greater than or equal to *string2*. If the string values are numeric, it converts the strings to numbers before making the comparison so that a valid numeric comparison is made.

Parameters

Name	Type	Description
string1	string	The first of the string values to be compared.
string2	string	The second of the string values to be compared.

Return Values

Boolean

Returns **#t** (true) if *string1* is greater than or equal to *string2*; otherwise **#f** (false) if *string1* is less than *string2*.

Throws

None.

Example

```
(if (compare>=? "A3B" "A1B")
   (display "A3B >= A1B\n")
   (display "A3B < A1B\n")
)

=> A3B >= A1B
```

compare-gt

Syntax

```
(compare>? string1 string2)
```

Description

compare-gt determines whether *string1* is greater than *string2*. If the string values are numeric, it converts the strings to numbers before making the comparison so that a valid numeric comparison is made.

Parameters

Name	Type	Description
string1	string	The first of the string values to be compared.
string2	string	The second of the string values to be compared.

Return Values

Boolean

Returns **#t** (true) if *string1* is greater than *string2*; otherwise **#f** (false) if *string1* is less than or equal to *string2*.

Throws

None.

Example

```
(if (compare>? "A3B" "A1B")
   (display "A3B > A1B\n")
   (display "A3B <= A1B\n")
)

=> A3B > A1B
```

compare-le

Syntax

```
(compare<=? string1 string2)
```

Description

compare-le determines whether *string1* is less than or equal to *string2*. If the string values are numeric, it converts the strings to numbers before making the comparison so that a valid numeric comparison is made.

Parameters

Name	Type	Description
string1	string	The first of the string values to be compared.
string2	string	The second of the string values to be compared.

Return Values

Boolean

Returns **#t** (true) if *string1* is less than or equal to *string2*; otherwise **#f** (false) if *string1* is greater than *string2*.

Throws

None.

Example

```
(if (compare<=? "A3B" "A1B")
   (display "A3B <= A1B\n")
   (display "A3B > A1B\n")
)

=> A3B > A1B
```

compare-lt

Syntax

```
(compare<? string1 string2)
```

Description

compare-lt determines whether *string1* is less than *string2*. If the string values are numeric, it converts the strings to numbers before making the comparison so that a valid numeric comparison is made.

Parameters

Name	Type	Description
string1	string	The first of the string values to be compared.
string2	string	The second of the string values to be compared.

Return Values

Boolean

Returns **#t** (true) if *string1* is less than *string2*; **#f** (false) if *string1* is greater than or equal to *string2*.

Throws

None.

Example

```
(if (compare<? "A3B" "A1B")
   (display "A3B < A1B\n")
   (display "A3B >= A1B\n")
)

=> A3B >= A1B
```

string-alpha

Syntax

```
(string-alpha? string)
```

Description

string-alpha determines whether the string parameter contains only alphabetic characters.

Parameters

Name	Type	Description
string	string	The string to be evaluated.

Return Values

Boolean

Returns **#t** (true) if string contains only alphabetic characters; otherwise **#f** (false) if string contains at least one character that is not alphabetic.

Throws

None.

Example

```
(if (string-alpha? "AbC")
   (display "AbC is alphabetic\n")
   (display "AbC is NOT alphabetic\n")
)

=> AbC is alphabetic
```

string-alphanumeric

Syntax

```
(string-alphanumeric? string)
```

Description

string-alphanumeric determines whether string contains only alphabetic and/or numeric characters.

Parameters

Name	Type	Description
string	string	The string to be evaluated.

Return Values

Boolean

Returns **#t** (true) if the string contains only alphabetic and/or numeric characters; otherwise **#f** (false) if the string contains at least one character that is not alphabetic or numeric.

Throws

None.

Example

```
(if (string-alphanumeric? "AbC")
(display "AbC is alphanumeric\n")
(display "AbC is NOT alphanumeric\n")
)

=> AbC is alphanumeric
```

string-numeric

Syntax

```
(string-numeric? string)
```

Description

string-numeric determines whether the string parameter contains only numeric characters.

Parameters

Name	Type	Description
string	string	The string to be evaluated.

Return Values

Boolean

Returns **#t** (true) if the string contains only numeric characters; otherwise **#f** (false) if the string contains at least one character that is not numeric.

Throws

None.

Example

```
(if (string-numeric? "145a3")
   (display "145a3 is numeric\n")
   (display "145a3 is NOT numeric\n")
)

=> 145a3 is NOT numeric
```

valid-date-yyyy

Syntax

```
(valid-date-yyyy? YYYYMMDD or YYMMDD)
```

Description

valid-date-yyyy determines whether the date value YYYYMMDD or YYMMDD is a valid date.

Parameters

Name	Type	Description
YYYYMMDD or YYMMDD	string	Date is composed of year, month and day: ▪ YYYY—4-digit year; for example, 2000 ▪ YY—2-digit year; for example, 99 for 1999 ▪ MM—2-digit month; for example, 05 for May ▪ DD—2-digit day; for example, 03 or 29

Return Values

Boolean

Returns **#t** (true) if the string is a valid date; otherwise **#f** (false) if it is not a valid date.

Throws

None.

Example

```
(if (valid-date-yyyy? "20000229")
   (display "20000229 is a valid date\n")
   (display "20000229 is NOT a valid date\n")
)

=> 20000229 is a valid date
```

valid-time

Syntax

```
(valid-time? timestamp)
```

Description

valid-time determines whether the timestamp is a valid time.

Parameters

Name	Type	Description
timestamp	string	Date and time stamp, in one of the following formats: ▪ HHMM ▪ HHMMSS ▪ HHMMSSD ▪ HHMMSSDD where the time stamp is composed of the following values: ▪ HH = 00—23 (hours) ▪ MM = 00—59 (minutes) ▪ SS = 00—59 (seconds) ▪ D = 0—9 (sub-second single digit) ▪ DD = 00—99 (sub-second double digit)

Return Values

Boolean

Returns **#t** (true) if the timestamp is a valid time; otherwise **#f** (false) if it is not a valid time.

Throws

None.

Example

```
(if (valid-time? "0000117a")
   (display "\n0000117a is a valid time\n")
   (display "\n0000117a is NOT a valid time\n")
)

=> 0000117a is NOT a valid time
```

14.4 e*Xchange MIME Functions

These functions use MIMEsimple.ssc, a simple message structure, to parse and compose MIME messages.

util-mime-get-header-value

Syntax

```
(util-mime-get-header-value node-path mime_field_name)
```

Description

util-mime-get-header-value retrieves the value of the specified field in a mime message pointed to by the given path.

Parameters

Name	Type	Description
node-path	path	The node path to the MIME structure or substructure.
mime_field_name	string	The name of the field in the MIME header.

Return Values

string

Returns the value of the specified field if one exists; otherwise, returns a null string if the header doesn't exist or a failure occurred.

Throws

None.

Example

If ~input%MIMEsimple is mapped to the following MIME component:

Content-Type: multipart/related;

boundary="RN-boundary";

Content-Description: This is the content description;

This is the message body...

then,

(util-mime-get-header-value ~input%MIMEsimple "Content-Type")

```
=> "multipart/related\r\n boundary=\"RN-boundary\""
```

util-mime-get-par-value

Syntax

```
(util-mime-get-par-value node-path mime_field_name mime_par_name)
```

Description

util-mime-get-par-value retrieves the value of the specified parameter in the specified field in a mime message pointed to by the given path.

Parameters

Name	Type	Description
node-path	path	The node path to the MIME structure or substructure.
mime_field_name	string	The name of the field in the MIME header.
mime_par_name	string	The name of the parameter under the MIME field.

Return Values

string

Returns the value of the specified parameter if it exists; otherwise, returns a null string if the header or parameter doesn't exist or failure occurred.

Throws

None.

Example

If ~input%MIMEsimple is mapped to the following MIME component:

Content-Type: multipart/related;

boundary="RN-boundary";

Content-Description: This is the content description;

This is the message body...

then,

(util-mime-get-par-value ~input%MIMEsimple "Content-Type" "boundary")

```
=> "RN-boundary"
```

util-mime-make-mime-message

Syntax

```
(util-mime-make-mime-message node-path)
```

Description

util-mime-make-mime-message composes and returns a MIME message string from the specified node.

Note that ($event->string) does not work properly due to the way the MIMEsimple structure is composed. Instead, use (util-mime-make-mime-message) to compose a MIME message from a node.

Parameters

Name	Type	Description
node-path	path	The node path to the MIME structure or substructure

Return Values

string

Returns a MIME message string.

Throws

None.

Example

If ~input%root.MIMEsimple is mapped to the following MIME component:

Content-Type: multipart/related;

boundary="RN-boundary";

Content-Description: This is the content description;

This is the message body...

then,

(util-mime-make-mime-message ~input%root.MIMEsimple)

`returns the original message string:`

`Content-Type: multipart/related;`

boundary="RN-boundary";

Content-Description: This is the content description;

This is the message body...

util-mime-map-event

Syntax

```
(util-mime-map-event mime_event_map mime_message_string)
```

Description

util-mime-map-event populates the given mime_event_map with the given mime message string.

Parameters

Name	Type	Description
mime_event_map	path	The node path to the MIME structure or substructure
mime_message_string	string	The MIME message string

Return Values

Undefined.

Throws

eXception-Mapping.

Example

If ~input%root.MIMEsimple is a MIME structure and mime-string is the following string:

Content-Type: multipart/related;

boundary="RN-boundary";

Content-Description: This is the content description;

This is the message body...

then,

(util-mime-map-event ~input%root.MIMEsimple mime-string) parses the message string "mime-string" with the MIME structure "~input%root.MIMEsimple".

util-mime-pack-encrypted-msg

Syntax

```
(util-mime-pack-encrypted-msg filename base64_pkcs7_msg)
```

Description

util-mime-pack-encrypted-msg composes and returns an encrypted MIME message.

Parameters

Name	Type	Description
filename	value	The value of this parameter is ignored by the function.
base64_pkcs7_msg	string	The base64 encoded encrypted message

Return Values

String

Returns the encrypted message in MIME format.

Throws

None.

Example

If base64_pkcs7_msg is a base64 encoded encrypted message, then

```
(util-mime-pack-encrypted-msg "" base64_pkcs7_msg)
```

```
=> the encrypted message (base64_pkcs7_msg) in MIME format.
```

util-mime-pack-signed-msg

Syntax

```
(util-mime-pack-signed-msg protocol micalg content signature)
```

Description

util-mime-pack-signed-msg composes and returns a signed MIME message.

Parameters

Name	Type	Description
protocol	value	The value assigned to the 'protocol' parameter Content-Type field of the MIME message.
micalg	value	The value assigned to the 'micalg' parameter Content-Type field of the MIME message.
content	string	The message string.
signature	string	The result of signing the content with the "micalg" algorithm.

Return Values

string

Returns the signed message in MIME format.

Throws

None.

Example

For "content" and "signature" are the content and signature of a message string, respectively, then

```
(util-mime-pack-signed-msg "application/pkcs7-signature" "sha1"
content signature)

=> the message string with its signature in MIME format, where the
protocol field in the MIME header is set to "application/pkcs7-
signature" and the micalg field in the MIME header is set to "sha1".
```

util-mime-unpack-signed-message

Syntax

```
(util-mime-unpack-signed-message mime_message_string)
```

Description

util-mime-unpack-signed-message unpacks the given message string and returns a vector of strings: (protocol micalg content signature). **protocol** and **micalg** are the values of the protocol and micalg parameters in the Content-Type field of the input message, respectively. **content** and **signature** are the content and signature of the signed message, respectively.

Parameters

Name	Type	Description
mime_message_string	string	The MIME message string.

Return Values

Boolean

Returns **#t** (true) if the input message is not signed; otherwise, returns **#f** (false) if the input message is signed but the function fails to get signature, content, micalg, or protocol.

Throws

Exception-Mapping and Exception-Generic.

Example

If msg is a MIME message string as follows:

Content-Type: multipart/signed;

boundary="RN-sign";

protocol="application/pkcs7-signature";

micalg=sha1

--RN-sign

this is the content...

--RN-sign

this is the MIME header for the signature component

this is the signature...

--RN-sign--

then,

```
(util-mime-unpack-signed-message msg)

=> #("application/pkcs7-signature", "sha1" "this is the content...",
"this is the signature...")
```

14.5 e*Xchange RosettaNet 2.0 Functions

The RosettaNet 2.0 functions in e*Xchange use ROS20Generic.ssc, a message structure for the RNGM. It maps the preamble, delivery header, and service header parts of the RNBM. The service content of the RNBM is mapped to an end node. Any attachments of an RNBM are mapped to a repetitive node that uses the MIMEsimple structure as a template.

eX-ROS20-Generic-To-String

Syntax

```
(eX-ROS20-Generic-To-String input)
```

Description

eX-ROS20-Generic-To-String retrieves an RNGM message string from the input ROS20Generic event map. This function should be used instead of ($event->string) when converting an RNGM event map to a Monk string.

Parameters

Name	Type	Description
input	event	The variable name of the event structure that contains the ROS20 Generic message.

Return Values

string

Returns an RNGM message string.

Throws

Exception-Mapping and Exception-Generic.

Example

If input is a event map that represents a RNGM message, then

```
(eX-ROS20-Generic-To-String input)
```

```
=> Monk string that represents the same RNGM message.
```

eX-ROS20-Parse-Generic

Syntax

```
(eX-RSO20-Parse-Generic input vector_of_strings)
```

Description

eX-RSO20-Parse-Generic parses the various string components in the specified vector using the given RNGM event map.

Parameters

Name	Type	Description
input	event	The variable name of the event structure that contains the ROS20 Generic message.
vector_of_strings	string	The vector elements: preamble, delivery header, service header, service content, attachments (repeating)

Return Values

Boolean

Returns **#t** (true) on success.

Throws

Exception-Mapping and Exception-Generic.

Example

If **input** is a RNGM event map and **vec** is a vector containing the preamble, delivery header, service header, service content, and attachments of a RNBM, then:

```
(eX-ROS20-Parse-Generic input vec)
```

```
returns #t and after the call "input" contains the RNGM message.
```

eX-ROS20-Pack-RNBM

Syntax

```
(eX-ROS20-Pack-RNBM db_connection_handle input_rngm encryption_flag
sec_keys tpic_id)
```

Description

eX-ROS20-Pack-RNBM composes and returns an RNBM from the given RNGM event map (input).

Parameters

Name	Type	Description
db_connection_handle	database connection handle	A connection handle to the database that contains the security information.
input_rngm	event	The variable name of the event structure that contains the ROS20 Generic message.
encryption_flag	string	The encryption required. The following values are available: ▪ 0 if no encryption required. ▪ 1 if only service content and. attachments need to be encrypted ▪ 2 if service header, service content and attachments need to be encrypted.
sec_keys	string	The security keys to be used when signing/encrypting the message.
tpic_id	string	The index to the trading partner profile.

Return Values

string

Returns the RNBM.

Throws

Exception-Mapping and Exception-Generic.

Example

If input_rngm is an event map containing a RNGM, then,

```
(eX-ROS20-Pack-RNBM db_connection_handle input_rngm encryption_flag
sec_keys tpic_id)

returns the corresponding RNBM, in which the message is encrypted and/
or signed with the security information in the database as specified
by tpic_id, sec_keys, and encryption_flag.
```

eX-ROS20-Unpack-RNBM

Syntax

```
(eX-ROS20-Unpack-RNBM db_connection_handle message_string
security_keys tpic_id)
```

Description

eX-ROS20-Unpack-RNBM parses an RNBM and returns a vector of strings (preamble, delivery header, service header, service content, attachments, and so on.)

Parameters

Name	Type	Description
db_connection_handle	database connection handle	The connection handle to the database that contains the security information.
message_string	string	The input RNBM
security_keys	string	The security keys to be used when signing/encrypting the message.
tpic_id	string	The index to the trading partner profile.

Return Values

vector

Returns a vector of strings (preamble, delivery header, service header, service content, attachments, and so on).

On failure, the global variable error_data is appended to include the failure reason.

Elements of the global variable vector 'g_output' are set as the various body parts (preamble, deliver header, service header, and service content) and are unpacked.

Throws

Exception-Mapping and Exception-Generic.

Example

If message_string is a Monk string representing a RNBM, and security_keys and tpic_id specifies the correction security information in the database, then

```
(eX-ROS20-Unpack-RNBM db_connection_handle message_string
security_keys tpic_id)

returns a vector containing the preamble, delivery header, service
header, service content, and attachments (if any) of the RosettaNet
Business Message (RNBM).
```

eX-ROS20-Validate-Preamble

Syntax

```
(eX-ROS20-Validate-Preamble)
```

Description

eX-ROS20-Validate-Preamble validates the preamble. It uses parameters passed in to a global Monk variable g_input, which is of type vector. The elements of g_input are described in the following table in the order they appear.

Global Parameters used in g_input

Name	Type	Description
input_rngm	event	The variable name of the event structure that contains the ROS20 Generic message.
prf_attrib	string	The vector of partner profile attributes as returned by the (ux-get-header) Monk function.

Parameters

None.

Return Values

Boolean

Returns **#t** (true) if preamble is valid; otherwise, returns **#f** (false). Also error_data is appended to reflect the error, if any.

Throws

Exception-Mapping and Exception-Generic.

Example

(set! input_rngm (eX-ROS20-Parse-RNGM...)) ;; parse the input RNGM

(set! prf_attrib (ux-get-header "A" transaction_info)) ;; set the partner profile attributes

...

(set! g_input (vector input_rngm prf_attrib)) ;; set the global variable g_input

(eX-ROS20-Validate-Preamble) => #t/#f depending on whether the preamble contained in input_rngm is valid.eX-ROS20-Validate-ServiceHeader

Syntax

```
(eX-ROS20-Validate-ServiceHeader)
```

Description

eX-ROS20-Validate-ServiceHeader

Validates the service header. It uses parameters passed in to a global Monk variable g_input, which is of type vector. The elements of g_input are described in the following table in the order they appear.

Global Parameters used in g_input

Name	Type	Description
input_rngm	event	The variable name of the event structure that contains the ROS20 Generic message.
prf_attrib	string	The vector of partner profile attributes as returned by the (ux-get-header) Monk function.

Parameters

None.

Return Values

Boolean

Returns **#t** (true) if service header is valid; otherwise, returns **#f** (false). Also error_data is appended to reflect the error, if any.

Throws

Exception-Mapping and Exception-Generic.

Example

(set! input_rngm (eX-ROS20-Parse-RNGM...)) ;; parse the input RNGM

(set! prf_attrib (ux-get-header "A" transaction_info)) ;; set the partner profile attributes

...

(set! g_input (vector input_rngm prf_attrib)) ;; set the global variable g_input

(eX-ROS20-Validate-ServiceHeader) => #t/#f depending on whether the service header contained in input_rngm is valid.

eX-ROS20-Validate-DeliveryHeader

Syntax

```
(eX-ROS20-Validate-DeliveryHeader)
```

Description

eX-ROS20-Validate-DeliveryHeader validates the delivery header.It uses parameters passed in to a global Monk variable g_input, which is of type vector. The elements of g_input are described in the following table in the order they appear.

Global Parameters used in g_input

Name	Type	Description
input_rngm	event	The variable name of the event structure that contains the ROS20 Generic message.
prf_attrib	string	The vector of partner profile attributes as returned by the (ux-get-header) Monk function.

Parameters

None.

Return Values

Boolean

Returns **#t** (true) if delivery header is valid; otherwise, returns **#f** (false). Also error_data is appended to reflect the error, if any.

Throws

Exception-Mapping and Exception-Generic.

Example

(set! input_rngm (eX-ROS20-Parse-RNGM...)) ;; parse the input RNGM

(set! prf_attrib (ux-get-header "A" transaction_info)) ;; set the partner profile attributes

...

(set! g_input (vector input_rngm prf_attrib)) ;; set the global variable g_input

(eX-ROS20-Validate-DeliveryHeader) => #t/#f depending on whether the delivery header contained in input_rngm is valid.

eX-ROS20-Populate-Preamble

Syntax

```
(eX-ROS20-Populate-Preamble)
```

Description

eX-ROS20-Populate-Preamble populates the preamble header with the extended attributes from the database. It uses parameters passed in a global Monk variable g_input, which is of type vector. The elements of g_input are described in the following table in the order they appear.

Global Parameters used in g_input

Name	Type	Description
input_rngm	event	The variable name of the event structure that contains the ROS20 Generic message. The preamble part of this event map is partially filled before the call to eX-ROS20-Populate-Preamble and is fully populated after the call.
prf_attrib	string	A vector of partner profile attributes as returned by the (ux-get-header) Monk function.

Parameters

None.

Return Values

Boolean

Returns #t (true) on success; otherwise, returns #f (false).

Throws

Exception-Mapping and Exception-Generic.

Example

(set! input_rngm (eX-ROS20-Parse-RNGM...)) ;; parse the partial input RNGM

(set! prf_attrib (ux-get-header "A" transaction_info)) ;; set the partner profile attributes

...

(set! g_input (vector input_rngm prf_attrib)) ;; set the global variable g_input

(eX-ROS20-Populate-Preamble)

eX-ROS20-Populate-ServiceHeader

Syntax

```
(eX-ROS20-Populate-ServiceHeader)
```

Description

eX-ROS20-Populate-ServiceHeader populates the service header with the extended attributes. It uses parameters passed in a global Monk variable g_input, which is of type vector. The elements of g_input are described in the following table in the order they appear.

Global Parameters used in g_input

Name	Type	Description
input_rngm	event	The variable name of the event structure that contains the ROS20 Generic message. The preamble part of this event map is partially filled before the call to eX-ROS20-Populate-Preamble and is fully populated after the call.
prf_attrib	string	A vector of partner profile attributes as returned by the (ux-get-header) Monk function.

Parameters

None.

Return Values

Boolean

Returns #t (true) on success; otherwise, returns #f (false).

Throws

Exception-Mapping and Exception-Generic.

Example

(set! input_rngm (eX-ROS20-Parse-RNGM...)) ;; parse the partial input RNGM

(set! prf_attrib (ux-get-header "A" transaction_info)) ;; set the partner profile attributes

...

(set! g_input (vector input_rngm prf_attrib)) ;; set the global variable g_input

(eX-ROS20-Populate-ServiceHeader)

eX-ROS20-Populate-DeliveryHeader

Syntax

```
(eX-ROS20-Populate-DeliveryHeader)
```

Description

eX-ROS20-Populate-DeliveryHeader populates the delivery header with the extended attributes.It uses parameters passed in a global Monk variable g_input, which is of type vector. The elements of g_input are described in the following table in the order they appear.

Global Parameters used in g_input

Name	Type	Description
input_rngm	event	The variable name of the event structure that contains the ROS20 Generic message. The preamble part of this event map is partially filled before the call to eX-ROS20-Populate-Preamble and is fully populated after the call.
prf_attrib	string	A vector of partner profile attributes as returned by the (ux-get-header) Monk function.

Parameters

None.

Return Values

Boolean

Returns #t (true) on success; otherwise, returns #f (false).

Throws

Exception-Mapping and Exception-Generic.

Example

(set! input_rngm (eX-ROS20-Parse-RNGM...)) ;; parse the partial input RNGM

(set! prf_attrib (ux-get-header "A" transaction_info)) ;; set the partner profile attributes

...

(set! g_input (vector input_rngm prf_attrib)) ;; set the global variable g_input

(eX-ROS20-Populate-DeliveryHeader)

eX-ROS20-Unique-ID

Syntax

```
(eX-ROS20-Unique-ID rngm)
```

Description

eX-ROS20-Unique-ID retrieves the unique id for this ROS20 message.

Parameters

Name	Type	Description
rngm	event	The variable name of the event structure that contains the ROS20 Generic message.

Return Values

string

Returns the unique id for the message if this is a valid response message; otherwise, returns a null string if this message is not a response message or the input rngm does not contain enough information to compose a request ID.

Throws

Exception-Mapping and Exception-Generic.

Example

If rngm contains the following fields:

Initiating_partner_ID = "1234"

PIP_code = "3A4"

PIP_Instance_ID = "567"

Activity_ID = "Create Order"

signal_code = "Order Request Action"

```
(eX-ROS20-Unique-ID rngm)
```

```
=> "1234|3A4|567|Create Order|OrderRequest Action"
```

eX-ROS20-Request-ID

Syntax

```
(eX-ROS20-Request-ID RNGM)
```

Description

eX-ROS20-Request-ID retrieves the unique id of the original request message if this message is a response.

Parameters

Name	Type	Description
RNGM	event	The RNGM

Return Values

string

Returns the unique id of the original request message if this message is a valid response; otherwise, returns a null string if this message is not a response message or input rngm doesn't contain enough information to compose a request ID.

Throws

Exception-Mapping and Exception-Generic.

Example

If rngm contains the following fields:

Initiating_partner_ID = "1234"

PIP_code = "3A4"

PIP_Instance_ID = "567"

Activity_ID = "Create Order"

signal_code = "Order Request Action"

```
(eX-ROS20-Request-ID rngm)

=> "1234|3A4|567|Create Order|OrderRequest Action"
```

eX-ROS20-Ack-Type

Syntax

```
(eX-ROS20-Ack-Type rngm)
```

Description

eX-ROS20-Ack-Type returns "P" if this message is a positive response; "N" if negative response; "" if not a response.

Parameters

Name	Type	Description
rngm	event	The variable name of the event structure that contains the ROS20 Generic message.

Return Values

string

Returns one of the following values:

"P"	if this message is a positive response
"N"	if this message is a negative response
null string	if this message is not a valid response

Throws

Exception-Mapping and Exception-Generic.

Example

If rngm contains a Receipt acknowledgement exception, then

```
(eX-ROS20-Ack-Type rngm) => "N"
```

eX-ROS20-IsResponse?

Syntax

```
(eX-ROS20-IsResponse? rngm)
```

Description

eX-ROS20-IsResponse? checks whether a message is a response message.

Parameters

Name	Type	Description
rngm	event	The variable name of the event structure that contains the ROS20 Generic message.

Return Values

Boolean

Returns **#t** (true) if this message is a response message; otherwise, returns **#f** (false).

Throws

Exception-Mapping and Exception-Generic.

Example

if rngm contains a 3A4 request message,

```
(eX-ROS20-IsResposne? rngm)=> #f
```

eX-ROS20-IsSignal?

Syntax

```
(eX-ROS20-IsSignal? rngm)
```

Description

eX-ROS20-IsSignal? checks whether the message is a business signal.

Parameters

Name	Type	Description
rngm	event	The variable name of the event structure that contains the ROS20 Generic message.

Return Values

Boolean

Returns **#t** (true) if this message is a business signal; otherwise, returns **#f** (false).

Throws

Exception-Mapping and Exception-Generic.

Example

if rngm is a 3A4 request message, then

(eX-ROS20-IsSignal? rngm) => #f

if rngm is a Receipt Acknowledgement signal message, then

(eX-ROS20-IsSignal? rngm) => #t

eX-ROS20-Get-PipCode

Syntax

```
(eX-ROS20-Get-PipCode RNGM)
```

Description

eX-ROS20-Get-PipCode returns the PIP code in the rngm.

Parameters

Name	Type	Description
RNGM	event	The variable name of the event structure that contains the ROS20 Generic message.

Return Values

Returns the PIP code in the rngm.

Throws

Exception-Mapping and Exception-Generic.

Example

(eX-ROS20-Get-PipCode rngm)

=> "3A4"

eX-ROS20-Set-PipCode

Syntax

```
(eX-ROS20-Set-PipCode RNGM value)
```

Description

eX-ROS20-Set-PipCode sets the PIP code in the rngm.

Parameters

Name	Type	Description
RNGM	event	The variable name of the event structure that contains the ROS20 Generic message.
value	string	The Pip Code.

Return Values

Undefined.

Throws

Exception-Mapping and Exception-Generic.

Example

(eX-ROS20-Set-PIPCode rngm "3A4")

=> undefined

eX-ROS20-Get-SigActCode

Syntax

```
(eX-ROS20-Get-SigActCode RNGM)
```

Description

eX-ROS20-Get-SigActCode returns the signal code for a business signal or the action code for an action message.

Parameters

Name	Type	Description
RNGM	event	The variable name of the event structure that contains the ROS20 Generic message.

Return Values

string

Returns the signal code for a business signal or the action code for an action message; otherwise, returns a null string if this message is not a response message or input rngm doesn't contain enough information to compose a request ID.

Throws

Exception-Mapping and Exception-Generic.

Example

(eX-ROS20-Get-SigAckCode rngm)

=> "Purchase Order Request Action"

eX-ROS20-Set-SigActCode

Syntax

```
(eX-ROS20-Set-SigActCode RNGM value)
```

Description

eX-ROS20-Set-SigActCode sets the signal code for a business signal or the action code for an action message.

Parameters

Name	Type	Description
RNGM	event	The variable name of the event structure that contains the ROS20 Generic message.
value	string	The signal or action code.

Return Values

Undefined.

Throws

Exception-Mapping and Exception-Generic.

Example

(eX-ROS20-Set-SigAckCode rngm "Purchase Order Request Action")

=> undefined

eX-ROS20-Get-SigActVerId

Syntax

```
(eX-ROS20-Get-SigActVerId RNGM)
```

Description

eX-ROS20-Get-SigActVerId retrieves the signal version ID for an business signal or the action version ID for an action message.

Parameters

Name	Type	Description
RNGM	event	The variable name of the event structure that contains the ROS20 Generic message.

Return Values

string

Returns the signal version ID for an business signal or the action version ID for an action message.

Throws

Exception-Mapping and Exception-Generic.

Example

(eX-ROS20-Get-SigAckVerID rngm)

=> "2.0"

eX-ROS20-Set-SigActVerId

Syntax

```
(eX-ROS20-Set-SigActVerId RNGM value)
```

Description

eX-ROS20-Set-SigActVerId sets the signal version ID for an business signal or the action version ID for an action message.

Parameters

Name	Type	Description
RNGM	event	The variable name of the event structure that contains the ROS20 Generic message.
value	string	The signal or action version ID.

Return Values

Undefined.

Throws

Exception-Mapping and Exception-Generic.

Example

(eX-ROS20-Set-SigAckVerId rngm "2.0")

=> undefined

eX-ROS20-Get-PipVerId

Syntax

```
(eX-ROS20-Get-PipVerId RNGM)
```

Description

eX-ROS20-Get-PipVerId retrieves the PIPVersion.VersionIdentifier in the rngm.

Parameters

Name	Type	Description
RNGM	event	The variable name of the event structure that contains the ROS20 Generic message.

Return Values

string

Returns the PIPVersion.VersionIdentifier in the rngm.

Throws

Exception-Mapping and Exception-Generic.

Example

(eX-ROS20-Get-PipVerId rngm)

=> "2.0"

eX-ROS20-Set-PipVerId

Syntax

```
(eX-ROS20-Set-PipVerId RNGM value)
```

Description

eX-ROS20-Set-PipVerId sets the PIPVersion.VersionIdentifier in the rngm.

Parameters

Name	Type	Description
RNGM	event	The variable name of the event structure that contains the ROS20 Generic message.
value	string	The PIP Version.VersionIdentifier.

Return Values

Undefined.

Throws

Exception-Mapping and Exception-Generic.

Example

(eX-ROS20-Set-PipVerId rngm "2.0")

=> undefined

eX-ROS20-Get-PipId

Syntax

```
(eX-ROS20-Get-PipId RNGM)
```

Description

eX-ROS20-Get-PipId retrieves the PIPInstanceId.InstanceIdentifier in the rngm.

Parameters

Name	Type	Description
RNGM	event	The variable name of the event structure that contains the ROS20 Generic message.

Return Values

string

Returns the PIPInstanceId.InstanceIdentifier in the rngm.

Throws

Exception-Mapping and Exception-Generic.

Example

(eX-ROS20-Get-PipId rngm)

=> "12345"

eX-ROS20-Set-PipId

Syntax

```
(eX-ROS20-Set-PipId RNGM value)
```

Description

eX-ROS20-Set-PipId sets the PIPInstanceId.InstanceIdentifier in the rngm.

Parameters

Name	Type	Description
RNGM	event	The variable name of the event structure that contains the ROS20 Generic message.
value	string	The PIPInstanceId.InstanceIdentifier.

Return Values

Undefined.

Throws

Exception-Mapping and Exception-Generic.

Example

(eX-ROS20-Set-PipId rngm "12345")

=> undefined

eX-ROS20-Get-ActId

Syntax

```
(eX-ROS20-Get-ActId RNGM)
```

Description

eX-ROS20-Get-ActId returns the activity ID in the rngm.

Parameters

Name	Type	Description
RNGM	event	The variable name of the event structure that contains the ROS20 Generic message.

Return Values

string

Returns the activity ID in the rngm.

Throws

Exception-Mapping and Exception-Generic.

Example

(eX-ROS20-Get-ActId rngm)

=> "Purchase Order Request"

eX-ROS20-Set-ActId

Syntax

```
(eX-ROS20-Set-ActId RNGM value)
```

Description

eX-ROS20-Set-ActId sets the activity ID in the rngm.

Parameters

Name	Type	Description
RNGM	event	The variable name of the event structure that contains the ROS20 Generic message.
value	string	The activity ID.

Return Values

Undefined.

Throws

Exception-Mapping and Exception-Generic.

Example

(eX-ROS20-Set-AckId rngm "Purchase Order Request")

=> undefined

eX-ROS20-Get-InReplyTo-MsgId

Syntax

```
(eX-ROS20-Get-InReplyTo-MsgId RNGM)
```

Description

eX-ROS20-Get-InReplyTo-MsgId retrieves InReplyTo.MessageInstanceID.InstanceIdentifier in the rngm.

Parameters

Name	Type	Description
RNGM	event	The variable name of the event structure that contains the ROS20 Generic message.

Return Values

string

Returns InReplyTo.MessageInstanceID.InstanceIdentifier in the rngm.

Throws

Exception-Mapping and Exception-Generic.

Example

(eX-ROS20-Get-InReplyTo-MsgId rngm)

=> "1234"

eX-ROS20-Set-InReplyTo-MsgId

Syntax

```
(eX-ROS20-Set-InReplyTo-MsgId RNGM value)
```

Description

eX-ROS20-Set-InReplyTo-MsgId sets InReplyTo.MessageInstanceID.InstanceIdentifier in the rngm.

Parameters

Name	Type	Description
RNGM	event	The variable name of the event structure that contains the ROS20 Generic message.
value	string	The InReplyTo.MessageInstanceID.InstanceIdentifier.

Return Values

Undefined.

Throws

Exception-Mapping and Exception-Generic.

Example

(eX-ROS20-Set-InReplyTo-MsgId rngm "1234")

=> undefined

eX-ROS20-Get-InReplyTo-ActCode

Syntax

```
(eX-ROS20-Get-InReplyTo-ActCode RNGM)
```

Description

eX-ROS20-Get-InReplyTo-ActCode returns InReplyTo.ActionIdentity.GlobalBusinessActionCode in the rngm.

Parameters

Name	Type	Description
RNGM	event	The variable name of the event structure that contains the ROS20 Generic message.

Return Values

string

Returns InReplyTo.ActionIdentity.GlobalBusinessActionCode in the rngm.

Throws

Exception-Mapping and Exception-Generic.

Example

(eX-ROS20-Get-InReplyTo-ActCode rngm)

=> "Purchase Order Request Action"

eX-ROS20-Set-InReplyTo-ActCode

Syntax

```
(eX-ROS20-Set-InReplyTo-ActCode RNGM value)
```

Description

eX-ROS20-Set-InReplyTo-ActCode sets InReplyTo.ActionIdentity.GlobalBusinessActionCode in the rngm.

Parameters

Name	Type	Description
RNGM	event	The variable name of the event structure that contains the ROS20 Generic message.
value	string	The InReplyTo.ActionIdentity.GlobalBusinessActionCode.

Return Values

Undefined.

Throws

Exception-Mapping and Exception-Generic.

Example

(eX-ROS20-Set-InReplyTo-ActCode rngm "Purchase Order Request Action")

=> undefined

eX-ROS20-Get-InitPartnerId

Syntax

```
(eX-ROS20-Get-InitPartnerId RNGM)
```

Description

eX-ROS20-Get-InitPartnerId returns the Initiating Partner Global Business Identifier in the rngm.

Parameters

Name	Type	Description
RNGM	event	The variable name of the event structure that contains the ROS20 Generic message.

Return Values

string

Returns the Initiating Partner Global Business Identifier in the rngm.

Throws

Exception-Mapping and Exception-Generic.

Example

(eX-ROS20-Get-InitPartnerId rngm)

=> "1234567"

eX-ROS20-Set-InitPartnerId

Syntax

```
(eX-ROS20-Set-InitPartnerId RNGM value)
```

Description

eX-ROS20-Set-InitPartnerId sets the Initiating Partner Global Business Identifier in the rngm.

Parameters

Name	Type	Description
RNGM	event	The variable name of the event structure that contains the ROS20 Generic message.
value	string	The Initiating Partner Global Business Identifier.

Return Values

Undefined.

Throws

Exception-Mapping and Exception-Generic.

Example

(eX-ROS20-Set-InitPartnerId rngm "1234567")

=> undefined

eX-ROS20-Create-0A1Notification

Syntax

```
(eX-ROS20-Create-0A1Notification)
```

Description

eX-ROS20-Create-0A1Notification creates an 0A1 Notification message and populates the reply RNGM. It uses parameters passed in to a global Monk variable g_input, which is of type vector. The elements of g_input are described in the following table in the order they appear.

Global Parameters used in g_input

Name	Type	Description
prf_attrib	vector	The trading partner profile attributes (Message Profile) as returned by the Monk function (ux-get-header).
reply_rngm	event	The variable name of the event structure that contains the 0A1 Notification message on return.
error_detail	string	The error text.
unique_id	string	The unique id.

Parameters

None.

Return Values

string

Returns a null string.

Throws

Exception-Mapping and Exception-Generic.

Example

If prf_attrib contains the Message Profile attributes associated with an action message, unique_id is the unique ID of the same action message, error_text contains a text description of the reason for creating the 0A1 notification, and reply_rngm is an event map to the RNGM structure, then after the following statements

(set! g_input (vector prf_attrib, reply_rngm, error_text, unique_id)

(eX-ROS20-Create-0A1Notification)

"reply_rngm" contains the 0A1 notification message created in response to the original action message identified by unique_id.

eX-ROS20-Create-ReceiptAck

Syntax

```
(eX-ROS20-Create-ReceiptAck)
```

Description

eX-ROS20-Create-ReceiptAck creates a Receipt Acknowledgement message and populates the reply RNGM, based on the original RNGM. It uses parameters passed in to a global Monk variable g_input, which is of type vector. The elements of g_input are described in the following table in the order they appear.

Global Parameters used in g_input

Name	Type	Description
original_rngm	event	The original ROS20 message in RNGM format.
original_rnbm	string	The original ROS20 message in RNBM format.
reply_rngm	event	The newly created Receipt Acknowledgement message in RNGM format.

Parameters

None.

Return Values

string

Returns a null string.

Throws

Exception-Mapping and Exception-Generic.

Example

If original_rngm is the an event map containing the original ROS20 message, original_rnbm is a Monk string containing the same original ROS20 message, and reply_rngm is an empty event mapped to the RNGM structure, then, after the following statements:

(set! g_input (vector original_rngm original_rnbm reply_rngm))

(eX-ROS20-Create-ReceiptAck)

reply_rngm contains the newly created Receipt Acknowledgement in response to the original ROS20 message.

eX-ROS20-Create-Except

Syntax

```
(eX-ROS20-Create-Except)
```

Description

eX-ROS20-Create-Except creates an Exception message and populates the reply RNGM, based on the original RNGM. It uses parameters passed in to a global Monk variable g_input, which is of type vector. The elements of g_input are described in the following table in the order they appear.

Global Parameters used in g_input

Name	Type	Description
original_rngm	event	The original ROS20 message in RNGM format.
reply_rngm	event	The newly created Receipt Acknowledgement message in RNGM format.

Name	Type	Description
error_code	string	The error code. Possible values are: ▪ UNP.MESG.SIGNERR: Error during unpackaging – Verifying the signature of the RosettaNet Business Message ▪ UNP.PRMB.READERR: Error during unpackaging – Reading the Preamble ▪ UNP.PRMB.VALERR: Error during unpackaging – Validating the Preamble ▪ UNP.DHDR.READERR: Error during unpackaging – Reading the Delivery Header ▪ UNP.DHDR.VALERR: Error during unpackaging – Validating the Delivery Header ▪ UNP.SHDR.READERR: Error during unpackaging – Reading the Service Header ▪ UNP.SHDR.VALERR: Error during unpackaging – Validating the Service Header ▪ UNP.SHDR.MNFSTERR: Error during unpackaging – Verifying Manifest against the actual attachment body parts ▪ UNP.MESG.SEQERR: Error during unpackaging – Validating the message sequence ▪ UNP.MESG.RESPTYPERR: Unexpected Response type in the HTTP header ▪ UNP.MESG.DCRYPTERR: Error Decrypting the message ▪ UNP.SCON.READERR: Error during unpackaging – Reading the Service Content ▪ UNP.SCON.VALERR: Error during unpackaging – Validating the Service Content ▪ PKG.MESG.GENERR: Error during packaging – General error ▪ PRF.ACTN.GENERR: Error during action performance – General Error ▪ PRF.DICT.VALERR: Error during action performance – Validating the Service Content against a PIP-specified dictionary ▪ UNP.MESG.GENERR: Error during unpackaging – General error

Name	Type	Description
error_detail	string	The description of the error.
error_component	string	The message component where the error occurred. Possible values include: ▪ Preamble ▪ DeliveryHeader ▪ ServiceHeader ▪ ServiceContent ▪ Attachment
except_type	string	The type of exception to be created. Possible values include General Exception and Receipt Acknowledgement exception.

Parameters

None.

Return Values

string

Returns a null string.

Throws

Exception-Mapping and Exception-Generic.

Example

If original_rngm is the an event map containing the original ROS20 message, and reply_rngm is an empty event mapped to the RNGM structure, then, after the following statements:

(set! g_input (vector original_rngm reply_rngm "UNP.MESG.SIGNERR" "sign error" "ServiceContent" "Receipt Acknowledgement Exception"))

(eX-ROS20-Create-Exception)

reply_rngm contains the newly created Receipt Acknowledgement Exception in response to the original ROS20 message.

14.6 e*Xchange Security Functions

This section provides detailed information on e*Xchange Security functions, divided into two groups. The first group contains generic functions that can be used with any data format. It includes the following functions:

- util-security-decrypt-msg.monk
- util-security-encrypt-msg.monk
- util-security-sign-msg.monk
- util-security-verify-sig.monk

The second group is specifically for working with the e*Xchange APIs and database. It includes the following functions:

- eX-security-get-keys-certs.monk
- eX-ROS20-decrypt-msg.monk
- eX-ROS20-encrypt-msg.monk
- eX-ROS20-sign-msg.monk
- eX-ROS20-verify-sig.monk
- eX-ROS20-get-ssl-keys.monk

14.6.1 Operational Groups

The e*Xchange security functions can also be divided into two operational groups. The first group contains the following functions:

- util-security-decrypt-msg.monk
- util-security-encrypt-msg.monk
- util-security-sign-msg.monk
- util-security-verify-sig.monk
- eX-security-get-keys-certs.monk
- eX-ROS20-decrypt-msg.monk
- eX-ROS20-encrypt-msg.monk
- eX-ROS20-sign-msg.monk
- eX-ROS20-verify-sig.monk

These functions are used within e*Xchange RosettaNet 2.0 scripts, as described below.

A Initialization – (eX-init.monk)

- Load stc_monksmime.dll successfully and define SMIMEH.

B Inbound

- Verify digital signature.
- Extract content from RosettaNet Business Message.
- Extract signature from RosettaNet Business Message.

Note: *The signature should already be in base64 format, so no conversion is necessary.*

- Obtain sec_key_type values and tpic_id using ux-get-header.
- Call eX-ROS20-verify-sig passing in content, signature, algorithm, sec_key_type values and tpic_id.
- If eX-ROS20-verify-sig returns true (#t) then continue with normal processing.
- If eX-ROS20-verify-sig returns false (#f) then go to error processing.

C Decrypt message

- Extract encrypted portion of RosettaNet Business Message.

Note: *The encrypted portion should already be in base64 format, so no conversion is necessary.)*

- Obtain sec_key_type values and tpic_id using ux-get-header.
- Call eX-ROS20-decrypt-msg passing in encrypted message, sec_key_type values and tpic_id.
- If eX-ROS20-decrypt-msg returns data (not #f) then continue with normal processing using decrypted message.
- If eX-ROS20-decrypt-msg returns false (#f) then go to error processing.

D Outbound

Add Digital Signature

- Extract content from RosettaNet Business Message.
- Obtain sec_key_type values and tpic_id using ux-get-header.
- Call eX-ROS20-sign-msg passing in content, sec_key_type values and tpic_id.
- If eX-ROS20-sign-msg returns a vector containing signature algorithm and base64 encoded signature (not #f) then continue with normal processing using digital signature.
- If eX-ROS20-sign-msg returns false (#f) then go to error processing.

E Encrypt message

- Extract portion from RosettaNet Business Message to be encrypted.
- Obtain sec_key_type values and tpic_id using ux-get-header.
- Call eX-ROS20-encrypt-msg passing in content, sec_key_type values and tpic_id.

- If eX-ROS20-encrypt-msg returns a base64 encoded message (not #f) then continue with normal processing using encrypted message.
- If eX-ROS20-encrypt-msg returns false (#f) then go to error processing

The second operational group contains the following function:

- eX-ROS20-get-ssl-keys

This function is used in e*Xchange RosettaNet 2.0 scripts as described below.

A Outbound

- Find out if communicating via HTTPS with Trading Partner profile.
- If protocol = HTTPS then retrieve SSL information by calling eX-ROS20-get-ssl-keys.
- Take return vector and place the values in the standard event for the output.
- element 0 = SSLClientKeyFileName under TP_EVENT
- element 1 = SSLClientKeyFileType under TP_EVENT
- element 2 = SSLClientCertFileName under TP_EVENT
- element 3 = SSLClientCertFileType under TP_EVENT

A Note Regarding Security Function Examples

Note: *It is assumed that db-login, creation of connection-handle, and creation of SME handle (SMIMEH) were already executed successfully before each example. Also, the util functions assume error_data has previously been defined.*

util-security-decrypt-msg

Syntax

```
(util-security-decrypt-msg msg key_name key_value)
```

Description

util-security-decrypt-msg processes decryption of a given message. Calls Secure Message Extension functions to decrypt a message using decryption key and value.

Parameters

Name	Type	Description
msg	string	The encrypted msg in base64 format.
key_name	string	The decryption key name.
key_value	string	The decryption key value.

Return Values

string

Returns decrypted msg in raw readable format.

Boolean

Returns **#f** (false) if an error is encountered. **error_data** contains error string(s).

Throws

None.

Example

```
(define FILE (open-input-file "d:/temp/xi_encrypted_ROS20_msg"))
(define msg (read FILE 65536))
(close-input-port FILE)
(define FILE (open-input-file "c:/temp/certs/stc-ssl-client-test-1.p12"))
(define key_value (read FILE 65536))
(close-input-port FILE)
(define key_name "STC SSL Client Test #1")
(define decrypted_msg (util-security-decrypt-msg msg key_name key_value))
(if (boolean? decrypted_msg)
    (begin
     (display (string-append "Decryption failed with error: " error_data
         "\n"))
)
    (begin
     (display "Decryption succeeded - Decrypted msg placed in d:/temp/
         decrypted_msg\n")
     (define FILE (open-output-file "d:/temp/decrypted_msg"))
     (display decrypted_msg FILE)
     (close-port FILE)
)
)
```

util-security-encrypt-msg

Syntax

```
(util-security-encrypt-msg msg cert_name cert_value algorithm)
```

Description

util-security-encrypt-msg processes encryption of a given message. Calls Secure Message Extension functions to encrypt message using encryption certificate name and value, and encryption algorithm.

Parameters

Name	Type	Description
msg	string	The message (in raw readable format) to be encrypted.
cert_name	string	The encryption cert name.
cert_value	string	The encryption cert value.
algorithm	string	The encryption algorithm.

Return Values

string

Returns encrypted msg in base64 format (S/MIME headers have been stripped off).

Boolean

Returns #f (false) if an error is encountered. **error_data** contains error string(s).

Throws

None.

Example

```
(define FILE (open-input-file "d:/stc/egate/client/data/data2/con3A4.dat"))
(define msg (read FILE 65536))
(close-input-port FILE)
(define FILE (open-input-file "c:/temp/certs/stc-ssl-client-test-1.pk7"))
(define cert_value (read FILE 65536))
(close-input-port FILE)
(define cert_name "STC SSL Client Test #1")
(define alg "RC2_128")
(define encrypted_msg (util-security-encrypt-msg msg cert_name cert_value
alg))
(if (boolean? encrypted_msg)
    (begin
     (display (string-append "Encryption failed with error: "error_data
          "\n"))
)
    (begin
     (display "Encryption succeeded - Encrypted msg placed in d:/temp/
          encrypted_msg\n")
     (define FILE (open-output-file "d:/temp/encrypted_msg"))
     (display encrypted_msg FILE)
     (close-port FILE)
)
)
```

util-security-sign-msg

Syntax

```
(util-security-sign-msg msg key_name key_value algorithm)
```

Description

util-security-sign-msg creates a digital signature for a given message. Calls Secure Message Extension functions to create a digital signature for the given message using signature key name and value, and signature algorithm. Removes S/MIME headers and raw content before returning base64 encoded digital signature.

Parameters

Name	Type	Description
msg	string	The message (in raw readable format) to use for creating digital signature.
key_name	string	The signature key name.
key_value	string	The signature key value.
algorithm	string	The signature algorithm.

Return Values

string

Returns digital signature in base64 format (S/MIME headers and content have been stripped off)

Boolean

Returns #f (false) if an error is encountered. **error_data** contains error strings.

Throws

None.

Example

```
(define FILE (open-input-file "d:/stc/egate/client/data/con3A4.dat"))
(define msg (read FILE 65536))
(close-input-port FILE)
(define FILE (open-input-file "c:/temp/certs/stc-ssl-client-test-1.p12"))
(define key_value (read FILE 65536))
(close-input-port FILE)
(define key_name "STC SSL Client Test #1")
(define alg "RSA_MD5")
(define signed_msg (util-security-sign-msg msg key_name key_value alg))
(if (boolean? signed_msg)
    (begin
     (display (string-append "Signing failed with error: "error_data "\n"))
)
    (begin
     (display "Signing succeeded-Signed msg placed in d:/temp/signed_msg\n")
     (define FILE (open-output-file "d:/temp/signed_msg"))
     (display signed_msg FILE)
     (close-port FILE)
)
)
```

util-security-verify-sig

Syntax

```
(util-security-verify-sig content signature algorithm cert_name
cert_value)
```

Description

util-security-verify-sig performs verification of a digital signature for a given message. Calls Secure Message Extension functions to verify if the digital signature is valid for a given message using the certificate.

Parameters

Name	Type	Description
content	string	The content (in raw readable format) portion of data.
signature	string	The digital signature (in base64 format).
algorithm	string	The signature algorithm, such as MD5 or SHA1.
cert_name	string	The verification certificate name.
cert_value	string	The verification certificate value.

Return Values

Boolean

Returns **#t** (true) if verification succeeded, that is the content and digital signature match; otherwise returns **#f** (false) if content and digital signature do not match or an error was encountered. **error_data** contains error string(s).

Throws

None.

Example

```
(define FILE (open-input-file "d:/stc/egate/client/data/con3A4.dat"))
(define content (read FILE 65536))
(close-input-port FILE)
(define FILE (open-input-file "d:/temp/signed_msg"))
(define sig (read FILE 65536))
(close-input-port FILE)
(define FILE (open-input-file "c:/temp/certs/stc-ssl-client-test-
    1.pk7"))
(define cert_value (read FILE 65536))
(close-input-port FILE)
(define cert_name "STC SSL Client Test #1")
(define alg "MD5")
(if (util-security-verify-sig content sig alg cert_name cert_value)
    (display "Verification succeeded!\n")
    (display (string-append "Verification failed with error: "
        error_data "\n"))
)
```

eX-security-get-keys-certs

Syntax

```
(eX-security-get-keys-certs connection-handle tpic_id key)
```

Description

eX-security-get-keys-certs retrieves the key name, key value length and key value for a particular trading partner and key type.

Parameters

Name	Type	Description
connection-handle	string	The database connection handle.
tpic_id	string	The id for the trading partner profile.
key	string	The key type in es_security_key. Valid key types: E, S, D, V, K, T, C, P, Y, A.

Return Values

vector

Returns a 3 element vector containing key name, key value length, and key value.

Boolean

Returns **#t** (true) if there is no key name or value to retrieve; otherwise returns **#f** (false) if an error occurred. **error_data** contains error string(s)

Throws

None.

Example

```
(let ((ret_vec "")
     (tpic_id "12")
     (key "A"))
(set! ret_vec (eX-security-get-keys-certs connection-handle tpic_id key))
(if (vector? ret_vec)
    (begin
     (display "key name = <")
     (display (vector-ref ret_vec 0))
     (display ">\n")
     (display "length of key value = <")
     (display (vector-ref ret_vec 1))
     (display ">\n")
     (display "key value = <")
     (display (vector-ref ret_vec 2))
     (display ">\n")
)
(begin
    (if (eq? #t ret_vec)
     (display "No key/value to retrieve\n")
     (display "eX-security-get-keys-certs failed to retrieve key/value.")
)
)
)
)
```

eX-ROS20-decrypt-msg

Syntax

```
(eX-ROS20-decrypt-msg connection-handle msg keys tpic_id)
```

Description

eX-ROS20-decrypt-msg processes decryption of a given message. Calls eX-security-get-keys-certs to obtain decryption key and value. Calls util-security-decrypt-msg to perform decryption of given message using decryption key and value.

Parameters

Name	Type	Description
connection-handle	string	The database connection handle.
msg	string	Encrypted msg in base64 format.
keys	string	The key types for trading partner profile (obtained from es_tpic.sec_key_type). Must contain key type D.
tpic_id	string	The id for the trading partner profile.

Return Values

string

Returns encrypted msg in raw readable format.

Boolean

Returns **#f** (false) if an error is encountered. **error_data** contains error string(s).

Throws

None.

Example

```
(let ((dec_msg "")
     (tpic_id "13")
     (keys "D"))
(define FILE (open-input-file "d:/temp/encrypted_mime1.txt"))
(define msg (read FILE 65536))
(close-input-port FILE)
(set! dec_msg (eX-ROS20-decrypt-msg connection-handle msg keys tpic_id))
(if (boolean? dec_msg)
    (begin
     (display "eX-ROS20-decrypt-msg failed!\n")
)
    (begin
     (define FILE (open-output-file "d:/temp/decrypted_ROS20_msg"))
     (display dec_msg FILE)
     (close-port FILE)
)
)
)
```

eX-ROS20-encrypt-msg

Syntax

```
(eX-ROS20-encrypt-msg connection-handle msg keys tpic_id)
```

Description

eX-ROS20-encrypt-msg processes encryption of a given message. Calls eX-security-get-keys-certs to obtain encryption certificate name and value, and encryption algorithm. Calls util-security-encrypt-msg to perform encryption of given message using certificate and algorithm.

Parameters

Name	Type	Description
connection-handle	string	The database connection handle.
msg	string	The message in raw readable format, to encrypt.
keys	string	The key types for trading partner profile (obtained from es_tpic.sec_key_type). Must contain key types E and Y.
tpic_id	string	The id for the trading partner profile.

Return Values

string

Returns encrypted msg in base64 format.

Boolean

Returns **#f** (false) if an error is encountered. **error_data** contains error string(s).

Throws

None.

Example

```
(let ((enc_msg "")
     (tpic_id "14")
     (keys "D|Y|E"))
(define FILE (open-input-file "d:/temp/mime1.txt"))
(define msg (read FILE 65536))
(close-input-port FILE)
(set! enc_msg (eX-ROS20-encrypt-msg connection-handle msg keys tpic_id))
(if (boolean? enc_msg)
    (begin
     (display "eX-ROS20-encrypt-msg failed!\n")
)
    (begin
     (define FILE (open-output-file "d:/temp/encrypted_ROS20_msg"))
     (display enc_msg FILE)
     (close-port FILE)
)
)
)
```

eX-ROS20-sign-msg

Syntax

```
(eX-ROS20-sign-msg connection-handle msg keys tpic_id)
```

Description

eX-ROS20-sign-msg creates a digital signature for a given message. Calls eX-security-get-keys-certs to obtain signature key name and value, and signature algorithm. Calls util-security-sign-msg to create a digital signature for a given message using key and algorithm.

Parameters

Name	Type	Description
connection-handle	string	The database connection handle.
msg	string	The message in raw readable format, for which to create a digital signature.
keys	string	The key types for trading partner profile (obtained from es_tpic.sec_key_type). Must contain key types S and A.
tpic_id	string	The id for the trading partner profile.

Return Values

vector

Returns a 2 element vector containing algorithm and signature in base64 format.

Boolean

Returns **#f** (false) if an error is encountered. **error_data** contains error string(s).

Throws

None.

Example

```
(let ((sign_msg_vec "")
     (tpic_id "14")
     (keys "S|A"))
(define FILE (open-input-file "d:/temp/encrypted_ROS20_msg"))
(define msg (read FILE 65536))
(close-input-port FILE)
(set! sign_msg_vec (eX-ROS20-sign-msg connection-handle msg keys tpic_id))
(if (boolean? sign_msg_vec)
    (begin
     (display "eX-ROS20-sign-msg failed!\n")
)
    (begin
     (display (string-append "Algorithm = "
          (vector-ref sign_msg_vec 0) "\n"))
     (define FILE (open-output-file "d:/temp/signed_ROS20_msg"))
     (display (vector-ref sign_msg_vec 1) FILE)
     (close-port FILE)
)
)
)
```

eX-ROS20-verify-sig

Syntax

```
(eX-ROS20-verify-sig connection-handle content signature algorithm
keys tpic_id)
```

Description

eX-ROS20-verify-sig performs verification of a digital signature for a given message. Calls eX-security-get-keys-certs to obtain verification certificate name and value. Calls util-security-verify-sig to verify if the digital signature is valid for a given message using the certificate.

Parameters

Name	Type	Description
connection-handle	string	The database connection handle.
content	string	The content (in raw readable format) portion of data.
signature	string	The digital signature (in base64 format).
algorithm	string	The signature algorithm, such as MD5 or SHA1.
keys	string	The key types for trading partner profile (obtained from es_tpic.sec_key_type). Must contain key type V.
tpic_id	string	The id for the trading partner profile.

Return Values

Boolean

Returns **#t** (true) if verification succeeded, that is the content and digital signature match; otherwise returns **#f** (false) if the content and digital signature do not match or an error was encountered. **error_data** contains error string(s).

Throws

None.

Example

```
(let ((sig_msg "")
     (tpic_id "13")
     (alg "MD5")
     (keys "V"))
(define FILE (open-input-file "d:/temp/encrypted_ROS20_msg"))
(define content (read FILE 65536))
(close-input-port FILE)
(define FILE (open-input-file "d:/temp/signed_ROS20_msg"))
(define sig (read FILE 65536))
(close-input-port FILE)
(if (eq? #t (eX-ROS20-verify-sig connection-handle content sig
          alg keys tpic_id))
(begin
     (display "eX-ROS20-verify-sig succeeded!\n")
```

```
        )
        (begin
            (display "eX-ROS20-verify-sig failed!\n")
        )
        )
        )
```

eX-ROS20-get-ssl-keys

Syntax

```
(eX-ROS20-get-ssl-keys connection-handle keys tpic_id)
```

Description

eX-ROS20-get-ssl-keys retrieves the SSL Client key and certificate for a certain trading partner profile. Calls eX-security-get-keys-certs to obtain the key and certificate values, and the file types.

Parameters

Name	Type	Description
connection-handle	string	The database connection handle.
keys	string	The key types for trading partner profile (obtained from es_tpic.sec_key_type). Must contain key types K, T, C, and P.
tpic_id	string	The id for the trading partner profile.

Return Values

vector

Returns a 4 element vector containing the key, certificate, and file types

#(ssl_key_value in base64 format

ssl key file type (either PEM or ASN.1)

ssl certificate value in base64 format

ssl certificate file type (either PEM or ASN.1)

)

Boolean

Returns **#f** (false) if an error is encountered. **error_data** contains error string(s).

Throws

None.

Example

```
(let ((out_vec "")
    (tpic_id "12")
    (keys "K|C|T|P"))
(set! out_vec (eX-ROS20-get-ssl-keys connection-handle keys tpic_id))
(if (eq? #f out_vec)
   (begin
    (display "eX-ROS20-get-ssl-keys failed!\n")
)
   (begin
    (define FILE (open-output-file "d:/temp/ssl_key_base64"))
    (display (vector-ref out_vec 0) FILE)
    (close-port FILE)
    (display "SSL Key File Type = ")
```

```
        (display (vector-ref out_vec 1))
        (newline)
        (define FILE (open-output-file "d:/temp/ssl_cert_base64"))
        (display (vector-ref out_vec 2) FILE)
        (close-port FILE)
        (display "SSL Cert File Type = ")
        (display (vector-ref out_vec 3))
        (newline)
        (display "eX-ROS20-get-ssl-keys succeeded!\n")
    )
    )
    )
```

14.7 AS2 Security Functions

This section includes the details for the security functions that to support AS2 in e*Xchange. e*Xchange also uses the security functions described in **"e*Xchange Security Functions" on page 418** to support AS2. e*Xchange uses eSM (SME Monk) to perform security tasks, such as encryption, decryption, signature creation, or signature verification. S/MIME-C version 2.0 is the toolkit provided by RSA Security that eSM uses to perform these security methods.

S/MIME-C version 2.0 expects each message to be fully S/MIME v2 compliant (RFC 2311). If a message is not compliant or the content has been modified to no longer match the signature (for example, it is missing a blank line that was there when the signature was created), then the toolkit either returns SMT_E_CORRUPT or crashes. In order to avoid encountering these errors, it is important that each message abide by the following guidelines:

- All lines must end in CRLF (carriage return line feed).The lines must not end in CRCRLF. The only exception to this rule is the content part of the message.
- There must be a CRLF (blank line) between the headers and the first boundary. Also, there must be a blank line (CRLF) between headers and signature.
- The signature portion must contain the Content-Transfer-Encoding header since the signature is either binary or base64.
- If the boundary contains spaces, then the declaration must be enclosed in double quotes.
- Be sure each boundary, except the final one, begins with -- (two dashes)
- Be sure the final boundary exists, and begins and ends with -- (two dashes)
- The first header section of the S/MIME message must contain the Content-Type header.
- The content section of the S/MIME message must match exactly to the content that was used to create the signature, including any blank lines.

e*Xchange utilizes the following new functions to properly perform the security steps necessary for processing AS2 messages. All the functions that begin with util reside in monk_library/eXchange, and all the functions that begin with eX-AS2 reside in monk_scripts/eXchange/AS2.

util-security-decrypt-raw-msg

Syntax

(util-security-decrypt-msg msg key_name key_value key_pass)

Description

util-security-decrypt-raw-msg decrypts a given binary (PKCS #7) message. It uses Secure Message Extension functions to decrypt message using decryption key and value.

Parameters

Name	Type	Description
msg	string	Encrypted message in binary (PKCS #7) format not containing signature.
key_name	string	Decryption key name.
key_value	string	Decryption key (PKCS #12).
key_pass	string	Encrypted password (optional - can be empty string).

Return Value

String

This function returns the decrypted message in raw readable format.

Boolean

If the decryption fails or an error was encountered, then #f is returned

util-security-decrypt-verify-base64

Syntax

(util-security-decrypt-verify-base64 msg key_name key_pass key_value cert_name cert_value)

Description

util-security-decrypt-verify-base64 decrypts and verifies a given base64-encoded encrypted S/MIME v2 message including signature. It uses Secure Message Extension functions to decrypt the message and verify the signature message using decryption key and value, and the signature certificate and value.

Parameters

Name	Type	Description
msg	string	Encrypted S/MIME v2 message in base64 format and containing signature.
key_name	string	Decryption key name.
key_value	string	Decryption key (PKCS #12).
key_pass	string	Encrypted password (optional - can be empty string).
cert_name	string	Signature Verification certificate name.
cert_value	string	Signature Verification certificate (PKCS #7).

Return Value

String

Returns the content part of the S/MIME message that the signature was created from. Therefore, the string does not include the signature or any extra headers or boundaries.

Boolean

If the decryption and/or verification fails or an error was encountered, then #f is returned.

util-security-decrypt-verify-raw

Syntax

(util-security-decrypt-verify-raw msg key_name key_pass key_value cert_name cert_value)

Description

util-security-decrypt-verify-raw decrypts and verifies a given binary (raw PKCS #7 format) encrypted S/MIME v2 message including signature. It uses Secure Message Extension functions to decrypt the message and verify the signature message using decryption key and value, and the signature certificate and value.

Parameters

Name	Type	Description
msg	string	Encrypted S/MIME v2 message in binary (PKCS #7) format and containing signature.
key_name	string	Decryption key name.
key_value	string	Decryption key (PKCS #12).
key_pass	string	Encrypted password (optional - can be empty string).
cert_name	string	Signature Verification certificate name.
cert_value	string	Signature Verification certificate (PKCS #7).

Return Value

String

Returns the content part of the S/MIME message that the signature was created from. Therefore, the string does not include the signature or any extra headers or boundaries.

Boolean

If the decryption and/or verification fails or an error was encountered, then #f is returned

util-security-encrypt-raw-msg

Syntax

(util-security-encrypt-raw-msg msg cert_name cert_value algorithm)

Description

util-security-encrypt-raw-msg processes encryption of a given message. It uses Secure Message Extension functions to encrypt message using encryption certificate name and value, and encryption algorithm. Returns encrypted message in raw PKCS #7 (binary) format.

Parameters

Name	Type	Description
msg	string	Message to be encrypted.
cert_name	string	Signature Verification certificate name.
cert_value	string	Signature Verification certificate (PKCS #7).
algorithm	string	Encryption algorithm. Possible values include: ▪ "RC2_128" ▪ "DES_EDE3_CBC" ▪ "DES_CBC" ▪ "RC2_40"

Return Value

String

This function returns the encrypted message in raw PKCS #7 (binary) format.

Boolean

If the encryption fails or an error was encountered, then #f is returned

util-security-sign-raw-msg

Syntax

(util-security-sign-raw-msg msg key_name key_value algorithm key_pass)

Description

util-security-sign-raw-msg creates a digital signature for a given message (content). It uses Secure Message Extension functions to create a digital signature for the given message using signature key name and value, and signature algorithm. Returns digital signature in raw (PKCS #7) binary format.

Parameters

Name	Type	Description
msg	string	This content string is used to create the digital signature.
key_name	string	Signature key name.
key_value	string	Signature key (PKCS #12 format).
algorithm	string	Signature algorithm - can be "RSA_MD5" or "RSA_SHA1".
key_pass	string	Encrypted password (optional - can be empty string).

Return Value

String

This function returns the digital signature in raw PKCS #7 (binary) format.

Boolean

If the signature creation fails or an error was encountered, then #f is returned

util-security-verify-raw-sig

Syntax

(util-security-verify-raw-sig content signature algorithm cert_name cert_value)

Description

util-security-verify-raw-sig performs verification of a digital signature in raw PKCS #7 (binary) format for a given message. It uses Secure Message Extension functions to verify if the digital signature is valid for a given content using the certificate.

Parameters

Name	Type	Description
content	string	This content string is used to create the digital signature.
signature	string	Digital signature in PKCS #7 (binary) format.
algorithm	string	Algorithm used to create digital signature
cert_name	string	Verification certificate name.
cert_value	string	Verification certificate (PKCS #7 format).

Return Value

Boolean

Returns #t if verification succeeded, such that content and signature match; otherwise returns #f if content and digital signature don't match or an error was encountered.

util-security-verify-smime

Syntax

(util-security-verify-smime smime_msg cert_name cert_value)

Description

util-security-verify-smime performs verification of a digital signature for a given S/MIME v2 message. Calls Secure Message Extension functions to verify if the digital signature is valid for a given content using the certificate. Message must be in appropriate S/MIME v2 format (compliant with RFC 2311).

Parameters

Name	Type	Description
smime_msg	string	S/MIME v2 compliant message including signature.
cert_name	string	Verification certificate name.
cert_value	string	Verification certificate (PKCS #7 format).

Return Value

String

Returns the content part of the S/MIME message that the signature was created from. Therefore, the string does not include the signature or any extra headers or boundaries.

Boolean

Returns #f if the verification fails (content and digital signature don't match) or an error was encountered.

eX-AS2-decrypt-msg

Syntax

(eX-AS2-decrypt-msg hdbc msg keys tpic_id encode)

Description

eX-AS2-decrypt-msg decrypts an encrypted AS2 message. It uses util-security-decrypt-msg if encode is base64; otherwise, it uses util-security-decrypt-raw-msg to decrypt message.

Parameters

Name	Type	Description
hdbc	Connection handle	Handle for connection to the e*Xchange database.
msg	string	Encrypted message.
keys	string	Security key types from e*Xchange profile (es_tpic.sec_key_type). Each key type is separated by a '|'. Must include at least the key type 'D'.
tpic_id	string	B2B protocol profile id for es_tpic.
encode	string	Tells if encrypted message is base64 encoded ("base64") or in binary ("raw") format. Defaults to "raw" if empty string.

Return Value

String

Returns the decrypted message in raw readable format.

Boolean

Returns #f if the decryption fails or an error was encountered.

eX-AS2-decrypt-verify-msg

Syntax

(eX-AS2-decrypt-verify-msg hdbc msg keys tpic_id encode)

Description

eX-AS2-decrypt-verify-msg decrypts and verifies the signature for an encrypted AS2 S/MIME v2 message. It uses util-security-decrypt-verify-base64 if encode is base64. Otherwise, it uses util-security-decrypt-verify-raw to decrypt message.

Parameters

Name	Type	Description
hdbc	Connection handle	Handle for connection to the e*Xchange database.
msg	string	Encrypted S/MIME v2 compliant AS2 message including signature.
keys	string	Security key types from e*Xchange profile (es_tpic.sec_key_type). Each key type is separated by a '|'. Must include at least the key type 'D' and 'V'.
tpic_id	string	B2B protocol profile id for es_tpic.
encode	string	Tells if encrypted message is base64 encoded ("base64") or in binary ("raw") format. Defaults to "raw" if empty string.

Return Value

String

Returns the content part of the S/MIME message that the signature was created from. Therefore, the string does not include the signature or any extra headers or boundaries.

Boolean

Returns #f if the decryption and/or verification fails or an error was encountered.

eX-AS2-encrypt-msg

Syntax

(eX-AS2-encrypt-msg hdbc msg keys tpic_id encode)

Description

eX-AS2-encrypt-msg processes encryption of a given message. It uses util-security-encrypt-msg if encode is base64. Otherwise, it uses util-security-encrypt-raw-msg to encrypt the given message.

Parameters

Name	Type	Description
hdbc	Connection handle	Handle for connection to the e*Xchange database.
msg	string	Encrypted S/MIME v2 compliant AS2 message including signature.
keys	string	Security key types from e*Xchange profile (es_tpic.sec_key_type). Each key type is separated by a '|'. Must include at least the key type 'E' and 'Y'.
tpic_id	string	B2B protocol profile id for es_tpic.
encode	string	Tells if encrypted message is base64 encoded ("base64") or in binary ("raw") format. Defaults to "raw" if empty string.

Return Value

String

Returns the encrypted message in raw PKCS #7 (binary) format when encode is "raw". Returns encrypted message in base64 format when encode is base64.

Boolean

Returns #f if the encryption fails or an error was encountered.

eX-AS2-sign-msg

Syntax

(eX-AS2-sign-msg hdbc msg keys tpic_id encode algorithm)

Description

eX-AS2-sign-msg creates a digital signature of a given message (content). It uses util-security-sign-msg if encode is base64. Otherwise, it uses util-security-sign-raw-msg to create a base64 encoded digital signature for the given message.

Parameters

Name	Type	Description
hdbc	Connection handle	Handle for connection to the e*Xchange database.
msg	string	Encrypted S/MIME v2 compliant AS2 message including signature.
keys	string	Security key types from e*Xchange profile (es_tpic.sec_key_type). Each key type is separated by a '|'. Must include at least the key type 'S' and 'A'.
tpic_id	string	B2B protocol profile id for es_tpic.
encode	string	Tells if encrypted message is base64 encoded ("base64") or in binary ("raw") format. Defaults to "raw" if empty string.
algorithm	string	If set, then overrides signature algorithm setting in the e*Xchange profile. (Optional - can be an empty string)

Return Value

Vector

A two-element vector is returned on success. The first element is a string representing the signature algorithm used, such as "SHA1", "MD5", or "MD2". The second algorithm is a string representing the digital signature, which is either in base64 or binary format depending upon the encode setting.

Boolean

Returns #f if signature creation fails or an error was encountered.

eX-AS2-verify-sig

Syntax

(eX-AS2-verify-sig hdbc content sig alg keys tpic_id encode)

Description

eX-AS2-verify-sig verifies a digital signature given the content. It uses util-security-verify-sig if encode is base64. Otherwise, it uses util-security-verify-raw-sig to verify the digital signature.

Parameters

Name	Type	Description
hdbc	Connection handle	Handle for connection to the e*Xchange database.
msg	string	Encrypted S/MIME v2 compliant AS2 message including signature.
sig	string	Digital signature.
alg	string	Signature algorithm — “SHA1” or “MD5”.
keys	string	Security key types from e*Xchange profile (es_tpic.sec_key_type). Each key type is separated by a '|'. Must include at least the key type 'V'.
tpic_id	string	B2B protocol profile id for es_tpic.
encode	string	Tells if encrypted message is base64 encoded ("base64") or in binary ("raw") format. Defaults to "raw" if empty string.

Return Value

Boolean

Returns #t if verification succeeded, such that content and signature match; otherwise returns #f if content and digital signature don't match or an error was encountered.

eX-AS2-verify-smime

Syntax

(eX-AS2-verify-smime hdbc smime_msg keys tpic_id)

Description

eX-AS2-verify-smime verifies a S/MIME v2 AS2 message, which includes a signature (binary or base64). It uses util-security-verify-smime when retrieving the verification certificate from the e*Xchange database.

Parameters

Name	Type	Description
hdbc	Connection handle	Handle for connection to the e*Xchange database.
msg	string	Encrypted S/MIME v2 compliant AS2 message including signature.
keys	string	Security key types from e*Xchange profile (es_tpic.sec_key_type). Each key type is separated by a '|'. Must include at least the key type 'V'.
tpic_id	string	B2B protocol profile id for es_tpic.

Return Value

String

Returns the content part of the S/MIME AS2 message that the signature was created from. Therefore, the string does not include the signature or any extra headers or boundaries.

Boolean

Returns #f if the verification fails (content and digital signature don't match) or an error was encountered.

ux-ack-monitor-as2

Syntax

(ux-ack-monitor-as2 *hdbc comm_resend_cnt comm_resend_max comm_resend_tm mtrk_outb_id env_msg_id*)

Description

ux-ack-monitor-as2 steps through the AS2 communication resend process. If comm_resend_cnt > comm_resend_max then es_waiting_ack.comm_resend_cnt is reset to 0, es_waiting_ack.comm._send_status, and es_waiting_ack.next_send_tm is set to the future based on es_waiting_ack.ack_rsp_tm_s for all rows with the same es_mtrk_outb.env_msg_id as the env_msg_id provided.

Otherwise, comm_resend_cnt <= comm_resend_max then es_waiting_ack.comm._resend_cnt is incremented by 1, es_waiting_ack.next_send_tm is set to the future based on comm_resend_tm, a row is inserted into es_out_queue for env_msg_id and mtrk_outb_id, and es_mtrk_outb.last_send_tm is set to the current datetime.

Parameters

Name	Type	Description
hdbc	Connection handle	Handle for connection to the e*Xchange database.
comm_resend_cnt	integer	Number of communication resends performed for the specified message.
comm_resend_max	integer	Communication resend maximum value from sb_defaults.
comm_resend_tm	string	Communication resend time value in seconds from sb_defaults.
mtrk_outb_id	string	Message tracking id for outbound message.
env_msg_id	string	Message Id for enveloped or batched up messages.

Return Value

Boolean

Returns #t if no errors were encountered, and the processing was successful; otherwise returns #f.

Special Notes

The ux-ack-monitor-as2 does not include commit or rollback calls. Therefore, a db-commit should be called when ux-ack-monitor-as2 returns #t, and a db-rollback should be called on return of #f.

The ack_mon.dsc has a new if-else statement within the processing for non-CIDX and non-ROS messages. The if part is for checking if the comm_send_status is 'F'. If the processing goes into the if part, then ux-ack-monitor-as2 is called. Otherwise, the processing goes into the else, which is the normal Ack Monitor processing for X12, EDF, and NCPDP.

14.7.1 ePM e*Way for AS2 message resends

ePM controls the resends of AS2 messages that fail to be posted through Http. A new script, eX_AS2_Inb_stat.monk, has been created to process the Http status codes that get passed back to ePM from the Http(s) e*Way. If a profile has AS2 set to "Y", then there is a check to see if HTTP_POSTSTAT was included in the Inbound standard event.

When HTTP_POSTSTAT is included in the Inbound standard event, then eX_AS2_Inb_stat is called with input parameters: connection-handle, MESSAGE_ID from the Inbound standard event, and the HTTP_POSTSTAT status code. eX_AS2_Inb_stat goes through the following steps to process the status message:

1. eX_X12_Inb_main.dsc, eX_EDF_Inb_main.dsc, and eX_NCPDP_Inb_main.dsc are the scripts that each contain a call to eX_AS2_Inb_stat.
2. eX_AS2_Inb_stat assumes that the B2B protocol has been successfully loaded, and that tpic_id, tran_type, and ic_ver_num have been populated with profile values.

   However, the profile loaded is for Inbound. Therefore, the script will load the corresponding Outbound profile at the beginning of processing, and then reload the Inbound profile before returning back to the caller.
3. All Mtrk_outb_ids and their associated es_id and es_opt values are retrieves using the passed in MESSAGE_ID value, direction set to "O", tran_type, and ic_ver_num,
4. All mtrk_outb_ids that have the es_id in the right profile (the one currently loaded) are kept, and the others that don't match are ignored for further processing.
5. Each mtrk_outb_id HTTP_POSTSTAT extended attribute is updated with the passed in status code.
6. Each mtrk_outb_id's extended attributes is then searched to see if RESPONSE_ID is populated. If this attribute does have a value, then that outgoing message expects a response.
7. If the Http status code does not begin with 2, then the status code is considered an error. Therefore, all mtrk_outb_ids have the es_waiting_ack. comm_send_status set to "F". And the mtrk_outb_ids that do expect a response also have es_waiting_ack.next_send_tm to be reset to the next sending time.
8. If the Http status code does begin with 2, then the status code means there was a successful POST. All mtrk_outb_ids not expecting responses have their row in es_waiting_ack deleted.

Given the above steps, it is important that all AS2 Outbound messages have the following attributes or rows stored along with them in the message tracking:

1. HTTP_POSTSTAT is initialized to an empty string since an update, not an insert, is performed when the status code comes back.
2. RESPONSE_ID is populated for all messages that expect a response.
3. MESSAGEID is populated with the MESSAGE_ID value that will be in the standard event containing the HTTP_POSTSTAT.

4 A row in es_waiting_ack is created for each outbound message with comm._send_status either NULL or an empty string, and comm._resend_cnt is either NULL or 0.

14.8 NCPDP Functions

This section includes the details for the functions that to support NCPDP in e*Xchange.

Note: *NCPDP E1 Eligibility Verification messages—because of a limitation in NCPDP, the Request and Response messages are not associated in Message Tracking* ***(unless you perform customization to circumvent this problem).*** *Because of this limitation, you might see timeout errors on outbound Request messages when the responses have already been received.*

ux-del-ncpdp-batch-rec

Syntax:

(ux-del-ncpdp-batch-rec connection-handle batch_id)

Description:

ux-del-ncpdp-batch-rec deletes a record in es_mtrk_ncpdp_batch for a given batch ID.

Parameters:

Name	Type	Description
connection-handle	Connection handle	Required. The previously established connection to the database.
batch_id	string	Required. ID in es_mtrk_ncpdp_batch table in order to delete that row.

Return values:

Boolean

Returns #t (true) - record deleted successfully

Returns #f (false) - Error occurred

Example:

```
(if (ux-del-ncpdp-batch-rec connection-handle batch_id)
   (db-commit connection-handle)
   (db-rollback connection-handle)
```

ux-get-ncpdp-batch-ids

Syntax:

(ux-get-ncpdp-batch-ids connection-handle)

Description:

ux-get-ncpdp-batch-ids is called to return a vector of vectors of batch-id, outb_resp_id, and outb_cnt that meet a specific criteria for batching. The criteria is that the outb_cnt is greater or equal to total_cnt for the batch-id OR outb_ts time + sb-defaults time-out value is greater than the current time.

Parameters:

Name	Type	Description
connection-handle	Connection handle	Handle for connection to the e*Xchange database.

Return values:

Boolean

Returns #t (true) - No batch ID data sets returned.

Returns #f (false) - Error occurred

Vector

a vector of sub-vectors

< <Sub-Vector batch-id1 outb-resp-ids1 outb-cnt1>

<Sub-Vector batch-id2 outb-resp-ids2 outb-cnt2>

...

>

Example:

```
(set! ncpdp_resp_id_vec (ux-get-ncpdp-batch-ids connection-handle))
(if (vector? ncpdp_resp_id_vec)
 (begin
  (set! ncpdp_resp_id_len (vector-length ncpdp_resp_id_vec))
  (if (> ncpdp_resp_id_len 0)
    (begin
     (do ((i 0 (+ i 1))) ((= i ncpdp_resp_id_len))
      (set! ncpdp_resp_item (vector-ref ncpdp_resp_id_vec i))
      (set! batch_id (vector-ref ncpdp_resp_item 0))
      (set! resp_id_vec (vector-ref ncpdp_resp_item 1))
      (set! resp-outb-cnt (vector-ref ncpdp_resp_item 2))
)))))
```

ux-get-ncpdp-batch-rec

Syntax:

(ux-get-ncpdp-batch-rec connection-handle batch_id)

Description:

ux-get-ncpdp-batch-rec retrieves a record from es_mtrk_ncpdp_batch for a batch ID.

Parameters:

Name	Type	Description
connection-handle	Connection handle	Required. The previously established connection to the database.
batch_id	string	Required. ID in order to get information for the record.

Return values:

Boolean

Returns #t (true) - No record retrieved for the batch-id

Returns #f (false) - Error occurred

Vector

<outb-resp-ids outb-cnt total-cnt> where outb-resp-ids have the format of IDs separated by a pipe like "outb-resp-id1|outb-resp-id2|outb-resp-id3"

Example:

```
 (set! rtv_ncpdp_batch (ux-get-ncpdp-batch-rec connection-handle
batch_id))
 (if (vector? rtv_ncpdp_batch)
  (set! resp-outb-cnt (vector-ref rtv_ncpdp_batch 2))
)
```

ux-ins-ncpdp-batch-rec

Syntax:

(ux-ins-ncpdp-batch-rec, conn-handle, batch-id, outb-resp-ids, outb-cnt, total-cnt)

Description:

ux-ins-ncpdp-batch-rec inserts a row in es_mtrk_ncpdp_batch.

Parameters:

Name	Type	Description
connection-handle	Connection handle	Required. The previously established connection to the database.
batch_id	string	Required. Unique identifier of the inbound NCPDP batch outb-resp-ids.
total-cnt	string	Required. Total number of messages in batch identified by batch-id.

Return values:

Boolean.

Returns #t (true) - record inserted correctly;

otherwise returns #f (false) - Error occurred

Example:

```
(set! ins_batch_rec (ux-ins-ncpdp-batch-rec connection-handle
batch_id
       mtrk_outb_resp_ids_list (number->string mtrk_outb_cnt_number)
       (number->string mtrk_total_cnt_number)))
(if ins_batch_rec
 (begin
  (display "Inserted Batch Record Successfully")
 )
 (begin
  (display "Error Inserting Batch Record")
 )
)
```

ux-upd-ncpdp-batch-rec

Syntax:

(ux-upd-ncpdp-batch-rec conn-handle batch-id outb-cnt)

Description:

ux-upd-ncpdp-batch-rec updates the outbound count and timestamp for a row in es_mtrk_ncpdp_batch identified by batch-id.

Parameters:

Name	Type	Description
conn-handle	Connection handle	Required. The previously established connection to the database.
batch_id	string	Required. Unique identifier of inbound NCPDP batch outb-cnt.
total-cnt	string	Required. Total number of messages in batch identified by batch-id.

Return values:

Boolean

Returns #t (true) - record updated successfully;

otherwise returns #f (false) - Error occurred

Example:

```
(set! upd_batch_rec (ux-upd-ncpdp-batch-rec connection-handle
batch_id resp-outb-cnt))
(if upd_batch_rec
 (begin
  (display "Updated Batch Record Successfully")
 )
 (begin
  (display "Error Updating Batch Record")
 )
)
```

ux-ncpdp-inb-dup-check

Syntax:

(ux-ncpdp-inb-dup-check connection-handle temp_unique_id "T")

Description:

ux-ncpdp-inb-dup-check checks for duplicate NCPDP inbound transactions.

Parameters:

Name	Type	Description
connection-handle	Connection handle	Required. The previously established connection to the database.
unique-id	string	Required. Unique identifier to represent the transaction.
level	string	Required. The level of the check (I = IC, T = TS).

Return values:

Boolean

Returns #f (false) - Error occurred

String

"Y" - Yes, it is a duplicate and there is no ack_msg_id

"ACK_MSG_ID" - duplicate found and it had an ack msg id

"N" - No, there was no duplicate found

Example:

```
(set! dupdata (ux-ncpdp-inb-dup-check connection-handle
temp_unique_id "T"))
(if (boolean? dupdata)
 (begin
  (display "ux-check-shutdown-uid failed\n")
 )
 (begin
  (if (not (string=? dupdata "N"))
   (begin
    (if (string=? dupdata "Y")
     (begin
      (display "Duplicate exists, but no ack msg id found\n")
     )
     (begin
      (display "Duplicate exists, but ack msg id found: ")
      (display dupdata)
     )
    )
   )
  )
```

ux-ret-ncpdp-batch-ts-msgs

Syntax:

(ux-ret-ncpdp-batch-ts-msgs connection-handle file_size
batch_id upd_ind batch_num trans_ref_num)

Description:

ux-ret-ncpdp-batch-ts-msgs obtains contents of NCPDP batch transaction set messages that are ready to be sent out.

Parameters:

Name	Type	Description
connection-handle	Connection handle	Required. The previously established connection to the database.
file_size	string	Required. Current size of batch messages.
batch_id	string	Required. ID in es_mtrk_ncpdp_batch table.
upd_ind	string	Required. "Y" (Yes) or "N" (No) Indicator to update or select using batch_id and trans_ref_num. If the upd_ind value is "N", messages with the batch_id will be retrieved. If the upd_ind value is "Y", the batch_id value will be used to update retrieved msgs.
batch_num	string	Required. Batch number that will only be used to update mtrk_ext_data value if the upd_ind is "Y".
trans_ref_num	string	Required but may be an empty string. Transaction reference number. If upd_ind value is "Y", the value is used as the starting transaction reference number and increment the value.

Return values:

Boolean

Returns #f (false) - Error occurred

Vector

If success, returns a vector of vectors containing message and associated record IDs. file_size is updated as messages are retrieved from the database. file_size resets to -1 if it exceeds the maximum value of 5000000.

If no values to return then returns an empty vector.

```
#(file_size tot_msg_size batch_num
                   #(msg_a trans_ref_num
                       #(mtrk_id_a1     mtrk_ext_d_id1
                                            mtrk_ext_d_id2
mtrk_ext_d_id3)
                                          #(mtrk_id_a2
mtrk_ext_d_id1
                                            mtrk_ext_d_id2
mtrk_ext_d_id3))
                                   #(msg_b trans_ref_num
                       #(mtrk_id_b1     mtrk_ext_d_id1
                                            mtrk_ext_d_id2
mtrk_ext_d_id3)
                                          #(mtrk_id_b2
mtrk_ext_d_id1
                                            mtrk_ext_d_id2
mtrk_ext_d_id3)))
```

Example:

```
(set! ret-batch-msgs (ux-ret-ncpdp-batch-ts-msgs connection-handle
file_size batch_id "N" batch_num "")
(if (boolean? ret-batch-msgs)
 (begin
  (display "ux-ret-ncpdp-batch-ts-msgs failed.")
 )
 (begin
  (set! reach_limit (vector-ref ret-batch-msgs 0))
  (set! file_size (vector-ref ret-batch-msgs 1))
 )
)
```

Chapter 15

Java Helper Methods

A number of Java methods have been added to make it easier to set information in the e*Xchange Event (**eX_StandardEvent.xsc** ETD) and to get information from it. These methods are contained in classes:

- **NameValuePair Class on page 458**
- **Payload Class on page 466**
- **TPAttribute Class on page 478**
- **TP_EVENT Class on page 490**

15.1 NameValuePair Class

public class NameValuePair

extends com.stc.jcsre.XMLETDImpl

implements com.stc.jcsre.ETD

A class to represent the NameValuePair object of an e*Xchange (Business Process Management) XML ETD. It is defined in the following DTD:

```
<!ELEMENT TPAttribute (NameValuePair*)>
<!ELEMENT NameValuePair (Name, Value)>
<!ELEMENT Name (#PCDATA)>
<!ELEMENT Value (#PCDATA)>
```

These methods are described in detail on the following pages:

- **getNAME** on page 459
- **getVALUE** on page 460
- **marshal** on page 461
- **setNAME** on page 462
- **setVALUE** on page 463
- **toString** on page 464
- **unmarshal** on page 465

getNAME

Syntax

```
java.lang.String getNAME()
```

Description

getNAME retrieves the name portion of this object.

Parameters

None.

Return Values

java.lang.String
Returns the name of this object.

Throws

None.

Example

```
getNAME();

=> "COMM_PROT"
```

getVALUE

Syntax

```
java.lang.String getVALUE()
```

Description

getVALUE retrieves the value portion of this object.

Parameters

None.

Return Values

java.lang.String
Returns the value of the object.

Throws

None.

Example

```
getVALUE();

=> "X12"
```

marshal

Syntax

```
void marshal(org.xml.sax.ContentHandler handler,
org.xml.sax.ErrorHandler errorHandler)
```

Description

marshal gathers the data contained within this ETD object and formulates it back into a serialized XML message.

Parameters

Name	Type	Description
handler	org.xml.sax.ContentHandler	The handler that converts content within to XML.
errorHandler	org.xml.sax.ErrorHandler	The handler to address errors during conversion.

Return Values

None.

Throws

None.

setNAME

Syntax

```
void setNAME(java.lang.String val)
```

Description

setNAME sets the name portion of this object.

Parameters

Name	Type	Description
val	string	The case-sensitive name of this Partner Manager Attribute.

Return Values

None.

Throws

None.

Example

```
setNAME("COMM_PROT");
```

setVALUE

Syntax

```
void setVALUE(java.lang.String val)
```

Description

setVALUE sets the value portion of this object.

Parameters

Name	Type	Description
val	java.lang.String	The value of the Attribute.

Return Values

None.

Throws

None.

Example

```
setVALUE("X12");
```

toString

Syntax

```
java.lang.String toString()
```

Description

toString converts this ETD object to a printable String form.

Parameters

None.

Return Values

java.lang.String
Returns the XML message represent by this ETD object.

Throws

None.

Example

```
toString();
```

unmarshal

Syntax

```
void unmarshal(org.xml.sax.InputSource inputSource,
com.stc.jcsre.sml.SAXLexer lexer)
```

Description

unmarshal takes a serialized (marshalled) form of the ACTIVITY XML Event and distributes (unmarshals) the data into this ETD object.

Parameters

Name	Type	Description
inputSource	org.xml.sax.InputSource	The input source for the serialized data.
lexer	com.stc.jcsre.sml.SAXLexer	The SAX lexer (parser) to distribute the data.

Return Values

None.

Throws

org.xml.sax.SAXException - thrown when the data cannot be parsed

com.stc.jcsre.UnmarshalException - throw when the data cannot be unmarshalled

15.2 Payload Class

public class Payload

extends com.stc.jcsre.XMLETDImpl

implements com.stc.jcsre.ETD

A class to represent the Payload object of an e*Xchange (Partner Manager) XML ETD. It is defined in the following DTD:

```
<!--Payload to carry EDI message-->
<!ELEMENT Payload (#PCDATA)>
<!ATTLIST Payload
        TYPE (RAW | PROCESSED | ENCRYPTED) #REQUIRED
        LOCATION (FILE | DB | URL | EMBEDDED | AUTO) #IMPLIED
>
```

These methods are described on the following pages:

- **get$Text** on page 467
- **getLOCATION** on page 468
- **getTYPE** on page 469
- **hasLOCATION** on page 470
- **marshal** on page 471
- **omitLOCATION** on page 472
- **set$Text** on page 473
- **setLOCATION** on page 474
- **setTYPE** on page 475
- **toString** on page 476
- **unmarshal** on page 477

get$Text

Syntax

```
java.lang.String get$Text()
```

Description

get$Text retrieves the Payload data.

Parameters

None.

Return Values

java.lang.String

Returns the Payload data.

Throws

None.

getLOCATION

Syntax

```
java.lang.String getLOCATION()
```

Description

getLOCATION retrieves the location type of where the data for Payload is actually stored. In cases where the data is too long to be stored in standard database column, it can be stored in another table where the column can be defined as a "LONG RAW" for example, or it may be stored in a file on some file system. In such cases, a reference to the actual data location is stored as the data for Payload.

Parameters

None.

Return Values

java.lang.String

Returns the location type for the Payload data. This is one of the following values:

"FILE"	The Payload data contains the name of a file where actual data is stored.
"DB"	The Payload data contains a reference such as "ROWID" to a row in a table.
"URL"	The Payload data contains a URL to where the actual data is stored.
"EMBEDDED"	The Payload data contains the actual data (this is the default).
"AUTO"	The Payload data contains the actual data storage location is automatically determined by the e*Xchange engine.

Throws

None.

Example

```
getLOCATION();

=> "EMBEDDED"
```

getTYPE

Syntax

```
java.lang.String getTYPE()
```

Description

getTYPE retrieves the type of data stored in the Payload object.

Parameters

None.

Return Values

java.lang.String
Returns the type of data stored as one of the following values:

"RAW"	Indicates that the data in the **Data** node is in ASCII format, but not XML data that has been converted to ASCII using base 64 or some other conversion. The data must not contain any characters that would conflict with the XML nature of the e*Xchange ETD (for example, EDI delimiters that are the same as XML control characters).
"PROCESSED"	Indicates that the data in the **Data** node is XML data that has been encoded using the scheme described in the **ENCODING** node. Currently only base 64 encoding is supported.
"ENCRYPTED"	Indicates that the data in the **Data** node has been encrypted, and must be decrypted before it can be processed by e*Xchange.

Throws

None.

Example

```
getTYPE();

=> "STRING"
```

hasLOCATION

Syntax

```
boolean hasLOCATION()
```

Description

hasLOCATION checks if the location is defined for this Payload object.

Parameters

None.

Return Values

Boolean
Returns true if location exists, otherwise returns false.

Throws

None.

Example

```
hasLOCATION();

=> true
```

marshal

Syntax

```
void marshal(org.xml.sax.ContentHandler handler,
org.xml.sax.ErrorHandler errorHandler)
```

Description

marshal gathers the data contained within this ETD object and formulates it back into a serialized XML message.

Parameters

Name	Type	Description
handler	org.xml.sax.ContentHandler	The handler that converts content within to XML.
errorHandler	or.xml.sax.ErrorHandler	The handler to address errors during conversion.

Return Values

None.

Throws

com.stc.jcsre.MarshalException

org.xml.sax.SAXException

omitLOCATION

Syntax

```
void omitLOCATION()
```

Description

omitLOCATION removes the location definition for this Payload object.

Parameters

None.

Return Values

None.

Throws

None.

Example

```
omitLOCATION();
```

set$Text

Syntax

```
void set$Text(java.lang.String val)
```

Description

set$Text sets the Payload data.

Parameters

Name	Type	Description
val	java.lang.String	The Payload data.

Return Values

None.

Throws

None.

setLOCATION

Syntax

```
void setLOCATION(java.lang.String val)
```

Description

setLOCATION sets the location type of where the data for a Payload is actually stored. In cases where the data is too long to be stored in standard database column, it can be stored in another table where the column can be defined as a "LONG RAW" for example, or it may be stored in a file on some file system.

Parameters

Name	Type	Description
val	java.lang.String	The location type for the Payload data. This can have one the following values: ▪ "FILE" - Attribute data is the name of a file where actual data is stored. ▪ "DB" - Attribute data is a reference such as "ROWID" to a row in a table. ▪ "URL" - Attribute data is the URL to where the actual data is stored. ▪ "EMBEDDED" - Attribute data is the actual data (this is the default). ▪ "AUTO" - The actual data storage location is automatically determined by the e*Xchange engine.

Return Values

None.

Throws

None.

Example

```
setLOCATION("FILE");
```

setTYPE

Syntax

```
void setTYPE(java.lang.String val)
```

Description

setTYPE sets the type of data stored in Payload.

Parameters

Name	Type	Description
val	java.lang.String	The type of data stored. This can take one of the following values: ▪ "RAW" - Indicates that the data in the **Data** node is in ASCII format, but not XML data that has been converted to ASCII using base 64 or some other conversion. The data must not contain any characters that would conflict with the XML nature of the e*Xchange ETD (for example, EDI delimiters that are the same as XML control characters). ▪ "PROCESSED" - Indicates that the data in the **Data** node is XML data that has been encoded using the scheme described in the **ENCODING** node. Currently only base 64 encoding is supported. ▪ "ENCRYPTED"- Indicates that the data in the Data node has been encrypted, and must be decrypted before it can be processed by e*Xchange.

Return Values

None.

Throws

None.

Example

setTYPE("STRING");

toString

Syntax

```
java.lang.String toString()
```

Description

toString Converts this ETD object to a printable String form.

Parameters

None.

Return Values

java.lang.String
Returns the XML message represent by this ETD object.

Throws

None.

Example

toString();

unmarshal

Syntax

```
void unmarshal(org.xml.sax.InputSource inputSource,
com.stc.jcsre.sml.SAXLexer lexer)
```

Description

unmarshal takes a serialized (marshalled) form of the e*Insight XML Event and distributes (unmarshals) the data into this ETD object.

Parameters

Name	Type	Description
inputSource	org.xml.sax.InputSource	The input source for the serialized data.
lexer	com.stc.jcsre.xml.SAXLexer	The SAX Lexer (parser) to distribute the data.

Return Values

None.

Throws

org.xml.sax.SAXException, when the data cannot be parsed.

com.stc.jcsre.UnmarshalException, when the data cannot be unmarshalled.

15.3 TPAttribute Class

public class TPAttribute

extends com.stc.jcsre.XMLETDImpl

implements com.stc.jcsre.ETD

The TPAttribute class represents the e*Xchange section of the Oracle eBI Standard XML ETD which is used to communicate with the e*Xchange engine. The DTD is:

```
<!--TP Attribute will contain optional repeating name value pair for
storing of TP-->
<!ELEMENT TPAttribute (NameValuePair*)>
```

These methods are described in detail on the following pages:

- **addNameValuePair** on page 479
- **clearNameValuePair** on page 480
- **countNameValuePair** on page 481
- **getNameValuePair_Value** on page 482
- **getNameValuePair** on page 483
- **hasNameValuePair** on page 484
- **marshal** on page 485
- **removeNameValuePair** on page 486
- **setNameValuePair** on page 487
- **toString** on page 488
- **unmarshal** on page 489

addNameValuePair

Syntax

```
void addNameValuePair(int index, NameValuePair value)
```

Description

addNameValuePair inserts a new NameValuePair into this Trading Partner object.

Parameters

Name	Type	Description
index	integer	(Optional) Zero-base index to where the NameValuePair object is to be inserted.
value	com.stc.eBIpkg.ATTRIBUTE	The NameValuePair object.

Return Values

None.

Throws

None.

clearNameValuePair

Syntax

```
void clearNameValuePair()
```

Description

clearNameValuePair removes all the NameValuePairs from this TPAttribute object.

Parameters

None.

Return Values

None.

Throws

None.

Example

```
clearNameValuePair();
```

countNameValuePair

Syntax

```
int countNameValuePair()
```

Description

countNameValuePair retrieves the number of NameValuePair objects this TPAttribute object.

Parameters

None.

Return Values

integer

Returns the number of NameValuePair objects as an integer.

Throws

None

Example

```
countNameValuePair();
=>3
```

getNameValuePair_Value

Syntax

```
java.lang.String getNameValuePair_Value(java.lang.String name)
```

Description

getNameValuePair_Value retrieves the value of a specific NameValuePair by name.

Parameters

Name	Type	Description
name	java.lang.String	The name of the NameValuePair object.

Return Values

java.lang.String

Returns the value of the NameValuePair object. Can be null if the Attribute of that name does not exist.

Throws

None.

getNameValuePair

Syntax

```
NameValuePair[] getNameValuePair()
NameValuePair getNameValuePair(int i)
NameValuePair getNameValuePair(java.lang.String name)
```

Description

getNameValuePair retrieves all the NameValuePair objects in the TPAttribute object, or can be used to retrieve a specific NameValuePair by name or index.

Parameters

Name	Type	Description
i	integer	(Optional) The offset to the list where the NameValuePair appears.
name	java.lang.String	The NameValuePair name.

Return Values

Returns one of the following values:

NameValuePair[]
Returns an array of NameValuePair objects if no name or offset were specified.

NameValuePair
Returns the NameValuePair object if the name or offset were specified.

Throws

None.

hasNameValuePair

Syntax

```
boolean hasNameValuePair(java.lang.String name)
```

Description

hasNameValuePair checks whether a specific TP Attribute contains a NameValuePair.

Parameters

Name	Type	Description
name	java.lang.String	The name of the Trading Partner Attribute (TPAttribute) that you want to retrieve.

Return Values

Boolean

Returns true if the NameValuePair is defined; otherwise returns false.

Throws

None.

Example

```
hasNameValuePair();
=>true
```

marshal

Syntax

```
void marshal(org.xml.sax.ContentHandler handler,
org.xml.sax.ErrorHandler errorHandler)
```

Description

marshal gathers the data contained within this ETD object and formulates it back into a serialized XML message.

Parameters

Name	Type	Description
handler	org.xml.sax.ContentHandler	The handler that converts content within to XML.
errorHandler	or.xml.sax.ErrorHandler	The handler to address errors during conversion.

Return Values

None.

Throws

com.stc.jcsre.MarshalException

org.xml.sax.SAXException

removeNameValuePair

Syntax

```
void removeNameValuePair(java.lang.String name)
void removeNameValuePair(int index)
```

Description

removeNameValuePair removes a specific NameValuePair object from this TPAttribute object by name or index.

Parameters

Name	Type	Description
name	java.lang.String	The name of the NameValuePair.
index	int	The index to the list of global attributes (zero-based).

Return Values

None.

Throws

None.

setNameValuePair

Syntax

```
void setNameValuePair(NameValuePair[] val)
void setNameValuePair(int i, NameValuePair val)
void setNameValuePair(java.lang.String name java.lang.String value)
```

Description

setNameValuePair sets a NameValuePair object in the TPAttribute object.

Parameters

Name	Type	Description
val	NameValuePair[]	The NameValuePair object.
i	int	The list index of the NameValuePair to be retrieved (zero-based).
name	java.lang.String	The name of the NameValuePair.
value	java.lang.String	The value of the NameValuePair.

Return Values

None.

Throws

None.

toString

Syntax

```
java.lang.String toString()
```

Description

toString converts this ETD object to a printable String form.

Parameters

None.

Return Values

java.lang.String
Returns the XML message to represent by this ETD object.

Throws

None.

Example

```
toString();
```

unmarshal

Syntax

```
void unmarshal(org.xml.sax.InputSource inputSource,
com.stc.jcsre.sml.SAXLexer lexer)
```

Description

unmarshal takes a serialized (marshalled) form of the e*Insight XML Event and distributes (unmarshals) the data into this ETD object.

Parameters

Name	Type	Description
inputSource	org.xml.sax.InputSource	The input source for the serialized data.
lexer	com.stc.jcsre.xml.SAXLexer	The SAX Lexer (parser) to distribute the data.

Return Values

None.

Throws

org.xml.sax.SAXException, when the data cannot be parsed.

com.stc.jcsre.UnmarshalException, when the data cannot be unmarshalled.

15.4 TP_EVENT Class

public class TP_EVENT

extends com.stc.jcsre.SMLETDImpl

implements com.eBIpkg.TPEventETD

TP_EVENT class represents the e*Xchange section of the Oracle eBI Standard XML ETD which is used to communicate with the e*Xchange engine. The DTD is:

```
<!--ePartner Manager Input/Output Event section-->
<!ELEMENT TP_EVENT (PartnerName?, InternalName?, Direction?,
    MessageID?, OrigEventC
<!--External Partner Name-->
<!ELEMENT PartnerName (#PCDATA)>
<!--Internal Sending ERP (ex.SAP)-->
<!ELEMENT InternalName (#PCDATA)>
<!--Direction of Transaction to/from Trading Partner (ex.Outbound=O
    Inbound=I)-->
<!ELEMENT Direction (#PCDATA)>
<!--Original request ID from Internal Sending ERP-->
<!ELEMENT MessageID (#PCDATA)>
<!--Original Event Classification (ex.QAP for Query Price and
    Availability)-->
<!ELEMENT OrigEventClass (#PCDATA)>
<!--Usage Indicator of EDI message by Trading Partner (Production=P
    Test=T)-->
<!ELEMENT UsageIndicator (#PCDATA)>
<!--Payload to carry EDI message-->
<!ELEMENT Payload (#PCDATA)>
<!ATTLIST Payload
        TYPE (RAW | PROCESSED | ENCRYPTED) #REQUIRED
        LOCATION (FILE | DB | URL | EMBEDDED | AUTO) #IMPLIED
>
<!--RAW=Need translation PROCESSED=Already X12 or RN ENCRYPTED=from
    Trading Partner>
<!--Communication Protocol (ex. BATCH, HTTP) for sending to Trading
    Partner-->
<!ELEMENT CommProt (#PCDATA)>
<!--URL for EDI message to be exchanged with Trading Partner-->
<!ELEMENT Url (#PCDATA)>
<!--SSL information-->
<!ELEMENT SSLClientKeyFileName (#PCDATA)>
<!ELEMENT SSLClientKeyFileType (#PCDATA)>
<!ELEMENT SSLClientCertFileName (#PCDATA)>
<!ELEMENT SSLClientCertFileType (#PCDATA)>
<!--Message Index for Batched delivery, ex. 1|20 means 1 of 20-->
<!ELEMENT MessageIndex (#PCDATA)>
<!--TP Attribute will contain optional repeating name value pair for
storing of TP-->
<!ELEMENT TPAttribute (NameValuePair*)>
<!ELEMENT NameValuePair (Name, Value)>
<!ELEMENT Name (#PCDATA)>
<!ELEMENT Value (#PCDATA)>
```

These methods are described in detail on the following pages:

getCommProt

Syntax

```
java.lang.String getCommProt()
```

Description

getCommProt retrieves the communication protocol used.

Parameters

None.

Return Values

java.lang.String
Returns the communication protocol. Possible values include “BATCH”, “HTTP” and “HTTPS”.

Throws

None.

Example

```
getCommProt();
=>"BATCH"
```

getDirection

Syntax

```
java.lang.String getDirection()
```

Description

getDirection retrieves the direction of transaction relative to e*Xchange.

Parameters

None.

Return Values

java.lang.String
Returns the direction. Possible values include; "O" representing Outbound, or "I" representing Inbound.

Throws

None.

Example

```
getDirection();
=>"I"
```

getInternalName

Syntax

```
java.lang.String getInternalName()
```

Description

getInternalName retrieves the internal name of the Trading Partner as known by the sending ERP.

Parameters

None.

Return Values

java.lang.String
Returns the Internal Name of the Trading Partner per sending ERP.

Throws

None.

getMessageID

Syntax

```
java.lang.String getMessageID()
```

Description

getMessageID retrieves the original request ID from the sending ERP system.

Parameters

None.

Return Values

java.lang.String
Returns the message ID.

Throws

None.

getMessageIndex

Syntax

```
java.lang.String getMessageIndex()
```

Description

getMessageIndex retrieves the message index for batched delivery. For example, 5/7 indicates the fifth message in a batch of seven.

Parameters

None.

Return Values

java.lang.String
Returns the message index.

Throws

None.

getOrigEventClass

Syntax

```
java.lang.String getOrigEventClass()
```

Description

getOrigEventClass retrieves the original event classification from the sending ERP system.

Parameters

None.

Return Values

java.lang.String
Returns the original event classification.

Throws

None.

getPartnerName

Syntax

```
java.lang.String getPartnerName()
```

Description

getPartnerName retrieves the name of the Trading Partner.

Parameters

None.

Return Values

java.lang.String
Returns the Trading Partner Name.

Throws

None.

Example

```
getPartnerName();
=>"The Savvy Toy Company"
```

getPayload

Syntax

```
java.lang.String getPayload()
```

Description

getPayload retrieves the Payload object.

Parameters

None.

Return Values

Payload
Returns the Payload object.

Throws

None.

getSSLClientCertFileName

Syntax

```
java.lang.String SSLClientCertFileName()
```

Description

SSLClientCertFileName retrieves the name of the file that contains the SSL Client Certificate.

Parameters

None.

Return Values

java.lang.String
Returns the name of the file that contains the SSL Client Certificate.

Throws

None.

getSSLClientCertFileType

Syntax

```
java.lang.String getSSLClientCertFileType()
```

Description

SSLClientCertFileType retrieves the SSL Client Certificate file type.

Parameters

None.

Return Values

java.lang.String
Returns the SSL Client Certificate file type. Possible values include “ASN.1” and “PEM”.

Throws

None.

Example

```
getSSLClientCertFileType();
=>"PEM"
```

getSSLClientKeyFileName

Syntax

```
java.lang.String SSLClientKeyFileName()
```

Description

SSLClientKeyFileName retrieves the name of the file that contains the SSL Client Key.

Parameters

None.

Return Values

java.lang.String
Returns the SSL Client Key file name.

Throws

None.

getSSLClientKeyFileType

Syntax

```
java.lang.String SSLClientKeyFileType()
```

Description

SSLClientKeyFileType retrieves the SSL Client Key file type.

Parameters

None.

Return Values

java.lang.String
Returns the SSL Client Key file type. Possible values include “ASN.1” and “PEM”.

Throws

None.

Example

```
getSSLClientKeyFileType();
=>"PEM"
```

getTPAttribute

Syntax

```
TPAttribute getTPAttribute()
```

Description

getTPAttribute retrieves the TPAttribute object.

Parameters

None.

Return Values

TPAttribute
Returns the TPAttribute object.

Throws

None.

getURL

Syntax

```
java.lang.String getURL()
```

Description

getURL retrieves the URL used for an EDI message exchanged with a Trading Partner.

Parameters

None.

Return Values

java.lang.String
Returns the URL.

Throws

None.

getUsageIndicator

Syntax

```
java.lang.String getUsageIndicator()
```

Description

getUsageIndicator retrieves the usage indicator for a Trading Partner object.

Parameters

None.

Return Values

java.lang.String
Returns the usage indicator. Possible values include “P” representing Production and “T” representing Testing.

Throws

None.

Example

```
getUsageIndicator();
=>"P"
```

hasCommProt

Syntax

```
boolean hasCommProt()
```

Description

hasCommProt checks whether the communication protocol has been defined in this Trading Partner object.

Parameters

None.

Return Values

Boolean
Returns true if the communication protocol exists.

Throws

None.

Example

```
hasCommProt();
=>true
```

hasDirection

Syntax

```
boolean hasDirection()
```

Description

hasDirection checks whether the direction has been defined in this Trading Partner object.

Parameters

None.

Return Values

Boolean

Returns true if the direction exists.

Throws

None.

Example

```
hasDirection();
=>true
```

hasInternalName

Syntax

```
boolean hasInternalName()
```

Description

hasInternalName checks whether the internal name of the Trading Partner, as known by the sending ERP, has been defined for this Trading Partner.

Parameters

None.

Return Values

Boolean
Returns true if the internal name exists.

Throws

None.

Example

```
hasInternalName();
=>true
```

hasMessageID

Syntax

```
boolean hasMessageID()
```

Description

hasMessageID checks whether the original request ID from the internal sending ERP is defined for this Trading Partner object.

Parameters

None.

Return Values

Boolean
Returns true if the request id exists.

Throws

None.

Example

```
hasMessageID();
=>true
```

hasMessageIndex

Syntax

```
boolean hasMessageIndex()
```

Description

hasMessageIndex checks whether the message index for batched delivery has been defined for this Trading Partner.

Parameters

None.

Return Values

Boolean
Returns true if the message index exists.

Throws

None.

Example

```
hasMessageIndex();
=>true
```

hasOrigEventClass

Syntax

```
boolean hasOrigEventClass()
```

Description

hasOrigEventClass checks whether the original Event classification has been defined for this Trading Partner.

Parameters

None.

Return Values

Boolean
Returns true if the original Event classification exists.

Throws

None.

Example

```
hasOrigEventClass();
=>true
```

hasPartnerName

Syntax

```
boolean hasPartnerName()
```

Description

hasPartnerName checks whether the Trading Partner name has been defined for this Trading Partner object.

Parameters

None.

Return Values

Boolean

Returns true if the Partner name exists.

Throws

None.

Example

```
hasPartnerName();
=>true
```

hasPayload

Syntax

```
boolean hasPayload()
```

Description

hasPayload checks whether the Payload has been defined for this Trading Partner object.

Parameters

None.

Return Values

Boolean
Returns true if the Payload exists.

Throws

None.

Example

```
hasPayload();
=>true
```

hasSSLClientCertFileName

Syntax

```
boolean hasSSLClientCertFileName()
```

Description

hasSSLClientCertFileName checks whether the file name for the SSL Client Certificate has been defined for this Trading Partner object.

Parameters

None.

Return Values

Boolean
Returns true if the file name exists.

Throws

None.

Example

```
hasSSLClientCertFileName();
=>true
```

hasSSLClientCertFileType

Syntax

```
boolean hasSSLClientCertFileType()
```

Description

hasSSLClientCertFileType checks whether the SSL Client Certificate file type has been defined for this Trading Partner object.

Parameters

None.

Return Values

Boolean
Returns true if the file type exists.

Throws

None.

Example

```
hasSSLClientCertFileType();
=>true
```

hasSSLClientKeyFileName

Syntax

```
boolean hasSSLClientKeyFileName()
```

Description

hasSSLClientKeyFileName checks whether the file name for the SSL Client Key has been defined for this Trading Partner object.

Parameters

None.

Return Values

Boolean
Returns true if the file name exists.

Throws

None.

Example

```
hasSSLClientKeyFileName();
=>true
```

hasSSLClientKeyFileType

Syntax

```
boolean hasSSLClientKeyFileType()
```

Description

hasSSLClientKeyFileType checks whether the SSL Client Key file type has been defined for this Trading Partner object.

Parameters

None.

Return Values

Boolean
Returns true if the file type exists.

Throws

None.

Example

```
hasSSLClientKeyFileType();
=>true
```

hasTPAttribute

Syntax

```
boolean hasTPAttribute()
```

Description

hasTPAttribute checks whether the TPAttribute has been defined for this Trading Partner object.

Parameters

None.

Return Values

Boolean
Returns true if the TPAttribute exists.

Throws

None.

Example

```
hasTPAttribute();
=>true
```

hasUrl

Syntax

```
boolean hasUrl()
```

Description

hasUrl checks whether the URL for an EDI message has been defined for this Trading Partner object.

Parameters

None.

Return Values

Boolean
Returns true if the URL exists.

Throws

None.

Example

```
hasURL();
=>true
```

hasUsageIndicator

Syntax

```
boolean hasUsageIndicator()
```

Description

hasUsageIndicator checks whether the usage indicator has been defined for this Trading Partner object.

Parameters

None.

Return Values

Boolean
Returns true if the usage indicator exists.

Throws

None.

Example

```
hasUsageIndicator();
=>true
```

marshal

Syntax

```
void marshal(org.xml.sax.ContentHandler handler,
org.xml.sax.ErrorHandler errorHandler)
```

Description

marshal gathers the data contained within this ETD object and formulates it back into a serialized XML message.

Parameters

Name	Type	Description
handler	org.xml.sax.ContentHandler	The handler that converts content within to XML.
errorHandler	org.xml.sax.ErrorHandler	The handler to address errors during conversion.

Return Values

None.

Throws

com.stc.jcsre.MarshalException

org.xml.sax.SAXException

omitCommProt

Syntax

```
void omitCommProt()
```

Description

omitCommProt removes the communication protocol from this Trading Partner object.

Parameters

None.

Return Values

None.

Throws

None.

Example

```
omitCommProt();
```

omitDirection

Syntax

```
void omitDirection()
```

Description

omitDirection removes the direction from this Trading Partner object.

Parameters

None.

Return Values

None.

Throws

None.

Example

```
omitDirection();
```

omitInternalName

Syntax

```
void omitInternalName()
```

Description

omitInternalName removes the definition of the Internal Name of the Trading Partner as known by the sending ERP System from this Trading Partner object.

Parameters

None.

Return Values

None.

Throws

None.

Example

```
omitInternalName();
```

omitMessageID

Syntax

```
void omitMessageID()
```

Description

omitMessageID removes the original request ID from the internal sending ERP from this Trading Partner object.

Parameters

None.

Return Values

None.

Throws

None.

Example

```
omitMessageID();
```

omitMessageIndex

Syntax

```
void omitMessageIndex()
```

Description

omitMessageIndex removes the message index for batched delivery from this Trading Partner object.

Parameters

None.

Return Values

None.

Throws

None.

Example

```
omitMessageIndex();
```

omitOrigEventClass

Syntax

```
void omitOrigEventClass()
```

Description

omitOrigEventClass removes the original Event classification from this Trading Partner object.

Parameters

None.

Return Values

None.

Throws

None.

Example

```
omitOrigEventClass();
```

omitPartnerName

Syntax

```
void omitPartnerName()
```

Description

omitPartnerName removes the Trading Partner name definition from this Trading Partner object.

Parameters

None.

Return Values

None.

Throws

None.

Example

```
omitPartnerName();
```

omitPayload

Syntax

```
void omitPayload()
```

Description

omitPayload removes the Payload definition from this Trading Partner object.

Parameters

None.

Return Values

None.

Throws

None.

Example

```
omitPayload();
```

omitSSLClientCertFileName

Syntax

```
void omitSSLClientCertFileName()
```

Description

omitSSLClientCertFileName removes the file name for the SSL Client Certificate from this Trading Partner object.

Parameters

None.

Return Values

None.

Throws

None.

Example

```
omitSSLClientCertFileName();
```

omitSSLClientCertFileType

Syntax

```
void omitSSLClientCertFileType()
```

Description

omitSSLClientCertFileType removes the SSL Client Certificate file type from this Trading Partner object.

Parameters

None.

Return Values

None.

Throws

None.

Example

```
omitSSLClientCertFileType();
```

omitSSLClientKeyFileName

Syntax

```
void omitSSLClientKeyFileName()
```

Description

omitSSLClientKeyFileName removes the file name for the SSL Client Key from this Trading Partner object.

Parameters

None.

Return Values

None.

Throws

None.

Example

```
omitSSLClientKeyFileName();
```

omitSSLClientKeyFileType

Syntax

```
void omitSSLClientKeyFileType()
```

Description

omitSSLClientKeyFileType removes the SSL Client Key file type from this Trading Partner object.

Parameters

None.

Return Values

None.

Throws

None.

Example

```
omitSSLClientKeyFileType();
```

omitTPAttribute

Syntax

```
void omitTPAttribute()
```

Description

omitTPAttribute removes the TPAttribute from this Trading Partner object.

Parameters

None.

Return Values

None.

Throws

None.

Example

```
omitTPAttribute();
```

omitUrl

Syntax

```
void omitUrl()
```

Description

omitUrl removes the URL for EDI messages from this Trading Partner object.

Parameters

None.

Return Values

None.

Throws

None.

Example

```
omitURL();
```

omitUsageIndicator

Syntax

```
void omitUsageIndicator()
```

Description

omitUsageIndicator removes the usage indicator from this Trading Partner object.

Parameters

None.

Return Values

None.

Throws

None.

Example

```
omitUsageIndicator();
```

setCommProt

Syntax

```
void setCommProt(java.lang.String val)
```

Description

setCommProt sets the communication protocol.

Parameters

Name	Type	Description
val	java.lang.String	The communication protocol. Possible values include: ▪ "BATCH" ▪ "HTTP" ▪ "HTTPS"

Return Values

None.

Throws

None.

Example

```
setCommProt("BATCH");
```

setDirection

Syntax

```
void setDirection(java.lang.String val)
```

Description

setDirection sets the direction of the transaction to or from the trading partner.

Parameters

Name	Type	Description
val	java.lang.String	The direction. Possible values include: ▪ “O” - Outbound ▪ “I” - Inbound

Return Values

None.

Throws

None.

Example

```
setDirection("O");
```

setInternalName

Syntax

```
void setInternalName(java.lang.String val)
```

Description

setInternalName sets the Internal Name of the Trading Partner as known by the sending ERP System.

Parameters

Name	Type	Description
val	java.lang.String	The internal sending ERP name.

Return Values

None.

Throws

None.

setMessageID

Syntax

```
void setMessageID(java.lang.String val)
```

Description

setMessageID sets the original request ID from the internal sending ERP.

Parameters

Name	Type	Description
val	java.lang.String	The original request ID from the internal sending ERP.

Return Values

None.

Throws

None.

setMessageIndex

Syntax

```
void setMessageIndex(java.lang.String val)
```

Description

setMessageIndex sets the message index for batched delivery. For example, 5/7 indicates the fifth message in a batch of seven.

Parameters

Name	Type	Description
val	java.lang.String	The message index for batched delivery.

Return Values

None.

Throws

None.

setOrigEventClass

Syntax

```
void setOrigEventClass(java.lang.String val)
```

Description

setOrigEventClass sets the original Event classification for the Trading Partner object.

Parameters

Name	Type	Description
val	java.lang.String	The original Event classification.

Return Values

None.

Throws

None.

setPartnerName

Syntax

```
void setPartnerName(java.lang.String val)
```

Description

setPartnerName sets the Trading Partner name for the Trading Partner object.

Parameters

Name	Type	Description
val	java.lang.String	The Trading Partner name.

Return Values

None.

Throws

None.

setPayload

Syntax

```
void setPayload(Payload val)
```

Description

setPayload sets the Payload for the Trading Partner object.

Parameters

Name	Type	Description
val	java.lang.String	The Payload object.

Return Values

None.

Throws

None.

setSSLClientCertFileName

Syntax

```
void setSSLClientCertFileName(java.lang.String val)
```

Description

setSSLClientCertFileName sets the file name for the SSL Client Certificate.

Parameters

Name	Type	Description
val	java.lang.String	The file name.

Return Values

None.

Throws

None.

setSSLClientCertFileType

Syntax

```
void setSSLClientCertFileType(java.lang.String val)
```

Description

setSSLClientCertFileType sets the SSL Client Certificate file type.

Parameters

Name	Type	Description
val	java.lang.String	The file type. Possible values include “ASN.1” and “PEM”.

Return Values

None.

Throws

None.

Example

```
setSSLClientCertFileType("PEM");
```

setSSLClientKeyFileName

Syntax

```
void setSSLClientKeyFileName(java.lang.String val)
```

Description

setSSLClientKeyFileName sets the file name for the SSL Client Key.

Parameters

Name	Type	Description
val	java.lang.String	The file name.

Return Values

None.

Throws

None.

setSSLClientKeyFileType

Syntax

```
void setSSLClientKeyFileType(java.lang.String val)
```

Description

setSSLClientKeyFileType sets the SSL Client Key file type.

Parameters

Name	Type	Description
val	java.lang.String	The file type. Possible values include "ASN.1" and "PEM".

Return Values

None.

Throws

None.

Example

```
setSSLClientKeyFileType("PEM");
```

setTPAttribute

Syntax

```
void setTPAttribute(TPAttribute val)
```

Description

setTPAttribute sets the TPAttribute for the Trading Partner object.

Parameters

Name	Type	Description
val	TPAttribute	The TPAttribute object.

Return Values

None.

Throws

None.

setUrl

Syntax

```
void setUrl(java.lang.String val)
```

Description

setUrl sets the URL for an EDI message to be exchanged with a Trading Partner.

Parameters

Name	Type	Description
val	java.lang.String	The URL.

Return Values

None.

Throws

None.

setUsageIndicator

Syntax

```
void setUsageIndicator(java.lang.String val)
```

Description

setUsageIndicator sets the usage indicator of an EDI message.

Parameters

Name	Type	Description
val	java.lang.String	The usage indicator of an EDI message. Possible values include: ▪ “P” - Production ▪ “T” - Test

Return Values

None.

Throws

None.

Example

```
setUsageIndicator("P");
```

toString

Syntax

```
java.lang.String toString()
```

Description

toString converts this ETD object to a printable String form.

Parameters

None.

Return Values

java.lang.String
Returns the XML message to represent by this ETD object.

Throws

None.

Example

```
toString();
```

unmarshal

Syntax

```
void unmarshal(org.xml.sax.InputSource inputSource,
com.stc.jcsre.sml.SAXLexer lexer)
```

Description

unmarshal takes a serialized (marshalled) form of the e*Insight XML Event and distributes (unmarshals) the data into this ETD object.

Parameters

Name	Type	Description
inputSource	org.xml.sax.InputSource	The input source for the serialized data.
lexer	com.stc.jcsre.xml.SAXLexer	The SAX Lexer (parser) to distribute the data.

Return Values

None.

Throws

org.xml.sax.SAXException, when the data cannot be parsed.

com.stc.jcsre.UnmarshalException, when the data cannot be unmarshalled.

Appendix A

XML Structure for the e*Xchange Event

This appendix shows the XML structure for the e*Xchange Event Type Definitions (**eX_Standard_Event.ssc** and **eX_StandardEvent.xsc**). If your data conforms to this structure, you do not need to convert it upon entry to the e*Xchange system.

A.1 XML Structure

```
<<!-- edited with XML Spy v3.0 NT (http://www.xmlspy.com) by STC (STC)
-->
<!--DTD for eX_Standard_Event.ssc   $Id: eX_event.dtd,v 1.1.2.10
2000/09/07 04:43:14 galbers Exp $-->
<!--ePartner Manager Input/Output Event section-->
<!ELEMENT TP_EVENT (PartnerName?, InternalName?, Direction?,
    MessageID?, OrigEventC
<!--External Partner Name-->
<!ELEMENT PartnerName (#PCDATA)>
<!--Internal Sending ERP (ex.SAP)-->
<!ELEMENT InternalName (#PCDATA)>
<!--Direction of Transaction to/from Trading Partner (ex.Outbound=O
    Inbound=I)-->
<!ELEMENT Direction (#PCDATA)>
<!--Original request ID from Internal Sending ERP-->
<!ELEMENT MessageID (#PCDATA)>
<!--Original Event Classification (ex.QAP for Query Price and
    Availability)-->
<!ELEMENT OrigEventClass (#PCDATA)>
<!--Usage Indicator of EDI message by Trading Partner (Production=P
    Test=T)-->
<!ELEMENT UsageIndicator (#PCDATA)>
<!--Payload to carry EDI message-->
<!ELEMENT Payload (#PCDATA)>
<!ATTLIST Payload
        TYPE (RAW | PROCESSED | ENCRYPTED) #REQUIRED
        LOCATION (FILE | DB | URL | EMBEDDED | AUTO) #IMPLIED
>
<!--RAW=Need translation PROCESSED=Already X12 or RN ENCRYPTED=from
    Trading Partner>
<!--Communication Protocol (ex. BATCH, HTTP) for sending to Trading
    Partner-->
<!ELEMENT CommProt (#PCDATA)>
<!--URL for EDI message to be exchanged with Trading Partner-->
<!ELEMENT Url (#PCDATA)>
<!--SSL information-->
<!ELEMENT SSLClientKeyFileName (#PCDATA)>
<!ELEMENT SSLClientKeyFileType (#PCDATA)>
<!ELEMENT SSLClientCertFileName (#PCDATA)>
<!ELEMENT SSLClientCertFileType (#PCDATA)>
```

```
<!--Message Index for Batched delivery, ex. 1|20 means 1 of 20-->
<!ELEMENT MessageIndex (#PCDATA)>
<!--TP Attribute will contain optional repeating name value pair for
storing of TP-->
<!ELEMENT TPAttribute (NameValuePair*)>
<!ELEMENT NameValuePair (Name, Value)>
<!ELEMENT Name (#PCDATA)>
<!ELEMENT Value (#PCDATA)>
```

Glossary

attribute (e*Insight)
Attributes pass user-defined control information (programming arguments) to and from the e*Insight Business Process Manager and its activities.

activity
An activity is an organizational unit for performing a specific function.

API
An acronym for Application Program Interface, which is a set of protocols, routines, and tools for building software applications. The e*Xchange API consists of a set of Monk functions that can be called from custom validation Collaborations to interface with the database.

business process
A business process is a collection of actions and messages, revolving around a specific business practice, that flow in a specific pattern to produce an end result.

business process instance (BPI)
A unique instantiation of a business process.

Collaboration
A component of an e*Way or BOB that receives and processes Events and forwards the output to other e*Gate components. Collaborations perform three functions: they subscribe to Events of a known type, they apply business rules to Event data, and they publish output Events to a specified recipient. Collaborations use Monk translation script files with the extension "**.tsc**" to do the actual data manipulation.

Company (e*Xchange)
An organization with which you conduct electronic business (eBusiness). A company can consist of one or more trading partners. See also *Trading partner.*

compensating transaction

A transaction that when executed undoes the effects of the transaction for which it is compensating. When a transaction and the compensating transaction are both executed, there should be no net change in the state of affairs. For example, a $100 debit is the compensating transaction for a $100 credit.

e*Insight Business Process Manager (e*Insight)
The component within the Oracle eBI Product Suite that facilitates the automation of the business process flow of eBusiness activities.

eBusiness protocol

Generally accepted standards for formatting and exchanging electronic messages between trading partners. ANSI X12, RosettaNet, and BizTalk are examples of eBusiness protocols.

e*Xchange Partner Manager (e*Xchange)

An application within the Oracle eBI Product Suite that you use to set up and maintain trading partner profiles and view processed messages. The e*Xchange also processes inbound and outbound messages according to certain eBusiness protocols and your validation Collaborations.

eSecurity Manager (eSM)

An application within the Oracle eBI Product Suite that secures transmission of business-to-business exchanges over public domains such as the Internet.

Event (Message)

Data to be exchanged, either within e*Xchange or between e*Xchange and external systems, which has a defined data structure; for example, a known number of fields, with known characteristics and delimiters. Events are classified by type using Event Type Definitions.

Event Type Definition (ETD)

An Event Type template, defining Event fields, field sequences, and delimiters. Event Type Definitions enable e*Xchange systems to identify and transform Event Types. They are Monk script files with an extension of "**.ssc**," short for message structure script file.

general attributes

Basic information that identifies companies and trading partners. For inner and B2B Protocol, this includes the information you enter for a trading partner profile that is necessary for the exchange of messages but is not specific to a particular eBusiness protocol. The direction of a transmission or the password needed to send messages to an FTP site are examples of general attributes. Contrast with *Extended attributes*.

implementation guide (eBusiness Protocol)

A document, published for a particular electronic message standard by an industry subcommittee, that describes the structure and content of a specific transaction. You can use the Validation Rules Builder to convert electronic versions of ANSI X12 implementation guides to validation Collaborations used by e*Xchange.

message tracking attributes

A set of attributes you can define to identify messages stored in the e*Xchange database. Special message tracking extended attributes can be set up and associated with a specific message type (protocol, version, and direction). Examples of attributes that are set up at the message tracking attribute level are Process Instance ID and Activity Instance ID for RosettaNet and FG and TS control numbers for X12.

B2B Protocol

The trading partner profile component that you use to enter technical information about the exchange of messages between you and your trading partner. The type of eBusiness protocol you agree to use, such as ANSI X12, RosettaNet, or BizTalk, is an example of an B2B Protocol characteristic.

Partner Manager Envelope Profile
A partner manager envelope profile is a set of default extended attribute values that you define for a trading partner profile component (company, trading partner, B2B Protocol, or message profile).

schema
Files and associated stores created by e*Gate that contain the parameters of all the components that control, route, and transform data as it moves through e*Gate.

Standard Exchange Format (SEF)
The Standard Exchange Format (SEF) is a flat file representation of an EDI implementation guideline. It is a standard that defines how data segments and data elements should be structured so that the message can be understood between trading partners. It also includes validation rules, for example what are the valid values for a data element, or conditions such as if Field A is present then Field B is required.

The purpose of SEF is to put the EDI implementation guidelines in a file in machine readable format so that translators can directly import the file and use the implementation guidelines to translate or map the EDI file. The file can also be used as a means to exchange the implementation guidelines between trading partners, and can be posted on a public bulletin board or on the company's Web site in the Internet to convey to the public the implementation guidelines used by the company.

The SEF format was developed by Foresight Corporation and is now in the public domain. Programs that can directly import SEF files can save users considerable time in developing new translations or maps.

trading partner component
The trading partner profile component that you use to enter business information about your trading partner. The name of the trading partner, which could be a subdivision of a company, and the people you want to contact are examples of information you enter for a trading partner component.

transaction definition
A set of parameters and other information you enter about each electronic transaction you process with e*Xchange. This definition also associates the validation Collaborations that are needed to validate each kind of transaction.

transaction set
In X12, each business grouping of data is called a transaction set. For example, a group of benefit enrollments sent from a sponsor to a payer is considered a transaction set. Each transaction set contains groups of logically related data in units called segments. For example, the N4 segment conveys the city, state, ZIP code, and other geographic information.

A transaction set contains multiple segments, so the addresses of the different parties, for example, can be conveyed from one computer to the other. An analogy would be that the transaction set is like a freight train; the segments are like the train's cars, and each segment can contain several data elements in the same way that a train car can hold multiple crates.

Specifically, in X12, the transaction set is comprised of segments ST through SE.

transaction type

The kind of eBusiness protocol you agree to use to exchange data and information with a particular trading partner. For example, ANSI X12 and RosettaNet are two different transaction types.

user group

User groups allow you to grant access permissions to a set of users with similar processing needs without having to specify individual privileges for each user. For example, the User Administrator can set up a group for users who need full access to a specific trading partner profile, but who should not be able to view information about any other profile. The User Administrator assigns each user that meets this criterion to a particular user group. Then, your Administrator (or another user who has been granted appropriate privileges) grants access privileges to this user group so that all members of the group can view and modify the desired information.

validation Collaboration

A Collaboration that you create to define the syntax and validate the content of electronic business-to-business (B2B) messages. One validation Collaboration is required for each type of electronic transaction to be processed by e*Xchange. You can use the Validation Rules Builder to automatically generate a validation Collaboration for a specific kind of X12 transaction, according to specific implementation guidelines.

Validation Rules Builder

An e*Xchange Partner Manager tool for converting electronic EDI implementation guides into files that are compatible for use with e*Xchange. This conversion tool accepts Standard Exchange Format (SEF) version 1.4 or 1.5 files and converts then into e*Gate Integrator Event Type Definition (ETD) and Collaboration Rules files.

XML

Extensible Markup Language. XML is a language that is used in Events or messages in e*Insight Business Process Manager, containing structured information. XML is different from String in that XML messages can contain both content, and information about the content.

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