SeeBeyond ICAN Suite

SeeBeyond eBusiness Integration Suite Primer

Release 5.0.5 for Schema Run-time Environment (SRE)

SeeBeyond®

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Introduction

This chapter introduces you to this primer, its general purpose and scope, and its organization. It also provides sources of related information.

1.1 Document Purpose and Scope

This document provides an overview of the SeeBeyond Technology Corporation™ (SeeBeyond™) eBusiness Integration Suite. It is meant to give a high-level view of the products contained within this application suite.

1.2 Intended Audience

The reader of this document should understand the eBusiness process.

Supporting Documents

For a complete list of supporting documents for the SeeBeyond eBusiness Integration (eBI™) Suite, see **Additional Sources of Information** on page 109.

1.3 Organization of Information

This document provides information covering all major aspects of eBI Suite products. It has ten chapters, as follows:

- **Chapter 1** **"Introduction"** provides an overview of the document.
- **Chapter 2** **"SeeBeyond eBI Suite Overview"** introduces the various applications included in the eBI Suite, and the components of each.
- **Chapter 3** **"e*Insight Business Process Manager"** reviews the architecture, components, and functionality of the SeeBeyond e*Insight application.
- **Chapter 4** **"e*Gate Integrator"** describes the architecture, components, and functionality of the SeeBeyond e*Gate Integrator application.

- **Chapter 5 "e*Way Intelligent Adapters"** describes the types of e*Ways available and their capabilities.

- **Chapter 6 "e*Xchange Partner Manager"** reviews the architecture, components, and functionality of the SeeBeyond e*Xchange application.

- **Chapter 8 "e*Xpressway Integrator"** reviews the architecture, components, and functionality of the SeeBeyond e*Xpressway application.

- **Chapter 7 "e*Index Global Identifier"** reviews the architecture, components, and functionality of the SeeBeyond e*Index application.

- **Chapter 9 "Additional Products"** lists the additional products available from SeeBeyond with a brief description of each.

- **Chapter 10 "Additional Sources of Information"** lists the titles in the eBI Suite documentation, online Help systems, and training resources.

The **Glossary** on page 115 lists SeeBeyond eBI Suite terms and their definitions.

1.4 SeeBeyond Web Site

The SeeBeyond Web site is your best source for up-to-the-minute product news and technical support information. The URL is:

http://www.SeeBeyond.com

SeeBeyond eBI Suite Overview

This chapter provides an overview of the SeeBeyond eBusiness Integration (eBI) Suite and explains how its individual component applications fit into the suite.

2.1 Introduction

Complex and dynamic partner relationships, as well as the management of various processes, present a tremendous challenge in eBusiness. Organizations and their trading partners are both faced with the problem of managing disparate component applications and aligning proprietary software requirements. In addition, organizations and their trading partners must agree on data exchange and security standards.

Merging EAI and B2B Interactions

The SeeBeyond eBI Suite merges traditional Enterprise Application Integration (EAI) and Business-to-Business (B2B) interactions into a multi-enterprise integrated eBusiness product suite. You can use this suite to:

- Leverage your existing technology and applications
- Create an eApplication consisting of component applications that are managed by your organization or your trading partners
- Rapidly execute eBusiness strategies
- Create and manage virtual organizations across the entire value chain
- Rapidly implement industry standard business protocols
- Quickly and easily establish new business partners, or update existing ones
- Automatically secure transmissions sent over the public domain

Additional Data Transport Features

The SeeBeyond eBI Suite also provides:

- Extensive and flexible back-office connectivity
- Powerful data transformation and mapping facilities
- Content-based routing
- Unparalleled scalability, based on a fully distributed architecture

2.2 **eBI Suite Components**

The SeeBeyond eBI Suite includes the following components and subcomponents:

- eBusiness integration applications include:
  - e*Insight™ Business Process Manager
  - e*Xchange™ Partner Manager
  - e*Xpressway™ Integrator
  - e*Index Global Identifier
- The e*Gate™ Integrator system includes:
  - e*Way™ Intelligent Adapters
  - Intelligent Queues (IQ™)
  - Business Object Brokers (BOBs)

The rest of this section provides a brief overview of each of these components. See Figure 1 and **Figure 2 on page 14** for graphical representations of the SeeBeyond eBI Suite and its components.

Figure 1   eBI Suite: Possibilities for Connectivity
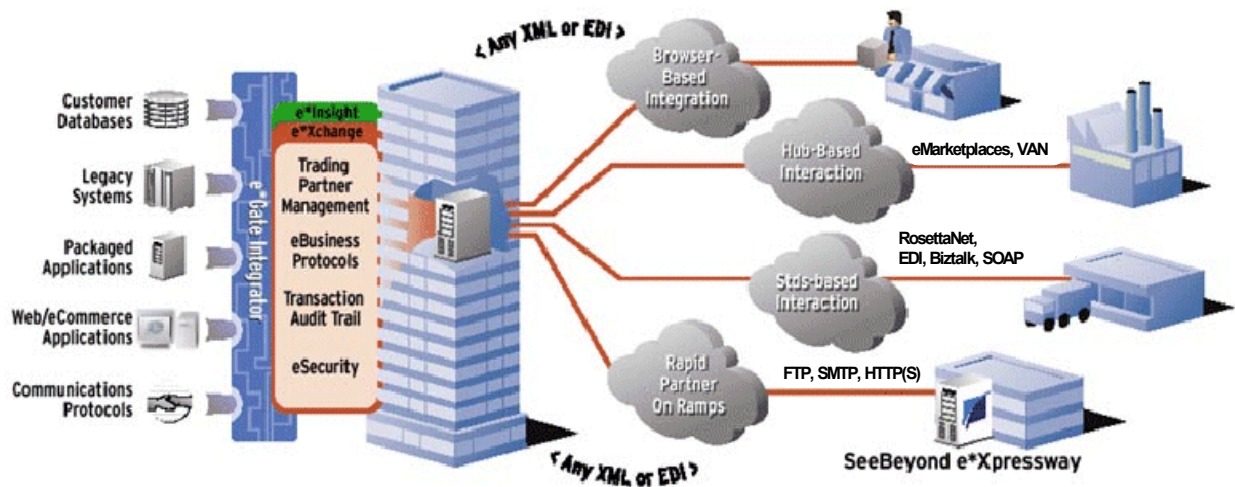
Figure 2 eBI Suite: Building Blocks for Integration
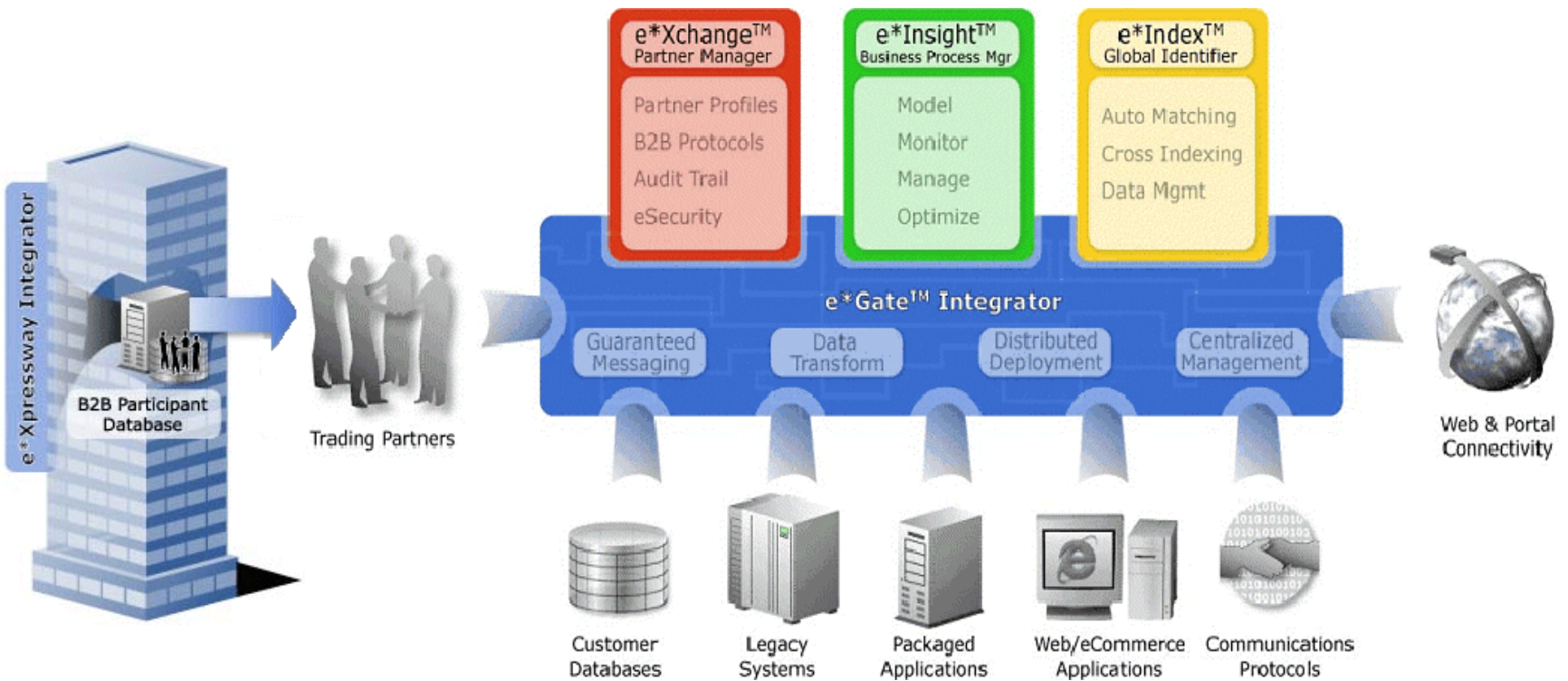
2.2.1 e*Insight Business Process Manager

e*Insight Business Process Manager (e*Insight) facilitates the automation and administration of business process flow across eBusiness activities. Through graphical modeling and monitoring, business analysts can quickly assess the detailed state of a business process instance and identify bottlenecks in the process.

For more information, see **Chapter 3**.

2.2.2 e*Xchange Partner Manager

e*Xchange Partner Manager (e*Xchange) manages trading partner profiles and supports standard eBusiness message formatting and enveloping protocols, including RosettaNet, UN/EDIFACT, ASC X12, BizTalk, CIDX, HIPAA, and NCPDP-HIPAA. The e*Xchange Partner Manager includes a Validation Rules Builder to aid in the creation of X12 and UN/EDIFACT message validation based on industry implementation guides.

The eSecurity Manager authenticates and ensures full integrity of message data sent to and from trading partners, which is imperative when conducting eBusiness over the public domain. The eSecurity Manager uses Public Key Infrastructure (PKI) to ensure origin authentication of the sender.

For more information, see **Chapter 6**.

2.2.3 e*Xpressway Integrator

e*Xpressway Integrator (e*Xpressway) enables rapid trading-partner connectivity and integration through a comprehensive B2B implementation methodology, graphical configuration wizards, and downloadable partner connectivity software. Trading partners follow a quick, intuitive, step-by-step process for registering their company profile, installing the integration software, then configuring connectivity. This application becomes their own personalized software.

For more information, see **Chapter 8**.

2.2.4 e*Index Global Identifier

e*Index Global Identifier (e*Index) is a global cross-indexing application that provides a complete solution for automated person-matching across disparate source systems, simplifying the process of sharing member data among systems.

e*Index centralizes information about the people who participate throughout your business enterprise. The application provides accurate identification and cross-referencing of member information in order to maintain the most current information about each member. e*Index creates a single, consistent view of all member data by providing an automatic, common identification process, regardless of the location or system from which the data originates.

For more information, see **Chapter 7**.

2.2.5 e*Gate Integrator and Components

e*Gate Integrator (e*Gate) enables the flow of information across an extended enterprise by providing comprehensive connectivity to applications and datastores across a network. e*Gate is based on a distributed architecture with an open design that deploys flexible load balancing options. e*Gate processes Events (packages of data) according to user-defined business logic, and integrates business processes between applications, ensuring an end-to-end data flow into back-office systems.

e*Way Intelligent Adapters

e*Way Intelligent Adapters (e*Ways) provide specialized application connectivity and also provide support for robust data processing such as business Collaborations, transformation logic, and publish/subscribe relationships. Because they are multi-threaded, e*Ways enable high-performance distributed processing. This multi-threaded processing optimizes deployment flexibility and load balancing.

Intelligent Queues

Intelligent Queues (IQs) are open-queue services for SeeBeyond or third-party queuing technology. These components provide robust data transport through the e*Gate system.

In conjunction with Java-enabled Collaborations, SeeBeyond JMS can provide the *Guaranteed Exactly Once Delivery* of messages.

Business Object Brokers

Business Object Brokers (BOBs) are similar to nonMulti-Mode e*Ways in that they establish connectivity and are capable of data transformation. BOBs use Collaborations to route and transform data within the e*Gate system. They have the following properties:

- They only communicate with IQs within e*Gate. They do not communicate with external applications as e*Ways do.

- They are optional, by design. You can add them to an environment to remove some load from your e*Ways, either to set up easily maintainable data processing or to enable multiple internal processes.

Additional Information

For more information, see the following chapters:

- For e*Gate, see **Chapter 4**.

- For e*Ways, see **Chapter 5**.

e*Insight Business Process Manager

This chapter explains the basic operation and features of the SeeBeyond e*Insight Business Process Manager (e*Insight).

3.1 Introduction

A *business process* is a collection of activities and messages that flow in a defined sequence to produce an end result. Within an eBusiness Integration framework, e*Insight helps you organize these processes into *message-based integration solutions*. The message-based process modeling you do in e*Insight determines how data messages flow from activity to activity.

Managing Business Processes

Business process management is strategically automating the movement of information and the flow of complex processes between participants (systems, users, and organizations) to accomplish larger business objectives. e*Insight is also a business process management solution that delivers management and optimization by providing a clarity of view into the internal and external processes of an organization.

For example, you can use e*Insight to streamline operations, reduce costs, and increase customer satisfaction. In this context, e*Insight creates a layer of enterprise information flow and business logic that exists above an organization's current system-level processes. In this way, e*Insight can help you reach outward to include both customers and trading partners.

Using e*Insight to implement a business process management layer removes inefficiencies by orchestrating business processes into a unified work flow. This flow can include multiple systems and users, therefore extending to customers.

Ensuring Process Integrity

e*Insight can provide you with real-time monitoring and management that ensures process integrity. This application also includes sophisticated reporting tools and a complete business management environment. Using e*Insight, you can flexibly change, enhance, and integrate business processes as your enterprise grows and evolves. e*Insight enables clear visualization, monitoring, management, and optimization of business processes, spanning within and beyond the enterprise.

3.1.1 Benefits to You

e*Insight offers you the following important benefits:

- **Modeling:** UML-compliant graphical modeling and documentation of business processes that seamlessly integrate system and user activities

- **Synergy with e*Gate:** Automatic generation of e*Gate integration components allowing the rapid implementation of business process models

- **Monitoring:** Real-time graphical visibility and monitoring of running business processes spanning the enterprise, which allows for human interaction with the monitoring operation

- **Security:** The ability to assign levels of security for specific items, such as business process models, to users and groups, using the e*Insight Administrator

- **Exception Management:** Robust management of long-lived business processes to ensure process integrity, including the ability to roll back failed operations

- **Analysis and Reporting:** Graphical Wizards and reports for analyzing business processes to identify trends and optimize results

These eBusiness Integration features in turn enable organizations to:

- Have meaningful human interaction with the ongoing business process

- Transform applications into components for both reuse and increased flexibility to adapt to change

- Increase visibility and improve the management of critical business processes, with auditability and traceability for each participant's activity

- Optimize processes through reporting and analysis over time

- Enhance customer service and provide for customer self-service

- Increase utilization of critical assets and improve operational efficiency

- Expand capabilities to quickly deliver new products and services

3.1.2 Five-Step Management

e*Insight provides a five-step life cycle for business process management. At the highest level, this life cycle management of business processes involves:

- **Modeling** business process in a graphical user interface (GUI) environment

- **Generating** integration components to accelerate and simplify implementation

- **Monitoring** running Instances, both visually and through Alerts and Notifications

- **Managing** Business Processes Exceptions to ensure process integrity

- **Optimizing** business process through analysis and reporting over time

Figure 3 on page 19 shows how this five-step life cycle operates. Examples of common business processes, such as order fulfillment, are shown within the diagram.

Figure 3 Business Process Management Life Cycle
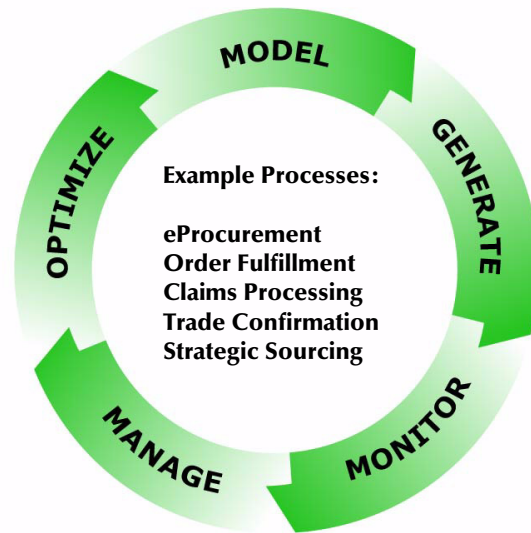
3.1.3 How e*Insight Operates

e*Insight is composed of three primary parts that provide the services of the process-driven eBusiness Integration layer. These components are:

- **e*Insight Modeling Environment** that you use to create, monitor, manage, and optimize business processes over time

- **e*Insight Database** that acts as a process data warehouse, automatically storing process templates, process state information, and all current and historical business process data

- **e*Insight Engine** that manages all the running business process instances based on business rules configured within each process model

3.2 Modeling Business Processes

The e*Insight window (see **Figure 4 on page 20**) provides all the convenient, easy-to-use GUI tools you need to create the precise business process model for your work flow. Within a user-friendly GUI environment, this window allows you to perform the following operations with business processes:

1 Create different versions of a business process

2 List the instances of a business process

3 Diagram a business process

4 View the Legend display of component types and process activity states

Figure 4 e*Insight Window (Monitoring Mode)

1) Create versions of the business process

2) List processes

4)Legend display

3) Diagram processes
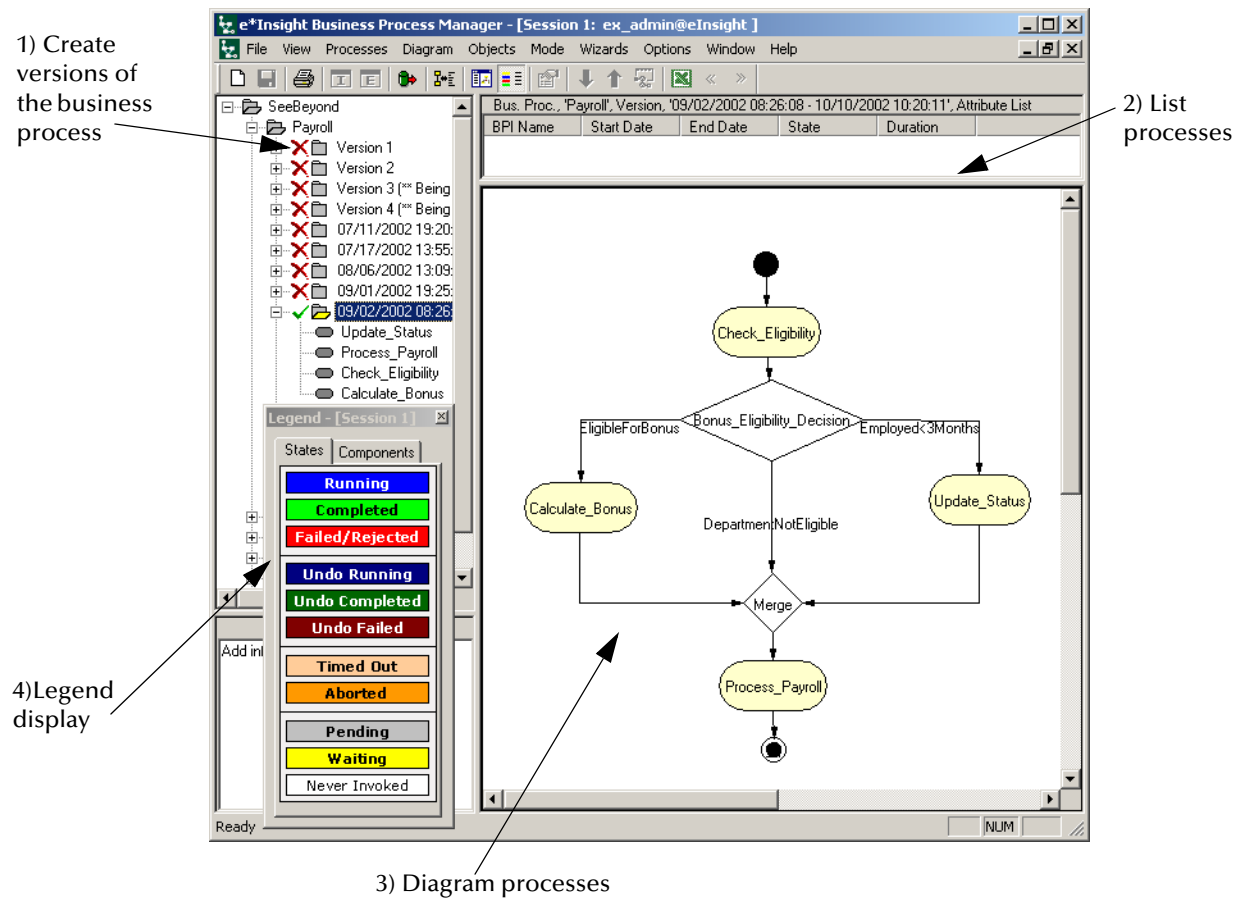
3.2.1 Message-Based Process Modeling

A *message-based business process* revolves around a specific business practice and contains information that determines:

▪ What messages go to what destinations

▪ Under what conditions

▪ What the recipients do when they receive each message

A work-flow diagram created in e*Insight models the paths that business process messages take. Using the e*Insight window, you can create a true graphical representation of your work flow.

3.2.2 Advantages of e*Insight Models

Once a business process model is in place, you can set properties and attributes (message values and data variables) for each activity, and then generate the components that make up the actual integration layer.

Through this configuration process, the activities created in e*Insight automatically generate the appropriate e*Gate components.

Seamless Integration

To accelerate eBusiness Integration, e*Insight provides tight, seamless integration of systems directly out of the box. Used with e*Insight, business process management requires little configuration and transformation development work in order to integrate back-office, Internet, or B2B applications into a total business process.

With all of the e*Insight automatic services in place, the more flexible process-driven integrations require no greater effort to implement than traditional messaging integrations.

Process-Driven eBusiness Integration

This feature pairs business processes and system design to collaboratively model business processes and drive towards a unified understanding of the eBusiness Integration strategy. The business process models graphically map business processes to existing information technology (IT) systems and users that perform the steps in the business process.

Business Process Modeling

e*Insight stores these business processes in a managed repository (database) with each step in the process encapsulated into business components with reusable interfaces to implement the process. This modeling serves as the front-end design to help visualize the business process and increase understanding. Business process modeling is driven at the business level, rather than a purely technical level, to enable the process-flow logic to be abstracted from the system-specific integration logic.

Visible Routing Logic

As the business rules get more complex for routing data between systems, the need to externalize the business rules from the low-level integration logic for visualization and management rises exponentially. With the business rules externalized, the routing logic is clearly visible to both business and technical users, resulting in more flexible and less error-prone integrations.

Full UML Compliance

e*Insight is fully Unified Modeling Language (UML) compliant in its graphical display of business processes as activities, decision gates, subprocesses and flow control arrows. This compliance lowers training costs, increases system manageability, and improves system quality over time by leveraging familiarity with the UML standard.

The modeling stage accelerates the implementation by abstracting the business process from the technical implementation through a common set of business semantics (activities, decisions, flow control, and so on). You can model and view a summary of the process flow or drill down to the detailed implementation of the activities.

3.2.3 **Design-Time Functionality**

The e*Insight application has the following modes of operation:

- Monitoring Mode (run time) shown in **Figure 4 on page 20**
- Design Mode (design time) shown in Figure 5

Figure 5 e*Insight Window (Design Mode)

Documentation Box
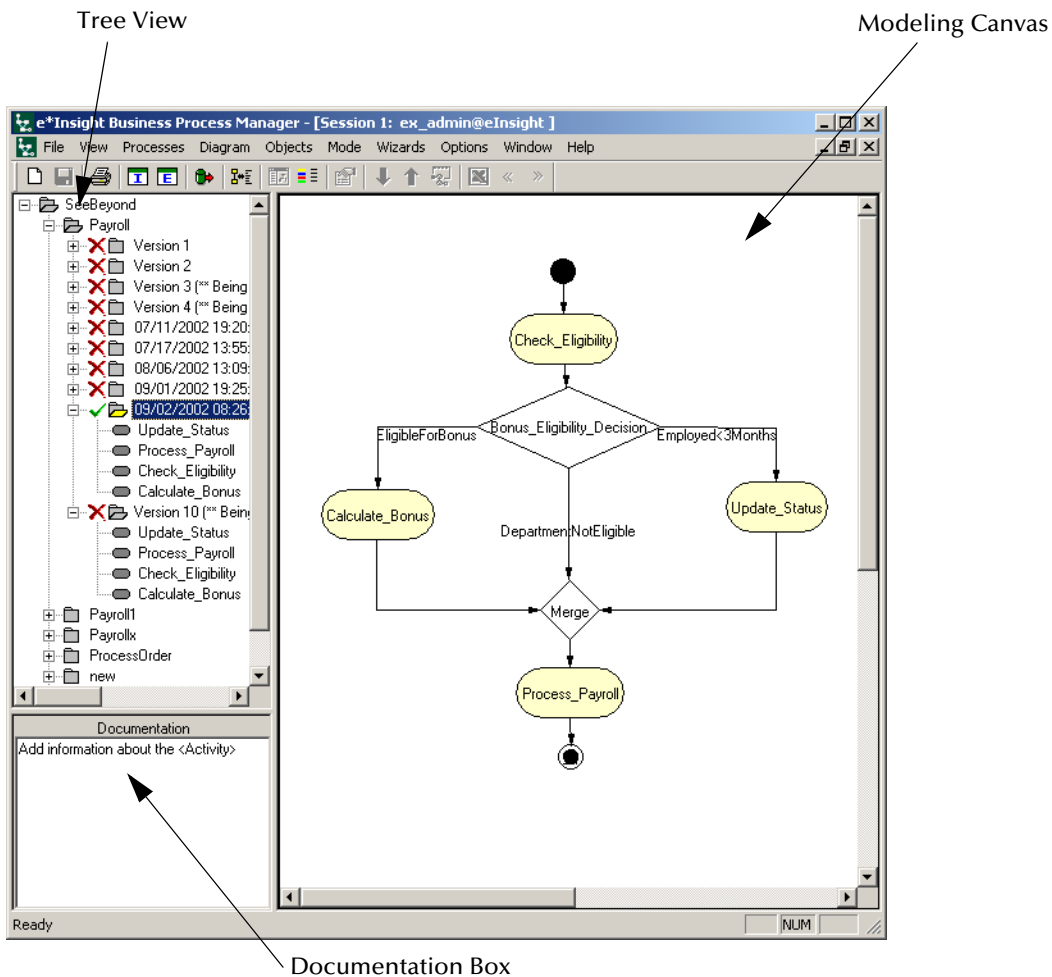
GUI Features

As shown in Figure 5, the Design Mode of the e*Insight window provides the following GUI features:

- **Tree view** displays a hierarchical representation of all the business process models within e*Insight and their associated activities. This view shows you what is currently being displayed on the modeling canvas.
- **Documentation box** manages comments and free-text descriptions about the business process version and its elements. This documentation is directly associated

with the business processes overall, and with each of its activities, and can be used to support compliance documentation.

- ▪ **Modeling canvas** is the portion of e*Insight where you graphically create the business process model in the form of a UML Activity diagram.

The ability to graphically model and implement a business process improves understanding of the process by both business and technical users, while increasing the flexibility to adapt to change. By elevating the business logic into the process layer, you can directly change business processes to dramatically reduce both the time to implement new business processes and the effort to modify existing processes.

As business processes are constantly evolving in response to changes, the e*Insight database greatly facilitates your efforts by managing all the versions of business processes as they change over time. You can manage multiple versions of business process templates, exporting and importing them to and from e*Insight as needed.

This feature makes it easy to copy business process templates and their instance data between different databases. You can use this feature, for example, to support a migration of business processes templates from a testing environment to a production environment.

Implementing New Business Processes

This section provides a brief summary of how you can use e*Insight's modeling features to design and implement a new business process.

Necessary Business Analysis

First, document the existing business processes to create a complete understanding of the data and the functions available in each system. This understanding of how each system works in a stand-alone capacity is required to be able to determine the information flow and business rules at the higher business-process layer.

Next, identify the activities that currently do not exist in any single system, which are needed to automate the business process across all integrated systems. Perform business process re-engineering as necessary to create enhancements to existing processes and planned processes. Evaluate how your existing systems can leverage each other's information and functionality to deliver greater value.

Graphical Modeling Process

Following your high-level business analysis, the graphical modeling process begins with describing your business-process flow. To do this modeling, use the following e*Insight features:

1 Create a **Start Point** to explicitly mark the entry point for the business process.

2   Create **Activities** within the business process to perform specific functions within the integrated systems. An Activity has one input link and one output link.

3   Create **User Activities** to involve users in the business process via external applications, such as a Web-based task inbox or an approve/reject HTML e-Mail. User Activities are typically employed to get user reviews and approvals within a business process while using an external application.

4   Create **Authorization Activities** to involve users in the business process using e*Insight's Monitoring mode. Users can evaluate the attributes of the business process and determine within e*Insight whether the process continues "as-is" or becomes modified.

5   Create **Sub-Processes** to enable reuse and simplify complex business processes. A Sub-process is another business process used as a component of the current business process.

For example, you can create a business process for an action that you use repeatedly in different business processes such as "Check Credit." You can then reference it within other business processes to avoid having to recreate the same process each time and to avoid changing multiple processes when the shared process is updated.

6   Create **Dynamic Sub-Processes** to run and monitor business processes that are located on your local e*Insight database.
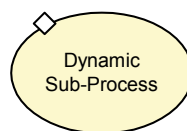
7 Create **Remote Sub-Processes** to be able to remotely run and monitor business processes that are hosted on a remote instance of e*Insight.

8 Create **End Points** to explicitly mark the conclusion of a given business process.

In addition, you can use the following e*Insight features to describe your general business-process flow:

- Assign the business process **Global Attributes** as input/output flows for each business-process Activity. The Global Attributes determine what information flows into and out of each Activity as parameters.

- Assign specific business-process **Attributes** to represent data elements that flow between individual Activities.

- Create **Links** to establish the logical routing of business processes.

- Add **Operators** to specify the logical flow of information:

  ◆ **Decision Gates** to add True or False (Boolean) logic to the business process.

  ◆ **Merges** to apply "or" logic to the condition of two or more previous ("upstream") business process activities.

  ◆ **Fork Bars** to direct a single input to multiple output locations for parallel processing functions.

  ◆ **Join Bars** to apply "and" logic to the condition of two or more previous business process activities.

Figure 6 shows a graphical example with some of these features.

Once you have finished modeling your business processes using the e*Insight Configuration mode, you can then implement these processes within the e*Gate Integrator system.

Figure 6   Sample Business-Process Model
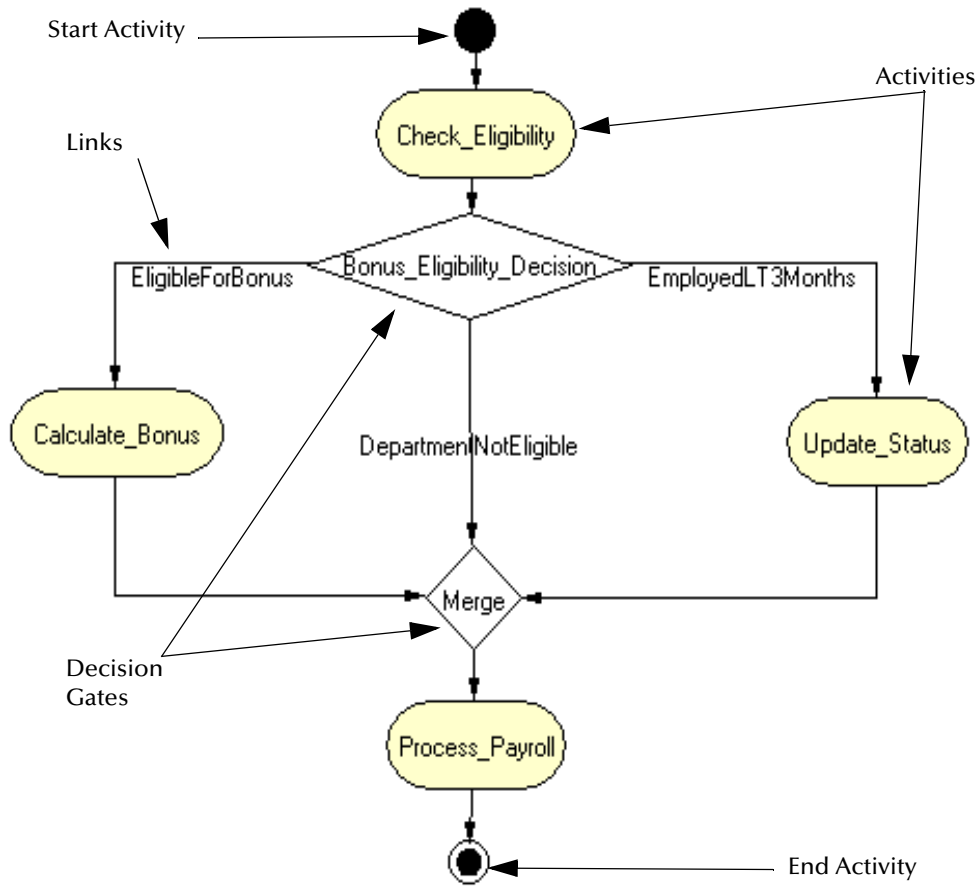
3.3 Synergy with e*Gate

When e*Insight is combined with e*Gate, once the business flow is modeled, you can use the e*Insight GUI to monitor the execution of the components of the model on a real-time basis.

Note: *For more information on e*Gate, see* **Chapter 4***.*

Based on the communication protocols and adapters you choose, e*Gate can communicate with and link multiple applications and databases across a variety of operating systems.

3.3.1 Integrated Monitoring

The monitoring component of e*Insight provides a clear, step-by-step, color-coded graphical representation of each business process instance (BPI). You can use this feature to identify processes that need intervention, repair, or authorization.

For example, e*Insight allows you to do the following operations:

- Analyze the contents of an operation that failed to be processed
- Modify (repair) that operation
- Restart the failed activity within a BPI, taking into account the modified operation

Figure 7 shows how e*Gate and e*Insight interact to provide active, real-time system integration.

Figure 7   e*Gate in Operation with e*Insight
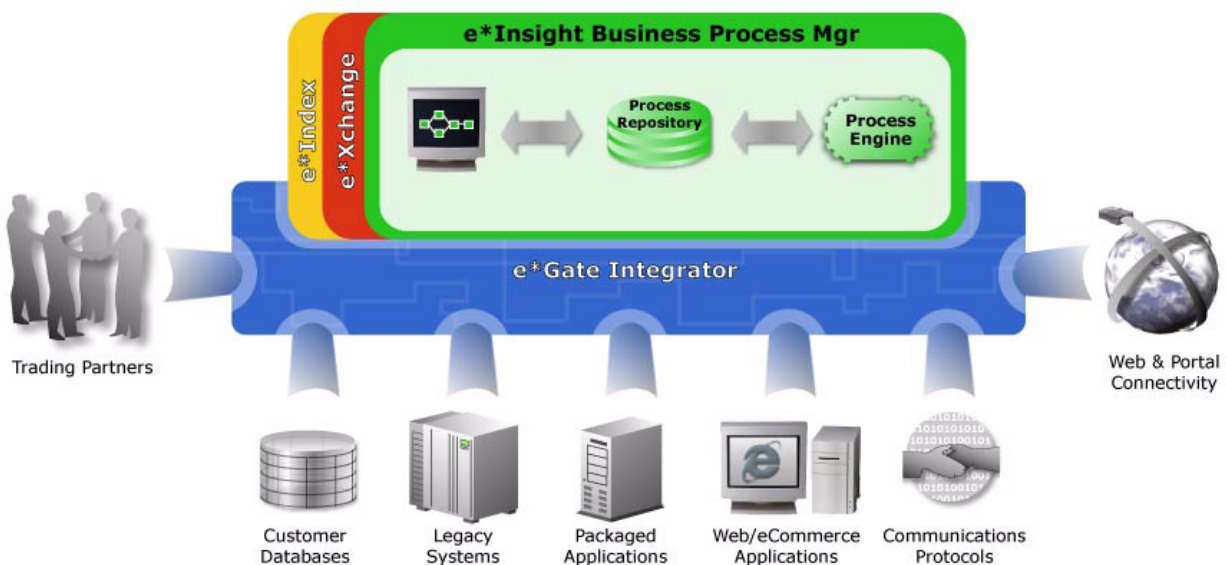
Combined Functionality

The tight integration between e*Insight and e*Gate is one of the great strengths of the SeeBeyond eBI Suite. While other vendors only provide code stubs that require extensive effort to integrate their process management with Application Integration (AI), the eBI suite was designed from the start to inter-operate between the e*Gate Process Management layer and the Integration Layer, "out of the box." e*Insight thus requires little configuration and transformation development work to integrate the back-end applications into managed business processes.

Automatic Component Generation

e*Insight automatically generates the reusable e*Gate integration components for each Activity needed to implement the actual business process. Because this implementation is automated (and therefore accelerated), no effort trade-off decisions are necessary. Direct system integration and process management become one.

Once you have created the business process, any system designer can set the Activity properties and generate the e*Gate integration schema to support the business process model's Activities. Through this configuration process, the Activities created in e*Insight are transformed into either e*Way Intelligent Adapters (e*Ways) or Business Object Brokers (BOBs) with Collaborations in e*Gate.

3.3.2 Transition from e*Insight to e*Gate

Figure 8 on page 29 shows the GUIs used to generate the e*Gate schema. The integration architect uses:

▪ The **e*Gate Configuration** dialog box to review the configuration settings for each business process Activity and choose which e*Gate components to generate.

▪ The **Activity Properties** dialog box to configure how each specific Activity is implemented. Each Activity can be implemented as either an e*Insight Script (JavaScript) inside the e*Insight Engine, or as an e*Way or BOB within e*Gate.

For activities implemented using e*Gate, the e*Gate configuration and the actual Collaboration performing the work can be updated from within this dialog box.

See the *e*Insight Business Process Manager Implementation Guide* for more information on implementing e*Insight features in e*Gate.

Figure 8   e*Gate/e*Insight Activity Properties
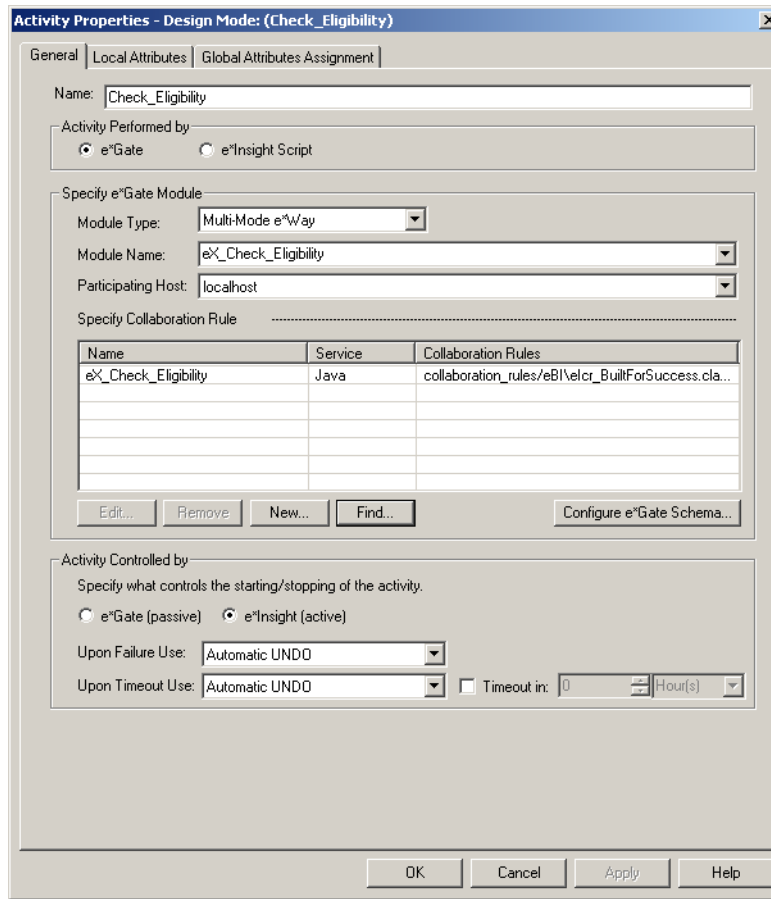
Defining Component Relationships

Table 1 clarifies the relationship of e*Insight components to their corresponding e*Gate components.

After you have fully implemented your e*Insight business processes in e*Gate, you can monitor these processes at will, as you watch them operate in real time.

Table 1   Component Relationships: e*Gate to e*Insight

e*Insight Component	e*Gate Component
Business Process Template	Becomes a schema. A specific schema is a collection of e*Gate components (Hosts, e*Ways, Intelligent Queues (IQs), and so on) configured to work together as a logical group. A schema can include the components for one or more business processes.
Activities	Become e*Ways, BOBs, Collaborations, Collaboration Rules, and Event Types within a schema.
Operators	Include business logic that is run within the e*Gate e*Insight Engine.

Table 1   Component Relationships: e*Gate to e*Insight (Continued)

e*Insight Component	e*Gate Component
Links	Become the publish/subscribe relationships that determine the routing between components and other participants.
Attributes	Become the input and output values used in Collaboration Rules to interact with external systems (external to e*Gate).
Business Process Instances	Become e*Gate Events, that is, actual messages being processed through the system.

3.4   Business Process Monitoring

Once the automated business processes are operational, the e*Insight Monitoring Mode provides a graphical view of all business process instances. You can use this feature to monitor all aspects of both internal processes and those involving the business and trading community.

3.4.1   Real-Time Monitoring

Managers can react instantly to alerted business events such as increased customer demand, inventory shortages, and quality problems, as well as participate in review and approval activities for business processes. The e*Insight Monitoring Mode provides instant indication of the state of each business process Activity, and supports all run-time monitoring, management, reporting and analysis.

This monitoring offers you the following benefits:

- **Checking for Business Exceptions:** With potentially thousands, if not millions, of business process instances per day, business processes can be automatically monitored for user-defined business exceptions in e*Insight.

- **Notification of Important Conditions:** Process owners can be immediately notified of conditions that require their attention from e-Mail, or a printer, for example.

- **Sending Automatic Requests:** An approve/reject e-Mail or Internet request can be sent to a user when a human decision is needed within the business process.

- **Leveraging Existing Systems:** e*Insight seamlessly manages both system and user activities by leveraging an organization's existing e-Mail or Internet environment to request business decisions from users as part of the larger business process.

Run-Time Functionality

You can view a color-coded graphical representation of historical and real-time business process instances in the e*Insight Diagram view. The Monitoring Mode of the e*Insight window has the following parts:

- **Tree View**—Displays a hierarchical representation of all the business process models within e*Insight. The nodes below the root are the names of implemented business processes, and the third level of nodes represents the specific business

process versions. This view shows you which versions, including *enabled* business process model versions, are available to display in the run-time view.

- **Documentation Box**—Displays your comments and free-text descriptions of the business process version, its elements, and each of its Activities.

- **List View**—Is used in Monitor Mode to review the status of business process instances. It displays all the available business process instances filtered by chosen criteria by the List Wizard. You can also choose which of the available business process attributes to view in the list to tailor the view to best suit the business process.

- **Diagram View**—Is used in Monitor Mode to review the status of a business process instance using a color-coded graphical representation. In the Monitor Mode, you can either hide or display the States Legend, which is the reference key to the colors of the stages of the business process.

3.4.2 Alerts and Notifications

The common approach to monitoring real-time business processes is by exception. With hundreds of thousands of business process instances over a period of time, the implementation with e*Gate commonly uses Alerts to notify business users of conditions that require their attention.

This alerting can occur, for example, by e-Mail or a printer. As shown in Figure 9, an "Approve/Reject Approval Request" e-Mail note can be sent to an authorized user if, for example, a credit amount exceeds the current limit.

Figure 9 User Activity e-Mail Example

3.5 Business Security

The e*Insight application uses the security users and groups that are set up in the e*Insight Administrator feature. You can use this feature to assign levels of security, allowing for specific levels of access to instantiated models.

3.5.1 Security for Public Processes

To streamline operations, enterprises increasingly need to selectively and securely expose processes or application services to their partners beyond the firewall. The SeeBeyond eBI Suite can encrypt these communications to ensure their confidentiality across public networks.

e*Insight can work with e*Xchange Partner Manager (e*Xchange) for the enveloping, signing, and tracking of trading partner messages based on industry standard eBusiness protocols.

*Note: For more information on e*Xchange, see* **Chapter 6**.

3.5.2 e*Insight Administrator

The e*Insight Administrator, as shown in **Figure 10 on page 32**, is a graphical user interface (GUI) that provides the entry point for controlling user access privileges to e*Insight.

Overview

You can use the e*Insight Administrator to establish user accounts and define role-based security groups for e*Insight. You can grant read-only or read/write access for specific business processes to security groups.

Figure 10   e*Insight Administrator
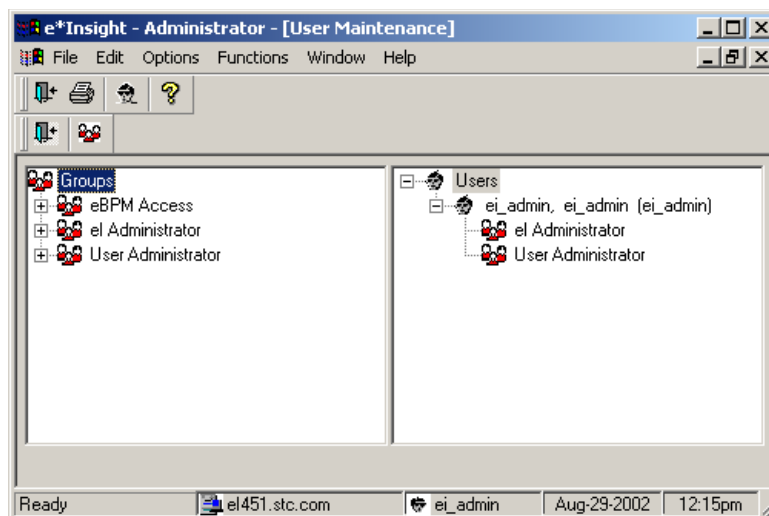
Once the users and groups have been defined in e*Insight Administrator, you can use the security features of e*Insight to tailor access of users and groups to individual components as needed. This ensures the maximum security possible while providing all users access to the information they need.

Features and Functions

This subsection describes the features and functions provided by e*insight Administrator.

User Administration

You can use e*Insight Administrator to set up, modify, and delete users, set effective dates, and temporarily retire or reinstate a user.

Group Administration

You can use the e*Insight Administrator to set up, modify, and delete user groups, set effective dates, and temporarily retire or reinstate a group. Once you have created a group, you can assign users to the group.

The e*Insight Administrator provides several default user groups, including default access groups for e*Insight.

3.6 Automated Exception Management

Process-driven eBusiness Integration ensures the integrity of critical business transactions as they flow between multiple applications and multiple enterprises. Enforcing process integrity becomes increasingly challenging as the number of integrated systems, the complexity of integrations, and the frequency of change increases. e*Insight ensures process integrity through its *automated exception management* feature.

Ensuring Process Integrity

e*Insight ensures process integrity by allowing completed transactions to be undone automatically (or manually, when necessary), if a downstream processing step fails.

Typically, any state-modifying activity (for example, "Update Customer" or "Transfer Funds") must be reversed with an update, deletion, or compensating transaction, while an inquiry-only activity (for example, "Get Account Information" or "Check Credit") does not.

Process integrity is enforced by successfully treating a set of discrete transactions in a business process flow across multiple applications, as a single logical transaction.

Handling of Process Exceptions

e*Insight handles process exceptions to ensure that every process either completes successfully or is completely rolled back using compensating transactions to ensure consistent information flows between systems, and compliance with service-level agreements. e*Insight can automatically undo failed business processes or alert business users to problems in real time and allow them to choose to either undo the business process, skip the failed activity, or repair failed transaction data then restart the process.

Support for Long-lived Processes

As business processes that span multiple enterprises or applications can take seconds, hours, or weeks to complete, support for long-lived processes is essential for eBusiness process management.

Other process-management solutions do not have the flexible e*Insight architecture for long-lived processes, thus creating scalability problems, as each running process requires processing and memory bandwidth on the business process server. This problem directly limits the number of active process instances that can be supported, and it requires hefty hardware resources.

To solve this problem, e*Insight provides a persistent store for process and state information in tandem with an event-driven business process engine. As a result, e*Insight does not require additional CPU threads or memory to maintain active process instances.

3.7 Business Analysis and Reporting

e*Insight provides real-time process analysis, allowing you to directly evaluate both business data and the performance of business processes over time. The specific data definition of the business process model is completely abstracted from the systems, applications, and specific tasks, that are integrated into the business process. This process creates a standardized data warehouse for process information.

Provides Real-time Business Data

The real-time capture of the business data means that you have immediate access to current processing information without having to implement a data-warehousing solution. With this centralized view available, you have a rich repository of accurate business-process performance metrics for:

- Identifying trends or bottlenecks in the process

- Measuring performance against industry benchmarks

- Calculating the return on investment for eBusiness initiatives

Complete Analysis and Optimization

e*Insight provides you with complete reporting and analysis features, allowing key business processes to be managed and optimized efficiently over time. These features let you increase cost-effectiveness by providing instant access to real-time eBusiness data. You can use this information to more effectively couple enterprise and partner systems to increase profitability, customer service, and process quality.

Complete Historical Picture

e*Insight also gives you a complete historical picture by tracking and storing all instances and the associated attributes of the business process model. You can use this capability to analyze the performance of a business process model on a historical basis, determine trends, and identify bottlenecks.

3.8   Summary of Features

In summary, e*Insight provides your business with a powerful assortment of features that you can use to:

- Create dynamic, detailed models of your business processes, ensuring total compliance with service-level agreements and consistent information flows between systems by guaranteeing success or exception processing of each business process step.

- Form a complete and seamless combination with the e*Gate Integrator system, taking advantage of the powerful e*Gate data integration and communication features. You can use e*Insight to model and monitor e*Gate components on a real-time basis.

- Monitor and manage business processes and alerted business events, such as increased customer demand and inventory shortages, throughout the enterprise and trading community.

- Use the security users and groups that are set up in the e*Insight Administrator, utilizing the power of this application within e*Insight. Using e*Insight, you can assign levels of security to users and groups for business process models.

- Manage long-lived business processes and ensure process integrity, including the ability to undo, repair, restart, and skip failed processing steps.

- Conduct business process performance analysis and measurements for refining your systems and demonstrating returns on investments, as well as driving business process optimization over time.

For more information on e*Insight features and how to use them, see the *e*Insight Business Process Manager User's Guide*.

e*Gate Integrator

This chapter describes the SeeBeyond e*Gate Integrator, its components, basic features, and general operation.

4.1 Introduction

The e*Gate Integrator system (e*Gate), is based on a distributed and open architecture that enables components to reside on different workstations within a global network. Based on the communication protocols and adapters you choose, e*Gate can communicate with and link multiple applications and databases across a variety of different operating systems.

System Versatility

e*Gate performs effectively with a wide variety of hardware, message standards, operating systems, databases, and communication protocols in both real-time and batch/scheduled integration modes. e*Gate bridges older and newer systems, resulting in a centrally managed, intelligent, unified enterprise. This gives administrators the flexibility to incorporate best-of-breed technology into their business strategy, without any need to uproot older information technology (IT) investments.

e*Gate delivers a high level of precision, accuracy, and flexibility in the definition, detection, and control of cross-application business processes.

Schema Organization

The e*Gate system components are organized into schemas. A schema is a configuration format that contains all of the modules and configuration parameters that control, route, and transform data as it travels through the e*Gate system. A schema also maintains the relationships between the components, including the publish/subscribe information that is the hub of the data transportation process.

Relationship to e*Insight, e*Xchange, and e*Xpressway

e*Gate is the core technology on which the e*Insight Business Process Manager, e*Xchange Partner Manager, and e*Xpressway Integrator (e*Insight, e*Xchange, and e*Xpressway) are layered. It provides connectivity to back-end systems, performs data transformations, contains the Collaborations or business rules that define a business process, and routes messages internally and to external trading partners.

4.2   Architectural Overview

The e*Gate product suite implements a "transparent" architecture, well-suited for distributed computing environments. This means all of the different components of an e*Gate system do not have to reside on the same machine. Instead, they can be distributed across several different machines in the network.

Principal Features

Principal features of this type of architecture include:

- High scalability
- Parallelism
- High availability
- Protection through isolation
- Extensibility
- Load balancing
- Avoidance of single points of failure

Components and Subcomponents

The e*Gate architecture consists of the following components and subcomponents:

- Graphical user interfaces (GUIs):
  - e*Gate Schema Designer
  - Schema Manager
  - SeeBeyond Java Collaboration Rules Editor
  - SeeBeyond Java Event Type Definition (ETD) Editor
  - SeeBeyond Monk Collaboration Rules Editor
  - SeeBeyond Monk ETD Editor
  - Configuration editors for Intelligent Queue (IQ) Managers, e*Way Intelligent Adapters, and e*Way Connections
  - IQ Administrator
  - JMS Administrator
  - Alert Agent
  - SNMP Agent
  - Command-line interface monitoring tool **stccmd**
- Run-time components:
  - Registry
  - e*Ways
  - Business Object Brokers (BOBs)

- IQ Managers

- Control Brokers

- e*Way Connections

Figure 11 shows these components as they fit into the layers. Each component is also discussed in the rest of this chapter. For more information, see the *e*Gate Integrator User's Guide*.

Figure 11 e*Gate Integrator Architecture
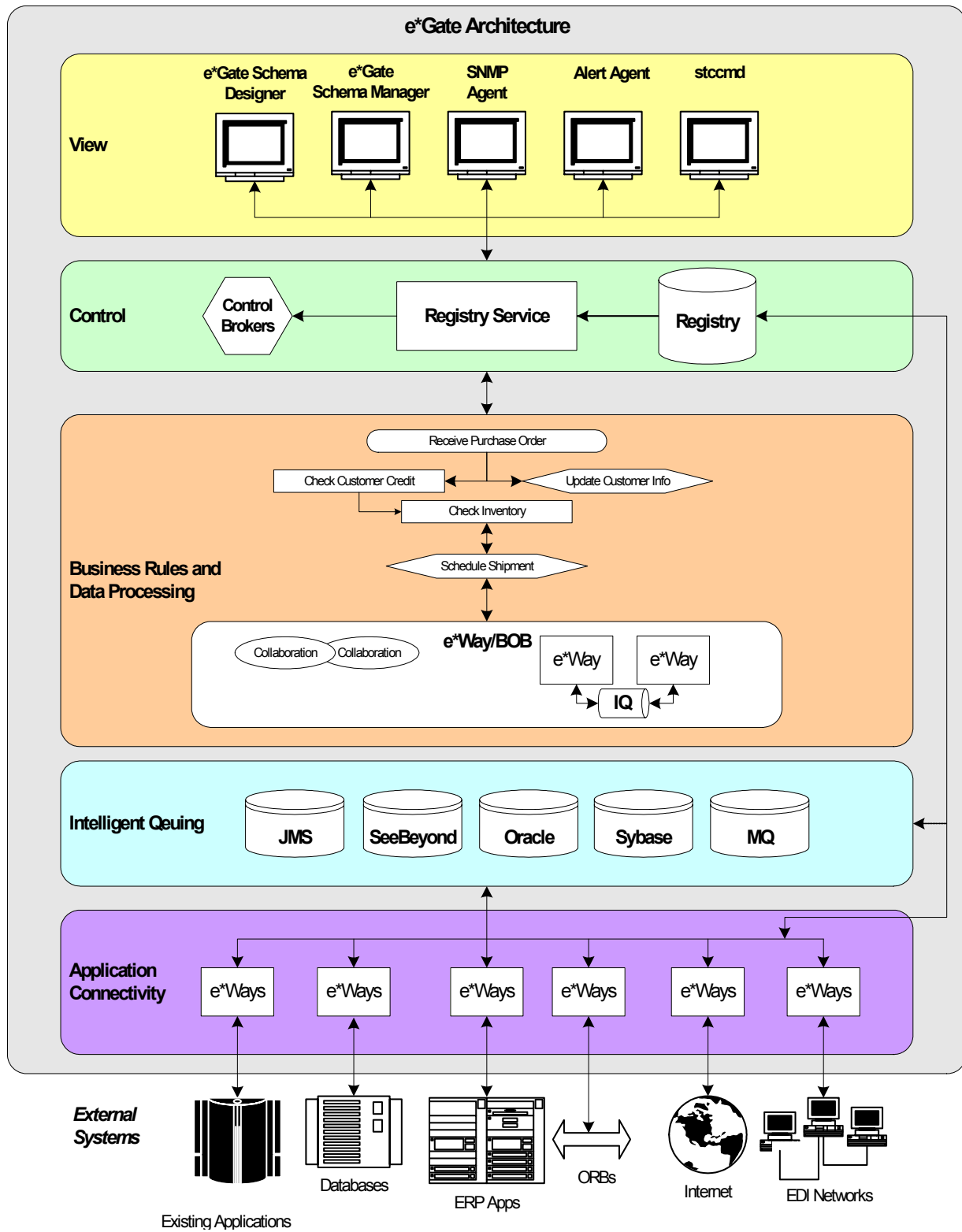
4.3 Graphical User Interfaces

Using the e*Gate GUIs, you can easily create and configure all of the components in a schema.

4.3.1 e*Gate Schema Designer

e*Gate Schema Designer is the GUI that you use to create and configure the components of the e*Gate system. In the Schema Designer, you define and maintain (edit) configuration schemes (schemas) that contain the parameters of all the components that control, route, and transform data as it travels through the system.

The Schema Designer window is divided into panes. The left pane, called the Navigator pane, organizes all system components into a tree structure, similar to the one in Windows Explorer. The right pane, called the Editor pane, displays additional details about the selected component or the subsidiary components that the selected element controls.

The Navigator pane of the Schema Designer window has two tabs that you use to create, edit, and delete objects within the schema. These tabs provide access to two views, as described in the following subsections:

- Components Editor view
- Network view

Components Editor View

The Components Editor view, as shown in **Figure 12 on page 41**, provides access to all elements in the schema (system configuration), based on logical components. It displays components in a tree-type structure and is optimized for quick access to system files by information services (IS) managers.

Network View

The Network view, as shown in **Figure 13 on page 41**, provides a visual representation of the relationships between the components of the e*Gate network. It is optimized for IS managers and operators who need to see the physical layout of the system for maintenance or troubleshooting.

Figure 12   Components Editor View

List of components
under the selected
Control Broker

Figure 13   Network View

Graphic diagram of the
network setup
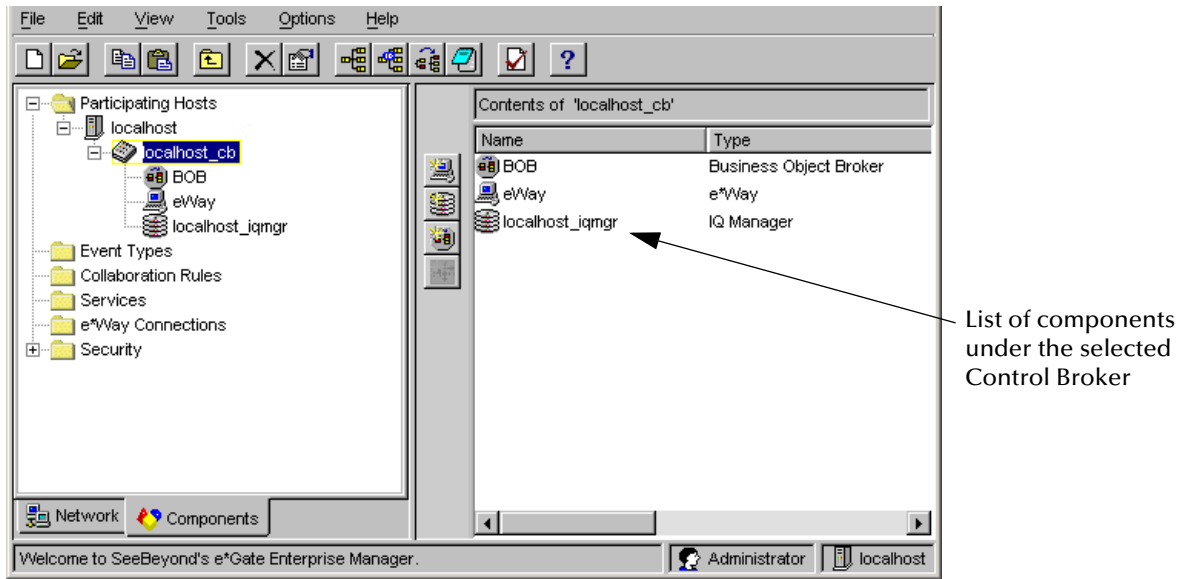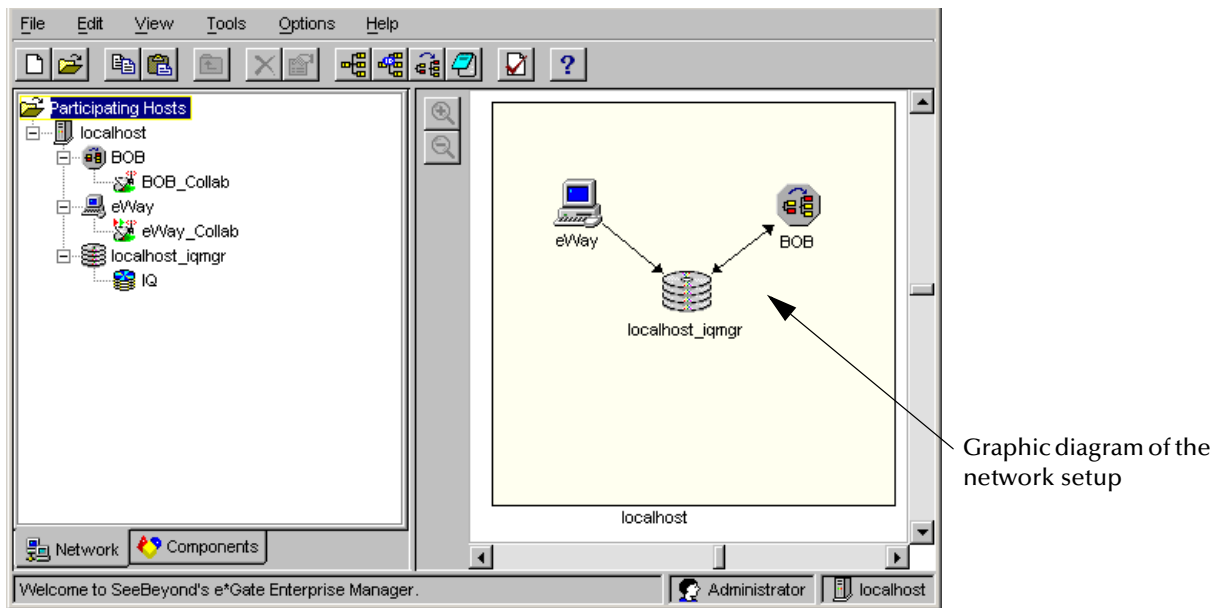
e*Gate Editors

The Schema Designer includes several specialized editors that you use to view and revise each element in the system. These include:

- SeeBeyond Java Collaboration Rules Editor
- Java ETD Editor
- SeeBeyond Monk Collaboration Rules Editor
- Monk ETD Editor
- SeeBeyond Collaboration-ID Rules Editor
- Configuration editors for:
  - IQ Managers
  - e*Ways
  - e*Way Connections

Note: *For more information on e*Ways, see* **Chapter 5***.*

You use the e*Gate editors to define the structure of the data processing environment, and the relationships among various data processing components, including their "publish" and "subscribe" relationships.

SeeBeyond Collaboration Rules Editors

The SeeBeyond Collaboration Rules Editors define the low-level rules that make up Collaboration Rules. These rules specify how application programming interfaces (APIs) are invoked, and how data is transformed or operated on, in addition to what information is placed in headers. The rules can be as general (n to m apps), or as specific (1 to 1) as required.

When defining Collaboration Rules input-output logic, you can use Event Type Definitions (ETDs) provided by SeeBeyond, ETDs generated through e*Gate system tools, or your own definitions built with the ETD Editor.

There are two versions of the Collaboration Rules Editor:

- The Monk Collaboration Rules Editor, for Collaboration Rules scripts written in the SeeBeyond proprietary Monk programming language
- The Java Collaboration Rules Editor, as shown in **Figure 14 on page 43**.

Java Collaboration Rules Editor

A simple point-and-click interface provides access to the hundreds of Java methods supplied by SeeBeyond. Usage notes are supplied in the method browser, and dialog boxes prompt you to supply needed parameters using the correct syntax.

You can also browse through packages and classes supplied by third parties, and you can even define your own XML-based Java methods and make them available through the method browser.

Figure 14 Java Collaboration Rules Editor
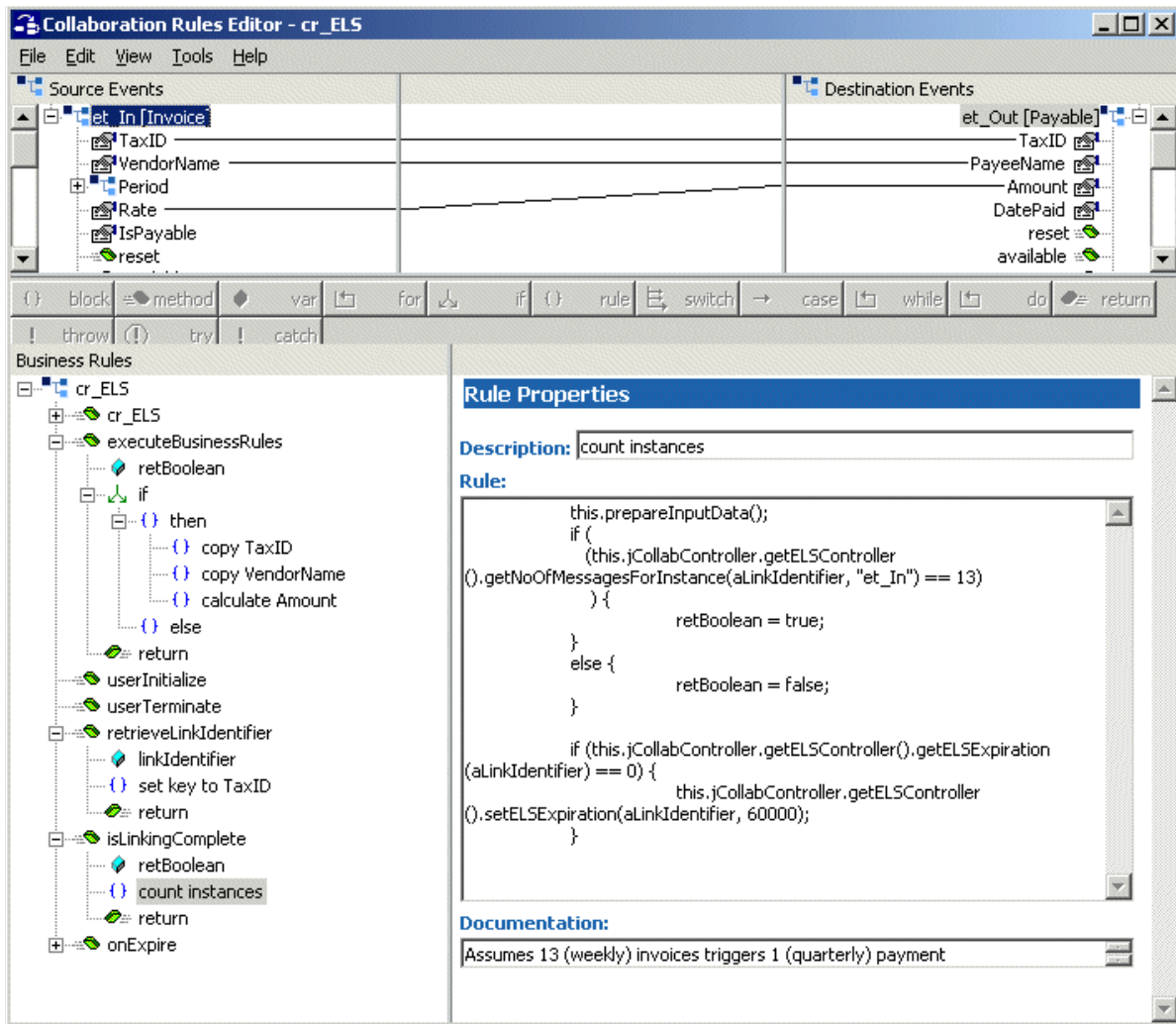
Right-clicking on any ETD element icon (for example, a parent node, field node, or method) in a source or destination tree graphic, opens a window that displays the complete properties of that element, as shown in Figure 15.

Collaboration-ID Rules Editor

The Monk-based Collaboration-ID Rules Editor defines rules to identify incoming Events according to user-specified criteria. These rules can be as general or specific as necessary. As in the Collaboration Rules Editor, you can use ETDs provided by SeeBeyond, ETDs generated through e*Gate system tools, or your own definitions built with the ETD Editor when defining Collaboration-ID Rules logic.

Figure 15 Properties Window

Properties -batch_eWay_order	
(Name)	batch_eWay_order
avoidMatch	false
childMax	undefined
childMin	undefined
comment	
defaultValue	
defaultBytes	
defaultEncoding	ASCII
encoding	
enumType	
exact	true
fixedValue	
format	
group	false
inputMatch	
javaName	BatchEWayOrder
javaType	
length	0
lengthFrom	undefined
lengthSize	undefined
maxOccurs	1
member	
minOccurs	1
offset	undefined
optional	false
order	sequence
override	false
precedence	child
readOnly	false
reference	
scavOutput	false
scavenger	
structure	fixed
type	CLASS
local delimiters	

ETD Editors

You use the ETD Editors to define the Event Type Definitions (ETDs) for your data processing logic.

ETDs visually represent the hierarchy of data fields as nodes in a tree structure. e*Gate systems use them at run time to parse buffers into data units where the established rules can be applied.

Libraries of pre-built structures already exist for common message format standards including ASC X12, RosettaNet, HL7, SWIFT, cXML, xCBL, CIDX, and UN/EDIFACT. Also, you can build ETDs using internal and external Java-based ETD templates.

Additionally, SeeBeyond provides tools for automatically generating ETD structures from database tables, stored procedure definitions, proprietary APIs, and electronic specifications distributed by standards bodies. For example, an XML build tool is available for generating e*Gate ETDs from XML DTDs and Schemas (XSD).

There are two versions of the ETD Editor:

▪ The Monk ETD Editor, for Collaboration Rules scripts written in the SeeBeyond proprietary Monk programming language

▪ The Java ETD Editor, as shown in **Figure 16 on page 45**

Figure 16   Java ETD Editor
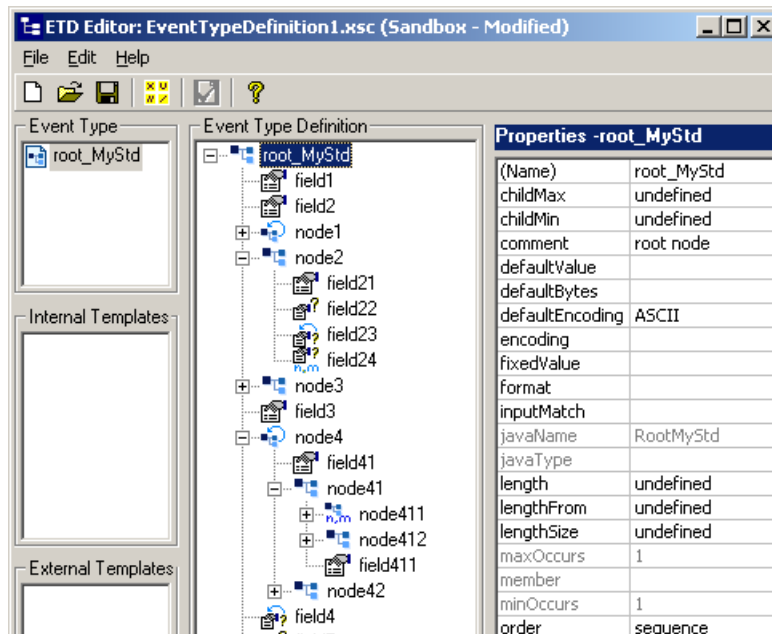
The Java ETD Editor also provides handy ETD builder Wizards that you can use to easily create ETDs from a variety of sources, such as XML Document Type Definitions (DTDs).

Figure 17 shows some of the available ETD builder Wizards. **Figure 18 on page 46** shows an example of a specific Wizard—the DTD Wizard.

Figure 17   ETD Builder Wizard Types
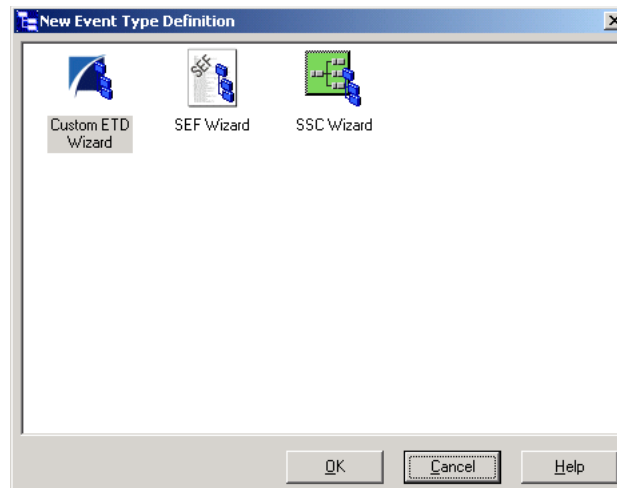
Figure 18   DTD Wizard
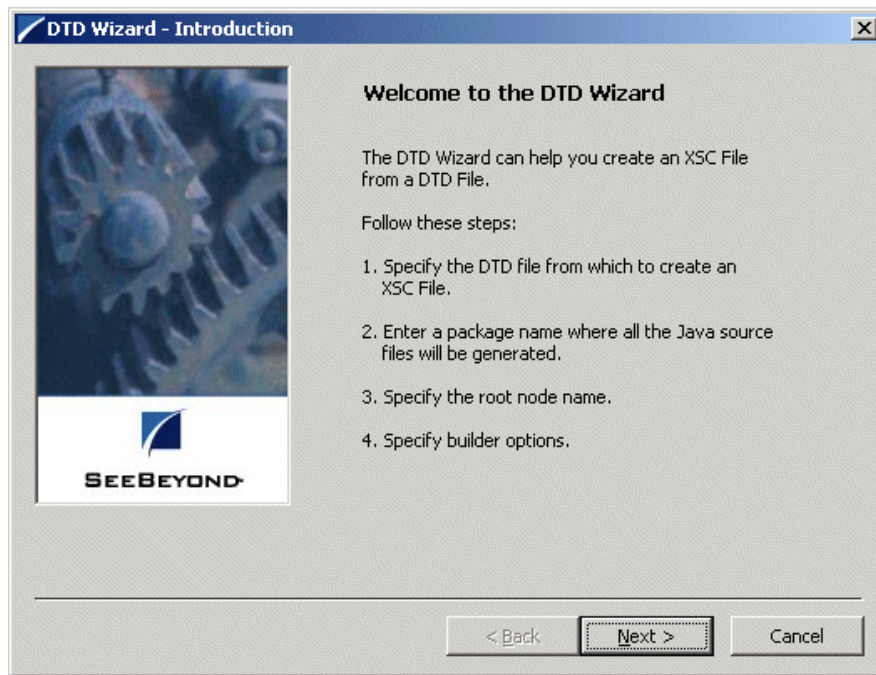
Some of the available ETD builder Wizards are:

- BAPI
- COM/DCOM
- Custom ETD
- DB, for database management (Oracle, Sybase, DB2 Universal Database, and so on)
- DTD
- FLIST
- IDoc

- Jacada
- JDE
- OPCODE
- Oracle Financials
- SAG
- SEF
- SOAP
- XSD
- SSC

Full Schema Export/Import

You can also use the Schema Designer to export a full schema along with all of its associated files, in a single .zip file. Then you can import the file containing the schema, using a convenient Import Wizard GUI (Figure 19) that takes you through each step.

Using the Import Wizard is also an easy way to import modules into a schema.

Figure 19 Import Wizard

4.3.2 Schema Manager

The Schema Manager shown in **Figure 20 on page 48** provides all the basic monitoring and control functions for e*Gate systems. It displays status and Alert messages for all components across the enterprise, and it provides high-level control of data processes.

Understanding Schema Managering features requires an understanding of two e*Gate concepts: Monitoring Events and Notifications.

For more information on these topics, see the *e*Gate Integrator User's Guide* and *e*Gate Integrator Alert and Log File Reference Guide*.

Monitoring Events

e*Gate components send out *Monitoring Events*, which are Events that describe the component status and operation, or some other system-related occurrence. Monitoring Events are different from business Events, which contain data from applications for processing.

All components send basic "component up" or "component down" Monitoring Events, plus a range of Monitoring Events with additional detail, such as "down controlled" and "down unresponsive." e*Gate can also create Monitoring Events from business Events. Data from an application, for example, can lead to a "message content of interest" Monitoring Event. Other Monitoring Events are resource related, such as "available disk space below threshold."

In addition to their own Monitoring Events, components can also generate Monitoring Events on behalf of other components. If, for example, the Schema Manager loses contact with the Control Broker, it generates a Monitoring Event on behalf of the Control Broker.

Figure 20 The Schema Manager Window
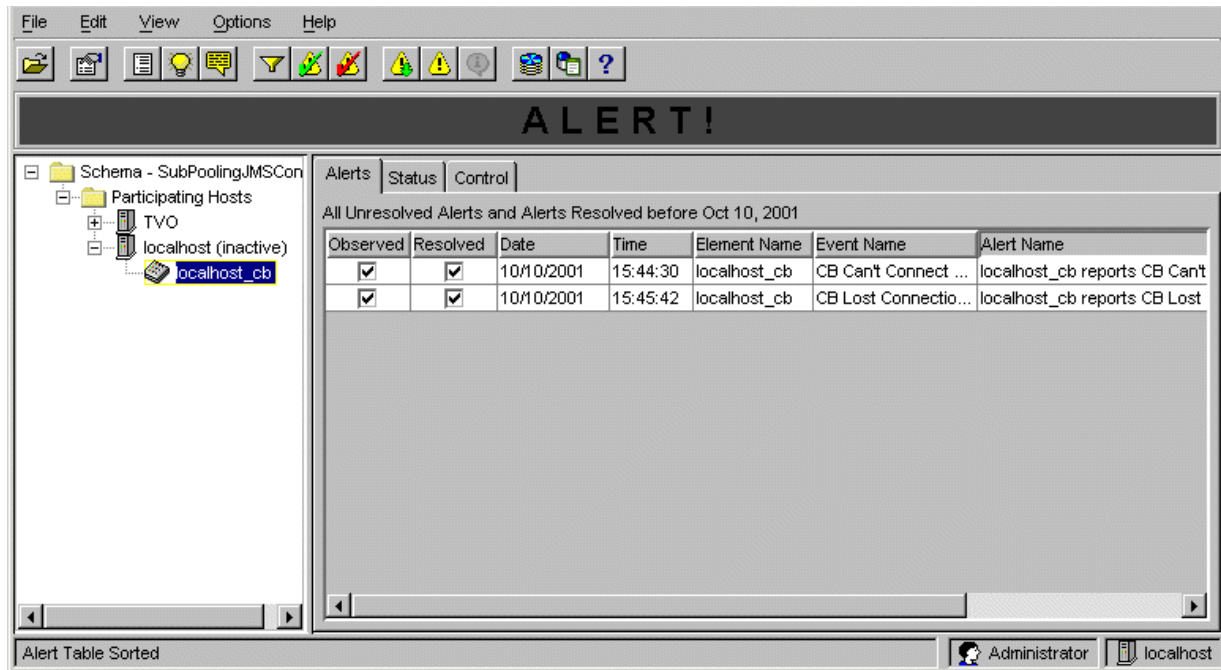
Monitoring Events include an error code and other data, such as the time the Monitoring Event occurred, the component reporting it, and a text description of the Monitoring Event. The notification system can display any of this information or use it to route news of the Monitoring Event to the appropriate receiver.

Monitoring Event Categories

Status and Alert Events

Status messages include informational Monitoring Events such as "module up." *Alerts* are warning or problem Monitoring Events such as "module down." Status messages also include "neutral" Monitoring Events such as "message content of interest." You can specify which Monitoring Events are treated as status messages and which are treated as alerts.

Resolvable and Unresolvable Events

A *resolvable* Monitoring Event is one describing a condition that can be addressed and corrected, such as "module down." Monitoring Events such as "module up" are unresolvable because the condition they describe is not one that requires correction.

The distinction between resolvable and unresolvable Monitoring Events is most important to the notification system's internal bookkeeping. Resolved Monitoring Events are regularly purged from the log, but unresolved resolvable Monitoring Events stay in the log indefinitely. This feature ensures that problems stay in the log until they have been corrected.

Notification Events

While Monitoring Events are Events that e*Gate components send to each other, *Notifications* are Events that an e*Gate module sends to the Schema Manager and Alert system/Alert Agent. Notifications are the means by which e*Gate informs users of Monitoring Events. The content of a Notification is completely customizable, but generally includes information about the Monitoring Event that generated the Notification (for example, the error code and the name of the component generating the Monitoring Event, plus whatever information is necessary to route the Notification to its final recipient).

Notification Event Routing

e*Gate systems use a special Collaboration Rules script called *NotificationRouting* that maps Monitoring Events to Notifications. You can customize the script in the Collaboration Rules Editor by entering notification channel information and selecting the parts of the Monitoring Event that you want to map to the desired Notification.

Intelligent Queue Administrator

The Schema Manager includes an Intelligent Queue (IQ) Administrator feature (see Figure 21). Using this GUI, you can check the status of an IQ or observe the journaled Event properties of an IQ.

The IQ Administrator window provides an intuitive presentation for navigating through the IQ contents. Thus, the state of all the IQs is obvious when viewed on a single screen. You do not need to use command-line utilities or interpret numeric output.

The IQ Administrator features include:

- A graphical tree browser pane
- A graphical representation of queue contents on a by–Event Type or by-queue basis, color-coded by state (active or journaled)
- A Selector that allows manipulation of a range of Events (messages) in sequence
- The ability to display or edit the contents of a selected Event (message) in the queue
- A summary pane that displays the total number of Events, grouped by Event Type, Publisher, or Subscriber

For more information on IQs, see **"IQ Managers" on page 54**. For complete information see the *e*Gate Integrator Intelligent Queue Services Reference Guide*.

Figure 21   The Intelligent Queue Administrator Window
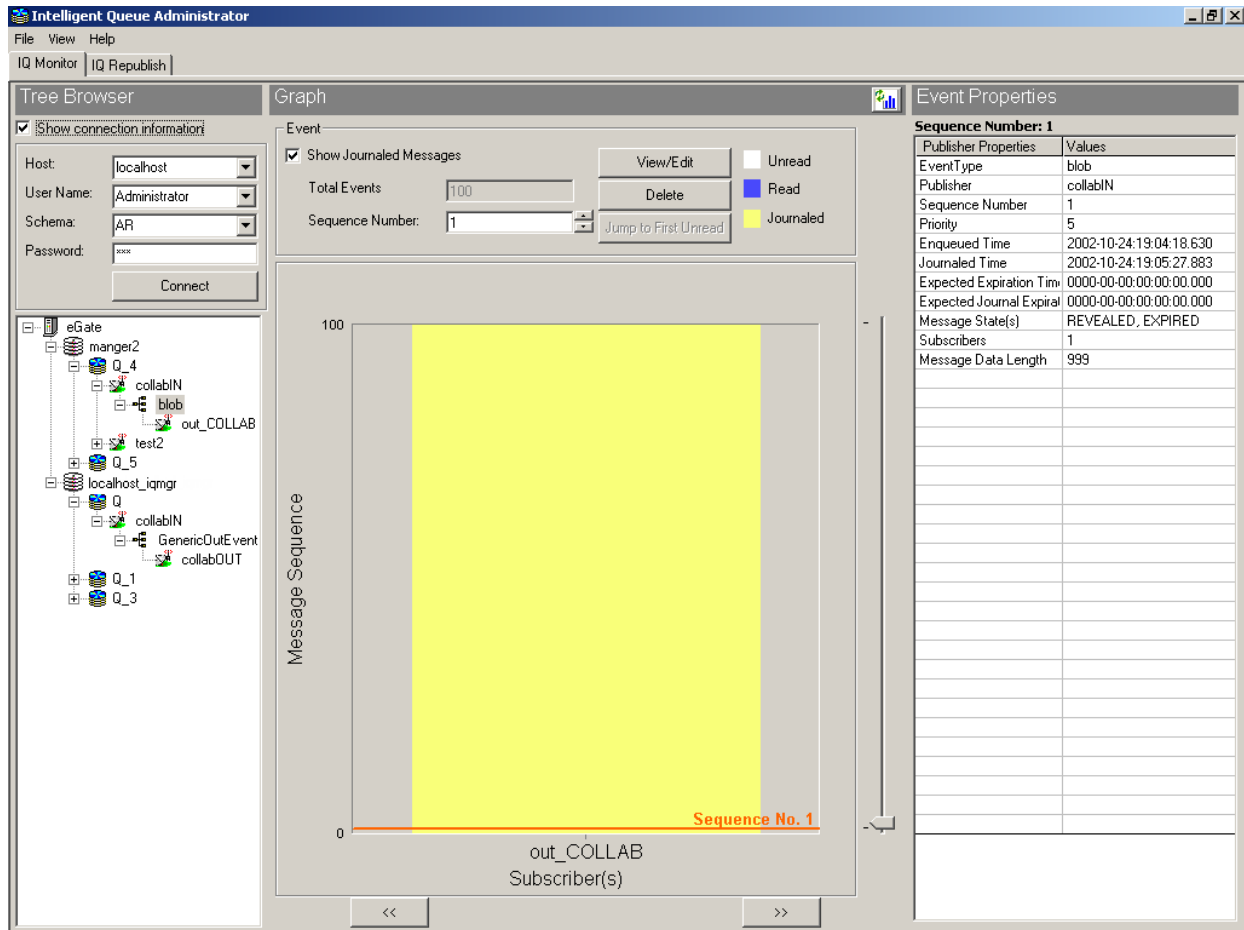
JMS Administrator

The Schema Manager includes a Java Message Service (JMS) Administrator feature. Using the JMS Admin Tool window, you can:

- Check the status of a JMS IQ Manager (see Figure 22)

- View aggregate information about topics or queues (see Figure 23)

- Get information about specific Event Types, topic publishers, or queue receivers (see Figure 24)

The JMS Administrator provides an intuitive presentation for all of the:

- JMS IQ Managers in aggregate

- Topics and Queues of an individual JMS IQ Manager

- Subscribers of an individual Topic

- Receivers of an individual Queue'

All can be viewed on a single screen, without using command-line utilities or interpreting numeric output.

Figure 22   JMS Administrator - Status of JMS IQ Managers
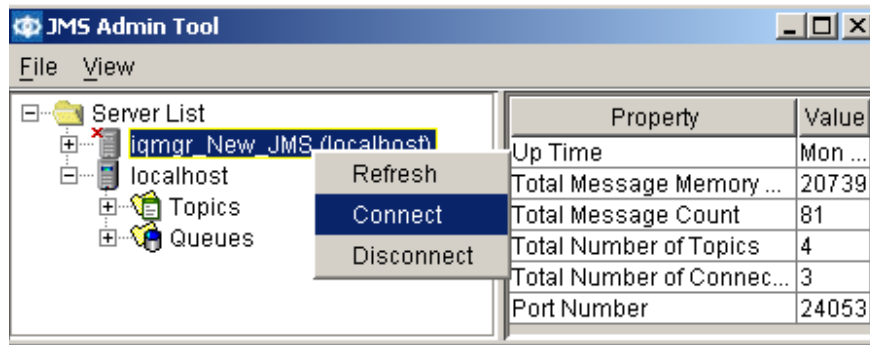
Figure 23   JMS Administrator - Queue Properties
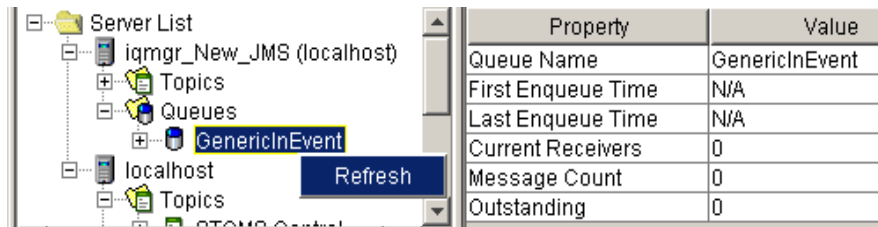
Figure 24   JMS Administrator - Topic Subscriber Properties
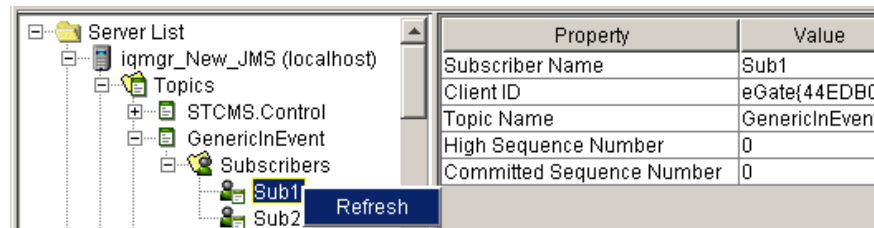
JMS Administrator features include:

- A graphical tree browser pane

- A properties pane that displays key information for the selected JMS IQ Manager, Topic, Queue, Topic Subscriber, or Queue Receiver

- The ability to display the contents of a selected Event (message) in the queue

For more information on IQs, see **"SeeBeyond JMS IQ Manager" on page 54**. For complete information, see the *SeeBeyond JMS Intelligent Queue User's Guide*.

4.4 Run-Time Components

Run-time components consist of one or more e*Ways, components that connect e*Gate and business applications, and optional BOBs, components that implement high-performance, distributed, and/or complex processing of data flows.

Run-time components are also responsible for storing and dynamically distributing all system configuration information, starting up and shutting down e*Gate processes, enforcing various access-control mechanisms, and the selective forwarding of metadata.

Run-time components include:

- The Registry, including the Registry Service
- e*Ways
- BOBs
- IQ Managers
- Control Brokers
- Multi-Mode e*Ways and e*Way Connections

The rest of this section discusses the properties and operation of these components. For more information on e*Ways, see **Chapter 5**.

4.4.1 Registry (Registry Service)

The e*Gate Registry is the store for all configuration details, either through references to supplemental configuration files or by direct containment. The Registry employs a "Team Registry" concept. The Registry itself is divided into two areas:

- The Sandbox area holds user-specific work-in-progress files
- The run-time environment holds files used in the production schema

The Registry contains all components that can be created or manipulated by the Schema Designer.

The Registry Service handles all requests for configuration updates, changing the content of the Registry when new information is provided, and forwarding these updates to the appropriate clients as necessary. The Registry Service is multi-threaded and handles all configuration updating and distribution.

4.4.2 Collaborations

Collaborations use Collaboration Rules, which define how data should be mapped from n input Events to m output Events. Collaborations also define how databases should be queried in response to request Events and how APIs to one or more applications should be invoked for coordinated action.

The same Collaboration can be used simultaneously in multiple BOBs or e*Ways, providing business process services that can be tapped into by any number of

distributed components. Conversely, multiple Collaborations can be loaded into a single e*Way or a single BOB, as both are multi-threaded.

4.4.3 Collaboration Rules and Subcollaboration Rules

Collaboration Rules are the script (program) statements that defines the data flow and transformation logic contained in and configured by an e*Gate Collaboration. Collaboration Rules are defined with the Collaboration Rules Editor, using the point-and-click/drag-and-drop definition of business rules.

A Subcollaboration Rule is a Collaboration Rule that is invoked by a parent Collaboration Rule.

A powerful parsing and serialization engine handles any data format with the highest level of functional abstraction, reducing the amount of user configuration required.

Collaboration Rules, based on an Open Collaboration Architecture, can be created in the programming languages of Java, C, XSLT, and Monk. Using this feature, individual departments or companies can leverage their existing investments in any of these programming languages to efficiently implement and deploy integration solutions.

4.4.4 Business Object Brokers

A BOB is an executable module similar to an e*Way. Like e*Ways, BOBs use Collaborations to route and transform data within e*Gate. BOBs are optional features that can be used to balance the processing load (data manipulation in Collaborations) among e*Gate components. For improved performance, BOBs can be located on different Participating Hosts.

Within e*Gate, BOBs can serve as simple load balancers for IQs. For complete information, see the *e*Gate Integrator User's Guide*.

4.4.5 Intelligent Queues

IQs enable a smart store-and-forward mechanism for e*Gate Events by supporting publish-and-subscribe (pub/sub) processing and providing a form of interprocess communication for more reliable delivery of Events. Publisher components populate IQs with Events. IQs have control when Events are made available to subscribers. The standard e*Gate installation includes the following IQ Services:

- **SeeBeyond JMS** is the default and supports Guaranteed Exactly Once Delivery. It can be manipulated by industry-standard API methods that use SeeBeyond-supplied classes (see **"SeeBeyond JMS IQ Manager" on page 54**).

- **SeeBeyond Standard IQ** uses a file-based B+ tree architecture.

In addition to these IQ Services, SeeBeyond provides application-specific IQ Services, available as add-on applications. You can choose these IQ implementations if you have significant expertise or investment in these vendors' products or products associated with them. Some of these IQ Services are:

- **Sybase IQ** uses a Sybase server database as its storage

- **Oracle IQ** uses an Oracle server database as its storage

- **IBM MQSeries IQ** uses MQSeries queues as its storage

- **ODBC IQ** supports connection to any database that uses ODBC

For details on IQs, see the *e*Gate Integrator User's Guide* and the *e*Gate Integrator Intelligent Queue Services Reference Guide*.

4.4.6 IQ Managers

e*Gate IQ Services act as powerful facilitators of reliable interprocess communication. The intelligence arises from the persistent recording of Event state information. This recording ensures that subscribers acquire the Events they expect, in the proper sequence and without risk of duplication—even when recovering from a system hardware failure.

APIs exposed at the Intelligent Queuing layer make it possible for you to implement IQs in a medium-independent manner. e*Gate IQs interface with libraries written for various datastore implementations, including the SeeBeyond Java Message Service (JMS) IQ (the default), Sybase-CTLib, Oracle-OCI, and IBM MQSeries. These APIs also support any custom user-developed IQ inspection and interaction logic.

The SeeBeyond JMS IQ Manager is a high-performance, JMS-compliant, XA-aware intelligent queuing message service. When XA-enabled, it also provides Guaranteed Exactly Once Delivery of Events (also called "messages"). For more information, see:

- **"Guaranteed Exactly Once Delivery of Events" on page 59**

- **"SeeBeyond JMS IQ Manager" on page 54**

For details on IQ Managers, see the *e*Gate Integrator User's Guide* and the *e*Gate Integrator Intelligent Queue Services Reference Guide*.

4.4.7 SeeBeyond JMS IQ Manager

e*Gate version 4.5 and later offers a JMS version 1.0.2–compliant message IQ Service, called the SeeBeyond JMS IQ Manager. This feature offers the standard capabilities of the SeeBeyond Standard IQ Manager, including:

- Storage and message routing

- Guaranteed delivery

- Persistent (nonvolatile) storage

- Event state support

- IQ subscriber pooling

In addition to functioning as a normal IQ implementation, however, the JMS IQ offers the following enhancements:

- Topic subscription and publication

- Publication and subscription of Events by external Java applications using industry-standard, open API

- Run-time subscribers

- Support for standard JMS Message Types

- XA compliance

- Support for Guaranteed Exactly Once Delivery via XA

For details on Guaranteed Exactly Once Delivery and the SeeBeyond JMS IQ Manager, see the *SeeBeyond JMS Intelligent Queue User's Guide.*

4.4.8 Control Brokers

The Control Broker in a schema is responsible for starting and stopping processes and for selectively forwarding metadata (alert, status, and configuration messages) to authorized user interfaces. A Control Broker routes operational Events to scripts, invoking control APIs to perform basic maintenance or administrative actions.

e*Gate systems can support approximately 80 system-standard Events, such as the detection of disk-space usage beyond a configurable limit, detecting data content of interest, Event creation volume, Event receipt volume, and numerous IQ operations. e*Ways add many application-specific Events to this set and implement user-defined Events.

For details on Control Brokers, see the *e*Gate Integrator User's Guide* and the *e*Gate Integrator System Administration and Operations Guide*.

4.4.9 Additional Components

e*Gate provides the following additional components:

- **Multi-Mode e*Ways**—These are e*Ways for multiple Java or Monk Collaborations that use e*Way Connections to send and receive Events to and from multiple external systems or one or more SeeBeyond JMS IQ Managers. Unlike other e*Ways, a Multi-Mode e*Way derives a portion of its functionality from one or more e*Way Connections, some of which conform to the XA protocol.

- **e*Way Connections**—These are configurable gateways to a particular external system (such as axion4, HTTP, MQSeries, Oracle, SAP BAPI, Siebel2000, or Sybase) or to a SeeBeyond JMS IQ Manager. An e*Way Connection enables Multi-Mode e*Ways to host Java Collaborations to and from a variety of external systems.

For details on these components, see the *e*Gate Integrator User's Guide*.

4.5 e*Gate Access Control

e*Gate access control is role based, rather than user based. While people in an organization might change, the roles that they fill are relatively constant. An IS organization, for example, could have system operators who can:

- Restart systems, but who cannot create user accounts
- Create or modify user accounts, but who cannot restart systems

Any given employee might be an operator, an administrator, or fill both roles. Using the role-based model, privileges are assigned to access control list (ACL) roles, for example, "operator" and "administrator," and users are assigned to those roles. This model has several advantages. Privileges, for example, are assigned once when a role is created, rather than each time a user changes responsibilities.

4.5.1 Access Control List

Features in the e*Gate Schema Designer enable the Administrator user to perform the following ACL tasks directly from the GUI:

- Create, rename, or delete users
- Modify user passwords
- Create or delete additional roles
- Assign privileges or rights to roles

The role-based e*Gate security system means that any employee can be an operator, an administrator, or both. Using the role-based model, privileges are assigned to roles, for example, "Operator" and "Administrator," and then individual users are assigned to those roles.

4.5.2 Managing Users

Within the Schema Designer, each executable component, for example, e*Ways, BOBs, Control Brokers, and Agents, is run *as* an e*Gate user, under that user's name and password.

Each e*Gate Registry Host maintains its own list of users. This user list applies to every schema on the Registry Host. An e*Gate user name and password are required for all e*Gate operations, including:

- Using the e*Gate Schema Designer
- Using the Schema Manager
- Running the command-line utility
- Launching services or other e*Gate modules (executable components), such as e*Ways, BOBs, Control Brokers, and IQ Managers

A user is not required to have a system account on the Registry Host or on any Participating Hosts in order to perform e*Gate operations. These operations can be performed remotely from a computer where the respective e*Gate GUI is installed.

Roles

Roles define the operations that classes of users are allowed to perform. You define roles according to your business requirements. e*Gate defines four default roles:

- Administration
- Operations
- Monitor
- Module

Users are assigned to roles. For example, the default "Administrator" user is assigned to the Administration, Operations, and Monitor roles. The Module role is reserved for e*Gate modules.

Privileges

Privileges (abilities to do tasks) define the rights associated with a role for component categories such as IQs, or Collaborations. You can assign privileges from the perspective of the:

- Role, by assigning privileges for each component category for a specific role
- Component categories, by assigning roles and privileges associated with the role for the specific component category

The following privileges apply to components within a schema:

- Create new components
- View components
- Change component properties or rename
- Delete components
- IQ clean-up and reorganizing (applies to IQs only)

The following privileges apply to modules:

- Starting
- Shutting down
- Suspending
- Continuing (opposite of suspend)
- Reloading
- Requesting status information
- Implementing user-defined commands

The following privilege applies only to e*Ways and BOBs:

♦ Debug

For complete information on e*Gate access control, see the *e*Gate Integrator System Administration and Operations Guide*.

4.6 Event Linking and Sequencing

Event Linking and Sequencing (ELS) delivers Events that arrive from independent input streams as related units. A manufacturing system, for example, might require that each Advanced Shipment Notification (ASN) message arriving on one input channel be stored until the Goods Receipt notification for the same order number is received from a different channel. ELS can aggregate the two messages into a single transaction for a general ledger application.

You can configure more complex Event Linking and Sequencing by using the e*Gate 4.5 or later Java Collaboration Rules Editor, so that *n* different input streams can be linked and sequenced according to rules based on any combination of content or timeout rules.

Additionally, e*Gate provides a convent GUI—the Event Linking and Sequence Wizard, as shown in Figure 25—that takes you through each step of the process.

For details on ELS, see the *e*Gate Integrator User's Guide*.

Figure 25   The Event Linking and Sequence Wizard
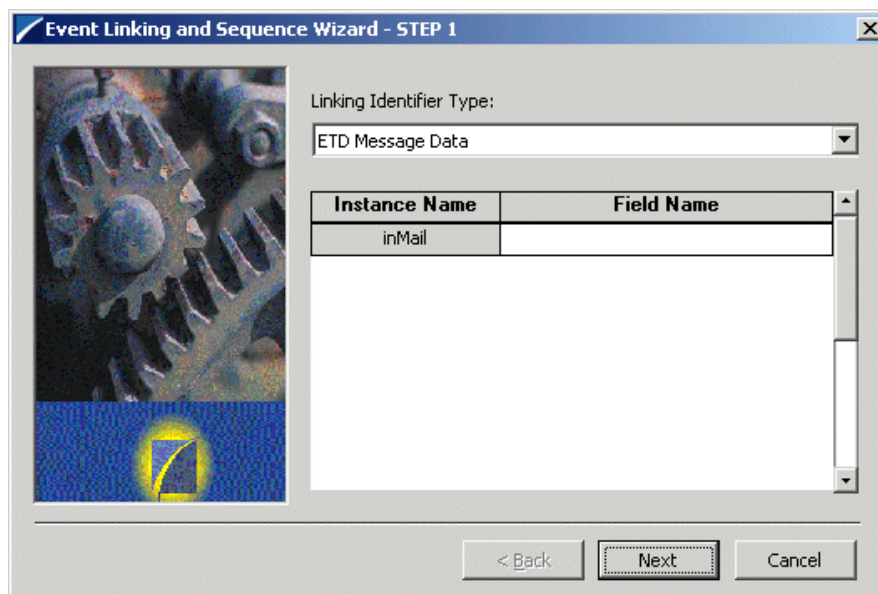
4.7 Guaranteed Exactly Once Delivery of Events

Guaranteed Exactly Once Delivery is achieved when cooperating software systems contain sufficient logic to ensure that the transfer of a single unit of data between those systems is never lost or duplicated because of any failure condition in any one system. e*Gate, version 4.5 and later, satisfies this requirement by using the XA protocol, from the X/Open Consortium.

This vendor-neutral protocol solves the problem of managing transactions between multiple client application programs and multiple database systems. According to the X/Open specification of XA, classic Distributed Transaction Processing (DTP) systems are composed of the following parts:

- **Application Programs (APs)** constitute user applications

- **Resource Managers (RMs)** manage the storage of data

- **Transaction Managers (TMs)** coordinate activity across Resource Managers to guarantee the integrity of data across multiple data-storage systems

In a Collaboration configured to use XA, e*Ways and BOBs take the role of the Transaction Managers. They coordinate the changes to the databases or other applications that support XA (the Resource Managers), which are propagated by the Collaboration (the Application Program).

e*Way Intelligent Adapters

This chapter describes e*Way Intelligent Adapters (e*Ways) and how they function as a part of the overall e*Gate Integrator system.

5.1 Introduction

e*Ways connect business applications with e*Gate, communicating with both external applications and Intelligent Queues (IQs). When integrating different systems, the appropriate e*Way on each end of the route provides the adaptation necessary for seamless Event flow. This setup enables the integration of applications and data stores without the need to modify them.

Establishing Connectivity

e*Ways establish connectivity with business applications, using whatever communication protocol is appropriate. Some examples of communication details managed by e*Ways include:

- Rules for responding to or generating positive and negative acknowledgments
- Resend and reconnect criteria
- Timeout logic
- Retrieval and transmission schedules

- Data envelope parsing and reformatting rules
- Buffer size specifications
- Error logging and alerting

e*Way APIs

Application programming interfaces (APIs) can extend e*Way functionality, particularly when applications expose APIs themselves. Additionally, you can use standard libraries and templates to build custom e*Ways that take full advantage of the e*Way framework.

Application-Specific e*Ways

SeeBeyond provides a wide range of application-specific e*Ways, and is constantly developing new e*Ways to address special needs. The diversity of e*Ways already available ensures that your organization can use an extensive coding library as a basis when integrating a new system. For certain e*Ways, SeeBeyond also provides prebuilt Collaboration Rules that define business rules and logic commonly associated with the e*Ways.

The rest of this chapter explains the types of currently available e*Ways.

5.2 e*Way Intelligent Adapters for Database Access

Database e*Ways deliver a powerful dimension of business process automation by incorporating relational database access into enterprise-wide application integration (AI) strategies.

e*Gate Event Type Definitions (ETDs) are generated by the Database Converter in the ETD Build tool. These ETDs map table columns, stored procedures, and SQL statements, enabling you to gain access to databases or invoke stored procedures without complex database programming.

Database e*Ways can query a database, automatically generate a graphical user interface (GUI) tree representation of database access objects, and populate the structure with the actual data values during run time. Though SQL coding is not required, these e*Ways do support the full set of SQL functions for advanced users who prefer to engage them directly.

The database e*Ways use the same GUI structures as the rest of the e*Gate system to describe Event flows through the entire enterprise. This feature enables business analysts to define the relationships between a database and relevant applications simply by dragging and dropping elements between graphical tree structures.

All database e*Ways enable you to remove fields representing database columns when creating ETDs. If you do not need to use these fields in your Collaboration, then this operation yields a much simpler ETD.

SeeBeyond provides the following e*Ways for database access:

- e*Way Intelligent Adapter for ADABAS (Java version)
- e*Way Intelligent Adapter for ADABAS Natural (Java version)
- e*Way Intelligent Adapter for DB2 Universal Database (Java version)
- e*Way Intelligent Adapter for JDBC/ODBC (Java version)
- e*Way Intelligent Adapter for ODBC (Monk version)
- e*Way Intelligent Adapter for Oracle (Java and Monk versions)
- e*Way Intelligent Adapter for SQL Server (Java version)
- e*Way Intelligent Adapter for Sybase (Java and Monk versions)
- e*Way Intelligent Adapter for VSAM (Java version)

5.3 e*Way Intelligent Adapters for SAP

The e*Ways for Service Activation Protocol (SAP) connect e*Gate to SAP R/3 enterprise management software within a network of diverse hardware and software systems.

Using one or more SAP e*Ways, e*Gate can act as a hub between SAP R/3 and other software systems, or between differently configured SAP R/3 systems.

These e*Ways control the communication protocol layer between the SAP host and e*Gate, and can be configured to process data in either direction. As with other e*Ways, they contain their own Monk engine to process mapping Collaborations without drawing on e*Gate resources.

SeeBeyond provides a number of specific e*Ways for SAP, as described in this section. Except for the Batch Data Communication (BDC) method, they support SAP R/3, versions 4.0B, 4.5B, 4.6B, and 4.6C:

- e*Way Intelligent Adapter for SAP BAPI
- e*Way Intelligent Adapter for SAP ALE
- e*Way Intelligent Adapter for SAP EDI
- e*Way Intelligent Adapter for SAP BDC

5.3.1 e*Way Intelligent Adapter for SAP BAPI

The SAP BAPI e*Way enables the e*Gate system to exchange data with an SAP system via the Business Application Programming Interface (BAPI) protocol. Like Application Link Enabling (ALE), BAPI supports real-time data exchange. However, whereas ALE exchanges data using asynchronous messages, BAPI uses synchronous object-oriented methods, using Remote Function Call (RFC) protocol as a delivery layer.

The BAPI-ETD Model layer of the e*Way contains the BAPI Structure Builder, that you can use to automatically build an ETD representing a BAPI method defined in SAP, using metadata taken dynamically from SAP. Since each BAPI call is unique, the structure builder needs to create the structures corresponding to all required BAPI methods.

The SAP BAPI Wizard converts the metadata for SAP BAPI methods (and other RFC-enabled function modules) into one ETD, where data can be easily dragged and dropped into the **IMPORT**, **EXPORT**, and **TABLE** parameter nodes of specific BAPI-method substructures. A Java-enabled version of this e*Way is available.

5.3.2 e*Way Intelligent Adapter for SAP ALE

The SAP ALE e*Way enables data exchange between e*Gate and an SAP R/3 system via ALE. ALE supports the transfer of information between applications by means of messaging, rather than file transfer. The messaging is implemented over the SAP RFC protocol. Transactions are exchanged using the SAP Intermediate Document (IDoc) format.

5.3.3 e*Way Intelligent Adapter for SAP EDI

The SAP EDI e*Way enables data exchange between e*Gate and an SAP R/3 system via Electronic Data Interchange (EDI). The SAP EDI mechanism enables exchange of business documents (IDocs) using a file-oriented mechanism rather than the RFC transactions that ALE requires.

5.3.4 e*Way Intelligent Adapter for SAP BDC

The SAP BDC e*Way enables the e*Gate system to exchange data with an SAP system via the Batch Data Communication (BDC) method. BDC uses screen-oriented macros to send data to SAP. The protocol, which packages data within files for transfer, is usually used in batch mode, but the e*Way can operate in both batch and Event-driven modes.

5.4 Generic e*Way Intelligent Adapter Extension Kits

The generic e*Way extension kits provide templates for you to use in designing and building custom e*Ways for your specific business requirements. The resulting e*Ways can incorporate core e*Gate technology, using the e*Gate editors for configuration and the Schema Managers to provide extensive viewing and monitoring capabilities.

The kits also provides a standard component within which to implement standard communication interfaces. It is tightly integrated with other e*Gate components, acting as a producer and consumer.

You can configure e*Ways created with these kits using the standard e*Way Editor GUI. And you can then extend those e*Ways by modifying the related Java, Monk, or other programming-language environments.

The following subsections describe the available generic e*Way extension kits:

- e*Gate API Kit
- Generic Multi-Mode e*Way Extension Kit
- Java Generic e*Way Extension Kit
- C Generic e*Way Extension Kit
- Generic e*Way Extension Kit for Monk

5.4.1 **e*Gate API Kit**

The e*Gate API Kit is an application programming interface kit that enables applications to directly interface with the e*Gate system. The e*Gate API Kit provides client components that are linked to the external application to support the following interfaces:

- C/C++
- Cobol for CICS
- Java
- Perl
- ActiveX

These client components communicate to a multiplexing server e*Way on the e*Gate Participating Host.

In addition, the kit provides support for the Java Message Service (JMS), enabling external applications to directly publish to and subscribe from e*Gate using an industry-standard API. The JMS specification provides standardization of an API for messaging products that operate within the Java environment.

Vendors write implementations for these interfaces that enable users to make calls to the products from within the API, independent of the implementation. The customers are insulated from changes to the messaging products, and can change the products without modifying their own applications.

The features defined by the JMS standard enable development with open-architecture calls from Java applications. This feature provides an easy integration of those Java applications with other environments. The Topics and Queues established within the JMS environment are directly related to those created within e*Gate. It also supports COM+ (ActiveX Pooling).

5.4.2 **Generic Multi-Mode e*Way Extension Kit**

The Generic Multi-Mode e*Way Extension Kit guides developers through the process of creating custom ETDs and custom Multi-Mode e*Ways that interface with the external system or systems by means of e*Way Connections.

The documentation for this kit has numerous architectural diagrams explaining the e*Gate subsystems and the interrelationships. It also has several sample implementations showing the range of possible e*Ways that can be developed using the kit.

5.4.3 Java Generic e*Way Extension Kit

The Java Generic e*Way Extension Kit is composed of two components: 1) the Java Generic e*Way, which requires the standard generic e*Way exit points/functions (for example, startup and exchange) to be written in Java; and 2) a Monk extension that can access Java methods or objects from within Monk code.

The Java Generic e*Way uses Java exclusively to exchange data, while the Java Monk Extension e*Way uses Monk to create a Java Virtual Machine (JVM), instantiate objects, call methods, and set and get properties. In general, it provides a means for a Monk environment to access Java objects and call Java methods.

5.4.4 C Generic e*Way Extension Kit

The C Generic e*Way Extension Kit enables the developer to extend the client side of e*Gate Integrator by using standard C .dll files created through either a Windows dynamic-link library or a UNIX shared library as follows:

- By configuring the Generic e*Way to use the user-created .dll file or shared library
- By using the External Interface (EI) protocol and the user-created library to access the external application

The calls to the C functions are made in the standard generic e*Way exit points/functions (for example, **startup** and **exchange**).

5.4.5 Generic e*Way Extension Kit for Monk

The Generic e*Way Extension Kit for Monk provides a user-configurable feature to use custom Monk code to interface to external applications. The kit enables you to use the Generic e*Way executable file provided with the base e*Gate product and called from Monk programs.

5.5   Additional e*Way Intelligent Adapters

SeeBeyond is continually developing additional e*Ways for specific functions, applications, servers, networks, and other purposes. These e*Ways provide seamless connectivity with a variety of different types of systems.

The following subsections describe some of the currently supported specialized e*Ways not discussed earlier in this chapter.

For the most current information on product availability, see the SeeBeyond Web site (**http://www.SeeBeyond.com**) or contact SeeBeyond directly.

5.5.1   e*Way Intelligent Adapter for ADABAS

The ADABAS e*Way enables e*Gate Integrator to exchange data with an external ADABAS file system.

The ADABAS e*Way provides an interface that is similar to other database e*Ways, such as Oracle, DB2 Universal Database, SQL Server, and Sybase, in that it uses a Multi-Mode e*Way with e*Way Connections and Java Collaborations to enable ADABAS data integration.

The ADABAS e*Way includes a third-party software component that you can use to view and access ADABAS files as if they were a standard relational database system.

5.5.2   e*Way Intelligent Adapter for ADABAS Natural

The ADABAS Natural e*Way provides an interface to programs written in the proprietary Software AG ADABAS Natural programming language. This provides a generic mechanism to call Natural or Natural batch programs, or to enable Natural programs to pass data to e*Gate in a reliable and efficient manner. The ADABAS Natural e*Way supports two messaging modes, following the Publish/Subscribe and Request/Reply scenarios, both inbound to and outbound from e*Gate.

5.5.3   e*Way Intelligent Adapter for the Apache Web Server

The Apache Web Server e*Way extends the functionality of the Apache Web Server by making external data sources available to calls from within a Perl CGI script.

Normally, the Apache Web server would be limited to sharing local resources only. CGI is the commonly accepted standard for interfacing with Web servers and Perl is the commonly accepted scripting language used.

5.5.4 **e*Way Intelligent Adapter for ATG Dynamo**

The ATG Dynamo e*Way extends the functionality of the ATG Dynamo application server by making external data sources available to calls from within Java servlets and JavaServer pages (JSP files).

The ATG Dynamo Application Server uses Hypertext Transfer Protocol (HTTP) to deliver World Wide Web documents to clients using browsers such as Internet Explorer or Netscape Navigator.

5.5.5 **e*Way Intelligent Adapter for axion4**

The axion4 e*Way uses a set of axion4gstp APIs to create a bidirectional interface to the axion4 gateway product of axion4gstp. This provides "single-pipe" connectivity to the axion4gstp Transaction Flow Manager (TFM) over a secure TCP/IP Virtual Private Network (VPN).

The axion4 e*Way provides a "base of functionality" that ensures reliable and efficient communication of axion4 messages that is configurable via the e*Way Properties dialog box. A Java class exposes all of the methods used to create the standard functionality to enable users to create custom functionality. The axion4 ETD library provides access to the TFM Message library.

5.5.6 **e*Way Intelligent Adapter for Batch**

The Batch e*Way enables e*Gate to exchange data with external systems in batches, transmitted via a file copy or File Transfer Protocol (FTP). With this e*Way, transmittal can occur on a scheduled or Event-driven basis. The Monk version of this e*Way includes a Java-enabled FTP Event Type Definition (ETD).

Java version includes the following:

- SSH (Secure Shell) Tunneling to provide for secure login IDs and passwords. The e*Way makes use of additional SSH-tunneling software for this functionality. SSH port forwarding ensures that the FTP command connection is protected.

- Data streaming, a means for interconnecting any two components of the e*Way via a data stream channel. This channel provides an alternate way of transferring the data between the Batch e*Way components.

- SOCKS, an IETF-approved (Internet Engineering Task Force) standard (RFC 1928) generic, proxy protocol for TCP/IP-based networking applications. The SOCKS protocol provides a flexible framework for developing secure communications by easily integrating other security technologies. SOCKS provides for secure logon IDs and passwords during FTP data transmission.

- Guaranteed Exactly Once Delivery (GEOD) of Events. Along with the e*Gate system, the e*Way guarantees exactly once delivery via utilization of the XA protocol, ensuring that no data is lost, and no unit of data is duplicated.

5.5.7 e*Way Intelligent Adapter for Bloomberg Portfolio Management

The Bloomberg Portfolio Management e*Way provides a means of obtaining data from a Bloomberg Portfolio Trading System in near real-time. It supports multiple redundant Bloomberg feeds.

5.5.8 e*Way Intelligent Adapter for Blue Martini

The Blue Martini e*Way enables a Blue Martini system to exchange data with the other systems in real time when, for example, accessing catalog information held in a database, or sending orders to an ERP system.

Developed in close cooperation with Blue Martini Software, this Java-enabled e*Way enables users to translate and route Business Objects and other data to and from external systems using e*Gate. It also enables a user to execute business actions residing on the Blue Martini Server. It supports Blue Martini Customer Interaction System 4.0, patch 1.

5.5.9 e*Way Intelligent Adapter for BroadVision

The BroadVision e*Way enables the e*Gate system to exchange data with BroadVision One-To-One business applications. The e*Way interacts with the BroadVision content-type, category, or Order Management API to pass data to and from the BroadVision database. The e*Way can operate in either inbound-to-Broadvision or outbound-from-BroadVision mode, at near-real-time speed.

The BroadVision Converter Wizard enables the generation of ETDs based on the user-specified Order or Content Type data structure.

5.5.10 e*Way Intelligent Adapter for CGI Web Server

The Common Gateway Interface (CGI) e*Way has two components:

- A CGI program that is loaded into the Web server
- A CGI e*Way server

The CGI program parses the CGI input supplied by a Web server using either the GET or POST method, typically in an HTML form, and packages the input along with the Web server environment variables in XML format.

The packaged message is sent to the CGI e*Way server residing on a machine where an e*Gate Participating Host is running. The Web server component waits for a response from e*Gate and returns it to the requesting Web browser. The HTML converter can be used to create ETDs for the pages being utilized.

The Java-enabled CGI e*Way is a gateway to the e*Gate system for a Web server. Normally, a Web server is limited to sharing local data sources only. By using the CGI e*Way, the Web server can access remote data sources that are not otherwise available.

The CGI e*Way enables the Web server to access a variety of data sources through the e*Gate system.

5.5.11 e*Way Intelligent Adapter for CICS

The CICS e*Way provides e*Gate-initiated connectivity to ECI transactions using CICS Transaction Gateway 4.0 (for Java).

The CICS e*Way includes a Build tool—the Cobol Copybook Converter—that takes an input COBOL Copybook file and creates e*Gate ETDs for use within the Monk environment. These Copybook files map the structures that are passed to and from the CICS environment in the data buffer (COMMAREA). The e*Way supports send and request/reply modes of interaction. Bi-directionality can be supported if transactions exist that can be "polled" for data.

The Java version of the CICS e*Way also:

- Offers the option of connecting to a CICS server using the SeeBeyond CICS Listener, which connects via TCP/IP sockets

- Supports connection using the IBM CICS Transaction Gateway, versions 5.0 and 4.0

The Monk version of the CICS e*Way also supports Universal Client 3.0 and Universal Client 4.0.

5.5.12 e*Way Intelligent Adapter for Clarify

The Clarify e*Way enables e*Gate to exchange data with Clarify eFrontOffice applications.

The Clarify e*Way interacts with a Clarify database through the Clarify Clear API. Clarify 8 and Clarify 10.1 are supported.

5.5.13 e*Way Intelligent Adapter for COM/DCOM

The COM/DCOM e*Way enables the e*Gate system to exchange data with the client side of COM/DCOM-enabled applications.

A Java version of the COM/DCOM e*Way is available.

5.5.14 e*Way Intelligent Adapter for Commerce One MarketSite

The Commerce One MarketSite e*Way provides a method of exchanging data across an enterprise that incorporates the Commerce One MarketSite Enterprise Edition e-procurement application and a variety of other applications. By leveraging the MarketSite automated procurement cycle and XML technology, the e*Way transfers information between MarketSite and e*Gate Integrator, enabling information to be disseminated throughout the enterprise.

Synchronous and asynchronous document submission is performed by the e*Way using the Transmitter API, as well as the XPC server.

5.5.15 e*Way Intelligent Adapter for Communication Client Proxy

The Proxy e*Way serves as an interface between an e*Gate 3.6 e*Way (DataGateWay) and the rest of the e*Gate installation.

To drive the publication and subscription through the e*Gate 3.6 e*Way, the Proxy e*Way communicates with the e*Gate 3.6 e*Way as if it was the e*Gate 3.6 server. Existing e*Gate 3.6 configurations can thus be reused without modification.

The Proxy e*Way is automatically installed with the e*Gate Participating Host version 4.5 or later.

5.5.16 e*Way Intelligent Adapter for Compaq NonStop CORBA Client

The Compaq NonStop CORBA Client e*Way (Java), enables e*Gate to integrate CORBA server applications and non-CORBA systems without the need for customized coding. Requests can be made to a CORBA service from within a Collaboration.

The e*Way operates in conjunction with a default client ORB, interfaces with server objects on the NonStop CORBA system and supports:

- Connectivity to the Compaq NonStop ORB server

- The NonStop CORBA Name Service

- The use of various CORBA 2.3 compliant client ORBs

5.5.17 e*Way Intelligent Adapter for CORBA (Client)

The Java-enabled e*Way Intelligent Adapter for CORBA (Client) enables e*Gate to integrate non-CORBA systems and CORBA server applications without the need for custom coding. The e*Way enables e*Gate to make requests to a CORBA-compliant object from within a Collaboration.

The e*Way operates in conjunction with a default client ORB, and supports the use of various COBA 2.3 compliant client ORBS and the CORBA Name Service. The e*Way also supports e*Way Connection Management.

5.5.18 e*Way Intelligent Adapter for CORBA-VisiBroker Client

The CORBA-VisiBroker Client e*Way provides e*Gate functions and services to applications that use CORBA to implement interface APIs. Through its Monk extension, the CORBA-VisiBroker Client e*Way acts as a client to a CORBA object server.

5.5.19 e*Way Intelligent Adapter for CORBA-VisiBroker Server

The CORBA-VisiBroker Server e*Way links external CORBA applications with non-CORBA processes, enabling data exchange across an enterprise system that incorporates a variety of different applications.

The CORBA-VisiBroker Server e*Way functions as a CORBA server in a CORBA environment that uses Inprise VisiBroker for Java version 3.4, and is compliant with CORBA version 2.1.

5.5.20 e*Way Intelligent Adapter for DataChannel

The DataChannel e*Way extends the functionality of the DataChannel Application Server by making external data sources available to calls from within Java servlets and JavaServer pages (JSP files). The DataChannel Application Server uses Hypertext Transfer Protocol (HTTP) to deliver World Wide Web documents to clients using browsers such as Internet Explorer or Netscape Navigator.

5.5.21 e*Way Intelligent Adapter for Dial-Up

The Dial-Up e*Way uses several file transfer protocols, including dial-up access to bulletin boards, to support automated file upload and download operations. It supports Kermit, as well as X-modem, Y-modem, and Z-modem.

The Dial-Up e*Way enables you to script bulletin board access (including login, directory navigation, file selection, upload/download commands, and log off), and provides the ability to perform actions based on screen scraping so that the process can be completely automated.

5.5.22 e*Way Intelligent Adapter for e-Mail

The e-Mail e*Way enables the e*Gate system to download and upload data and messages to/from an SMTP (outbound) or POP3 (inbound) mail server.

Functions are provided to log into a server, create e-Mail messages, add recipients, subject headers, and content, and add attachments. Functions are also provided for reading data associated with an incoming message and saving attachments. Support for Java is included.

Collaborations can therefore be written to intelligently send e-Mail messages with formatted content, and to receive, parse, and act on incoming messages.

5.5.23 e*Way Intelligent Adapter for HTTPS

The HTTPS e*Way is available in both Monk-enabled and Java-enabled versions.

The Monk-enabled HTTP e*Way enables integration with third-party applications using HTTP (HyperText Transfer Protocol), version 1.0 or 1.1. This e*Way supports both the GET and POST methods. The POST method can be used with different content types like binary, forms, or multi-part. The e*Way also supports the use of cookies, connections to multiple sites, proxies, authenticating proxies, username and password authentication, and client and server certificates.

The HTTPS form of the e*Way (HTTP over Secure Socket Layer, SSL), enables the e*Gate system to exchange messages with an HTTP Web server using the WebSecure Sockets Layer protocol—a commonly used security feature based on encryption technology that creates a secure link between the e*Way and a Web server. The ability

to set certificate and private key information, needed to communicate with some secure servers, is also available.

The Java-enabled HTTPS e*Way uses the JDK 1.3.1_02 URL, URLConnection, and HttpURLConnection classes. These classes enable URL specification, opening and closing of connections, and reading and writing of data through the use of abstracted streaming classes. It can also support multiple simultaneous HTTP connections. The Authenticator class is subclassed in order to provide HTTP and Proxy authentication. The System and Security classes are also used to support the setting of properties in order to use SSL. SSL is supported through the use of JSSE 1.0.2. The e*Way utilizes the Sun JSSE library, but any JSSE-compliant library could be used.

5.5.24 e*Way Intelligent Adapter for IMS

The IMS e*Way provides e*Gate-initiated connectivity to an IMS database over TCP/IP using the IMS TCP/IP OTMA connection (ITOC) service or IMS Connect to execute an ECI-based transaction and return the result to e*Gate.

Input and output ETDs are typically constructed using the Message Format Service (MFS) or Cobol Copybook converters. A provided conversion utility, **stcIMSmfs2ssc**, reads message and transaction definitions from the IMS host MFS files and produces e*Gate ETDs. This e*Way uses these definitions to format input and parse output from these transaction Events. The e*Way is designed for request/response or invoke-only interactions verses conversations that have multiple back-and-forth exchanges (screen scraping). Bidirectionality can be supported if transactions exist that can be "polled" for data.

5.5.25 e*Way Intelligent Adapter for iPlanet Application Server

The iPlanet Application Server e*Way extends the functionality of the iPlanet Application Server by making external data sources available to calls from within Java servlets and JavaServer pages (JSP) files. The e*Way is composed of a Java client portion and an e*Way server component.

5.5.26 e*Way Intelligent Adapter for iPlanet Web Server

The iPlanet Web Server e*Way extends the functionality of the iPlanet Web Server by making external data sources available to calls from within Java servlets and JavaServer pages (JSP files). Web servers normally are limited to sharing local resources only. The e*Way is composed of a Java client portion and an e*Way server component.

5.5.27 e*Way Intelligent Adapter for Jacada Enterprise/Access

The Jacada Enterprise/Access e*Way (formerly the CNT Enterprise/Access e*Way) provides a way to implement automatic data interchange with the Jacada Enterprise Access application. Enterprise Access is a Java-based screen-scraping application that supports all major terminal types and enables customization through GUIs and Java code. A converter is supplied that builds ETDs for Jacada Service Objects. The e*Way

then uses this ETD to invoke the Service Object to either populate data into the remote system or query it for data.

5.5.28 e*Way Intelligent Adapter for JDBC/ODBC

The JDBC/ODBC e*Way uses Java Collaborations to interact with one or more external databases. By using the Java Collaboration Service it is possible for e*Gate components—such as e*Way Intelligent Adapters (e*Ways) and Business Object Brokers (BOBs)—to connect to external databases and execute business rules written entirely in Java.

For more information on database e*Ways, see **"e*Way Intelligent Adapters for Database Access" on page 61**.

5.5.29 e*Way Intelligent Adapter for JDE OneWorld GenJava

The JDE OneWorld GenJava e*Way uses Java Collaborations to interact with one or more external JDE OneWorld GenJava servers. By using the Java Collaboration Service it is possible for e*Gate components to connect to the JDE OneWorld server and execute business rules.

5.5.30 e*Way Intelligent Adapter for LDAP

The LDAP e*Way enables the e*Gate system to exchange data with online directory services. By contacting the root directory, identified by distinguished names, the LDAP e*Way can perform searches and enter, modify and delete information from the structure.

5.5.31 e*Way Intelligent Adapter for Lotus Notes

The Lotus Notes e*Way enables the e*Gate system to access data from a Lotus Notes database. It supports remote or local database access, sending of e-Mail messages, direct access by View or UNID, and sequential access to documents according to a View.

5.5.32 e*Way Intelligent Adapter for MQSeries

The MQSeries e*Way enables connectivity between e*Gate and the MQ Series message broker product from IBM. The e*Way uses the MQ API to send and receive the messages, and can use the "marking" feature to treat sequences of messages as a transaction. This e*Way is Java-enabled, and includes an MQSeriesJMS component and an MQSeriesETD component that provides an ETD and Configuration to access the MQSeries Base Java API in an e*Gate Collaboration.

5.5.33 e*Way Intelligent Adapter for the Microsoft Internet Information Server

The MS IIS e*Way enables IIS Active Server Pages (ASPs) to exchange data with the e*Gate system. Internet Information Server (IIS) is the Microsoft Web server. IIS includes support for Common Gateway Interface (CGI) scripts and Active Server Pages (ASPs). Active Server Pages can be used to customize delivery of information to the client regardless of the client platform. When an Active Server Page is requested by a browser, the server carries out any (Visual Basic) script commands embedded in the page, generates an HTML document, and sends the document back to the browser for display on the requesting (client) computer.

5.5.34 e*Way Intelligent Adapter for MSMQ

The MSMQ e*Way enables connectivity between e*Gate and the Microsoft Message Queues (MSMQ) message broker. The e*Way uses the MSMQ API to send and receive the messages, and can use the MSMQ calls for managing multiple updates in a transaction.

5.5.35 e*Way Intelligent Adapter for Odette FTP

The e*Way Intelligent Adapter for Odette FTP enables the e*Gate system to exchange data with any system that uses the Odette FTP (OFTP) communication protocol. To communicate with OFTP, the Odette FTP e*Way launches and monitors a third-party application, ODEX, and utilizes this for the actual OFTP file transfer.

The Odette FTP e*Way transfers files over OFTP using an Event Type Definition (ETD) specialized for this e*Way. The ODEX ETD is based on the e*Gate ETD file oftp.xsc, and facilitates the creation of Collaboration Rules to customize the business logic and data transfers required by any specific application.

5.5.36 e*Way Intelligent Adapter for Oracle Financials

The Oracle Financials e*Way enables you to update any Oracle Financials application with data from an external system, in either real-time or batch mode. The e*Way can perform data validation before data is uploaded to Oracle. You can add your own validation rules or amend the existing rules supplied. After validating the data, the e*Way sends data to an Oracle Financials application by inserting rows in a corresponding Open Interface Table.

Oracle release 11i contains 19 product families in its E-Business Suite. The Oracle Financials family includes the following base applications: Oracle General Ledger, Global Consolidation System, Oracle Payables, Oracle Receivables, Oracle Assets, Oracle Cash Management, Oracle Property Manager, Oracle Report Manager, and Oracle CPG Trade Accounting.

5.5.37 e*Way Intelligent Adapter for Oracle Manufacturing

The e*Way Intelligent Adapter for Oracle Manufacturing provides a comprehensive integration solution for the Oracle Manufacturing Product Family included in Oracle release 11i. It provides added value to the suite by allowing pre-validation of data before it is uploaded to the Oracle database, and providing the ability to handle error conditions. These are important features, since data which is even slightly erroneous will cause a transmission to fail at runtime.

Oracle contains three types of Open Interfaces:

- API (PL/SQL)
- View
- Tables

The API and View Open Interfaces can be managed using the SeeBeyond Oracle e*Way, while the Oracle Manufacturing e*Way provides additional support for Open Interface Tables. Additionally, the e*Way is highly customizable—allowing you to modify the validation rules or add your own customer-specific requirements for error handling and recovery. For example, you might choose to have records that fail an import remain in the OIT so that an operator will be able to use the Oracle administration tools to amend and resubmit the data. Alternatively, you could have errors sent back through e*Gate to the calling application—or select a mixture of both, depending on the type of message.

Using the e*Way, you can insert and update Oracle Manufacturing with data from external systems using the e*Gate Schema Designer. Information can be sent either in real-time, delivering prompt event-driven performance, or in batch (store and forward) form. Error handling is provided through extensive pre-validation business logic. The following Oracle modules and Open Interfaces are currently supported:

Purchasing	Customer Items Cross-Reference Interface
Purchase Order Import	Cycle Count Entries Interface
Purchase Order Receiving	Item Import
Purchase Order Requisition	Item Revisions Import
Inventory Management	Replenishment Interface
Customer Items Interface	Transactions Interface

The e*Way includes an Event Type Definition (ETD) Wizard to generate Java ETDs specifically tailored to each Oracle Manufacturing module. ETDs contain the formats for Events (packets of data) that are processed by the e*Gate Integrator system. The Wizard creates ETDs that describe the hierarchies of the interface tables for the particular module. These ETDs also support the grouping of input Events.

5.5.38 e*Way Intelligent Adapter for PeopleSoft using Batch

The PeopleSoft Batch e*Way enables the development of batch interfaces in and out of PeopleSoft. It consists of an e*Way used for database connectivity, the Batch e*Way, and a sample schema that demonstrates its use.

5.5.39 e*Way Intelligent Adapter for PeopleSoft HTTP

The PeopleSoft HTTP e*Way supports all PeopleSoft 8 modules that use underlying XML messaging exposed by PeopleTools. This e*Way also provides the means to exchange data with PeopleSoft 8 by utilizing the PeopleTool Third Party integration technology. This integration is accomplished by using PeopleSoft 8 Application Messaging technology. Application Messaging uses a publish/subscribe architecture.

5.5.40 e*Way Intelligent Adapter for PeopleSoft Message Agent

The PeopleSoft Message Agent e*Way enables the e*Gate system to exchange data with PeopleSoft applications. It connects to the PeopleSoft Application Server as a client, and communicates with the Message Agent using PeopleSoft Message Agent APIs.

5.5.41 e*Way Intelligent Adapter for Portal Infranet

The e*Way lets you seamlessly integrate Infranet with external systems. Built using the Portal APIs, it enables e*Gate to update information in the Infranet database, read any information in the database, and subscribe to Infranet events.

An Infranet server often needs to integrate with existing services, legacy applications, and custom-built applications. You can use the built-in Infranet billing system, for example, or you can use a third-party customer relationship management system, such as SAP or Siebel. The Portal Infranet e*Way facilitates this process.

5.5.42 e*Way Intelligent Adapter for Remedy EIE

The Remedy EIE e*Way provides a way to communicate with the Remedy Action Request (AR) System by using the Remedy Enterprise Integration Engine (EIE). The Remedy e*Way client software running on the EIE host machine enables the Remedy e*Way running on an e*Gate Participating Host to send and receive Events within the e*Gate system.

5.5.43 e*Way Intelligent Adapter for Secure Messaging Extension

The SME e*Way enables e*Gate to process Events utilizing the Secure Multipurpose Internet Mail Extensions (S/MIME) message format. The Secure Messaging Extension supports encryption, decryption, and authentication of messages, and is interoperable with any other client applications that support the S/MIME standard.

The SME e*Way is Java-enabled, and a Monk version is available for backward compatibility. Both versions include the RSA library.

5.5.44 e*Way Intelligent Adapter for Siebel EAI

The Siebel EAI e*Way provides real-time, bidirectional integration via Web-based connectivity to the Siebel EAI framework. The e*Way connects to the Siebel EAI Tool and its work flows, and exchanges information in XML. These XML Events are generated in an automated procedure involving a Siebel utility and the DTD converter. Siebel Business Objects, Virtual Business Components, and any work flow in the EAI Tool can be accessed. The e*Way is available in both Monk and Java-enabled versions.

5.5.45 e*Way Intelligent Adapter for Siebel EIM

The Siebel EIM e*Way generates all .ifb file definitions to control the entire interface from one source. Also provided is an execution environment that oversees the Siebel EIM processes and dynamically creates Siebel EIM configuration files. It incorporates detailed error logs, bad-Event journaling, and reprocessing capabilities for the failed imported records during operation of the Siebel Enterprise Integration Manager. All Application Logic and Business Rules are enforced using Siebel EIM.

5.5.46 e*Way Intelligent Adapter for Siebel (Event-Driven)

The Siebel Event-Driven e*Way provides connectivity between e*Gate and Siebel 99/2000 Front Office using COM/DCOM connectivity. It provides an inbound and outbound Event-driven interface option to or from another system, through e*Gate.

5.5.47 e*Way Intelligent Adapter for SNA

The SNA e*Way supports the LU0 and LU6.2 layers of the SNA protocol. The SNA e*Way is a protocol e*Way, providing high-level functions that hide the complexities of dealing with the protocol directly. However, the provided sample configurations need to be modified for individual application interfaces.

This modification is especially necessary with the SNA LU0 that consists of a user-defined Logical Unit (LU), which results in no standard flow to establish a connection, exchange data, or disconnect. The LU0 Native functions (APIs) of the Data Connect SNAP-IX SNA Library are wrapped in Monk to provide access to the entire set of SNA control messages and enable free formatting of information.

The SNA e*Way supports LU6.2 or APPC through the wrapping of the Common Programming Interface for Communications (CPI-C) API into higher functionality Monk functions. Two sample configurations that implement send and receive conversation sessions are supplied with the e*Way. The e*Way can only support a single direction at a time.

5.5.48 e*Way Intelligent Adapter for SOAP

The SOAP e*Way enables the e*Gate system to exchange data with Internet applications that exchange information using the Simple Object Access Protocol (SOAP). The SOAP e*Way is a Java-enabled e*Way.

SOAP is an XML-based, lightweight protocol for the exchange of information in a distributed and decentralized environment. SOAP specifies how to create an XML file and the encoding for HTTP so an application can communicate over the Web, regardless of the operating system, object model, or implementation language. SOAP is similar to IIOP, CORBA, and RMI, but is firewall-friendly, simple, and easy to implement.

On both the client and the server side, the SOAP e*Way provides SOAP synchronous and asynchronous messaging support for the messaging framework using HTTP transport bindings. It also supports SOAP attachments and SOAP digital signatures (DSIG), SOAP receiver stage 1, and the WSDL builder.

5.5.49 e*Way Intelligent Adapter for SQL Server

The SQL Server e*Way is an adapter for connecting to the Microsoft SQL Server Database product. The SQL Server e*Way is similar to other e*Ways in that it provides a set of executables for connectivity, and graphical editors for configuring that connectivity. The SQL Server e*Way is Java-enabled, and is not available in a Monk version.

For more information on database e*Ways, see **"e*Way Intelligent Adapters for Database Access" on page 61**.

5.5.50 e*Way Intelligent Adapter for SWIFT ADK

The SWIFT ADK e*Way provides a messaging interface between an application and the SWIFT Alliance Access product to send and receive SWIFT, Telex, and Internal messages from the SWIFT network. The e*Way supports any SWIFT message including the new 15022 formats. The e*Way communicates with a component that is loaded into the Alliance system that was developed from the Alliance Developer Toolkit (ADK)—the SWIFT ADK e*Way Service (the SEWS component). The SEWS component calls services provided by SWIFT Alliance servers to read and write SWIFT messages directly from its queues in high throughput.

The SWIFT ETD Library contains predefined template ETDs for use with the e*Way Intelligent Adapter for SWIFT ADK. These ETDs correspond to the SWIFT user-to-user message types used on the SWIFT network, as defined in the SWIFT Standards documentation. All message types, including the new 15022 formats, are available and are updated annually. The Java version supports SWIFT 2001 and SWIFT 2002 messages. The Monk version supports SWIFT 2000, SWIFT 2001, and SWIFT 2002 messages.

5.5.51 e*Way Intelligent Adapter for TCP/IP

The TCP/IP e*Way enables the e*Gate Integrator system to exchange data bidirectionally with another system using the TCP/IP protocol.

5.5.52 e*Way Intelligent Adapter for TCP/IP HL7

The HL7 e*Way enables the e*Gate system to exchange data with an external TCP/IP back end in the form of HL7 data protocol. It handles both HL7 HLLP and MLLP protocols, has a wide variety of recourse action configurations, and has full support for HL7 acknowledgment generation.

You can configure the HL7 e*Way to:

- Support inbound or outbound communications
- Act as a TCP/IP server or client
- Support acknowledgments from another port or e*Gate IQ
- Operate as a remote client
- Support multiple outbound Collaborations

5.5.53 e*Way Intelligent Adapter for VSAM

The VSAM e*Way enables e*Gate, running on UNIX and Windows systems, to exchange data via TCP/IP with external VSAM file systems. The VSAM e*Way is similar to other database e*Ways, such as Oracle, DB2 Universal Database, SQL Server, and Sybase, in that it uses a Multi-Mode e*Way, e*Way Connections, and Java Collaborations to enable VSAM data integration. This e*Way uses a third-party software component that enables the VSAM files to be viewed and accessed as if they were a standard relational database system.

For more information on database e*Ways, see **"e*Way Intelligent Adapters for Database Access" on page 61**.

5.5.54 e*Way Intelligent Adapter for WAP

The WAP e*Way enables the e*Gate system to exchange data with mobile devices that are WAP 1.1 enabled via the Phone.com UP.browser.

5.5.55 e*Way Intelligent Adapter for WebLogic

The WebLogic e*Way provides dynamic integration between applications built on the WebLogic platform and e*Gate, using J2EE's component model, the Enterprise Java Bean (EJB).

The e*Way enables e*Gate to connect to the WebLogic application server in three ways:

- Synchronous Interaction, e*Gate to WebLogic, in which e*Gate makes a request to WebLogic and waits for a response.

- Asynchronous Interaction, WebLogic EJB to e*Gate (JMS), in which a request is sent but the sender goes on to other business and does not wait for a response.

- Asynchronous Interaction, e*Gate (JMS) to WebLogic Message Driven Bean, in which case the e*Gate JMS publishes to a WebLogic application server Message Driven Bean.

The WebLogic e*Way includes an EJB ETD Wizard to generate ETDs that represent the methods from the EJB that can be called inside a Collaboration. These ETDs use the Java Naming and Directory Interface (JNDI) to connect to the EJB's Java objects. Three types of EJBs can be built by the wizard:

- Message Driven Beans

- Entity Beans

- Session Beans (Stateless and Stateful)

Both SeeBeyond JMS and the BEA WebLogic Server implement the X/Open XA interface specifications. Because both systems support XA, EJBs running inside the WebLogic container can subscribe or publish messages to SeeBeyond JMS in XA mode. When running in XA mode, the EJBs, subscribing or publishing to SeeBeyond JMS can also participate in a global transaction involving other EJBs.

5.5.56 e*Way Intelligent Adapter for WebSphere

The WebSphere e*Way extends the functionality of the WebSphere Web Server by making external data sources available to calls from within Java servlets and JavaServer pages (JSP files). Web servers normally are limited to sharing local resources only. The e*Way is composed of a Java client portion and an e*Way server component.

e*Xchange Partner Manager

This chapter explains the basic operation and features of the SeeBeyond e*Xchange Partner Manager (e*Xchange).

6.1 Introduction

e*Xchange includes features and functions that provide eBusiness protocol support, allow effective partner management, and ensure secure eBusiness communications. Components described in this chapter include:

- eSecurity Manager
- e*Xchange Web Interface
- e*Xchange Repository Manager

Exchanging Partner Information

You can use e*Xchange to set up and store information about each of your trading partners so you can exchange (send and receive) messages. e*Xchange also includes features to assist you with managing and troubleshooting the information exchange process.

Supported eBusiness Protocols

e*Xchange supports standard eBusiness process protocols such as ASC X12, RosettaNet, UN/EDIFACT, CIDX, HIPAA, and NCPDP-HIPAA, and includes a Validation Rules Builder tool to assist in creating X12 and UN/EDIFACT validation Collaborations.

6.2 Features and Functions

The following subsections describe the e*Xchange features and functions.

6.2.1 Defining and Maintaining Partner Profiles

You can use e*Xchange to define and maintain trading partner profiles, including information on protocols, message types, and contacts.

6.2.2 Database Storage

e*Xchange stores trading partner information, transactions, acknowledgments, and errors in a database (Oracle, SQL Server, Sybase, or DB2 Universal Database).

6.2.3 Optional Transfer Modes for X12 and UN/EDIFACT

For X12 and UN/EDIFACT, inbound messages can be received in Interactive mode (single enveloped business message), or in Batch mode (multiple business messages assembled within one envelope).

For outbound messages, e*Xchange supports Interactive, Batch, and Fast Batch transfer modes. Batch and Fast Batch both send multiple business messages, assembled within one envelope. These are the differences:

- Outbound Batch supports *timed batch* (a list of times that the batch process executes) or *repeat batch* (identifies a repeat time, such as every two hours, that the batch process executes).

- Outbound Fast Batch is a method of identifying a group of messages that come into e*Xchange from the internal system. When the specified number of messages is reached, the batch process executes.

In addition, user-defined settings control maximum batch size.

6.2.4 Message Acknowledgment and Error Handling

If a message being sent or received requires a positive acknowledgment, you can configure the profile to automatically generate it or reconcile the acknowledgment with the original message. Positive acknowledgments are optional. Negative acknowledgments are automatically sent upon failure, ensuring that problems are identified and handled.

6.2.5 eBusiness Protocols

e*Xchange validates and translates messages based on libraries of Event Type Definitions (ETDs) and Collaboration scripts that conform to eBusiness process protocols such as ASC X12, RosettaNet, UN/EDIFACT, CIDX, HIPAA, and NCPDP-HIPAA. In addition, it automatically supports message enveloping as specified by the supported standards.

6.2.6 Message Tracking

e*Xchange includes a feature that you can use to view any messages that have been processed, including any errors that might be associated with the message. You can also use this tool to pinpoint the source of the error so that it can be resolved. And you can use the various search fields to narrow down your search before viewing message details. For example, you might want to view all inbound messages from a specific trading partner.

The message tracking feature in the e*Xchange Web interface also includes the ability to resend messages to trading partners.

You can use an audit tracking feature to monitor access to system messages. Audit tracking information includes user ID and the date/time that the user accessed the message.

6.3 eSecurity Manager

The eSecurity Manager is an optional feature that combines with e*Xchange to provide security features, allowing the secure transmission of B2B exchanges over public domains such as the Internet.

6.3.1 Overview

The eSecurity Manager provides the ability to use Public Key Infrastructure (PKI) technology to digitally sign and encrypt messages as they are sent to trading partners, and conversely to decrypt and authenticate messages when they are received from trading partners.

In tandem with secure e*Ways (for example, the HTTPS e*Way with SSL), the eSecurity Manager secures the data channel used to exchange sensitive information with trading partners.

The eSecurity Manager can be separated into two parts: a front end and a back end. The front end is integrated with e*Xchange and provides the ability to keep track of all the security configuration parameters. At the B2B Protocol level, in the Message Security section, you can import the keys and certificates needed to exchange messages securely with trading partners.

The eSecurity Manager back end manipulates the messages. It is composed of a specially designed Monk extension that performs the encryption, decryption, signing, and authentication of messages using the S/MIME standard.

6.3.2 eSecurity Features and Functions

The eSecurity Manager provides a comprehensive solution to security requirements for B2B exchanges and partnerships, as described in the following subsections.

Ability To Process Inbound and Outbound Messages

The eSecurity Manager acts as an interface for dealing with secure messages sent between e*Xchange and the trading partners. The main functions of eSecurity Manager are:

- To process outbound messages as the last step before the messages are forwarded to a secure e*Way for transmission to a trading partner's system

- To process inbound messages as the first step after the messages are received by a secure e*Way adapter

Message Encryption

Exchange Content Integrity

eSecurity Manager**Key Management**

Because all of the security functions are supported through the use of PKI, the security features accessible by the e*Xchange GUI also provide appropriate features for

Figure 26   Message Security Settings
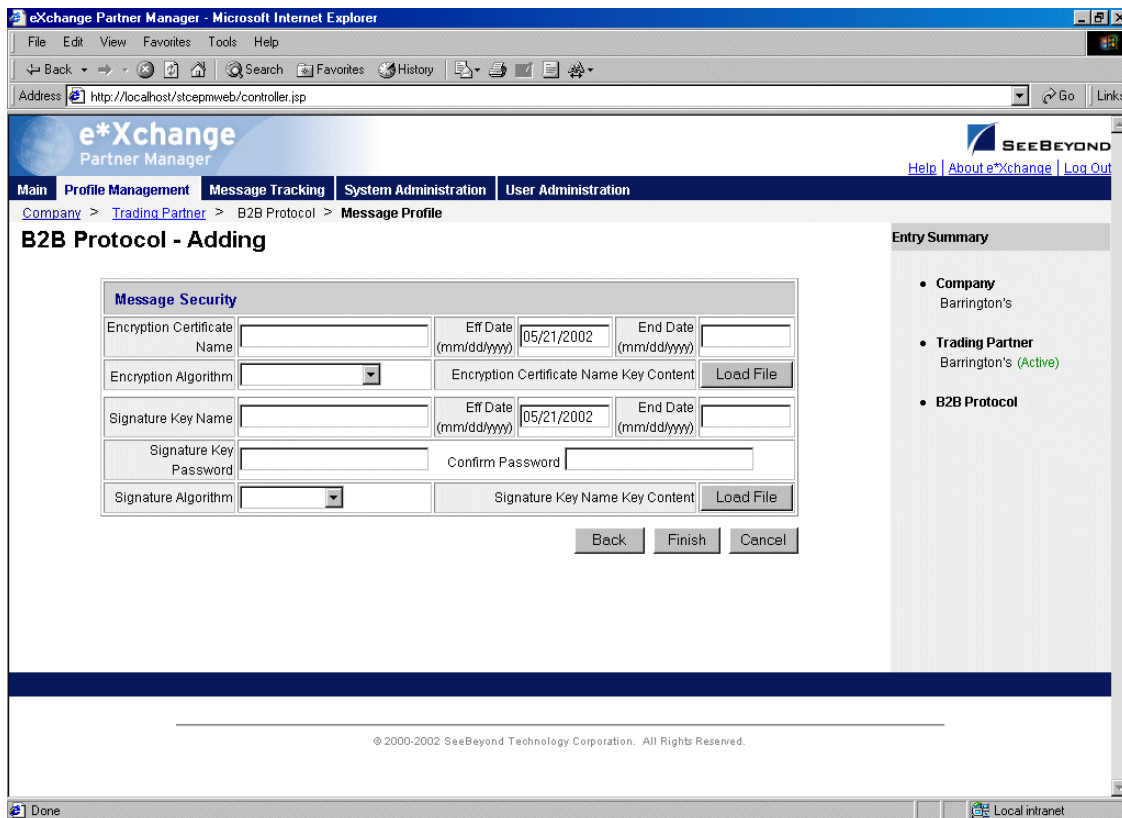
6.4   e*Xchange Web Interface

The e*Xchange Web Interface provides graphical user interface (GUI) features that you can use to complete the following activities through a secure, browser-based user interface:

- Set up and manage trading partner profiles
- Track and review messages (including message resend capability)
- Set or change system defaults
- Set up system code tables to support a new communications protocol
- Set up or change user and group access
- Set up and test database connections
- Monitor access to system messages
- Set up or change contact information

Figure 27 on page 85 shows the e*Xchange Web interface home page.

Figure 28 on page 86 shows an example of a message protocol setup page.

Figure 27   e*Xchange Web Interface Home Page
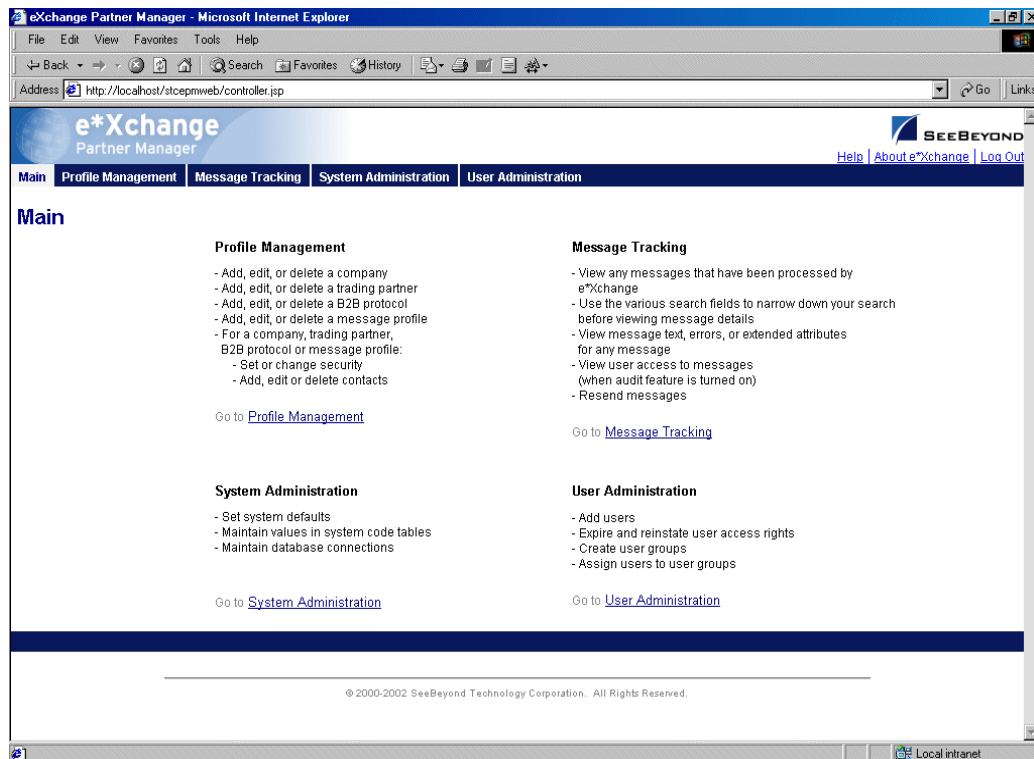
Figure 28 Message Profile - Adding (Functional Group section) (X12)
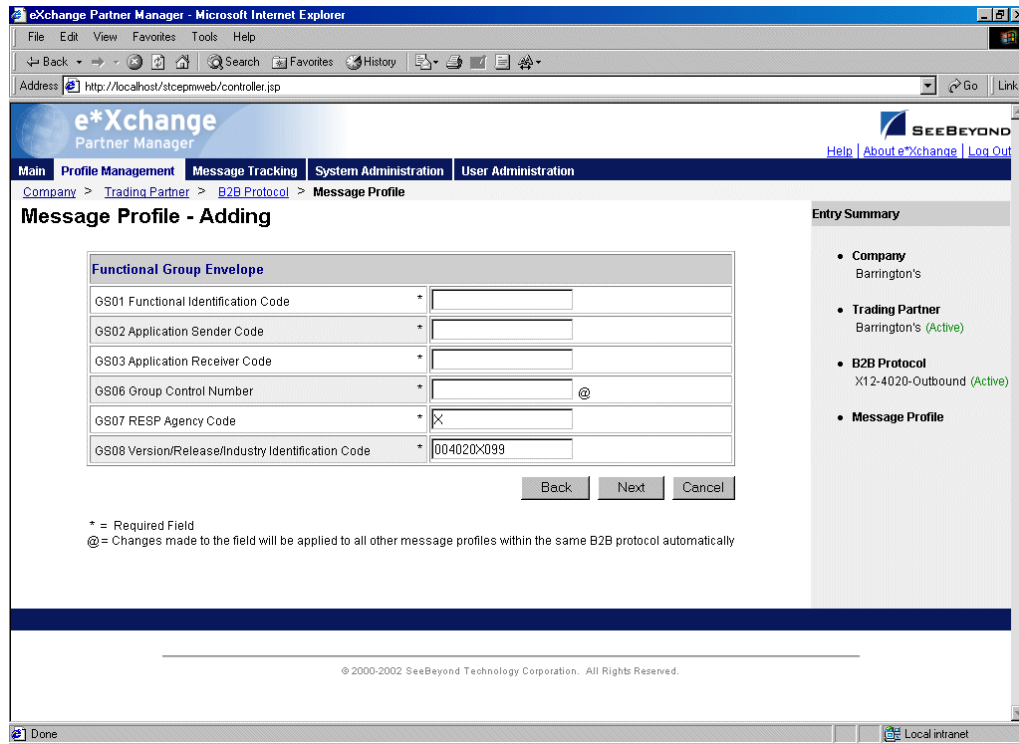
6.5 e*Xchange Repository Manager

e*Xchange includes a separate, Java-based GUI, the Repository Manager, for import/export and archive/recovery activities, as shown in Figure 29.

Because it is Java-based, the e*Exchange Repository Manager has the following advantages:

- Can be run on platforms other than Microsoft Windows, such as UNIX

- Supports DB2 UDB databases (the comparable features in e*Xchange Client for Windows do not support DB2 UDB)

Figure 29 e*Xchange Repository Manager
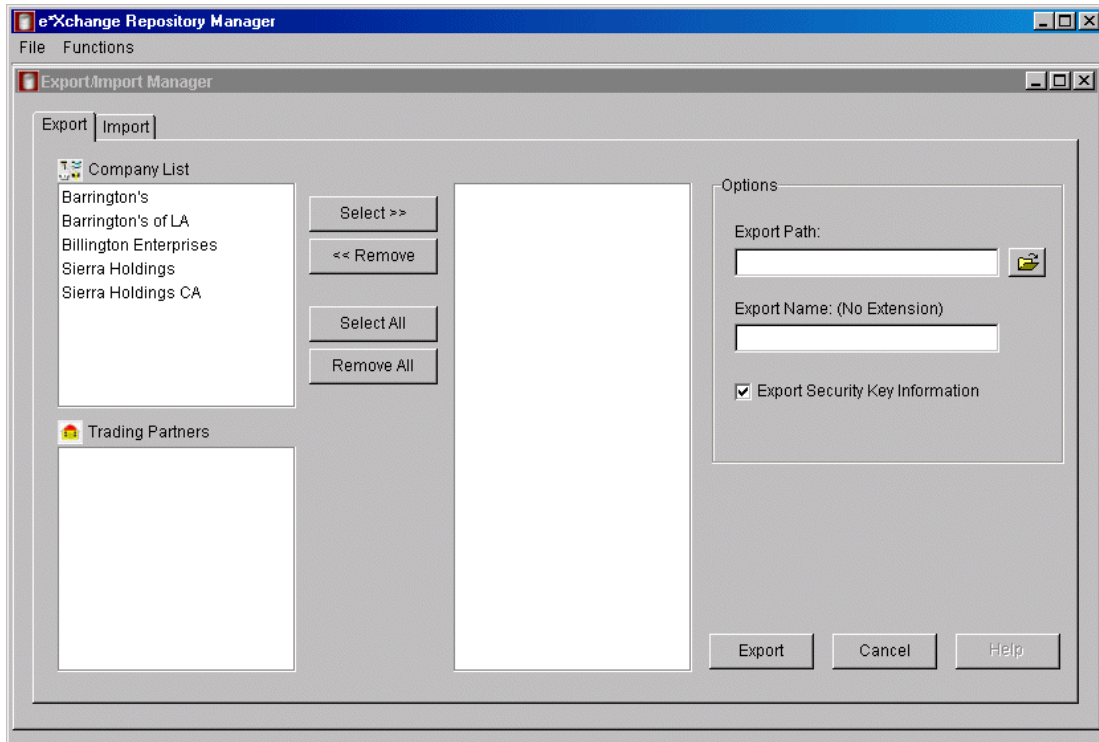
e*Index Global Identifier

This chapter explains the operation and basic features of the SeeBeyond e*Index Global Identifier (e*Index).

7.1 Introduction

In today's business environment, important customer information may exist in many disparate information systems within a business enterprise. It is vital that this information flows seamlessly and rapidly between departments and systems throughout the entire business network. As organizations grow, merge, and form affiliations, sharing data between different information systems becomes a complicated task.

Cross-indexing Application

e*Index is a global cross-indexing application that provides a complete solution for automated person-matching across disparate source systems, simplifying the process of sharing member data between systems. In addition, e*Index provides an identification process that forms an essential foundation for supporting national identifiers mandated by the Health Insurance Portability and Accountability Act (HIPAA).

Centralizing Information

e*Index centralizes information about the people who participate throughout your business enterprise. The application provides accurate identification and cross-referencing of member information in order to maintain the most current information about each member. e*Index creates a single, consistent view of all member data by providing an automatic, common identification process, regardless of the location or system from which the data originates. Records from various systems are cross-referenced using a unique global identifier, known as a UID, that e*Index assigns to each member record.

Shared Index

The identification and demographic information for all members is centralized in one shared index. Maintaining a centralized database for multiple systems enables e*Index to integrate data throughout the enterprise while allowing each local system to continue to operate independently and maintain its own local identification numbering system.

7.2   Architectural Overview

e*Index consists of several components, each acting independently of the others, but working together to provide accurate data maintenance and identification. These components interact with other SeeBeyond integration products, such as the e*Gate Integrator and the database e*Ways, and through them with the external data processing products and systems used by an enterprise.

e*Gate provides the flexible architecture required to efficiently enable the seamless sharing of customer information. As data is transferred from one local system to another using e*Gate, e*Index consults the database and retrieves the appropriate local identifier. This is a transparent process—each computer system within this network can continue using its own local identifiers.

e*Index consists of the following components:

- The Quality Workstation
- An e*Index database
- An e*Index schema for e*Gate
- The Java APIs for e*Index active integration

Figure 30 shows how these components interact.

Figure 30   e*Index Architecture
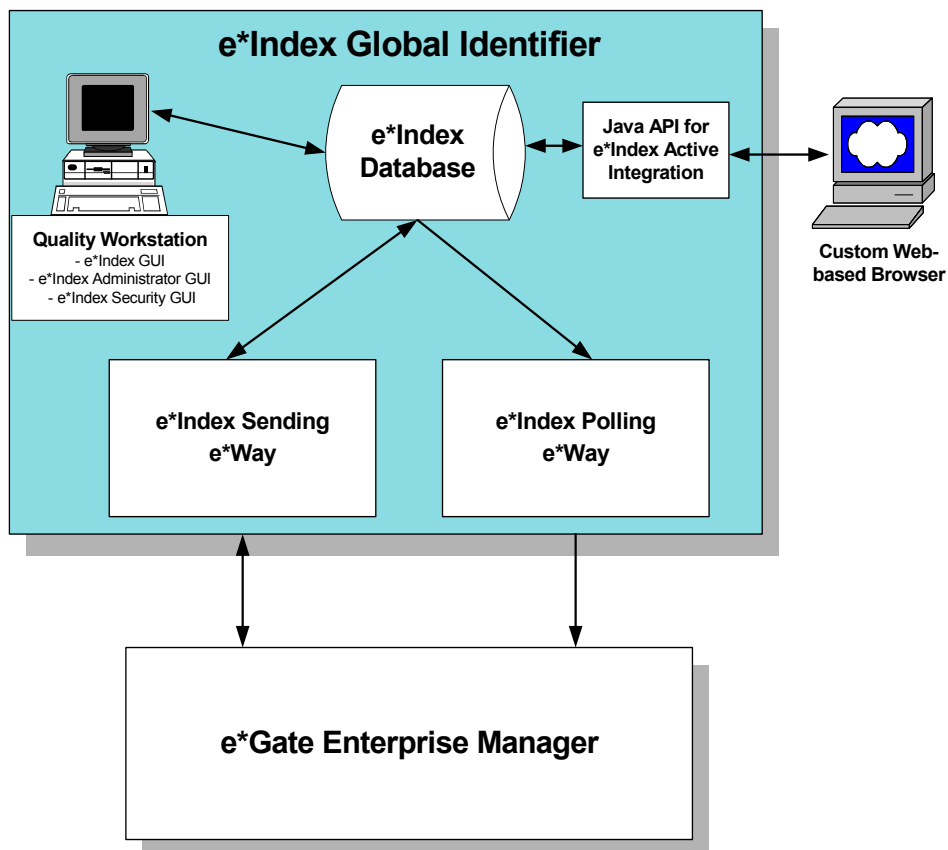
7.3 Quality Workstation

The Quality Workstation is the machine on which the e*Index graphical user interfaces (GUIs) reside. These GUI applications facilitate monitoring and managing the information within the e*Index database. On the Quality Workstation, you can perform manual changes to member information, print reports, configure e*Index processing and GUIs, and maintain security for the applications.

The Quality Workstation provides the following GUI applications:

- e*Index Global Identifier
- e*Index Administrator
- e*Index Security

7.3.1 e*Index Global Identifier

Using the e*Index Global Identifier on the Quality Workstation, database administrators can:

- Monitor and maintain member data and transactions
- Print reports
- Perform manual changes to member information
- Search for, view, add, update, compare, and add comments to member records
- Merge potential duplicate records that represent the same person
- Reconcile potential duplicate records that do not represent the same person, and unmerge records that were merged in error

Features and Functions

The following subsections provide a brief description of the e*Index Global Identifier features and functions:

- Audit Trail
- Data Maintenance
- Search
- Potential Duplicate Detection and Handling
- Merge and Unmerge
- Reporting

Audit Trail

The e*Index Global Identifier application provides full audit capabilities by recording all changes to member demographic data.

The audit trail retains a full history of all modifications made to each record, beginning with the creation of the record. The application can thus generate an audit trail that compares the demographic information before and after each modification to a member

record, and highlights the differences between the before and after images of the record for easy reference.

The audit trail also retains information about the user who performed each modification.

Data Maintenance

The e*Index Global Identifier supports all the necessary features for maintaining member records, such as:

- Adding new records
- Viewing, updating, or deactivating existing records
- Modifying alias information for existing records
- Adding new local identifiers to existing records
- Comparing member records to check for differences and similarities

Search

You can obtain demographic information from the database using a variety of search criteria.

You can perform searches against the database for a specific member or a set of members. Each record that is returned as a possible match is assigned a matching probability weight, which indicates how high the probability of a match is for the two records.

When more than one record meets the search criteria, the records are returned in weighted order, with the most likely matches displayed first.

Potential Duplicate Detection and Handling

One of the most important features of the e*Index Global Identifier is its ability to match records and identify possible duplicates. Using matching algorithm logic, the application can identify potential duplicate records and provide the functionality to correct the duplication.

A new record is considered a potential duplicate of an existing record when the matching probability of the two records falls within a range that you specify. Potential duplicate records are easily resolved by either merging the records in question or removing their potential duplicate flags.

Merge and Unmerge

You can use the e*Index Global Identifier to compare potential duplicate records and then merge the member records if you find them to be actual duplicates of one another.

Using the merge feature, you can determine which member record to retain as the active record, and which information from each record to preserve in the resulting record. When e*Index Global Identifier merges two records, it gives a Merged status to the secondary record, while the primary record retains its status of Active.

Information from the old record is saved so you can unmerge the two records later if necessary.

Reporting

In addition to the PL-SQL database reports provided with e*Index, you can print reports from the e*Index Global Identifier.

While the database reports provide an overview of transactions and potential duplicates on a daily basis, you can drill down to the actual transaction detail using the reporting functionality of the application.

Reports can be viewed online or printed.

7.3.2 e*Index Administrator

e*Index Administrator is a data maintenance tool that you can use to create and customize the data in the code tables of your e*Index database, and to customize the e*Index GUI, database, algorithm, and processing attributes.

You can use e*Index Administrator to customize your e*Index environment by providing configuration functions and code table maintenance functions.

Code tables store the data elements that populate the drop-down fields in the windows of the e*Index applications, along with the corresponding processing codes for those data elements. Some of the processing codes help determine how certain data is processed.

You can also use e*Index Administrator to configure certain attributes of e*Index, such as determining whether certain fields are displayed on the e*Index GUI, placing limits on the number of records that can be returned from a search, defining default values, configuring matching queries, and so on.

Features and Functions

The following subsections provide a brief description of the e*Index Administrator features and functions:

- Algorithm Configuration
- Code Table Data Maintenance
- Country Configuration
- System Configuration
- Query Configuration
- GUI Configuration

Algorithm Configuration

You can use the e*Index Administrator GUI to modify and maintain information about the rule sets and rule set files used by the Vality INTEGRITY matching algorithm for generating matching possibility weights between records.

You can specify which rule sets to use, update rule set files, and add and remove files from rule sets. Rule set information is stored in the e*Index database and in the rule set files for the GUIs, e*Ways, and Java APIs.

Code Table Data Maintenance

You can use the e*Index Administrator to add, update, deactivate, and delete data within the code tables.

Code tables store information and processing codes for entities specific to your business, such as computer systems, departments, and locations. They also store information and processing codes for demographic attributes of your members, such as languages, ethnicities, countries, marital statuses, religions, titles, and so on.

The entities you create in the code tables populate the drop-down lists in e*Index from which users can choose in order to enter certain information for a member profile. Each entity in the code table has a unique code, which may affect how member profiles are processed. For example, the unique processing code assigned to the VIP status **VIP** ensures that address information for any member profile assigned a VIP status of **VIP** is hidden on the e*Index GUI.

Country Configuration

The e*Index Administrator provides address searching capabilities in four different country formats:

- United States
- Australia
- Great Britain
- France

You can use the e*Index Administrator to customize country-specific options for your implementation, including postal code formats, national identification numbers, labels on the e*Index GUI, and so on.

If you have extensive knowledge of the INTEGRITY matching algorithm, you can also configure certain address-searching attributes.

System Configuration

You can use the Control Key Maintenance function of e*Index Administrator to configure the system parameters of e*Index. This function provides a set of control keys for specifying parameters such as:

- Matching weight thresholds and processing rules
- Limits on the number of allowed search results
- Required search fields
- Country and date formats
- Potential duplicate processing rules

You can also specify display and debugging options.

Query Configuration

When you perform a phonetic search from the GUI, e*Index uses specific information to form a Structured Query Language (SQL) statement to query the database. e*Index uses similar information to form SQL statements when evaluating possible matches of records being sent to e*Index from the external systems and from the GUI.

You can use the e*Index Administrator query configuration features to customize the required criteria and the conditions for phonetic and back-end searches.

Default queries for both search types are predefined when you install e*Index, and both types include the same criteria combinations. You can use e*Index Administrator to modify these default criteria requirements and conditions to perform phonetic and back-end searches using the search criteria and conditions that are best suited to your data processing requirements.

GUI Configuration

The application windows for e*Index are highly customizable. You can use e*Index Administrator to configure the fields on the e*Index GUI windows to

- Specify which fields will appear on the GUI windows
- Modify the field name for each field you choose to display
- Specify which fields are required

The GUI configuration feature provides complete flexibility in determining the type of data you want to display for the members in the database.

7.3.3 e*Index Security

e*Index Security provides secure access to the e*Index Database by restricting access through user login and password activities.

You can restrict access to specific functions and actions by:

- User
- User group
- Region

e*Index Security provides predefined user types that you can assign to users to further restrict access permissions. In addition, you can use e*Index Security to specify that certain users be notified when specific transactions occur within the e*Index system.

Features and Functions

The following subsections provide a brief description of the e*Index Security features and functions:

- Access Control
- Region-specific Security
- User Groups
- User Types
- Password Configuration
- Event Notification

Access Control

You can use e*Index Security to restrict user access to the database by assigning user login IDs and passwords. You can further restrict user access to specific application functions, individual actions within functions, windows within functions, and so on.

Region-specific Security

You can use e*Index Security to specify the regions for which users can view and modify information in the e*Index GUI.

With region-specific security, each external system that provides information to e*Index is associated with a region. In order for an e*Index user to access information from a specific system, their user profile must be associated with the region to which that system belongs.

User profiles can be associated with more than one region.

User Groups

You can use e*Index Security to create user groups with specific access permissions. You can then add users to these groups to automatically assign the users the same access permissions assigned to the group.

Three user groups are predefined when you install e*Index:

User profiles assigned to this group	Automatically receive access privileges to all functions of this GUI
e*Index Privileges	e*Index
Data Dictionary Privileges	e*Index Administrator
Security Privileges	e*Index Security

User Types

You can assign a user to one of two user types:

- Administrator
- Regular

The primary difference between the two user types is that Administrator users can create new user profiles. Regular users cannot perform this function even if granted the appropriate access permissions.

Password Configuration

The system administrator can use the Control Table Maintenance function to configure a set of control keys for e*Index Security. These control keys define parameters such as automatic password expiration, minimum password length, and number of passwords to retain in the history file.

Event Notification

e*Index Security provides the ability to specify that certain users be automatically notified when specific transactions occur within the e*Index system. This functionality works with the SeeBeyond e-Mail e*Way to deliver e-Mail notifications of e*Index transactions.

7.4 The e*Index Database

The e*Index database is a relational database that stores the demographic member data needed to perform the matching of unique persons across systems.

In addition to storing complete member information, the e*Index database stores:

- Security information
- Table maintenance values,
- Configuration information for both the e*Index environment and the Vality matching algorithm.

The database also stores all incoming and outgoing Events, and can be extended to store additional information as required by your business.

Information is transferred into and out of the database by the e*Index e*Ways via the e*Gate Integrator. You can customize these e*Ways to manipulate the data into the appropriate formats for your existing software applications.

The e*Index database can be installed on an Oracle, Sybase, or Microsoft SQL Server platform, and is configured through the e*Index Administrator on the Quality Workstation.

Features and Functions

The following subsections provide a brief description of the e*Index database features and functions:

- Centralized Information
- Cross-referencing
- Extensibility
- Flexibility
- Reporting
- Unique Identifier

Centralized Information

The e*Index database is centralized, enabling the integration of data records throughout the enterprise while allowing local systems to continue operating independently. This database is the central location of all member information and identifiers, and is accessible throughout the enterprise.

Cross-referencing

The e*Index database supports cross-referencing for any member record. e*Index retains all local identifiers for each member, and cross-references these identifiers to unite all registration systems across the enterprise. This allows existing systems to function individually without disrupting their day-to-day operations.

Extensibility

You can extend the e*Index database to store additional information about the members participating throughout your business. This information can also be

centralized and cross-referenced in e*Index, and can be made available to the external systems connected to e*Index.

Flexibility

Most fields that store member information in the e*Index database correspond with fields on the e*Index GUI. The field names on the e*Index GUI can be customized, so you can store and display the types of information that are most relevant to your business. You are not tied to the specific data elements defined by default.

Reporting

The e*Index database provides the flexibility to print reports in batch mode and in real-time, allowing access to all of the transactions processed through the e*Index system.

Using the standard PL-SQL reports provided, you can view and print overview information about daily transactions, merge and unmerge transactions, potential duplicate records, and so on.

Any standard ODBC-compliant report writer, such as Crystal Reports, can access system files, giving you even more flexibility in report-writing capabilities.

Unique Identifier

Each member is assigned a unique global identifier (UID) that links together all of the member data. This UID cross-references the member IDs from different systems, allowing each external system to keep its own identification system.

7.5 The e*Index Schema for e*Gate

The e*Index schema for e*Gate enables real-time automatic matching and cross-indexing of all member records. The e*Index schema consists of these primary components:

- e*Index sending e*Ways
- e*Index polling e*Ways
- e*Index Monk APIs

7.5.1 Sending e*Ways

The e*Index sending e*Ways are based on the database e*Ways, and they use database e*Way connection capabilities to connect with the e*Index database. The e*Index sending e*Ways:

- Receive data from external sources via e*Gate
- Translate the data
- Transmit the data to:
  - The e*Index database
  - e*Gate with the member UID attached

Your e*Index schema for e*Gate can have several e*Ways sending data to the database. You can customize the way the sending e*Ways process data using the e*Index Monk APIs provided in the Monk library.

7.5.2 e*Index Polling e*Way

The e*Index polling e*Way queries the e*Index database for outgoing Events, which are then sent to e*Gate to be routed to the appropriate external systems.

Outgoing Events typically include information that originated in the e*Index GUI and needs to be transmitted to external systems.

The polling e*Way accesses the e*Index database using the e*Index APIs. You can customize the way the polling e*Way processes data using the e*Index Monk APIs provided in the Monk library.

7.5.3 e*Index Monk APIs

The e*Index Monk APIs are Monk-wrapped C functions that help you access and modify the e*Index database. The APIs use the capabilities of the database e*Ways to connect with the database, and provide the ability to manipulate and transform the data that moves through the e*Index system.

The Vality INTEGRITY matching algorithm is located within the APIs.

7.5.4 Features and Functions

The components of the e*Index schema uniquely identify, match, and maintain person information throughout a business enterprise, relying on the e*Gate Integrator as its foundation. The following subsections provide a brief description of the e*Index schema for e*Gate features and functions.

Acknowledgments

Components automatically generate and reconcile acknowledgments to and from external applications.

Data Cleansing

e*Index uses matching algorithm logic to identify duplicate and potential duplicate records, and provides the functionality to easily merge or resolve the records.

Data Updates

e*Index provides the ability to add, update, deactivate, and delete data in the database tables through messages received from external systems. Records received from external systems are checked for potential duplicates during processing. Merges can also be performed through the back end. Data updates from external systems can occur in real time or as batch processes.

Efficient Data Incorporation

e*Index can easily assimilate new member registration systems and their existing data. Information from new systems is quickly available to the existing systems. e*Index also facilitates the transition of new identifiers into the database.

Identification

e*Index employs probabilistic matching technology from the Vality® INTEGRITY Data Re-engineering Environment. This technology uses a matching algorithm to formulate an effective statistical measure of how closely records match. Using this state-of-the-art algorithm in a real-time mode and establishing a common method of locating member records, e*Index consistently and precisely identifies members within an enterprise.

Integration

e*Index provides the power and flexibility to identify, route, and transform data to and from any system or application throughout your business enterprise. It can accept incoming transactions in any format, and distribute updates to any external system.

e*Index works with other SeeBeyond products, such as e*Gate Integrator and the database e*Ways, to provide seamless integration with the systems in your enterprise.

Matching Algorithm

e*Index uses the Vality INTEGRITY matching algorithm to provide a matching probability weight between member records. INTEGRITY gives you the flexibility to create user-defined matching thresholds to customize how potential duplicates are determined and which records are returned from a member search.

Real-time Processing

e*Index can update data from external systems in real time or as batch processes.

Share Information

Each time a record is updated, added, merged, or unmerged from the GUI front-end, e*Index generates a message that can be transmitted to external systems.

It also receives, processes, and routes inbound and outbound messages containing member demographic information.

Unique Identifier

e*Index assigns a unique, enterprise-wide identifier to each member added to the database. This identifier is known as the global identifier (UID). e*Index uses the UID to cross-reference the local IDs assigned to each member by the various computer systems throughout the enterprise.

Validation

e*Index validates and translates messages from external systems based on the rules defined in the custom Collaborations.

Vendor Neutral

e*Index operates independently of both applications and vendors, allowing the use of legacy applications and systems without changing or replacing them.

Because e*Index is vendor neutral, it can support disparate information systems and various applications from multiple vendors.

7.6 Java APIs for e*Index Active Integration

You can use the Java APIs for e*Index active integration to create highly customized active implementations of e*Index.

The APIs are provided in Java to allow more flexibility when designing active applications that interact with the e*Index database much in the same way the e*Index GUI does. Using the Java functions, you can create web-based applications based on a subset of standard e*Index functions.

In a passive implementation, all of the matching, identification, and cross-referencing is performed behind the scenes, after a record has already been added to or updated in a local system—legacy system users do not interact directly with the e*Index system. This is the standard e*Index implementation.

By creating applications based on the Java APIs (known as an *active implementation*), you allow system users to search for person data, update existing person records, and insert new person records directly into the e*Index database. This increases data integrity and reduces the number of potential duplicates created in the system.

Features and Functions

It is the Java APIs that provide most of the functions of the e*Index GUI, including adding, updating, and searching for member records. The Java APIs also provide the following features:

- Cross-referencing and Identification
- Customization
- Flexibility
- Multi-threaded Access
- Reduced Duplication

They do not, however, provide functions for viewing or reconciling potential duplicate records, merging or unmerging records, or deactivating member records.

Cross-referencing and Identification

The Java APIs provide the same cross-referencing functionality and accurate identification as the e*Index GUI and e*Ways. The Java APIs use the same matching algorithm, Vality INTEGRITY, to weight possible matches and determine potential duplicate records.

Customization

The Java APIs are highly customizable, allowing you to develop a custom web-based version of the e*Index GUI that displays only the information you choose and provides the functionality you choose.

Flexibility

When you create your Java applications, you determine the appearance of the application, the data elements to display, and the functionality provided. In addition, you can create different configurations for different business scenarios. For example, within one application, you can specify conditions for which certain fields are:

- Hidden or displayed
- Required
- Automatically populated with predetermined values

Multi-threaded Access

The active integration APIs are multi-threaded, allowing multiple users to access the e*Index system through Web browsers.

Reduced Duplication

The custom applications you create allow users to search for person data, update existing person records, and insert new person records directly in the e*Index database. By allowing users to interact directly with the e*Index database, you can reduce the possibility of creating duplicate records that will later need to be analyzed and resolved.

e*Xpressway Integrator

This chapter explains the basic operation and features of the SeeBeyond e*Xpressway Integrator (e*Xpressway).

8.1 Introduction

One of the most significant eBI challenges faced by eMarketplaces and Global 2000 businesses is connecting trading partners quickly. To meet this challenge, SeeBeyond provides e*Xpressway, the most powerful Web-based, trading partner on-ramp available for Global 2000 business and B2B marketplaces. This application provides secure marketplace connectivity through file-based packages.

e*Xpressway enables rapid trading partner connectivity and integration through a comprehensive B2B implementation methodology, graphical configuration wizards, and downloadable partner connectivity software. Trading partners follow quick, intuitive, step-by-step procedures to:

- Register their company profile
- Install the integration software
- Configure connectivity

This application becomes their own personalized software.

8.2 Features and Functions

The following subsections provide a brief description of the e*Xpressway features and functions:

- e*Xpressway Integrator Server
- B2B Rapid Implementation Methodology
- Dynamic Configuration Wizards
- Light, Downloadable Connectivity Software
- e*Xpressway Integrator OnRamp

8.2.1 e*Xpressway Integrator Server

e*Xpressway Integrator Server hosts the Trading Exchange Web site, which consists of:

- An administration area where the administrator host controls membership
- The contents of the download packages

This Web site provides both public and members-only services.

8.2.2 B2B Rapid Implementation Methodology

e*Xpressway greatly enhances the effectiveness and efficiency of B2B implementations by providing a proven implementation methodology that defines implementation phases, key milestones, and implementation deliverables for each phase.

8.2.3 Dynamic Configuration Wizards

Trading partners employ the most intuitive, step-by-step Web-based methodology to identify configuration parameters, select software packages, and download those packages. Simple questions lead users through rapid selection of required software based on their environment, while shielding them from the complexities of the software.

8.2.4 Light, Downloadable Connectivity Software

Competitive solutions force users to download their entire product set. e*Xpressway enables trading partners to configure connectivity solutions that can be conveniently downloaded and installed.

8.2.5 e*Xpressway Integrator OnRamp

e*Xpressway Integrator OnRamp is an extremely light-footprint solution that provides rapid (single-day) eMarketplace connectivity through a standard or proprietary protocol-based exchange. e*Xpressway consists of a communication e*Way (HTTPS, CGI, or Batch) and a user-friendly configuration tool for setting up connectivity parameters.

8.3 Hosting e*Xpressway

The Trading Exchange customer purchases e*Xpressway Integrator Server and hosts e*Xpressway, with full control over all hosting features.

Figure 31 on page 104 shows a sample e*Xpressway implementation.

Figure 31   Sample e*Xpressway Implementation
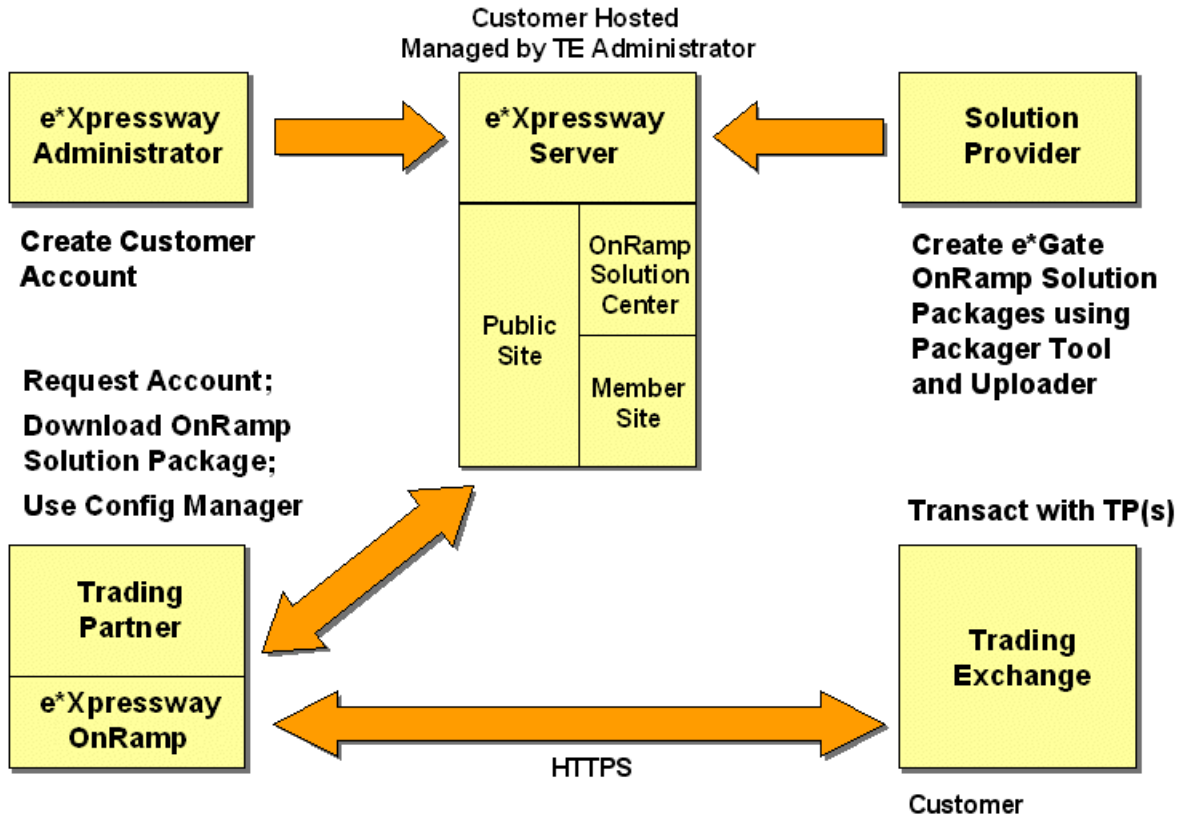
Additional Products

This chapter explains additional products available with the SeeBeyond eBusiness Integration (eBI) Suite: agents, ETD libraries, builders, and converters.

9.1 SeeBeyond Agents

The following subsections describe the SeeBeyond agents that monitor your system and send messages to you on its condition:

- Alert Agent
- SNMP Agent

9.1.1 Alert Agent

The e*Gate Integrator system uses the Alert Agent to send notifications of system status through different channels (e-Mail, fax, printing, paging, and voice mail).

These notifications can be standard system Events raised by e*Gate components, or user-defined Events.

9.1.2 SNMP Agent

The e*Gate Integrator system uses the SNMP Agent to send notifications of system status to SNMP-compliant monitoring products, such as those provided by Tivoli, Computer Associates, and Hewlett-Packard.

These notifications can be standard system Events raised by e*Gate components, or user-defined Events.

9.2 Libraries

SeeBeyond provides preconfigured Event Type Definitions (ETDs) based on the type of protocol you are using. The following ETD libraries are available:

- ASC X12
- CIDX
- cXML
- HIPAA X12
- HL7
- NCPDP-HIPAA

- RosettaNet
- SWIFT
- UCCnet
- UN/EDIFACT
- X12
- xCBL

9.3 Builders and Converters

The following subsections describe the builders and converters that are available for automatically creating ETDs from standard data formats:

- XML Toolkit
- COBOL Copybook Converter
- HTML Converter
- Schema Bridge

9.3.1 XML Toolkit

The Extensible Markup Language (XML) Toolkit is a set of e*Gate components that permits the integration of XML technologies into e*Gate Collaborations, using both the Java and Monk programming languages.

This integration includes:

- The graphical representation of XML messages in the Collaboration Editor
- XML marshaling and marshaling logic based on both Document Type Definitions (DTDs), and XML schemas
- An Extensible Stylesheet Language Transformation (XSLT) Collaboration Service
- Publication of non-XML formatted data in XML format, along with DTDs to support that format

The following subsections describe the basic features available with the XML Toolkit:

- DTD Generator
- Registry API for XLM Schemas
- xCBL ETD Library
- XML DTD Builder/Converter
- XML Schema Builder/Converter

- XSLT Collaboration Service

DTD Generator

The Document Type Definition (DTD) Generator provides a service that you can use to convert ETD files to XML files with a .dtd extension. The resulting DTD file can then be exchanged with a trading partner who can use the DTD file to decode Events generated by the **$event->xml** function.

The **$event->xml** Monk function transforms non-XML messages into XML messages dynamically by taking a parsed representation of the non-XML Event and generating an XML message. The DTD for this Event can be created by running the DTD Generator.

Registry API for XML Schemas

You can use the Registry Application Programming Interface (API) for XML Schema Metadata to:

- List the names of all e*Gate schemas in a given Registry

- List the names of all Event Types in a given e*Gate schema

- List the names of all XML Schema files (.xsd files) in the .jar file associated with a given Event Type

- Retrieve the schema data contained in a given .xsd file

xCBL ETD Library

Originally, business-to-business (B2B) eCommerce exchanged information using Electronic Data Interchange (EDI). Although EDI messages use standard data elements and document models, they can be complex and thus expensive to use. To streamline EDI, companies and initiatives turned to the Extensible Markup Language (XML), a simplified metalanguage for self-describing data exchange in Internet applications. They developed the Common Business Library (CBL), which evolved into xCBL.

Although the xCBL ETD Library is not actually a part of the XML Toolkit, xCBL is a set of XML business documents and their components—a set of XML building blocks—that allows for the creation of reusable XML documents that promote interoperability between applications.

The xCBL schema document framework provides data typing and validation that eBusinesses can use to exchange documents across multiple platforms, which in turn gives global access to buyers, suppliers, and providers of business services. Additionally, xCBL is a collection of common business elements that form the foundation of EDI and Internet commerce protocols, and has been modeled after X12 and UN/EDIFACT.

XML DTD Builder/Converter

The Java DTD Builder and Monk DTD Converter create ETD (.ssc) files from files in the XML DTD format, as defined by the World Wide Web Consortium (W3C).

The resulting ETD can be used in any e*Gate Collaboration, which means you can use drag-and-drop editors to collaborate between any XML and non-XML format. The DTD Builder/Converter can generate Events appropriate for either Monk or Java Collaborations.

XML Schema Builder/Converter

The Java XML Schema Builder and Monk XML Schema Converter create ETD files from files in XML Schema format, as defined by the W3C. The XML schema is a similar protocol to DTD in that it is a protocol for defining XML documents, but it is newer and provides many enhancements.

The ETD generated by the Builder/Converter can be used in any e*Gate Collaboration, which means you can use drag-and-drop editors to collaborate between any XML and non-XML format. The XML Schema Builder/Converter can generate Events appropriate for either Monk or Java Collaborations.

XSLT Collaboration Service

You can use the Extensible Stylesheet Language Transformation (XSLT) Collaboration Service to develop external Collaboration Rules that can extract selected information from one well-formed XML document, transform the information, and output it into another well-formed XML document.

9.3.2 COBOL Copybook Converter

The COBOL Copybook Converter is an e*Gate component used to convert COBOL Copybook files into e*Gate Monk ETD files.

9.3.3 HTML Converter

The HTML Converter builds e*Gate format ETDs from HTML forms. These ETDs can then be graphically manipulated in the Collaboration Editor to configure the automated run-time entry of data into those forms by e*Gate.

9.3.4 Schema Bridge

The Schema Bridge acts as a simple delivery agent that allows Events to be transmitted from one schema to another, by way of the e*Gate Integrator, in effect possessing all of the functionality of an e*Way.

Additional Sources of Information

This chapter lists the additional resources for the SeeBeyond eBusiness Integration (eBI) Suite, including user's guides, online Help, and training courses.

10.1 User's Guides and Reference Guides

The documents listed in the following subsections are available in Adobe Acrobat Reader (.pdf) format in the **docs** directory on the installation CD-ROMs. In addition, more recent information is in the **Readme.txt** file.

10.1.1 SeeBeyond eBI Suite

- *Creating an End-to-end Scenario with e*Gate Integrator*
- *SeeBeyond eBusiness Integration Suite Deployment Guide*
- *SeeBeyond eBusiness Integration Suite Primer* (this document)

10.1.2 eBusiness Integration Applications

Release Notes

- *e*Gate Integrator Release Notes*
- *e*Insight Business Process Manager Release Notes*
- *e*Xchange Partner Manager Release Notes*
- *Monk Release Notes*

Installation, Implementation, and Application Guides

- *e*Insight Business Process Manager Implementation Guide*
- *e*Insight Business Process Manager Installation Guide*
- *e*Insight Business Process Manager User's Guide*
- *e*Xchange Partner Manager Implementation Guide*
- *e*Xchange Partner Manager Installation Guide*

- *e*Xchange Partner Manager User's Guide*

- *e*Xpressway Integrator OnRamp Setup Guide for Trading Partners*

- *e*Xpressway Integrator Server Setup and Maintenance Guide for Trading Exchanges*

- *e*Xpressway Integrator OnRamp Customization Guide for Solution Providers*

10.1.3 e*Gate Integrator

- *e*Gate API Kit Developer's 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 Installation Guide*

- *e*Gate Integrator Intelligent Queue Services Reference Guide*

- *e*Gate Integrator SNMP Agent User's Guide*

- *e*Gate Integrator System Administration and Operations Guide*

- *e*Gate Integrator Upgrade Guide*

- *e*Gate Integrator User's Guide*

- *Monk Developer's Reference*

- *Schema Bridge User's Guide*

- *Secure Messaging Extension User's Guide*

- *SeeBeyond JMS Intelligent Queue User's Guide*

- *Working with Collaboration IDs*

- *XML Toolkit*

e*Ways

- *e*Way Intelligent Adapter for ADABAS User's Guide*

- *e*Way Intelligent Adapter for ADABAS Natural User's Guide*

- *e*Way Intelligent Adapter for Apache Web Server User's Guide*

- *e*Way Intelligent Adapter for ATG Dynamo User's Guide*

- *e*Way Intelligent Adapter for axion4 User's Guide*

- *Batch e*Way Intelligent Adapter User's Guide*

- *e*Way Intelligent Adapter for Bloomberg Portfolio Management User's Guide*

- *e*Way Intelligent Adapter for Blue Martini User's Guide*

- *e*Way Intelligent Adapter for BroadVision User's Guide*

- *CGI Web Server e*Way Intelligent Adapter User's Guide*

- *e*Way Intelligent Adapter for CICS User's Guide*

- *e*Way Intelligent Adapter for Clarify User's Guide*

- *e*Way Intelligent Adapter for COM/DCOM User's Guide*

- *e*Way Intelligent Adapter for Commerce One MarketSite User's Guide*

- *Communication Client Proxy e*Way Intelligent Adapter User's Guide*

- *e*Way Intelligent Adapter for CORBA-VisiBroker (Client) User's Guide*

- *e*Way Intelligent Adapter for CORBA-VisiBroker (Server) User's Guide*

- *e*Way Intelligent Adapter for DataChannel User's Guide*

- *e*Way Intelligent Adapter for DB2 Universal Database User's Guide*

- *e*Way Intelligent Adapter for Dial-Up User's Guide*

- *e-Mail e*Way Intelligent Adapter User's Guide*

- *HTTP e*Way Intelligent Adapter User's Guide*

- *HTTPS e*Way Intelligent Adapter User's Guide*

- *e*Way Intelligent Adapter for IMS User's Guide*

- *e*Way Intelligent Adapter for iPlanet Application Server User's Guide*

- *e*Way Intelligent Adapter for iPlanet Web Server User's Guide*

- *e*Way Intelligent Adapter for Jacada Enterprise/Access User's Guide*

- *e*Way Intelligent Adapter for JDBC/ODBC Generic User's Guide*

- *e*Way Intelligent Adapter for JDE OneWorld GenJava User's Guide*

- *e*Way Intelligent Adapter for LDAP User's Guide*

- *e*Way Intelligent Adapter for Lotus Notes User's Guide*

- *e*Way Intelligent Adapter for Microsoft Internet Information Server User's Guide*

- *e*Way Intelligent Adapter for MQSeries User's Guide*

- *e*Way Intelligent Adapter for MSMQ User's Guide*

- *e*Way Intelligent Adapter for ODBC User's Guide*

- *e*Way Intelligent Adapter for Oracle Financials User's Guide*

- *e*Way Intelligent Adapter for Oracle User's Guide*

- *e*Way Intelligent Adapter for PeopleSoft Batch e*Way User's Guide*

- *e*Way Intelligent Adapter for PeopleSoft HTTP User's Guide*

- *e*Way Intelligent Adapter for PeopleSoft Message Agent User's Guide*

- *e*Way Intelligent Adapter for Portal User's Guide*

- *e*Way Intelligent Adapter for Remedy EIE User's Guide*

- *e*Way Intelligent Adapter for SAP (ALE) User's Guide*

- *e*Way Intelligent Adapter for SAP (BAPI) User's Guide*
- *e*Way Intelligent Adapter for SAP (BDC) User's Guide*
- *e*Way Intelligent Adapter for SAP (EDI) User's Guide*
- *e*Way Intelligent Adapter for Siebel EAI User's Guide*
- *e*Way Intelligent Adapter for Siebel EIM User's Guide*
- *e*Way Intelligent Adapter for Siebel (Event Driven) User's Guide*
- *e*Way Intelligent Adapter for SNA User's Guide*
- *e*Way Intelligent Adapter for SOAP User's Guide*
- *e*Way Intelligent Adapter for SQL Server User's Guide*
- *e*Way Intelligent Adapter for SWIFT ADK User's Guide*
- *e*Way Intelligent Adapter for Sybase User's Guide*
- *TCP/IP e*Way Intelligent Adapter User's Guide*
- *TCP/IP HL7 e*Way Intelligent Adapter User's Guide*
- *e*Way Intelligent Adapter for VSAM User's Guide*
- *WAP e*Way Intelligent Adapter User's Guide*
- *e*Way Intelligent Adapter for WebSphere User's Guide*
- *Standard e*Way Intelligent Adapter User's Guide*

Generic e*Way Extension Kits

- *C Generic e*Way Extension Kit User's Guide*
- *e*Gate API Kit User's Guide*
- *Java Generic e*Way Extension Kit Developer's Guide*
- *e*Way Intelligent Adapter for JDBC/ODBC Generic User's Guide*
- *Monk Generic e*Way Extension Kit Developer's Guide*

Converters

- *Cobol Copybook Converter User's Guide*
- *HTML Converter User's Guide*

ETD Libraries

- *ASC X12 ETD Library User's Guide*
- *CIDX ETD Library User's Guide*
- *cXML ETD Library User's Guide*

- *HIPAA ETD Library User's Guide*

- *HL7 ETD Library User's Guide*

- *NCPDP-HIPAA ETD Library*

- *RosettaNet ETD Library User's Guide*

- *SWIFT ETD Library User's Guide*

- *UN/EDIFACT ETD Library User's Guide*

- *X12 ETD Library User's Guide*

- *xCBL ETD Library User's Guide*

10.1.4 e*Index Global Identifier

- *e*Index Administrator User's Guide*

- *e*Index Global Identifier Installation Guide*

- *e*Index Global Identifier Technical Reference*

- *e*Index Global Identifier Upgrade Guide*

- *e*Index Global Identifier User's Guide*

- *e*Index Initial Load User's Guide*

- *e*Index Security User's Guide*

- *Working with Reports for e*Index Global Identifier*

10.2 Online Help

The online Help systems contain information about all aspects of using the SeeBeyond eBI Suite. The online Help is provided in the HTML Help format.

The online Help systems discuss topics such as procedures, terminology, and basic concepts for each graphical user interface (GUI). They also discuss working with system components and elements. Each Help system includes a table of contents, an index, and full-text searching to help users locate information quickly and easily.

The following GUIs have online Help systems:

- *Alert Agent Configuration Tool (e*Gate)*

- *Collaboration Rules Editor, Java (e*Gate)*

- *Collaboration Rules Editor, Monk (e*Gate)*

- *Collaboration-ID Rules Editor (e*Gate)*

- *e*Gate Schema Designer*

- *Schema Manager*
- *e*Index Administrator*
- *e*Index Global Identifier*
- *e*Index Security*
- *e*Insight Business Process Manager*
- *e*Insight/e*Xchange Administrator*
- *e*Way Editor (e*Gate)*
- *e*Xchange Client for Windows*
- *e*Xchange Repository Manager*
- *e*Xpressway Integrator*
- *Event Type Definition Editor, Java (e*Gate)*
- *Event Type Definition Editor, Monk (e*Gate)*

10.3 Training Courses

The SeeBeyond Education Services Department provides an extensive array of training courses. For an overview, see

http://www.seebeyond.com/services/educationServices.asp

These courses cover topics including:

- System administration and operation
- Role-specific classes for business managers and analysts
- Configuration overview
- Databases
- Basic and advanced implementation
- Maintenance
- Monitoring and alerting

Most courses include hands-on exercises to enable students to develop a thorough understanding of the subject matter. In addition, new courses are continually being developed, modified, and added to the curriculum.

For a current catalog of courses, see

http://www.seebeyond.com/services/educationCatalogServices.asp

Glossary

access control list (ACL)
In e*Gate, a security list that determines user access to schemas, components, features, and operations in the system; in the e*Xchange Partner Manager, a list of information associated with a trading partner profile component (company, trading partner, outer envelope, or inner envelope) that specifies which users and user groups have permission to access the components and what specific access rights they have (add, edit, full control, or read).

activity
An activity is an organizational unit for performing a specific function.

activity direction
Defines the activity as Input, Output, or Input/Output.

Administrator
In e*Gate, a user with full access rights to the system; in e*Insight Business Process Manager, a user with full access rights who sets up users in the e*Xchange Administrator interface and has full rights within e*Insight. Administrators within e*Xchange Partner Manager are also able to set up users and perform application setup functions.

agent (Alert, SNMP)
A stand-alone application that monitors processes and resources and sends Notifications to e*Gate system users, informing them of system status (for example, when a preset disk space level is exceeded).

application programming interface (API)
A set of protocols, routines, and tools for building software applications. The e*Xchange Partner Manager API consists of a set of Monk functions that can be called from custom validation Collaborations to interface with the database.

attribute
Attributes pass user-defined control information (programming arguments) to and from the e*Insight Business Process Manager and its activities.

Business Object Broker (BOB)
A BOB component is similar to an e*Way in the sense that it establishes connectivity and is capable of data transformation. BOBs use Collaborations to route and transform data within the e*Gate system. They have the following properties:

- They only communicate with IQs within e*Gate. They do not communicate with external applications as e*Ways do.

- They are optional by design. You can add them to an environment to remove some load from your e*Ways, either to set up easily maintainable data processing or to enable multiple internal processes.

business process instance (BPI)
A single instance of an executed Business Process Version. See **business process version**.

business process version
A form or variant of the original business process model.

Business Rules pane
Use the **Business Rules** pane in the Java Collaboration Rules Editor to navigate and edit the Java code of a Collaboration.

Business Rules Toolbar
Use the buttons on the Business Rules Toolbar in the Java Collaboration Rules Editor to add corresponding Java statements to a Collaboration.

byte length
Length in bytes of the string or regular expression to be matched within an Event Type Definition. e*Gate measures fixed-length data from byte 1.

byte offset
The beginning byte location of the string or regular expression to be verified within an Event Type Definition, beginning at byte 0.

child nodes
Nodes that are below a given node within the same branch of the Event Type Definition tree. Child nodes can inherit certain properties, such as delimiters, from their parent nodes.

code tables
The mechanism used to customize values that appear in e*Xchange Partner Manager drop-down lists.

Collaboration
The component within an e*Way or BOB that performs data transformation and/or routing. It is the business logic that is applied to an Event in the course of delivery from a publisher to a subscriber. Collaboration components do the following functions: Subscriber components receive Events of a known type while publisher components distribute the transformed Events to a specified recipient. See also **Collaboration Rules** on page 117.

Collaboration-ID Rules Editor
The graphical user interface (GUI) feature used to create Collaboration Rules scripts in the Monk programming language for *e*Gate Version 3.6 only*. See also **Collaboration Rules script** on page 117**.**

Collaboration Rules

The program logic that instructs a Collaboration how to execute the business logic required to support e*Gate's data transformation and routing. See also **Collaboration** on page 116 and **Collaboration script** below.

Collaboration Rules Editors

The graphical user interface (GUI) features used to work with Collaboration Rules scripts in the Java and Monk programming languages. See also **Collaboration Rules script** below.

Collaboration Rules script

A Collaboration script (program) written using the Collaboration Rules Editor feature.

Collaboration script

The data flow and transformation logic contained in and configured by an e*Gate Collaboration and written as a program in any of the following programming languages: Monk, Java, or C.

Collaboration Services

Libraries that provide the low-level facilities by which Collaborations execute Collaboration Rules, for example, issuing system-specific terminate calls.

command line

A tool for monitoring and controlling e*Gate by entering application programming interface (API) commands at a DOS-like prompt or UNIX command shell.

committing files

Takes a file from outside of e*Gate and uploads it to the Registry, placing it in that user's Sandbox. See also **Sandbox** on page 124 and **run time** on page 124**.**

Company

An organization with which you conduct electronic business (eBusiness). A company can consist of one or more trading partners. See also **trading partner**.

Control Broker

An automatically generated e*Gate component that starts and monitors e*Ways and BOBs. At least one Control Broker must be running on each host within a schema.

delimiter

A special character assigned to mark the boundary of an Event node.

delimiter declaration field

In the HL7 standard, the location within an Event where a character is to be used as a delimiter. Also refers to the Event Type Definition node boundary it marks.

destination

Pertaining to the primary output Event Type Definition within a Collaboration Rules component or Collaboration Rules script.

e*Way Connection

An e*Way Connection is the encoding of the access information for one particular external connection or SeeBeyond JMS IQ Manager. In terms of content, it is similar to an e*Way configuration file, in defining enough information to be able to "log in" or connect to the particular system. However, unlike e*Way configuration files, there is no schedule information. The e*Way Connection information can be shared across multiple interfaces.

e*Way Editor

The graphical user interface (GUI) feature used to configure e*Ways.

e*Way Intelligent Adapter

A component that provides a noninvasive point of contact between an e*Gate system and an external business application (often abbreviated as e*Way). e*Ways establish connectivity with applications, using whatever communication protocol is appropriate. e*Ways perform the following main functions: (1) receiving unprocessed data from external components, transforming it into Events, and forwarding it to other components within e*Gate via Intelligent Queues (IQs); and (2) sending processed data to external components (can also include data transformation).

e*Insight Business Process Manager (e*Insight)

An application within the SeeBeyond eBusiness Integration (eBI) Suite that facilitates the automation of the business process flow of eBusiness activities.

eBusiness protocol

An eBusiness protocol is a generally accepted standard for formatting and exchanging electronic messages between trading partners. ASC X12, UN/EDIFACT, RosettaNet, BizTalk, and CIDX are examples of eBusiness protocols.

e*Xchange Partner Manager (e*Xchange)

An application within the SeeBeyond eBusiness Integration (eBI) Suite, that you use to set up and maintain trading partner profiles and view processed messages. e*Xchange also processes inbound and outbound messages according to certain eBusiness protocols and your validation Collaborations.

Error Table

The mechanism used to define error messages that you can use with custom validation Collaborations.

eSecurity Manager (eSM)

An add-on to e*Xchange that secures transmission of business-to-business exchanges over public domains such as the Internet.

Event

A unit package of data processed by the e*Gate system. This data has a defined structure, for example, a known number of fields with known characteristics and delimiters. Events are classified by type (Event Type) and exchanged within e*Gate as Event Type Definitions (ETDs).

Event, delimited
> A variable-length Event made up of nodes whose boundaries are marked by delimiters.

Event, fixed
> An Event of prescribed length. Each node within a fixed Event Type Definition is identified by its length and location within that Event Type Definition.

Event Linking and Sequencing (ELS)
> Event Linking and Sequencing is a feature that allows for Events that arrive from independent input streams to be delivered to subscribers as related units. Complex Linking and Sequencing can be configured using the Java Collaboration Rules Editor, so that **n** different input streams can be linked and sequenced according to rules based on any combination of content or time-out rules.

Event, monitoring
> An Event sent from one e*Gate component to another that describes an internal e*Gate condition, such as "component up" or "component down."

Event Type
> A class of Events with common characteristics. An Event Type is also a logical name entry in e*Gate that points to a single Event Type Definition (ETD).

Event Type Definition (ETD)
> A programmatic representation of an Event Type that Collaboration Rules can use when parsing, transforming, or routing data.

Event Type Definition Editors
> The graphical user interface (GUI) features used to configure Event Type Definitions (ETDs) in the Java and Monk programming languages; abbreviated as ETD Editor. See also **Event Type Definition (ETD).**

Event Type Definition node
> A segment of an Event Type Definition (ETD) that is represented graphically as a node in an Event Type Definition tree in the Event Type Definition Editor window, and represents a portion of an Event.

Event Type Definition tree
> The graphical or logical representation of the Event Type Definition and its hierarchy.

extended attributes
> Information you can store at the company, trading partner, outer envelope, and inner envelope levels, as needed for your business. For companies and trading partners, you can create extended attributes to store specific information about the company or trading partner. For outer and inner envelopes, the extended attributes are specific to a particular eBusiness protocol. Characteristics of ASC X12 Interchange, Functional Group, and Transaction Set envelopes are examples of extended attributes you need to enter if you exchange X12 messages with a trading partner. Contrast with **general attributes** on page 120.

external system
>A system that sends or receives data and is outside of the e*Gate system.

general attributes
>Basic information that identifies companies and trading partners. For inner and outer envelopes, 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 **external system** on page 120.

Guaranteed Exactly Once Delivery (GEOD)
>Using XA, GEOD guarantees once and only once delivery. Guaranteed Exactly Once Delivery refers to the usage of XA-compliant e*Gate and external components to ensure the delivery occurs once regardless of failures.

GUI
>Graphical User Interface. A type of computer interface that enables the user to perform actions via the use of symbols, visual metaphors and pointing devices.

hash
>Hashing is the transformation of a string of characters into a usually shorter, fixed-length value that represents the original string. The hash is a mathematical summary of the original message and is created by a hash function.
>
>A cryptographically strong hash function has a number of requirements: It is easy to compute, one-way, and collision-free. This means that it is computationally infeasible to find a message that corresponds to a known hash, or to compose two messages whose hash values are the same.
>
>The fixed-length hash value makes message authentication through the use of digital signatures possible, since only a small number of bytes must be used in a computationally expensive public key operation, rather than the entire message.
>
>The most common cryptographic hash functions in use today are SHA-1 (the Secure Hash Algorithm Standard) and MD5 (Message Digest #5).

implementation guide
>A document, published for a particular electronic message standard by an industry subcommittee, that describes the structure and content of a specific message type. You can use the Validation Rules Builder to convert electronic versions of ASC X12 implementation guides to validation Collaborations used by e*Xchange.

inner envelope
>An inner envelope definition is a set of parameters and other information you enter about each electronic inner envelope you process with e*Xchange Partner Manager. This definition associates the validation Collaborations that are needed to validate each kind of message.

The version number of the eBusiness protocol that applies to the message and whether the message will be transmitted interactively or in batch are examples of inner envelope characteristics.

instance
A specific node within a series of repeating nodes.

Intelligent Queue (IQ)
A standard e*Gate component that manages the exchange of information between components within the e*Gate system, providing nonvolatile storage for data as it passes from one component to another.

IQ Manager
A standard e*Gate component that reorganizes Intelligent Queues (IQs), archives queue information upon request to save disk space, and locks the queues when maintenance is performed.

IQ Service
A utility that provides the transport of components within Intelligent Queues (IQs), handling the low-level implementation of data exchange, such as system calls to initialize or reorganize a database.

Java Message Service (JMS)
See **SeeBeyond JMS** for the e*Gate implementation of JMS.

log file
A text file that contains a record of all actions taken by an e*Way. Use log files to troubleshoot any problems in the system and discover how to solve them.

message log
A record of inbound and outbound electronic transactions processed by the e*Xchange Partner Manager. This is implemented as the message tracking facility e*Xchange.

message tracking attributes
A set of attributes you can define to identify messages stored in the e*Xchange Partner Manager 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.

Monitor
An executable e*Gate component that enables users to view messages that describe the state of e*Gate internal components. Interactive monitors also enable users to send commands to e*Gate components; non-interactive monitors only enable users to view notifications.

monitoring Event

An Event, sent by one e*Gate component to another (usually to the Control Broker) that describes occurrences within the e*Gate system. Monitoring Events include error messages, such as "component down" or "component lost"; status messages such as "component up" or "contact re-established"; system performance messages, such as "Event processing below preset threshold" or "disk space low"; and miscellaneous messages such as scheduled timers, configuration changes, or "Event content of interest."

Monk

SeeBeyond's Event-processing language.

Monk Test Console

A graphical user interface (GUI) test feature for testing Monk functions and Collaboration scripts before introducing them into the run-time environment.

Navigator Tree

The tree-like graphical display in the Navigator/Components pane of the Schema Designer window. This display shows the components of the e*Gate system and how they relate to each other in pictorial form using an icon to represent each component.

node

See **Event Type Definition node**.

node set

A group of associated nodes that are order-independent, or that repeat.

non-repudiation

The inability of a sender to refute a message—that is, to claim at a later date that the sender was not the originator of the message. This is implemented through the use of a digital signature attached to the message. The signature can be used by the recipient to prove that the sender positively wrote the message, and that its contents were not tampered with after it was signed.

The sender of a message can also obtain irrefutable proof of receipt of the original message. Non-repudiation of receipt is implemented using an acknowledgment to the sender. This acknowledgment contains the digital signature of the message, and is also digitally signed by the receiver of the original message.

notification

A notification sent to the user by the e*Gate system.

notification routing

The Collaboration Rules script that specifies how monitoring Events are translated into notifications.

operator

An operator controls the logical flow of data-based decisions in the business process model. An operator outputs specific information when specified input conditions are met.

outer envelope
> 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 ASC X12, UN/EDIFACT, RosettaNet, BizTalk, or CIDX, is an example of an outer envelope characteristic.

parent nodes
> Nodes that are above a given node within the same branch of the Event Type Definition tree.

Participating Host
> A client computer that supports an e*Gate system, as opposed to the Registry Host, which acts as a server to the Participating Host. See also **Registry Host** on page 124.

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, outer envelope, or inner envelope).

PKCS
> An acronym for Public-Key Cryptography System. PKCS is a set of informal intervendor standard protocols developed by RSA Security, the licensers of the RSA public key cryptosystem, for making secure information exchange on the Internet possible. The standards include RSA encryption, password-based encryption, extended certificate syntax, and cryptographic message syntax for S/MIME, RSA's proposed standard for secure e-Mail.

PKI
> A PKI (public key infrastructure) enables users of a basically unsecured public network such as the Internet to securely and privately exchange data and money through the use of a public and a private cryptographic key pair that is obtained and shared through a trusted authority.
>
> It is a networked system of certification authorities (CAs), registration authorities (RAs), certificate management systems (CMSs), and X.500 directories (specialized distributed databases). It enables two parties unknown to each other to exchange sensitive information and money over an unsecured network.

promoting files
> Update the run-time schema to use the new file or files. If the file already exists in the run-time schema, that file is replaced with the file from the Sandbox. Promoting a file automatically removes it from the user's Sandbox and, if the user has locked the file, releases the lock. When you delete a file from the Sandbox without promoting it to the run-time schema, you *remove* the file. If the file was locked, the lock is released.

public key encryption
> Encryption using PKCS. See **PKCS** on page 123.

publish
> See **publish/subscribe**.

publish/subscribe

Abbreviated pub/sub. Subscriber components retrieve Events; publisher components make Events available to other e*Gate components. See also **Collaboration** on page 116.

Registry

The storage place (in a directory) for all e*Gate configuration details, including file containment.

Registry Host

A computer that is running the e*Gate Registry daemon/service (**stcregd.exe**) and acts as the e*Gate system server; a system that provides Registry services to other systems running e*Gate applications. See also **Participating Host** on page 123.

Registry Service

The service that handles all requests for updates to the e*Gate registry and forwards updated files to Participating Hosts (clients) as necessary.

regular expression

A pattern representing a set of strings to be matched.

removing files

Delete a file from the Sandbox without promoting it to the run-time schema. If the user carried the advisory lock for the file, the lock is released.

Report List

A list of reports that can be generated by an e*Xchange Partner Manager user.

run time

The environment in the Registry shared by all users of that Registry. The run time contains parameters that run for each instance of e*Gate unless the controlling user has a parameter in his or her own Sandbox, in which case the Sandbox is overridden. The run time is the production environment of a schema. See also **Team Registry** on page 126.

Sandbox

A user's local development area. Each user has his own Sandbox. Files in a user's Sandbox are available for testing the functions in the file themselves, but they are not available to the run-time schema. A user can test some parameters in the Sandbox while insulating other users from these changes. See also **Team Registry** on page 126.

schema

Includes files and associated stores created by e*Gate, which contain the parameters of all the components that control, route, and transform data as it moves through e*Gate in a predefined system configuration.

Schema Designer

The e*Gate graphical user interface (GUI) that allows you to create, configure, and modify all components of an e*Gate system.

Schema Manager
A standard e*Gate component that provides graphical access to e*Gate systems and e*Gate status information, state control, and troubleshooting log files and journals.

SeeBeyond JMS
e*Gate implementation of the Java Message Service (JMS) using IQ Managers, IQs, and a special e*Way Connection.

sibling nodes
Nodes that are children of the same parent node.

SEF
See **Standard Exchange Format (SEF)** on page 125.

signature key
The key used to encode a message signature. The signature key might be the same as the encryption key; but when two different keys are used for different purposes, this is known as a dual-key system. See also *key*.

S/MIME
An acronym for Secure/Multipurpose Internet Mail Extensions; it is an Internet e-Mail security standard that makes use of public key encryption.

source
Pertaining to the primary input Event or Event Type Definition within a Collaboration or Collaboration script.

.ssc file
See **Event Type Definition (ETD)** on page 119.

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 (such as 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.

subnode

A node that is connected through parent-child relationships to another node that is higher in the Event Type Definition tree.

subnode set

A set of order-independent or repeating Event Type Definition nodes one level below the currently selected node in the Event Type Definition tree.

subscribe

See **publish/subscribe** on page 124.

Team Registry

Allows multiple users to develop components of a single schema simultaneously by compartmentalizing the e*Gate Registry into work-in-progress and run-time environment areas, implemented by the Sandbox and run-time environments.

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 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 composed of segments ST through SE.

.tsc file

A Collaboration Rules file. A **.tsc** file is a Monk translation sub-file.

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 e*Xchange 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 message 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.

value added network (VAN)

A private network provider that offers secure electronic data interchange (EDI) services to companies. VANs often offer EDI translation, encryption, secure e-Mail, management reporting, and other extra services for their customers.

XML

Extensible Markup Language; for example, RosettaNet PIPs are written in XML; so are SeeBeyond's Java-enabled Event Type Definition (ETD) files. XML messages can contain both content (data) and information about the content (metadata).

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