BEA WebLogic Integration™

Using EDI with WebLogic Integration

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Using EDI with WebLogic Integration

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Contents

3. BEA WebLogic Adapter for Power.Enterprise! 3.0

4. Configuring Power.Enterprise!

5. Configuring EDI Integration

6. EDI Sample

7. Power.Enterprise! Tuning Guide

About This Document

This document describes Electronic Data Interchange (EDI) and explains how to use the BEA WebLogic Adapter for Power.Enterprise! 3.0 to interconnect with your trading partners using EDI in the BEA WebLogic environment.

This document includes the following topics:

- Chapter 1, “EDI Background,” provides background information about EDI systems and standards.
- Chapter 2, “Architecture,” describes the structure of EDI Integration and its component parts.
- Chapter 3, “BEA WebLogic Adapter for Power.Enterprise! 3.0,” explains how to install and configure this product.
- Chapter 4, “Configuring Power.Enterprise!.” explains how you need to configure Power.Enterprise! to interoperate with BEA WebLogic Integration and the BEA WebLogic Adapter for Power.Enterprise! 3.0.
- Chapter 5, “Configuring EDI Integration,” explains the end-to-end configuration requirements of EDI Integration.
- Chapter 6, “EDI Sample,” walks you through the configuration and use of an example scenario in which EDI is used to support a simple purchase order business process.
- Chapter 7, “Power.Enterprise! Tuning Guide.” explains how to tune the Power.Enterprise! software for improved performance in your deployment environment.

What You Need to Know

This guide is written for business analysts and system administrators developing and implementing EDI integration. We assume that you have a basic understanding of EDI and networking concepts, and that you are familiar with the WebLogic Integration environment

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If you do not have the Adobe Acrobat Reader, you can get it for free from the Adobe Web site at `http://www.adobe.com/`.

Related Information

For general information about EDI and EDI standards, see the following Web sites**:**

- Accredited Standards Committee X12 Web site at `http://www.x12.org/`
- UN EDIFACT Web site at `http://www.unece.org/trade/untdid/welcome.htm`

Contact Us!

Your feedback on the BEA WebLogic Integration documentation is important to us. Send us e-mail at **docsupport@bea.com** if you have questions or comments. Your comments will be reviewed directly by the BEA professionals who create and update the WebLogic Integration documentation.

In your e-mail message, please indicate that you are using the documentation for the BEA WebLogic Integration 2.1 SP1 release.

If you have any questions about this version of BEA WebLogic Integration, or if you have problems installing and running BEA WebLogic Integration, contact BEA Customer Support through BEA WebSupport at www.bea.com. You can also contact Customer Support by using the contact information provided on the Customer Support Card, which is included in the product package.

When contacting Customer Support, be prepared to provide the following information:

- Your name, e-mail address, phone number, and fax number
- Your company name and company address
- Your machine type and authorization codes
- The name and version of the product you are using
- A description of the problem and the content of pertinent error messages

Documentation Conventions

The following documentation conventions are used throughout this document.

Convention	Item
boldface text	Indicates terms defined in the glossary.
Ctrl+Tab	Indicates that you must press two or more keys simultaneously.
italics	Indicates emphasis or book titles.

`monospace text`	Indicates code samples, commands and their options, data structures and their members, data types, directories, and file names and their extensions. Monospace text also indicates text that you must enter from the keyboard.
	Examples:
	`#include <iostream.h> void main ( ) the pointer psz`
	`chmod u+w *`
	`\tux\data\ap`
	`.doc`
	`tux.doc`
	`BITMAP`
	`float`

`monospace boldface text`	Identifies significant words in code. *Example*: `void` **`commit`** `( )`
`monospace italic text`	Identifies variables in code. *Example*: `String` *`expr`*
UPPERCASE TEXT	Indicates device names, environment variables, and logical operators. *Examples*: LPT1 SIGNON OR

Convention	Item
`{ }`	Indicates a set of choices in a syntax line. The braces themselves should never be typed.
`[ ]`	Indicates optional items in a syntax line. The brackets themselves should never be typed. *Example*: `buildobjclient [-v] [-o name ] [-f file-list]... [-l file-list]...`
`|`	Separates mutually exclusive choices in a syntax line. The symbol itself should never be typed.
`...`	Indicates one of the following in a command line: ■ That an argument can be repeated several times in a command line ■ That the statement omits additional optional arguments ■ That you can enter additional parameters, values, or other information The ellipsis itself should never be typed. *Example*: `buildobjclient [-v] [-o name ] [-f file-list]... [-l file-list]...`
. . .	Indicates the omission of items from a code example or from a syntax line. The vertical ellipsis itself should never be typed.

CHAPTER

1 EDI Background

This section presents an overview of Electronic Data Interchange (EDI), the various EDI standards, and BEA's EDI Integration. It includes the following topics:

- What Is EDI?
- EDI Standards
- BEA WebLogic EDI Integration Architecture

What Is EDI?

Electronic Data Interchange (EDI) is a set of common data format standards developed in the U.S. and Western Europe in the late 1970s.The goal of the American National Standards Institute (ANSI), which sponsored the initial creation of what became the X12 set of EDI standards, was to establish a group of nationally recognized data formats that:

- Were hardware independent
- Were unambiguous, such that they could be used by all trading partners
- Reduced the amount of labor-intensive work required to exchange data (for example, by eliminating the need for data re-entry
- Allowed the sender of the data to control the exchange, and to know whether and when the recipient received the transaction

After sponsoring the initial definition of the standards, ANSI created the Accredited Standards Committee (ASC) to maintain and develop the X12 standard. The resulting X12 standards define the data formats and encoding rules used for a wide variety of business transactions, including order placement and processing, shipping and receiving, invoicing, payment, and many more.

To create a single international EDI standard, the United Nations/ Economic Commission for Europe (UN/ECE) Working Party on Facilitation of International Trade Procedures created the UN/EDIFACT family of standards. The EDIFACT syntax was adopted by the International Standards Organization (ISO) in 1987.

The X12 and EDIFACT standards provide equivalent functionality. The X12 standards are older and more mature; they provide functionality not yet available in EDIFACT. Much of this unavailable functionality is, however, under development for the EDIFACT standards.

The differences between X12 and EDIFACT arise primarily from their underlying data structures. (For example, data elements and data segments.) There is no one-to-one correspondence between X12 and EDIFACT data elements; multiple X12 data elements may be needed to represent a single EDIFACT data element.

Architecture Overview

The X12 and EDIFACT standards are hierarchical sets of message element structures. At the bottom of each hierarchy, simple data structures are combined to form more complex data structures. The top of each message structure hierarchy is populated by information units exchanged by trading partners.

Different hierarchies and data structures are defined for different data sets. For example, an X12 997 message (a Functional Acknowledgment) is quite different from an X12 810 message (an Invoice), and the requirements for both are different from those for an X12 130 message (a Student Educational Record, or transcript).

Message Structure

At the base of each EDI standard is a dictionary of simple data elements. A simple data element represents the smallest named item in an X12 or EDIFACT standard, such as a qualifier, a value, or a description.

Examples of simple data elements include:

- Invoice date
- Weight capacity
- Exchange rate
- Hazardous material classification
- Unit of measurement code (such as pounds, dozens, cubic feet, gallons, and so on)

The X12 standard also defines a *composite data element*. A composite data element is a set of simple data elements that represents a single named item. For example, in an X12 130 message, the composite data element C002 is used to identify the actions to be performed on a piece of paperwork, and comprises five simple data elements. Each simple data element is a code identifying one required action.

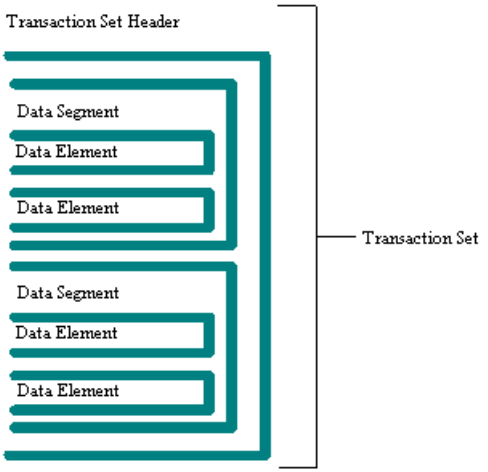
Data elements are grouped into functionally related units called data segments. An example of a data segment is the address of a geographic location, which includes the data elements for a city name, a state or province code, a postal code, and a country code. Data segments are defined in the X12 segment directory, which lists the data elements, in the required order, that make up each data segment.

Data segments are grouped, in turn, into transaction sets. A transaction set is the smallest meaningful set of information exchanged by trading partners. It represents a common business document, such as a purchase order or invoice. Most transaction sets are divided into three areas (called tables), each of which corresponds to a part of a printed document:

- Table 1, the Transaction Set Header, is the heading area, in which information pertinent to the entire transaction is placed.
- Table 2, the detail area, is composed of one or more data segments. For example, the line items for a purchase order are placed in the detail area.

- Table 3, the Transaction Set Trailer, is the summary area, which contains information such as the number of data segments used in a transaction set.

Figure 1-1 Structure of a Transaction Set



Although a transaction set represents a printed document, it is not the information unit exchanged in an EDI transaction. Similar transaction sets are arranged into functional groups. For example, if Company A sends Company B two Requests for Quotations (RFQs) and five Purchase Orders (POs), the two RFQs are combined into one functional group, and the five POs are combined into another. All functional groups destined for a particular trading partner are then combined into an information unit called an EDI interchange. It is these interchanges that are transmitted between trading partners.

With the advent of readily-available high-speed networking, many EDI systems have moved to real-time EDI interchange, in which each transaction set is transmitted to a trading partner, if possible, as it arrives at the EDI system as a separate EDI interchange. In older systems, transaction sets are batched together and transmitted as one or more composite EDI interchanges. Because of the breadth and depth of EDI penetration into the e-commerce marketplace, you may encounter both situations with your trading partners.

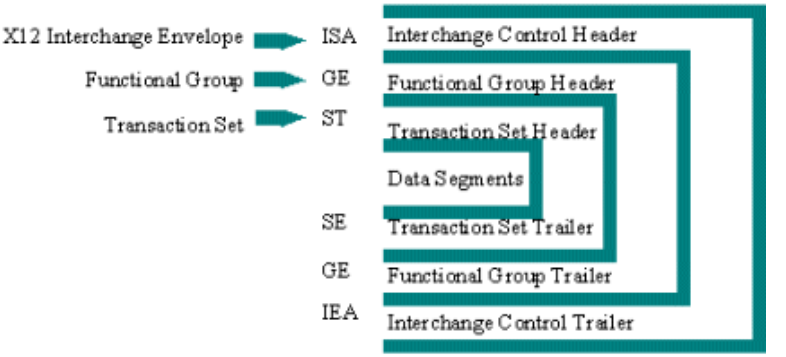
The functional groups of an interchange are wrapped within an interchange header and trailer. The header provides control information:

- Sender and receiver of the interchange
- Date and time of the interchange
- Standard and version of the interchange
- Authorization and security information
- Unique control number by which the interchange can be tracked.

The trailer ends the interchange. It provides the total number of functional groups in the interchange, and it repeats the unique interchange control number identified in the header.

The following illustration shows how all of this is put together to form an X12 EDI message. EDIFACT and TRADACOMS messages use similar, though not identical, message structures.

Figure 1-2 X12 Message Structure



Differences with Other E-Commerce Standards

E-commerce standards other than EDI, such as RosettaNet, BizTalk, and CXML are designed to take advantage of state-of-the-are technology, but they are not completely free of restrictions.

Generally, these e-commerce standards require the following:

- Use of HTTP and/or HTTPS as the standard transport protocol
- Use of XML to package data
- Assume real-time access to trading partners
- Structure that supports delivery of one transaction per datagram

In addition, because these standards are relatively new, they are generally restricted to a small industry segment, with a relatively limited number of transaction messages available. At the same time, other e-commerce standards evolve relatively quickly, adding new functionality very quickly.

In contrast, EDI offers a wide variety of already-established standards, including the three most common - X12, EDIFACT, and TRADACOMS. These standards provide a wide variety of transaction types, addressing a broad variety of industry and government segments.

EDI Standards

Currently, there are three primary EDI standards: X12, EDIFACT, and TRADACOMS.

X12

The X12 standard is maintained by the ANSI Accredited Standards Committee (`http://www.x12.org/`). It is used primarily within the U.S. and North America. The U.S. Federal government has chartered the National Institute of Standards and Technology to maintain a Federal registry of all EDI implementation standards as they are used by the Federal government. For details, go to (`http://snad.ncsl.nist.gov/dartg/edi/fededi.html`).

New releases of the X12 standard, incorporating technical updates and new EDI transactions, are published regularly.

EDIFACT

The EDIFACT standard is maintained by the United Nations/Economic Commission for Europe (UN/ECE) and the International Standards Organization (`http://www.unece.org/trade/untdid/`). The EDIFACT standard is used primarily within Europe.

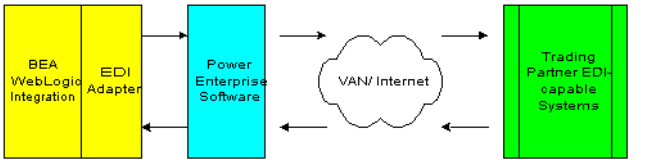
TRADACOMS

The TRADACOMS standard was developed and is maintained by the ANA (Article Numbering Association). It is used primarily in the U.K. retail industry.

BEA WebLogic EDI Integration Architecture

BEA provides comprehensive EDI support through the BEA WebLogic Adapter for Power.Enterprise! 3.0 and Power.Enterprise! software. Figure 1-3 illustrates how the BEA WebLogic Adapter for Power.Enterprise! and Power.Enterprise! software work together put WebLogic Integration to work with your trading partners' EDI systems.

Figure 1-3 BEA EDI Integration Architecture



BEA WebLogic Adapter for Power.Enterprise!

The BEA WebLogic Adapter for Power.Enterprise! provides a gateway between WebLogic Integration and the Power.Enterprise! software. Using standard application integration events and services that you define using BEA WebLogic technology, BEA WebLogic Adapter for Power.Enterprise! allows you to:

- Exchange XML documents with your trading partner, via Power.Enterprise!
- Receive documents from a trading partner via Power.Enterprise!

Power.Enterprise! Software

Power.Enterprise! is a suite of three components: Power.Server!, Power.Map!, and Power.Manager!. These components enable you to define your EDI to XML document maps, manage your trading partner relationships, and handle the transmission and receipt of EDI messages.

CHAPTER

2 Architecture

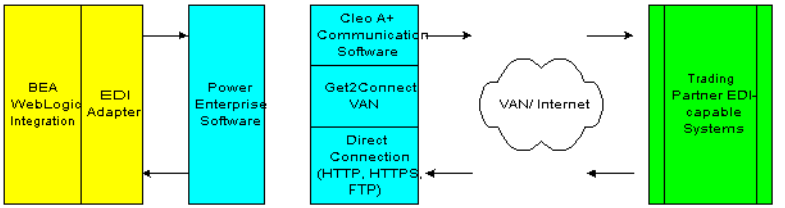
The following sections describe the architecture of EDI Integration, including information about the BEA WebLogic Adapter for Power.Enterprise!, the Power.Enterprise! software, and VAN/network connectivity:

- EDI Integration Architecture
- Power.Enterprise! Architecture
- VAN and Network Connectivity

EDI Integration Architecture

BEA provides comprehensive EDI support using the BEA WebLogic Adapter for Power.Enterprise! and the Power.Enterprise! software suite. Figure 2-1 shows how the BEA WebLogic Adapter for Power.Enterprise! and Power.Enterprise! combine to put WebLogic Integration to work with your trading partners' EDI systems.

Figure 2-1 BEA EDI Integration Architecture



The EDI Adapter uses application integration to allow WebLogic Integration to exchange XML documents with Power.Enterprise!, using RMI message passing.

The Power.Server! component of Power.Enterprise! provides EDI Integration with capabilities for transforming, transmitting, and receiving EDI messages. Power.Enterprise! provides run-time, management, and mapping tools to resolve all EDI transactions with individual trading partners in real time.

Power.Enterprise! Architecture

The Power.Enterprise! software provides a unified, Java-based working environment in which you can map your outgoing document transmissions to appropriate EDI documents and manage your relationships with trading partners. This environment comprises three components:

- Power.Server!: This Java-based run-time server provides dispatch and receive services for your EDI message traffic. It executes transactions with trading partners defined using Power.Manager!. Incoming and outgoing messages are transformed in accordance with the definitions you establish using Power.Map!.
- Power.Manager!: This application allows you to manage multiple Power.Server! instances across multiple machines by defining trading partner relationships and connection information for all your trading partners.
- Power.Map!: This application enables you to load, create, and store maps between the various data formats you use and common EDI data structures. By using Power.Map! you can create simple mapping rules for elementary conversions, or use formulas or JavaScript for more complex and sophisticated conversions.

Feature Overview

Power.Enterprise! provides a complete solution for the transformation and delivery of messages:

- Power.Server! provides a real-time data-transformation engine, with support for ANSI X12, UN/EDIFACT, and TRADACOMS data formats.

- Power.Map! is an extensible mapping tool that provides drag-and-drop functionality for your mapping. It also allows you to use formulas or JavaScript code for more complex conversions.
- Power.Manager! is the configuration and management tool, which allows you to configure trading partner relationships and single-direction connections.

Power.Enterprise! is also equipped with IP-level connectivity to the Get2Connect VAN, and it supports a variety of standard network connection protocols.

Supported Standards

Power.Enterprise! supports the following EDI and data standards:

- X12
- EDIFACT
- TRADACOMS
- XML
- Flat file

Limitations

Currently the Power!Enterprise suite is available on the following systems:

- Power.Server! is available for Windows NT/2000, Solaris, HPUX, and AIX systems.
- Power.Enterprise! requires an SQL database to function. It supports Oracle 8i (8.1.7 or later), Microsoft SQLServer 7.0 or 2000, and IBM DB2 databases.
- Power.Map! and Power.Manager! are available only for Windows NT/2000 systems.

Power.Map!

Power.Map! is a tool that defines the data format-mapping capabilities available in Power.Enterprise!. It supports conversion of data into and out of EDI formats, allowing you to choose any document structure standard supported by Power.Map!, while maintaining your ability to interoperate with a variety of standard and trading partner-specific EDI formats.

Power.Map! requires three items:

- Data definition for the source document
- Data definition for the target document
- Map of links between data in the source document and data in the target document

You must provide separate data definitions, such as DTDs or XSDs, for any data format not already defined in Power.Map!. With Power.Map! you can build XML data structures within the application, or you can import DTDs and schemas that are externally created. Once those documents are imported into Power.Map!, you can define a map for them.

Although Power.Map! supports the import of XML DTDs and schemas for data definitions, it does not provide a data format export capability; document formats may only be imported. For this reason, you should design your data interchange documents outside Power.Map!, then import a copy to Power.Map! to create a map.

Power.Map! includes built-in definitions for most standard EDI messages, including support for X12, EDIFACT, and TRADACOMS messages.

Creating and Maintaining Maps

Power.Map! allows you to create, maintain, and test maps off-line, that is, without any connections to a server. These maps are based on document definitions that you may import, EDI document definitions supplied with Power.Map!, and custom definitions that you may define. Power.Map! allows you to export a map that you have defined, or import a map created elsewhere.

Creating and Maintaining Documents

Document definitions that you intend to use with Power.Server! should be maintained separately. Power.Map! supports only the import of XML DTDs and XSDs. These documents cannot be used outside Power.Map! (for example, they cannot be used in WebLogic Integration) unless they are created outside Power.Map!.

In addition, you should verify the EDI document standards that you will be using. While a variety of standards and versions are supported within Power.Enterprise!, the specific transaction, standard, and version that you are using may not be supported. If you are using an unsupported transaction, standard, or version, contact BEA Customer Support.

Power.Manager!

Power.Manager! is used to maintain and manage your servers and trading partner relationships. Power.Manager! allows you to manage multiple instances of Power.Server! from a single, remote location.

Trading Partner Maintenance

Power.Manager! provides facilities for maintaining trading partner definitions and the data associated with them. These trading partner definitions are specific to EDI Integration; they are not shared with or available to any other components of the BEAWebLogic Integration system.

Connections

Power.Manager! allows you to maintain multiple simultaneous connections. Each connection defines a flow of information in one direction, either to or from the Power.Server! Thus, a single connection might define the RMI transfer of documents from Power.Server! to the EDI Adapter. A second connection might define the reception, by Power.Server!, of EDI documents sent by a trading partner via the Get2Connect VAN.

Exchange Profiles

Power.Manager! allows you to define multiple exchange profiles to manage the flow of documents with your trading partners. Each exchange profile manages a single set of documents that:

- Flows in one direction, from a source to a destination
- Contains two connections
- Contains a map

An exchange profile, for example, may contain a connection that governs the reception of an EDI document from a trading partner via the Get2Connect VAN, a map that transforms that EDI document into an XML document, and a second connection definition that sends the resulting XML document to the EDI Adapter via RMI.

Document Tracking

Power.Manager! provides tools for logging, reporting, and tracking so you can monitor your documents in real time.

Administration

Power.Manager! allows you to manage multiple servers. You can manage documents, view and configure logging, and establish error-handling procedures on the server from a single remote application.

VAN and Network Connectivity

EDI transactions are often executed through one or more proprietary networks, called Value-Added Networks (VANs). VANs are created and customized for a specific vertical or horizontal industry segment, such as the following:

- General Electric Global Exchange Services (GE GXS) is one of the largest VANs in the world. GXS provides wide-ranging VAN services throughout the world, with over 100,000 trading partners exchanging $1 trillion in goods and services each year.

- Telefonica Servicios Avanzados de Informacion (TSAI) is an example of a horizontal-industry segment VAN. It is the primary Spanish-language VAN, serving a variety of industries. Approximately $1.25 billion in business is handled by the TSAI VAN each year, which accounts for 60 percent of Spain's EDI business.
- PaperVan, an example of a vertical-industry segment VAN, is a VAN for the paper products industry. In addition to networking services, it provides consulting and implementation support.
- WalMart has established a proprietary VAN as part of its EDI strategy, aimed at managing the acquisition and distribution of products. To implement this strategy, WalMart provides its suppliers with a comprehensive standard for connecting with their implementation of EDI and their VAN.

Many companies implementing EDI are also experimenting with direct transaction handling, either over proprietary networks or via the Internet. The field trials of these implementations indicate that security over the Internet is not an issue.

Power.Enterprise! supports all the communication options described here. You may perform transactions with a partner using any of the following connection methods:

- Over a proprietary VAN, using the Cleo A+ software
- Via a direct network connection
- Via the Internet (HTTP, HTTPS, and FTP connections are all supported)
- Using the Get2Connect VAN (with built-in support)

Power.Enterprise! provides connectivity to a generic VAN called Get2Connect.net which is not targeted to a specific industry.

To connect to other VANs, Power.Enterprise! also includes the use of a trial license for Cleo A+, which is a communication package for Windows systems that allows you to exchange files with other micro, mini, and mainframe computers that support asynchronous communications.

CHAPTER

3 BEA WebLogic Adapter for Power.Enterprise! 3.0

The BEA WebLogic Adapter for Power.Enterprise! 3.0 is an implementation of the application integration capability in BEA WebLogic Integration. The BEA WebLogic Adapter for Power.Enterprise! enables you to send and receive XML messages that are transformed into and from EDI messages by Power.Enterprise!. This section includes the following topics:

- Overview of Application Integration
- Using the Adapter Plug-In to the BEA WebLogic Integration Studio
- Exception Handling

Overview of Application Integration

BEA WebLogic Integration is described in *Introducing Application Integration*. For more information about implementing and using application integration functionality, see *Using Application Integration*.

BEA WebLogic Integration's integration solution supports existing and future standards for connecting applications both within and between enterprises. BEAWebLogic Integration provides a means to define communication endpoints,

which you may add to a process flow through the business process management (BPM) functionality of BEA WebLogic Integration or by using custom code to form a complete integration solution.

As discussed previously, the BEA WebLogic Adapter for Power.Enterprise! is implemented using the integration functionality provided by BEA WebLogic Integration. The remainder of this chapter discusses this functionality as it applies to the BEA WebLogic Adapter for Power.Enterprise!.

Application Views

To accomplish message-level enterprise application integration, you can create any number of application views for each adapter. An *application view* defines a set of business functions on a specific adapter. The application view, via the underlying adapter, supports events and services for a particular business use.

- *Events* enable messages generated by an application to be managed in accordance with a publish and subscribe model.
- *Services* are business functions that may be invoked by a user. Service invocations cause messages to be sent to an application in accordance with a request/response model.

Requests and responses for both events and services are passed through the system as XML documents. For more information about application views, see "Understanding the Integration Framework" in *Introducing Application Integration*.

The BEA WebLogic Adapter for Power.Enterprise! view provides multiple application views, each containing multiple user-definable services and events. Both services and events are defined by XML schemas, and both transmit data in XML form. This method allows any XML-aware component, such as WebLogic Integration, to use the BEA WebLogic Adapter for Power.Enterprise! for communication with Power.Enterprise!. BEA WebLogic Adapter for Power.Enterprise! application views, services, and events are managed from the WebLogic Application Integration Adapter home page.

Before the BEA WebLogic Adapter for Power.Enterprise! can operate properly with Power.Enterprise!, you must configure it to do so. You must also configure the Adapter services and events.

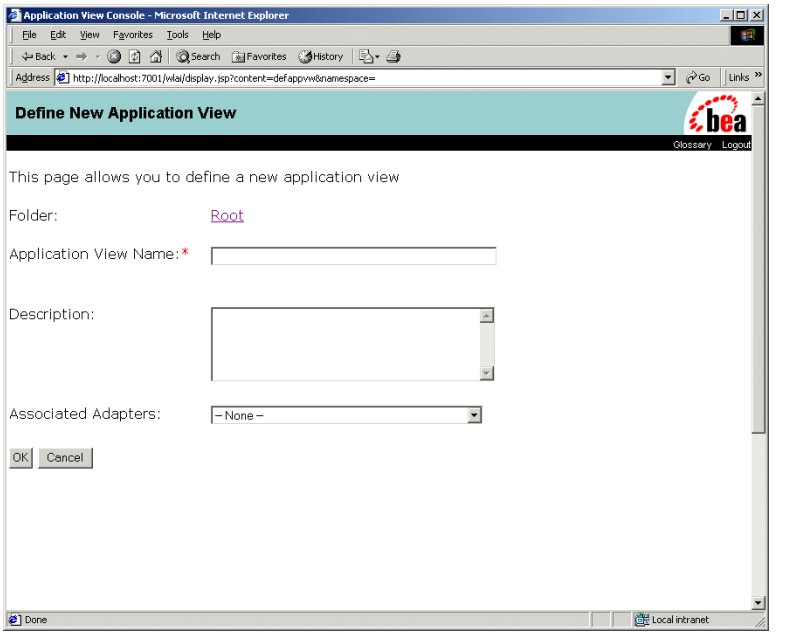
To facilitate these configuration tasks, BEA WebLogic Adapter for Power.Enterprise! application view provides three Java Server Pages (JSPs).

Configuring the BEA WebLogic Adapter for Power.Enterprise!

To enable the BEA WebLogic Adapter for Power.Enterprise! to communicate with Power.Enterprise!, you must configure it with suitable communication information. To configure the BEA WebLogic Adapter for Power.Enterprise!:

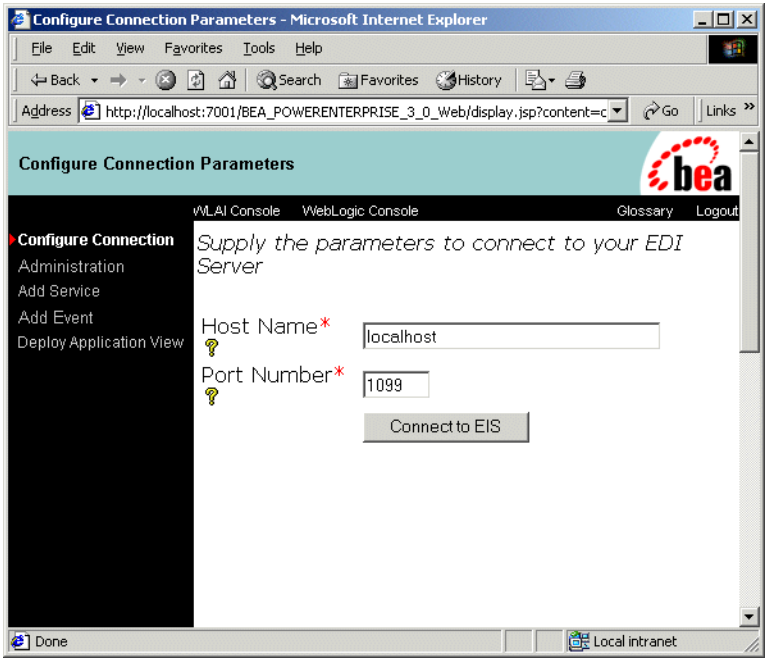
1. From the BEA WebLogic Integration Application View Console, select Define New AppView.

Figure 3-1 Define New Application View JSP



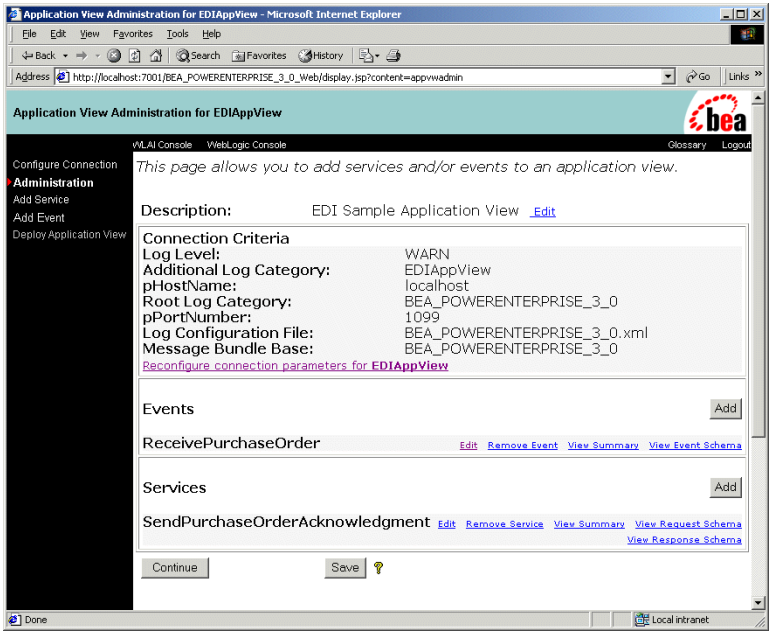
2. Select Configure Connection. The Configure Connection JSP is displayed.

Figure 3-2 Configure Connection JSP



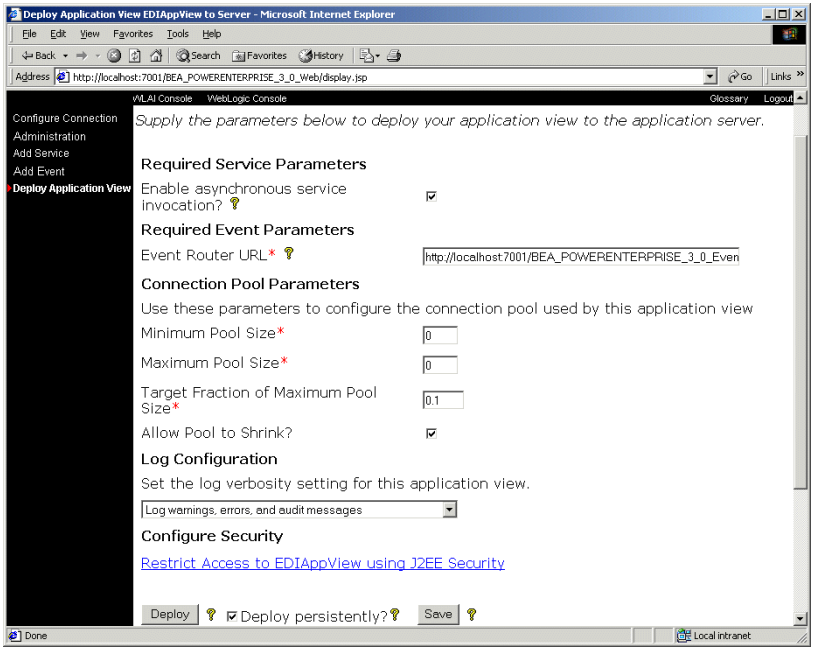
3. Enter the hostname or IP address of the system on which the Power.Server! resides.
4. Enter the port number used by Power.Enterprise! for RMI communications. The default is 1099.
5. Select Connect to EIS.
6. Click Add Service, and define any services you want exposed using the procedure in “Configuring Services.”
7. Click Add Event, and define any events you want exposed using the procedure in “Configuring Events.”

Figure 3-3 Configuration Administration JSP



8. Set the connection criteria based on your requirements. Many of these criteria are automatically generated based on the information you have already entered and your system configuration. When you are finished, select Continue. The Deploy Application View window appears.

Figure 3-4 Deploy Application View JSP



9. Set any parameters necessary, and select Deploy. Your configured application view is deployed.

Note: Always start the Power.Server! before you start WebLogic Integration or WebLogic Server. The WebLogic Integration connectors expect to see an active instance of the Power.Server! when they are initialized, and they will throw exceptions if Power.Server! is not running when they are initialized.

Events

An event contains an XML document that is published by an application view when an event of interest occurs. Clients that want to be notified of events register their interest with an application view. After a client subscribes to events published by an application view, the application view notifies the client whenever a subscribed event occurs within the target application, and then passes the client an XML document that

describes the event. For more information about adding events to an application view, see "Step 4B: Add an Event to an Application View" in "Defining an Application View" in *Using Application Integration*.

The BEA WebLogic Adapter for Power.Enterprise! provides user-definable events. These events are created and managed using a Java Server Page, which is published as part of the WebLogic Integration Application Interface. When Power.Enterprise! receives an EDI message from a trading partner and forwards it to the BEA WebLogic Adapter for Power.Enterprise!, the Adapter publishes the appropriate events. The process works as follows:

1. Upon receipt of an EDI document from a trading partner, Power.Enterprise! translates the document to XML.
2. Using RMI, Power.Enterprise! invokes BEA WebLogic Adapter for Power.Enterprise! with a previously registered event.
3. WebLogic Integration publishes the defined event.

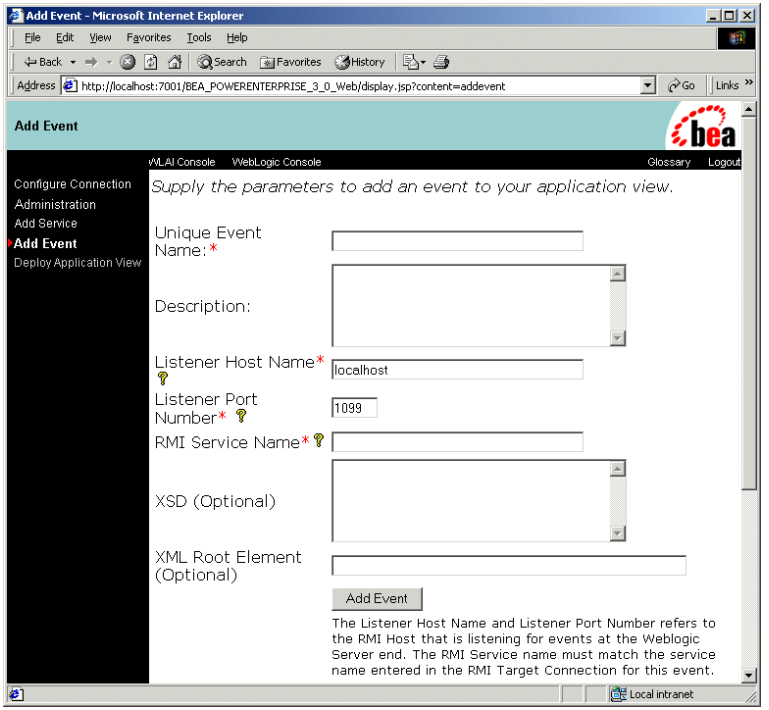
Configuring Events

Events are used by the BEA WebLogic Adapter for Power.Enterprise! to send information from a workflow to Power.Enterprise!, which forwards it to your trading partner. The BEA WebLogic Adapter for Power.Enterprise! allows you to define multiple events. As a rule, you will define one event per XML/EDI document type (a purchase order, for example) that you plan to send.

To define an event on the BEA WebLogic Adapter for Power.Enterprise!:

1. On the BEA WebLogic Adapter for Power.Enterprise! home page, click Add Event.

Figure 3-5 Configure Event JSP



2. Enter a name for the event that is unique within the BEA WebLogic Adapter for Power.Enterprise!.
3. If you like. Enter a description. (This step is optional.)
4. Enter the hostname or IP address of the system on which the Power.Server! process resides.
5. Enter the number of the port used by the RMI listener process.
6. Enter the RMI service name of the listener process as defined for Power.Enterprise!.

Testing an Event

After you configure both events and your workflows, you should test that you can successfully send messages through those events. Use the Test Event link to test your event within the Application View console.

The following procedure is a simple test method to test how an event receives a message:

1. Configure Power.Enterprise! such that it temporarily uses a file connection to send to your trading partner.
2. Send a message through the system, and dump the resulting EDI message to a file.
3. Examine the file containing the message to make sure that the message was created and sent correctly.
4. When you finish testing, reconfigure the connection to use the transport appropriate to your trading partner.

Services

A service is a business operation in an application that is exposed by the application view. It functions as a request/response mechanism: when an application receives a request to invoke a business service, the application view invokes that functionality in its target application and then responds with an XML document that describes the results. For information about adding services to an application view, see "Step 4A: Add a Service to an Application View" in "Defining an Application View" in *Using Application Integration.*

The BEA WebLogic Adapter for Power.Enterprise! provides user-configurable services. These services are created and managed using a Java Server Page, which is published as part of the WebLogic Integration Application Interface. They are used to send XML to Power.Enterprise!, which, in turn, converts the XML message to an EDI message and sends the EDI message to a trading partner.

To send an EDI message, submit an appropriately formatted XML document to the service defined for BEA WL Adapter for Power.Enterprise!. The service uses RMI to pass the message to Power.Enterprise!, which translates the XML message to an EDI message format and dispatches it to the appropriate trading partner.

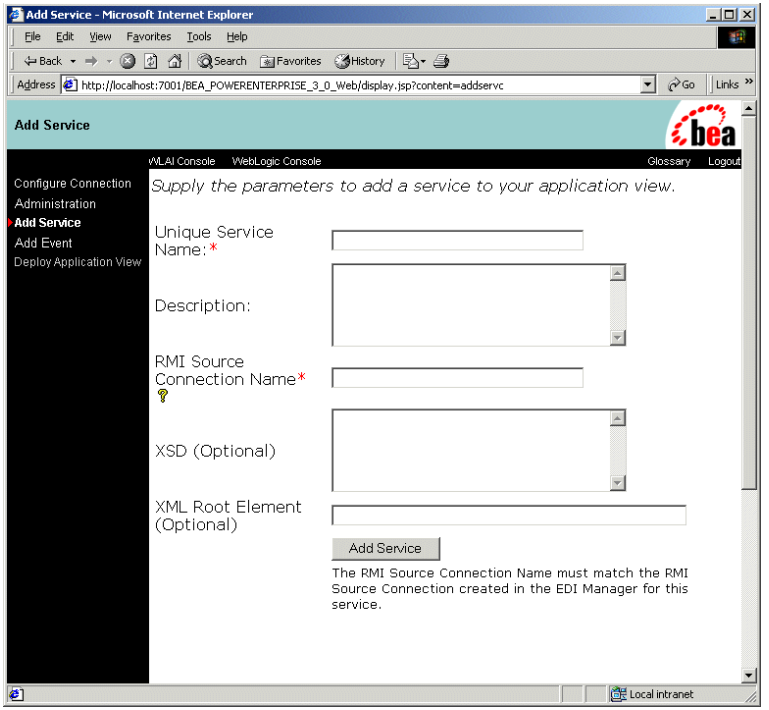
Configuring Services

Services are used by the BEA WebLogic Adapter for Power.Enterprise! to receive information for a workflow that is forwarded from your trading partner by Power.Enterprise!. Although the BEA WebLogic Adapter for Power.Enterprise! allows you to define multiple services, most situations require you to define only one event per XML/EDI document type (such as an EDI 855 message) that you plan to receive.

To define a service on the BEA WebLogic Adapter for Power.Enterprise!:

1. On the BEA WebLogic Adapter for Power.Enterprise! home page, click Add Service. The Configure Service JSP is displayed.

Figure 3-6 Configure Service JSP



2. Enter a name for the service that is unique within the BEA WebLogic Adapter for Power.Enterprise!.

3. Enter a description. (This step is optional.)
4. Enter the name of the RMI source connection, defined under Power.Enterprise!, from which this service can expect to receive messages.

Testing a Service

After you configure both services and the workflows that will use those services, you should verify that you can properly receive messages from them. Use the Test Service link to test your event within the Application View console.

The following procedure is a simple test method to test how a service delivers a message:

1. Configure Power.Enterprise! such that it temporarily uses an inbound file connection.
2. Drop a file into an outbox to start a test sequence. The resulting message should be transformed by Power.Enterprise, then sent to your workflow.
3. In your workflow, examine the message to make sure that it was created and received correctly.
4. When you finish testing, reconfigure the connection to use the transport appropriate to your trading partner.

Using the Adapter Plug-In to the BEA WebLogic Integration Studio

The BEA WebLogic Adapter for Power.Enterprise! includes a plug-in to the BEA WebLogic Integration Studio, a graphical tool for modeling for business processes. Because the Adapter is an integral part of BEA WebLogic Integration, you can use this plug-in for EDI message handling and integration in exactly the same way you use any other application integration adapter.

For more information about BPM workflow design using adapters and the adapter plug-in to the BEA WebLogic Integration Studio, see "Understanding the Application Integration Plug-in for BPM" and "Understanding the ADK" in *Introducing Application Integration.*

Deploying an Adapter in a New WebLogic Integration Domain

If you want to deploy an instance of the BEA WebLogic Adapter for Power.Enterprise! 3.0 in a new domain, follow these steps:

For Windows Systems:

Before you begin, you must determine the location of the adapter ear and jar file on your computer. By default, they are located in *WLI_HOME*\adapters\powerenterprise\lib.

1. Declare the adapter's EAR file in your domain's config.xml file.

Listing 3-1 Windows Config.XML Domain Declaration

```
<Application Deployed="true" Name="BEA_POWERENTERPRISE_3_0"
 Path="WLI_HOME\adapters\powerenterprise\lib\BEA_POWERENTERPRISE_3_0_EAR.ear">
    <ConnectorComponent Name="BEA_POWERENTERPRISE_3_0"
     Targets="myserver" URI="BEA_POWERENTERPRISE_3_0.rar"/>
    <WebAppComponent Name="BEA_POWERENTERPRISE_3_0_EventRouter"
     Targets="myserver"
     URI="BEA_POWERENTERPRISE_3_0_EventRouter.war"/>
    <WebAppComponent Name="BEA_POWERENTERPRISE_3_0_Web"
     Targets="myserver" URI="BEA_POWERENTERPRISE_3_0_Web.war"/>
</Application>
```

2. Add the following JAR files in the WebLogic server classpath.

   WLI_HOME\lib\hlcommon.jar

   WLI_HOME\lib\mekshared.jar

   WLI_HOME\lib\powerapi.jar

   WLI_HOME\adapters\powerenterprise\lib\
   BEA_POWERENTERPRISE_3_0.jar

For UNIX Systems

Before you begin, you must determine the location of the adapter ear and jar file on your computer. By default, they are located in *WLI_HOME*/adapters/powerenterprise/lib.

1. Declare the adapter's EAR file in your domain's config.xml file:

Listing 3-2 UNIX Config.XML Domain Declaration

```
<Application Deployed="true" Name="BEA_POWERENTERPRISE_3_0"
Path="WLI_HOME/adapters/powerenterprise/lib/BEA_POWERENTERPRISE_3_0_EAR.ear">
    <WebAppComponent Name="BEA_POWERENTERPRISE_3_0_EventRouter"
     Targets="myserver" URI="BEA_POWERENTERPRISE_3_0_EventRouter.war"/>
    <ConnectorComponent Name="BEA_POWERENTERPRISE_3_0" Targets="myserver"
     URI="BEA_POWERENTERPRISE_3_0.rar"/>
    <WebAppComponent Name="BEA_POWERENTERPRISE_3_0_Web"Targets="myserver"
     URI="BEA_POWERENTERPRISE_3_0_Web.war"/>
</Application>
```

2. Add the following JAR files in the WebLogic Server classpath.

   WLI_HOME/lib/hlcommon.jar

   WLI_HOME/lib/mekshared.jar

   WLI_HOME/lib/powerapi.jar

   WLI_HOME/adapters/powerenterprise/lib/BEA_POWERENTERPRISE_3_0.j
   ar

Exception Handling

The response schema for a service method should include both a status `Code` and a `Message`:

- `Code` returns `Success` or `Failure`.
- `Message` corresponds to a message returned by Power.Enterprise! when a service call is initiated.

To handle any exception that may occur, create an XPath expression to retrieve the status code from any response XML.

The following is an example of the response schema for a service call:

```
<Status>
  <Code>Success </Code>
  <Message>Translation Request Queued Successfully.</Message>
</Status>
```

The Code can be extracted from the response schema using the following Xpath expression:

```
"/Status/Code/text()".
```

CHAPTER

4 Configuring Power.Enterprise!

This section describes the installation and configuration of Power.Enterprise! and its associated software:

- Installing Power.Enterprise!
- Configuring Power.Enterprise!
- Configuring Trading Partners
- Mapping XML and EDI Data
- Connections and VAN Connectivity
- Configuring Exchange Profiles

Installing Power.Enterprise!

Power.Enterprise! is delivered in two packages that must be installed separately. In addition, you may want to install Cleo A+ to manage VAN connectivity issues.

If you plan to install both Power.Server! and Power.Client! on the same machine, you must install them in separate directories.

- Power.Server! is the run-time server. Before you can install this package, your environment must meet the following prerequisites:

- Operating System: Microsoft Windows NT 4.0 SP6, Windows 2000 SP1, Sun Solaris 7, HP UX 11, or IBM AIX 4.3.3
- Java: Sun JRE/JDK 1.3 or later
- Memory: 512MB minimum, 1GB recommended
- Disk space: 100MB
- SQL Database: Power.Server! requires access to an SQL database. Power.Server! supports Oracle 8i, Microsoft SQL Server 2000, and IBM DB2 version 7.1.You must provide the hostname, connection port, database name, and login information for the database during installation.

BEA WebLogic Integration includes a 30-day trial license common to all Power.Enterprise! software. To receive a single, full-use license for Power.Server!, contact your BEA sales representative. One Power.Enterprise! license is available for each BEA WebLogic Integration license.

- Power.Client! contains Power.Map! and Power.Manager!. Before you can install this package, your environment must meet the following prerequisites:
  - Operating System: Microsoft Windows NT 4.0 SP4 or Windows 2000
  - Java: Sun JRE/JDK 1.3 or later
  - Memory: 256MB
  - Disk space: 50MB
  - Internet Explorer 5.0

  BEA WebLogic Integration includes a 30-day trial license common to all Power.Enterprise! software. Power.Client! uses this license key

- Cleo A+ is an asynchronous communications management package used to control VAN communications with your trading partner. If you are using a VAN other than Get2Connect, and you need asynchronous communications management, install the Cleo A+ software. For more information about installing Cleo A+, go to the following URL:

  `http://www.cleo.com/install/peregrine/install.htm`

  For information about obtaining a production license for Cleo A+, contact Cleo Communications.

Getting Licenses

Whether you download Power.Enterprise! as part of the WebLogic Integration 2.1 installation or install it from CD media, you will need to obtain your Power.Enterprise! 3.0 evaluation license from the BEA website at the following URL:

`http://commerce.bea.com/downloads/weblogic_integration.jsp`

A Power.Enterprise! production license is provided when you purchase BEA WebLogic Integration. For more information, please contact your BEA sales representative.

In addition, you may download and install a 30-day trial of Cleo A+, for handling VAN connectivity. To convert your trial license to a production license, contact Cleo Communications.

Access to the Get2Connect.Net VAN is included with the BEA WebLogic Adapter for Power.Enterprise!. To use Get2Connect.Net, contact Peregrine Customer Support through their Web site at `http://www.peregrine.com/`.

Installing the Power.Server!

To install the Power.Server! software, you must fulfill the prerequisites listed in the previous sections of this document. For general information about installing Power.Server!, see "Installing the Power.Enterprise! Software" in *Installing BEA WebLogic Integration.*

Installing the Power.Client!

To install the Power.Client! software (specifically Power.Map! and Power.Manager!), you must fulfill the prerequisites listed under "Installing Power.Enterprise!" on page 4-1. For general information about installing the Power.Client! software, see "Installing the Power.Enterprise! Software" in *Installing BEA WebLogic Integration.*

Connecting to Get2Connect.Net

To use Get2Connect.Net, you must have the Power.Enterprise! software installed. You must also have a valid Product Serial Number (PSN) to register as a Get2Connect.Net trading partner. To get a valid PSN, contact BEA Customer Support.

Installing Cleo A+

If you intend to use Cleo A+ for VAN communications, go to the following URL:

`http://www.cleo.com/install/peregrine/install.htm`

This Web page provides downloadable installation sets for all platforms supported by Power.Server!, as well as installation and user documentation. The downloadable software includes a trial license. For production licensing, contact Cleo Communications.

Downloading Software Updates

Power.Enterprise! is designed to be updated with downloaded software patches from the BEA Customer Service Web site.

To install software patches for Power.Enterprise!:

1. From within Power.Manager! click Self Service, then click Software Update.
2. Click Step 1: Select Software. This launches a Web browser which automatically connects to the BEA Customer Service web page, listing all software update files available for download. Instructions for installation of these updates are also included on this Web page.

Updating EDI Document Descriptions

Power.Enterprise! ships with definitions for many standard EDI documents included. BEA will also make new definition sets available through BEA Customer Service.

To install new standards downloaded from the BEA Customer Service Web site:

1. From within Power.Manager! click Self Service, then click Standards Update.
2. Click Step 1: Select Standards. This launches a Web browser which automatically connects to the BEA Customer Service web page, listing all EDI definition files available for download.
3. Select and download the EDI definition files that you require.
4. Place the downloaded files into the following directory:

   Power_Server_install_dir\downloads\metadata\
5. Stop, then restart the Power.Server on which you have installed the definition file.
6. Remove the downloaded files from the following directory:

   Power_Server_install_dir\downloads\metadata\
7. To access the document descriptions from within Power.Map!, check them out from the server.

Starting Power.Server!

To start Power.Server! on a Windows platform:

1. Choose Start Menu→Programs→Power.It→Power.Server!.
2. Wait approximately 10 seconds for the server to start.

To start Power.Server! on a UNIX platform:

1. Go to the following directory:

   Power_Server_Install_Dir/jre/bin

   In this pathname, *Power_Server_Install_DIR* is the directory in which you installed the Power.Server! software.
2. Execute the following command:

   rmiregistry

   The RMI Registry on Port 1099 is started.

3. Go to the following directory:

   Power_Server_Install_Dir/bin

4. Execute the following command

   start_server.sh

   The Power.Server! software is started.

Note: You can verify that the server has started successfully by checking the contents of the *Power_Server_Install_Dir*/logs/powerserver.log file for the line Translation server started on *date*, where *date* reflects the date and time that you started the server.

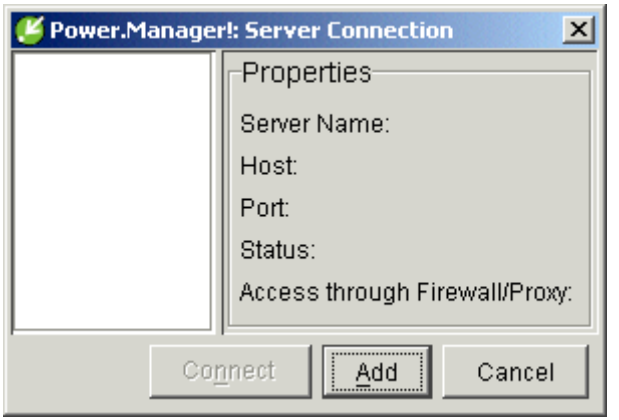
Connecting to a Server for the First Time

Before you can log in to Power.Manager! or Power.Map!, you must create a Power.Server! connection. Subsequently, you can use the same procedure to connect to other instances of Power.Server!, allowing you to manage multiple instances of Power.Server! from a single console. All connection data is persistent: once you create a connection, it will be available every time you start Power.Manager!.

To create a connection:

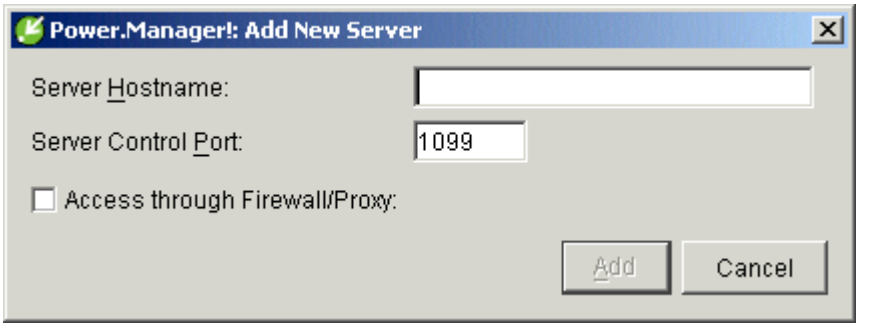
1. Log in to Power.Manager! or Power.Map by choosing Start Menu→Programs→Power.It. Select the appropriate application. To create a server connection, Power.Server! must be running on the machine to which you want to connect.

Figure 4-1 Power.Manager! Server Connection Dialog Box



2. Click Add to add a new Power.Server! connection.

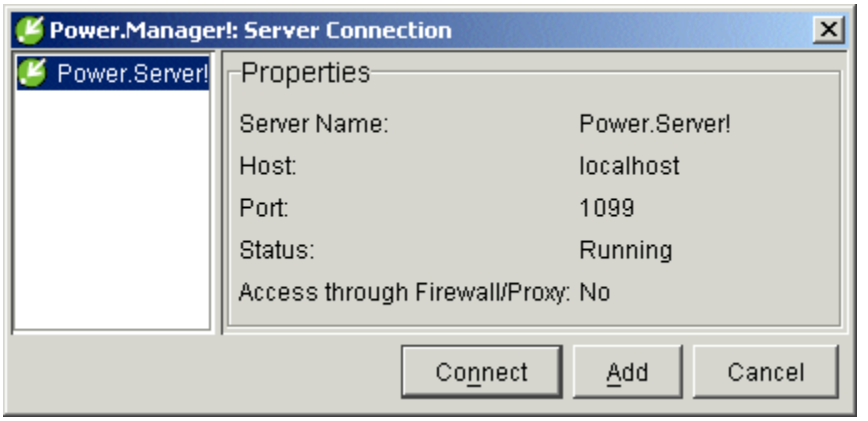
Figure 4-2 Power.Manager! Server Add Dialog Box



3. Enter the Server Hostname and Server Control Port of the Power.Server!. Click Add. A list of defined instances of Power.Server! is displayed.

4. Select the Power.Server! to which you want to connect from the list of defined connections. Click Connect. The Power.Manager! Server Connection dialog box is displayed.

Figure 4-3 Power.Manager! Server Connection Dialog Box



Configuring Power.Enterprise!

Power.Enterprise! allows you to configure multiple connections to the BEA WebLogic Adapter for Power.Enterprise!. Each connection to the BEA WebLogic Adapter for Power.Enterprise! is defined as a separate RMI connection, either sending data to or receiving data from Power.Enterprise!. All other configuration required by Power.Enterprise! is designed to configure trading partners, maps, external connections, and exchange profiles. When initially configuring Power.Enterprise!, be sure to configure the following entities in the order shown:

- Trading partners
- Maps
- Connections
- Exchange profiles

Configuring Trading Partners

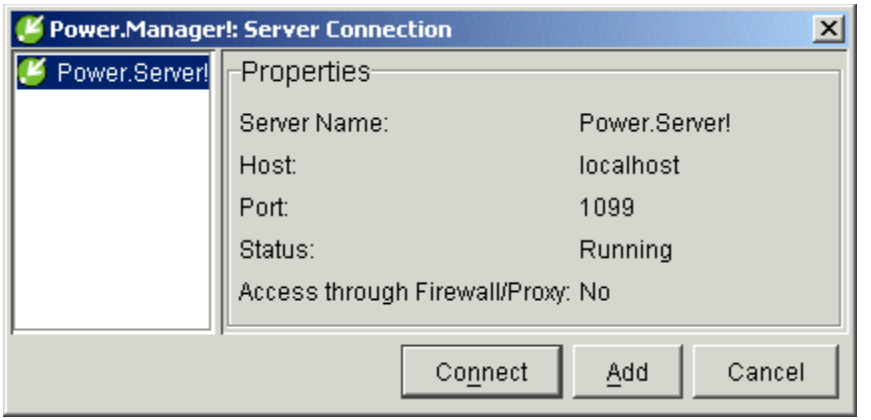
To use EDI Integration with WebLogic Integration, you must enter your trading partner data into both Power.Enterprise! and WebLogic Integration. No mechanism exists to move trading partner data either to or from Power.Enterprise!, so you any trading partner data registered with WebLogic Integration must also be entered into Power.Enterprise!.

You must create a Power.Enterprise! trading partner profile for every trading partner involved in your transactions, including your own company.

To create a new trading partner:

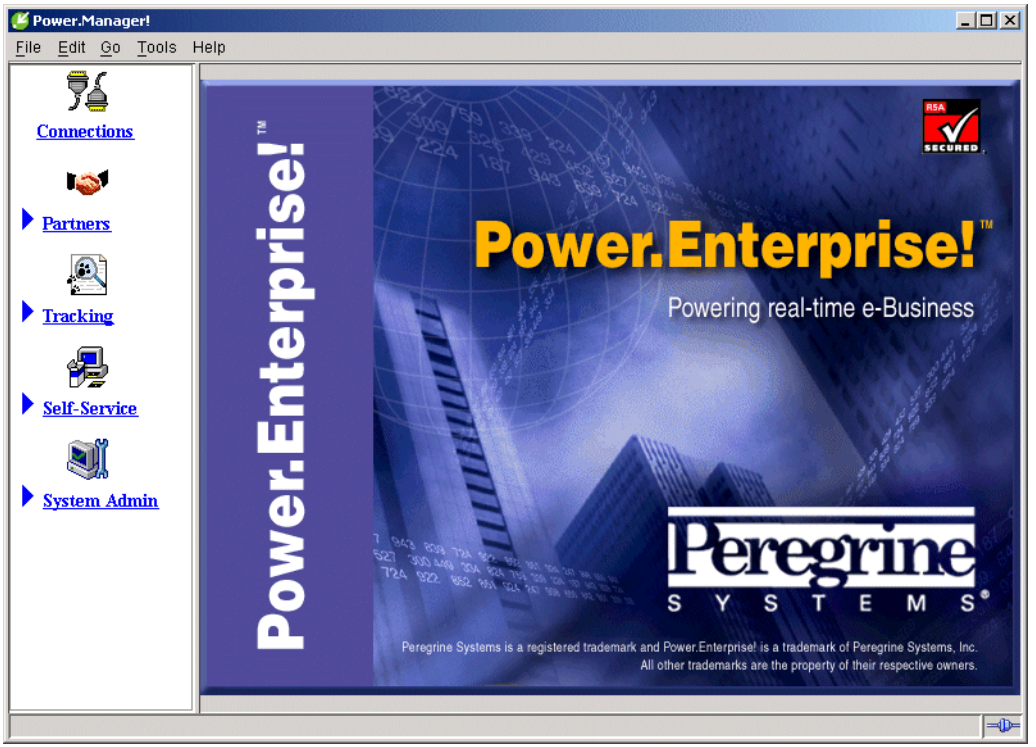
1. Start Power.Manager!. A list of defined instances of Power.Server! is displayed.
2. Select the instance of Power.Server! to which you want to connect. (If no Power.Server! connections are defined, see “Connecting to a Server for the First Time” on page 4-6.)

Figure 4-4 Power.Manager! Server Connection Dialog Box



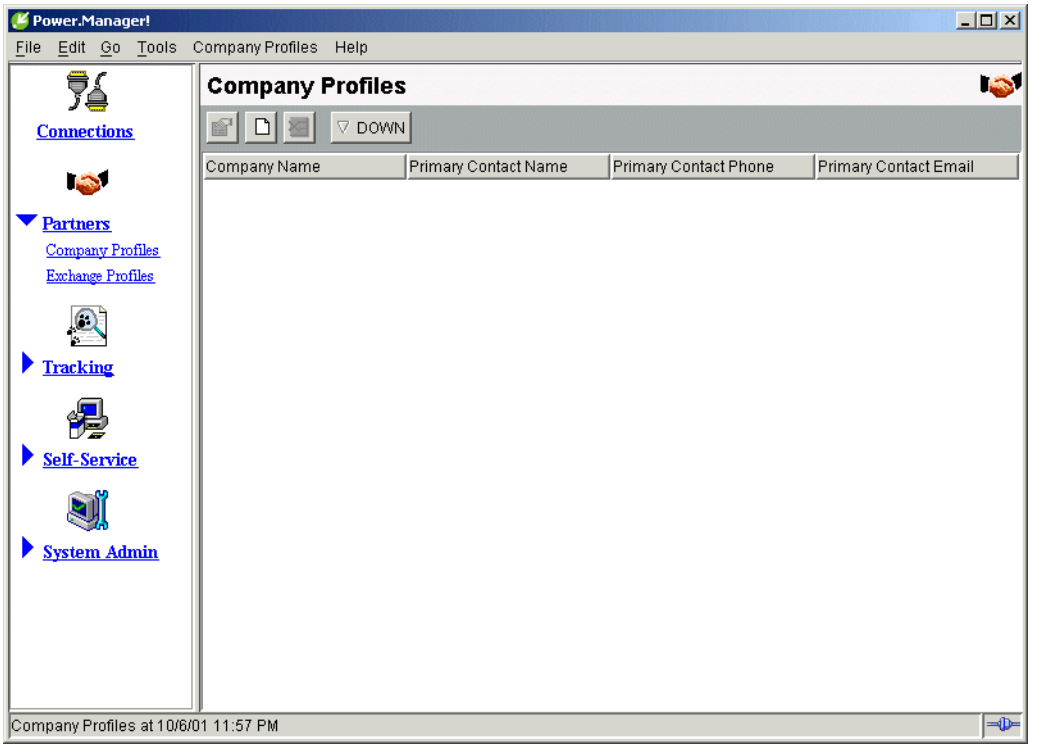
3. Click Connect. The Power.Manager! main window is displayed.

Figure 4-5 Power.Manager!



4. To set up a trading partner's company profile, choose Partners→Company Profiles. The Company Profile window is displayed.

Figure 4-6 Company Profile List



5. Click New Company. Enter the required information about your trading partner.

For more information about creating and maintaining trading partners, see Chapter 4 of the *Power.Manager! User Reference Manual*.

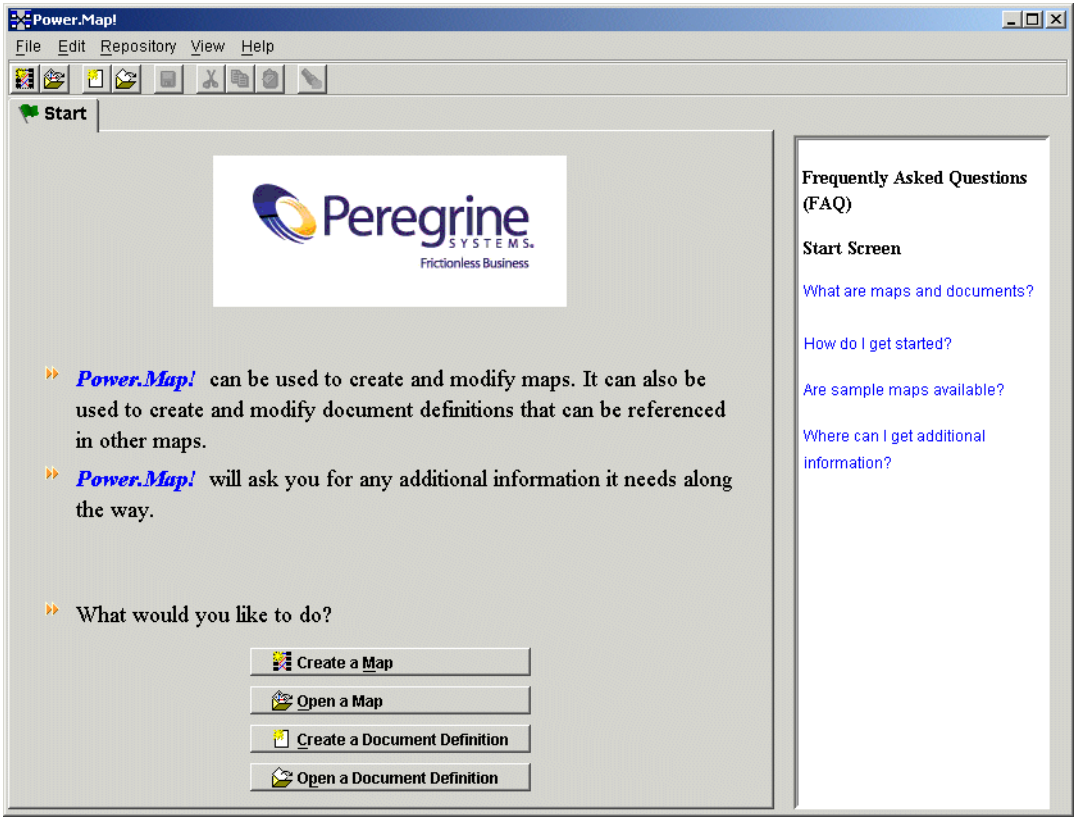
Mapping XML and EDI Data

One of the primary goals of Power.Enterprise! is to enable you to manage the translation of messages from a standard data format into a standard EDI message format. To do so, you must create maps between the data format you have selected and the corresponding EDI message. These maps are unidirectional: they operate only in

one direction. Thus, if you need to be able to translate data back and forth between a particular XML message format and a specific EDI message format, you must create two maps: one for outbound transformation (XML to EDI) and one for inbound transformation (EDI to XML).

Fortunately, creating such maps is not a difficult task. Power.Map! can understand a variety of standard document definitions, including flat files, database tables, XML, and all the major EDI formats (X12, EDIFACT, and TRADACOMS). As used within Power.Map!, a document definition is an element-by-element description of a document, its structure, and the data carried within it. Thus, you can use standard document definitions to outline your maps, then simply connect the individual data elements between two document definitions using a drag-and-drop interface.

Figure 4-7 Power.Map! Main Window



For more information about creating maps, see the *Power.Map! User Reference Manual*.

You may work on maps without being connected to a Power.Server! instance. If you try to use any repository commands, however, the Server Connection dialog box is displayed, requiring you to connect to a server instance so the repository command can be run. To define a server connection, see “Connecting to a Server for the First Time” on page 4-6.

At any time, you can save a copy of the map you have created on your local system. Choose File→Save, then enter a descriptive name for the map file in the dialog box. The map is stored as a jar file.

Before you can use a map in production, you must promote the map to your server. Select the Finish tab, then click Promote at the bottom of the tab to send the map to the server. If you are not already connected to the server, you must establish a connection before you can promote the map.

Connections and VAN Connectivity

Connections define how message traffic is delivered, both into and out of the Power.Server!. Before you can use the BEA WebLogic Adapter for Power.Enterprise!, you must configure a minimum of four connections:

- Source RMI connection that receives messages from the BEA WebLogic Adapter for Power.Enterprise!
- Target RMI connection that sends messages from the Power.Server! to the BEA WebLogic Adapter for Power.Enterprise!
- Target connection that sends messages from the Power.Server! to your trading partner
- Source connection that receives messages from your trading partner

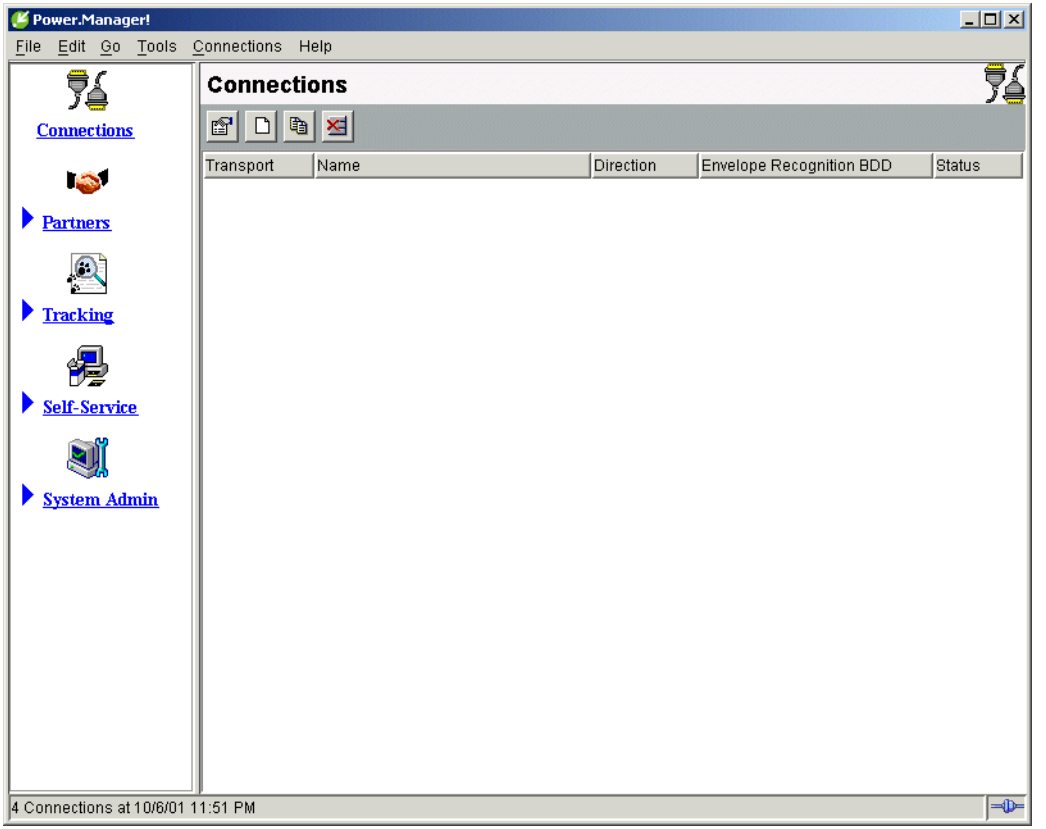
Two of these connections, the source and target RMI connections, are used to communicate with BEA WebLogic Integration. These two connections are used by all EDI transactions.

Creating RMI Connections

To set up the source and target RMI connections:

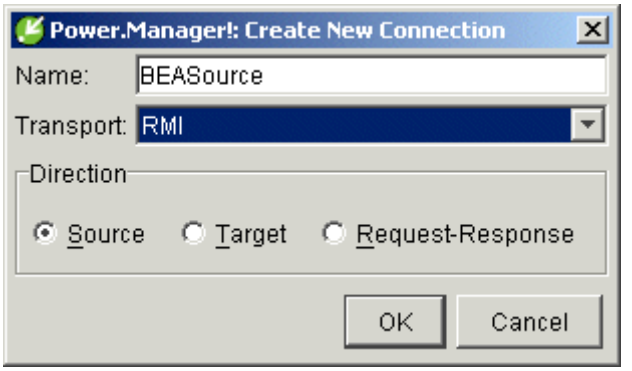
1. From within Power.Manager!, select Connections. The Connections window is displayed.

Figure 4-8 Power.Manager! Connections List



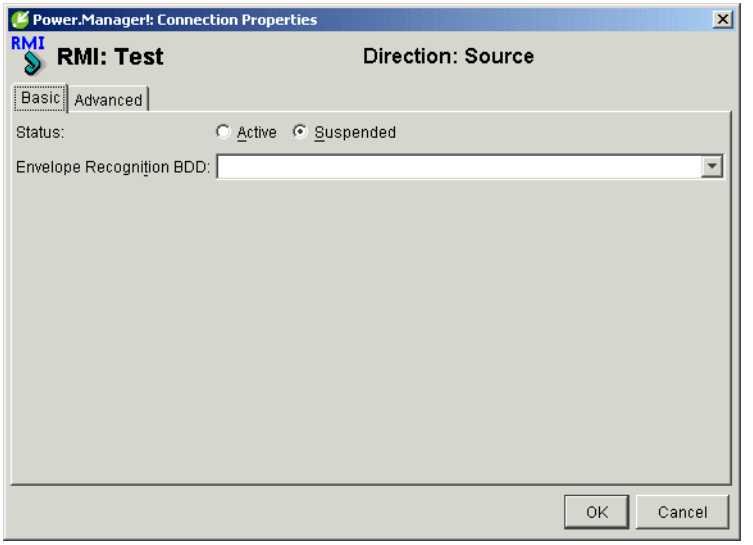
2. Create a source RMI connection. To begin, click Add New. The Create New Connection dialog box is displayed.

Figure 4-9 Create New Connection Dialog Box



3. Set the name to `BEASource`, the Transport to `RMI`, and the Direction to Source. Click OK. The Connection Properties dialog box is displayed.

Figure 4-10 Inbound RMI Properties

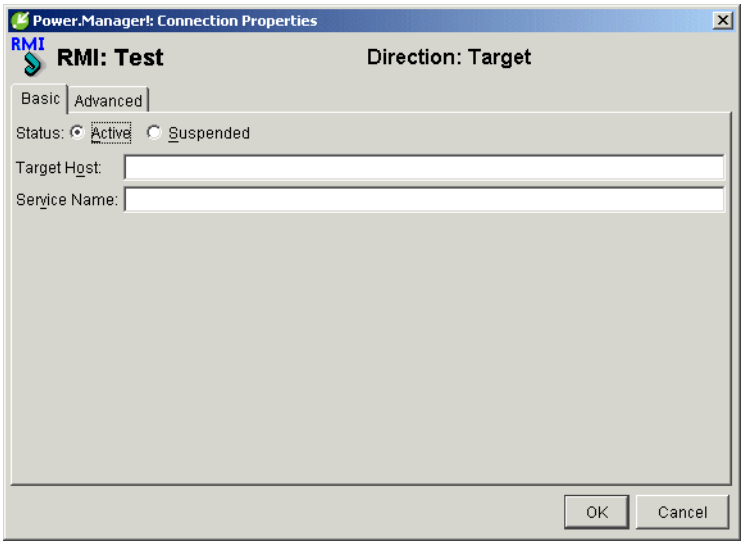


4. Set Status to Active and Envelope Recognition BDD to XMLEnvelope. Click OK.

5. Create an outbound RMI connection. To begin, click Add New. The Create New Connection dialog box is displayed.

6. Set the name to BEATarget, the Transport to `RMI`, and the Direction to Target. Click OK. The Connection Properties dialog box is displayed.

Figure 4-11 Outbound RMI Properties



7. Set Status to Active, Target to `localhost`, and Service Name to `edi`. Click OK.

Creating Trading Partner Connections

The other two connections, the inbound and outbound trading partner connections, are specific to each trading partner. Therefore, you must define a unique pair of connections for each trading partner. When you set up each pair, you must select the transport that you and your trading partner will use. We recommend the following transport options:

- HTTP: A standard HTTP/HTTPS transport protocol for exchanging EDI messages with your trading partner
- File: Option that writes the EDI message to a file, or reads the message from a file. You are responsible for providing a transport mechanism from this point in the process.
- FTP: Option that uses an FTP server to exchanges messages with your trading partner.

- Get2Connect: A VAN operated by Peregrine Systems. Connectivity to this VAN is included with the Power.Enterprise! software, however you must contact Peregrine Systems to sign up to use the Get2Connect VAN.
- Use Cleo A+ if you intend to connect via a VAN that requires asynchronous communications. For more information, see "VAN and Network Connectivity," in Chapter 2, "Architecture."

Other connection options are also available. For details about all options, see Chapter 3 of the *Power.Manager! User Reference Manual*.

Configuring Exchange Profiles

The exchange profile specifies how a trading partner exchanges messages through Power.Server!. Because Power.Server! is an EDI gateway, it is not the final point of receipt for a message. An exchange profile describes how Power.Server! receives a message, transforms it, and sends it to its destination. For example, an exchange profile might define the receipt of an EDI message from a trading partner, its transformation into an XML message, and its delivery to the BEA WebLogic Adapter for Power.Enterprise!.

Exchange profiles cannot be created unless certain prerequisite information has been defined. Specifically, you must have created and promoted to the server your exchange maps, your trading partner profile, and both the source and target connections. (The source and target connections post messages to Power.Server! and receive messages from Power.Server!, respectively.) For example, to create an exchange profile that allows you to send a message to your trading partner, you need the following:

- XML-to-EDI-transaction map for the EDI message you plan to send
- Your trading partner profile
- BEAOutbound RMI connection you created in "Connections and VAN Connectivity" on page 4-13
- Outbound connector to your trading partner

Other information is also required. For details, see Chapter 4 of the *Power.Manager! User Reference Manual*. For examples of both inbound and outbound exchange profiles, see Chapter 6, "EDI Sample," in this document.

CHAPTER

5 Configuring EDI Integration

BEA WebLogic EDI Integration must be completely configured before it can be used. Because EDI Integration depends on the Power.Enterprise! software to properly operate, you must properly configure Power.Enterprise! before you can communicate with your trading partners.

General Configuration

This section discusses the general configuration information that you should perform before attempting to configure a specific document exchange with a trading partner.

Configure Trading Partners

Before configuring individual transactions, you should configure all trading partners, including your own company, using Power.Manager!. For more information about configuring trading partners, see the following topics:

- "Configuring Trading Partners" on page 4-9
- Chapter 4, "Partners," in the *Power.Manager! User Reference Manual*

Configure VAN/Trading Partner Connectivity

You should also configure your trading partner connectivity before attempting to configure individual document exchanges. See the following topics:

- "Connections and VAN Connectivity" on page 4-13
- Chapter 3, "Connections," in the *Power.Manager! User Reference Manual*

Although you may not want to set up connectivity to your production trading partners at this time, you may want to configure them with file connectors for development and testing purposes.

Configuring EDI Integration to Receive an EDI Document

This section describes how to configure EDI Integration so that the BEA WebLogic Adapter for Power.Enterprise! 3.0 can receive an EDI document and send it to the WebLogic Integration process engine as an XML document.

Pre-Planning

- Determine the EDI standard, version, and document type that you will receive. For example, you might select an X12 850 document v4010, which is an X12 standard, 850 type document, version 4010.
- Define the XML format that you will use internally. This XML format should contain a complete data map of the fields in the EDI document that you will use.
- Create a DTD and an XSD for the XML document. You must create both because Power.Enterprise! and WebLogic Integration do not use the same data file format for this step. WebLogic Integration requires an XSD (if you supply one at all), while Power.Enterprise! requires a DTD. You should note that Power.Enterprise! does not provide any export utility to export a DTD or XSD from a map definition once the DTD or XSD has been imported. You will be responsible for creating both the DTD and XSD files.

Within Power.Enterprise!

- Create a map between the XML document and the EDI document. Import the DTD into Power.Map! to load the XML document standard. The appropriate EDI document should already exist in the Power.Server! repository. If the EDI document is not present, contact BEA Customer Support. For more information about how to do this, see the following topics:
  - "Mapping XML and EDI Data" on page 4-11
  - Chapter 3, "Maps" in the *Power.Map! User Reference Manual*
- Define an inbound connection. This connection should use your trading partner's connection protocol, which you should have already defined. See "Connections and VAN Connectivity" on page 4-13 for more information.
- Define an RMI target connection. This connection is used to communicate with the WebLogic Integration process engine.
- Define an exchange profile, using the procedure discussed in "Configuring Exchange Profiles" on page 4-17. This exchange profile should connect the inbound connection from your trading partner to the RMI target connection.

Within BEA WebLogic Integration

- Create an application view, using the procedure in "Configuring the BEA WebLogic Adapter for Power.Enterprise!."
- Create an event for the application view you just created, using the procedure in "Configuring Events" on page 3-7. Be sure to set the following parameters:
  - Event Name: The name of the event. The name should be descriptive (for example, ReceivePurchaseOrder)
  - Event Description: Text description of the event
  - RMI Service Name: This should match the RMI service name defined in the Power.Enterprise! RMI target connection setup in the previous section.
  - XSD: The XML schema of the XML message to be received (optional)
  - XML Root Element: The XML root element of the XML schema (optional)
- Deploy the application view you have created and defined.

Verify that the Power.Server! instance is running. At this point, the application view should be available to the WebLogic Integration process engine using the application integration plug-in. For more information about the application integration plug-in, see "Understanding the Application Integration Plug-In for BPM" in *Introducing Application Integration.*

Note: Always start the Power.Server! before you start WebLogic Integration or WebLogic Server. The WebLogic Integration connectors expect to see the Power.Server! running when they are initialized, and they throw exceptions if Power.Server! is not running when they are initialized.

Configuring EDI Integration to Send an EDI Document

This section describes how to configure EDI Integration to send an EDI document using an XML document in the WebLogic Integration process engine as the source.

Pre-Planning

- Determine the EDI standard, version, and document type that you will receive. For example, you might select an X12 850 document v4010, which is an X12-standard, 850-type document, version 4010.
- Define the XML format that you will use internally. This XML format should contain a complete data map of the fields in the EDI document that you will use.
- Create a DTD and an XSD for the XML document. You must create both because Power.Enterprise! and WebLogic Integration do not use the same data file format for this step. WebLogic Integration requires an XSD (if you supply one at all), while Power.Enterprise! requires a DTD. You should note that Power.Enterprise! does not provide any export utility to export a DTD or XSD from a map definition once the DTD or XSD has been imported. You are responsible for creating both the DTD and XSD files.

Within Power.Enterprise!

- Create a map between the XML document and the EDI document. Import the DTD into Power.Map! to load the XML document standard. The appropriate EDI document should already exist in the Power.Server! repository. If the EDI document is not present, contact BEA Customer Support. For more information about how to do this, see the following topics:
  - “Mapping XML and EDI Data” on page 4-11
  - Chapter 3, “Maps” in the *Power.Map! User Reference Manual*
- Define an outbound connection. This connection should use your trading partner’s connection protocol, which you should have already defined. See “Connections and VAN Connectivity” on page 4-13 for more information.

- Define an RMI source connection. This connection is used to communicate with the WebLogic Integration process engine.
- Define an exchange profile, using the procedure discussed in "Configuring Exchange Profiles" on page 4-17. This exchange profile should connect the RMI source connection to your trading partner's outbound connection.

Within BEA WebLogic Integration

- Create an application view, using the procedure in "Configuring the BEA WebLogic Adapter for Power.Enterprise!" on page 3-3 in this document.
- Create service for the application view you just created, using the procedure in "Configuring Services" on page 3-10 in this document. Be sure to set up the following parameters:
  - Service Name: The name of the service. The name should be descriptive (for example, SendPurchaseOrder).
  - Service Description: Text description of the service.
  - Connection Name: This name should match the RMI service name defined in the Power.Enterprise! RMI source connection setup, described in the previous section.
  - XSD: The XML schema of the XML message to be sent. (optional)
  - XML Root Element: The XML root element of the XML schema. (optional)
- Deploy the application view you have created and defined.

Verify that the Power.Server! instance is running. At this point, the application view should be available to the WebLogic Integration process engine using the application integration plug-in. For more information about the application integration plug-in, see "Understanding the Application Integration Plug-In for BPM" in *Introducing Application Integration.*

CHAPTER

6 EDI Sample

This section describes the configuration and operation of the EDI sample. Because the EDI sample relies on the proper configuration of Power.Server!, you must configure Power.Server! before you can run the sample. (Such configuration is not a requirement for running the other samples provided with BEA WebLogic Integration.)

It includes the following topics:

- Sample Overview
- Setting up and Running the Sample

Sample Overview

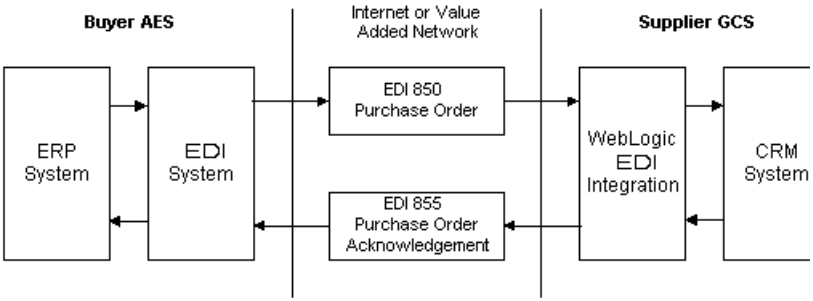
The EDI sample contains a simple Purchase Order business process. Two trading partners are involved:

- Buyer: Advanced Networks Inc. (ANI)
- Supplier: General Control Systems (GCS)

Advanced Networks buys control system components from General Controls. ANI uses EDI to send Purchase Orders to GCS and to receive Purchase Order Acknowledgments from Supplier GCS.

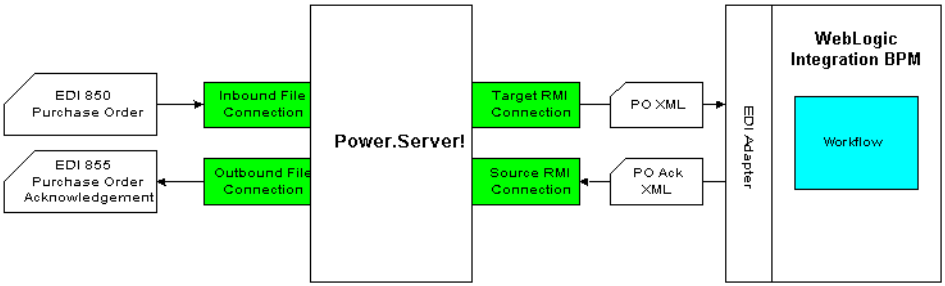
The Sample is based on the assumption that Supplier GCS uses BEA WebLogic Integration as its Business to Business Integration solution, that is, as the framework in which it exchanges EDI documents with its trading partners. The architecture of the WebLogic EDI Integration is shown in the following figure.

Figure 6-1 EDI Sample Scenario



The EDI sample is based on the assumption that Supplier GCS uses WebLogic Integration as its Business to Business integration solution for communicating with its trading partners using EDI. The architecture of the EDI sample is shown in Figure 6-2.

Figure 6-2 EDI Sample Architecture



The sample consists of an inbound EDI 850 Purchase Order that is received by Power.Server! through an inbound file connection. The EDI 850 is translated into a Purchase Order in XML format and sent to WebLogic Integration using a target RMI Connection. The XML document is received by the WebLogic Integration EDI Adapter and sent to a sample workflow through the application integration plug-in as an application integration event. The sample workflow transforms the Purchase Order XML document into a Purchase Order Acknowledgment XML document and sends it to Power.Server! via the EDI Adapter using a service call. The service call uses an RMI source connection to send the document to Power.Server!. The Purchase Order Acknowledgment XML document is translated to an EDI 855 Purchase Order Acknowledgment and written to the file system using an outbound file connection.

Setting up and Running the Sample

This section lists the prerequisites for executing the BEA WebLogic Integration EDI sample and instructions for running it.

Prerequisites

Before you run the EDI sample, you must install all product components of BEA WebLogic Integration, including:

- BEA WebLogic Server 6.1 SP1 or higher
- BEA WebLogic Integration 2.1
- Power.Enterprise! 3.0 (including Power.Server!, and Power.Client!, which consists of Power.Manager!, and Power.Map!)

  Note: Before you install the Power.Enterprise! software, be sure your system meets the requirements and you have the necessary database access. For additional information about these prerequisites, see “Installing Power.Enterprise!” on page 4-1.

Hardware and OS Requirements

Because the EDI sample is based on the assumption that you have access, on a single machine, to all of the software, including Power.Server!, Power.Manager!, and Power.Map!, the OS installation requirements are more restrictive than those for a production environment.

- Minimum memory available: 512 MB
- OS: Windows NT 4.0 with Service Pack 6 or Windows 2000 with Service Pack 1

Configuring the EDI Sample

Configuration and execution of the EDI sample require you to perform the following steps:

Step 1: Start Power.Server!

Step 2: Start Power.Manager! and Configure Partners

Step 3: Start Power.Map! and Load Maps and Adapters

Step 4: Set Up the Connections

Step 5: Set Up the Exchange Profiles

Step 6: Set Up the Workflow

Step 7: Deploy the Application View

Step 8: Run the Sample

The following files are available in *`WLI_HOME`*`/samples/EDISample`.

- `Readme.txt`
- `WLI_EDI_SAMPLE.pdf`
- `XMLEnvelope.jar`
- `EDI850toPOXML.jar`
- `POAckXMLtoEDI855.jar`
- `EDISampleWorkflow.jar`
- `Edi850.edi`

Note: Always start the Power.Server! before you start WebLogic Integration or WebLogic Server. The WebLogic Integration connectors expect Power.Server! to be running when they are initialized, and they throw exceptions if Power.Server! is not running when they are initialized.

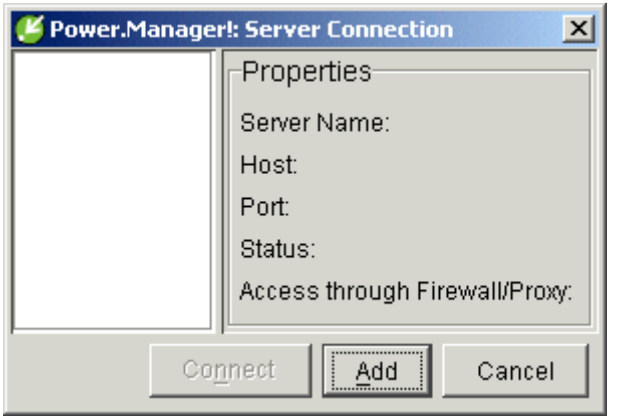
Step 1: Start Power.Server!

Start Power.Server! by selecting Start Menu→Programs→Power.It→Power.Server!. Wait approximately 10 seconds for the server to start.

Step 2: Start Power.Manager! and Configure Partners

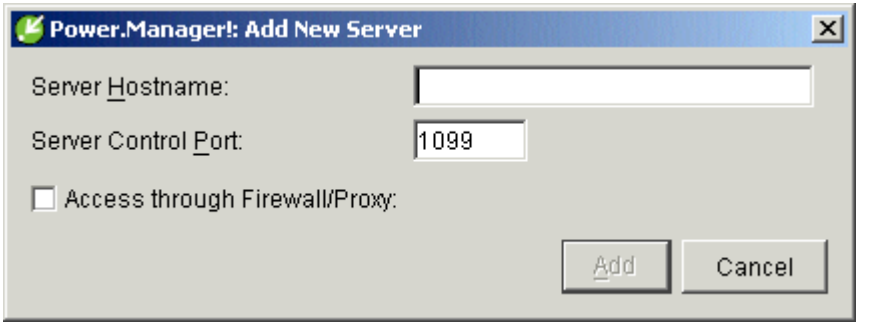
1. Start Power.Manager! by selecting
   Start Menu→Programs→Power.It→Power.Manager!.

Figure 6-3 Power.Manager! Server Connection Dialog Box



2. If no servers are listed in the left pane, click Add.

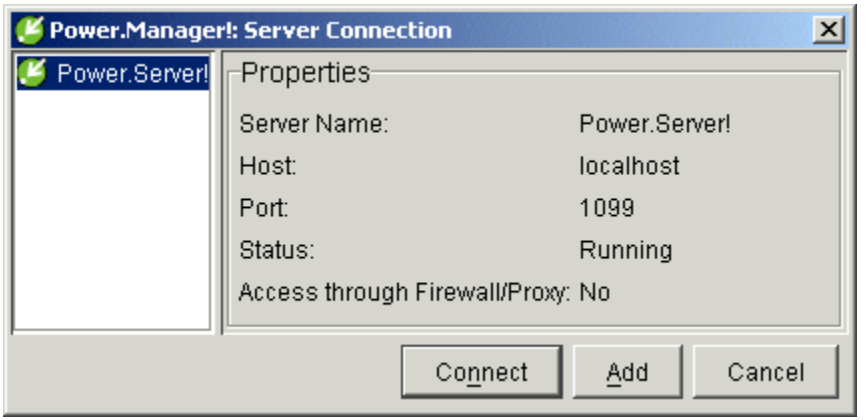
Figure 6-4 Power.Manager! Server Add Dialog Box



Enter the Server Hostname and Server Control Port of the EDI Server. Click Add.

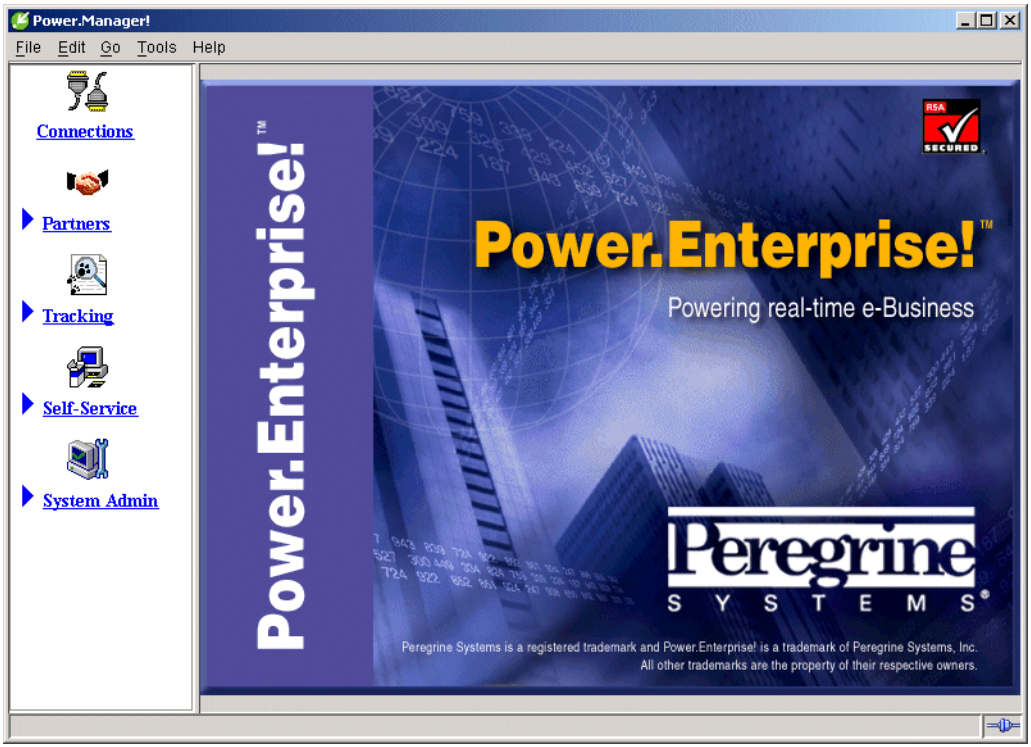
3. Select the Power.Server! to which you want to connect and click Connect.

Figure 6-5 Power.Manager! Server Connection Dialog Box



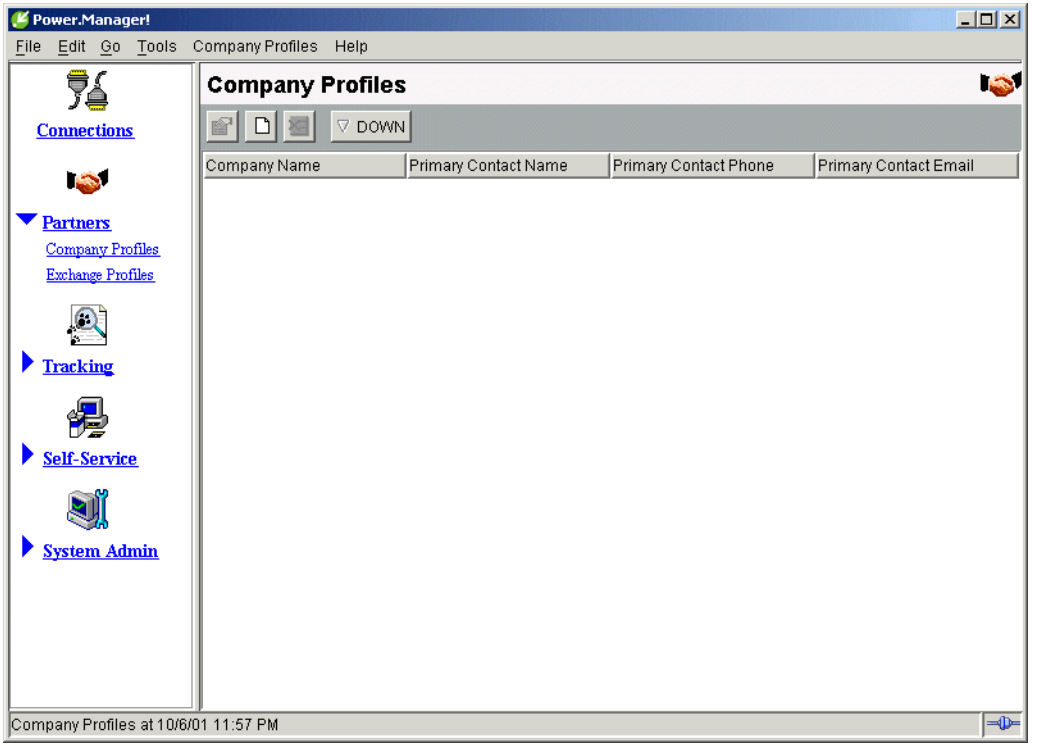
The Power.Manager! main window is displayed.

Figure 6-6 Power.Manager!



4. Set up the company profiles. Click Partners, then click Company Profiles.

Figure 6-7 Company Profile List

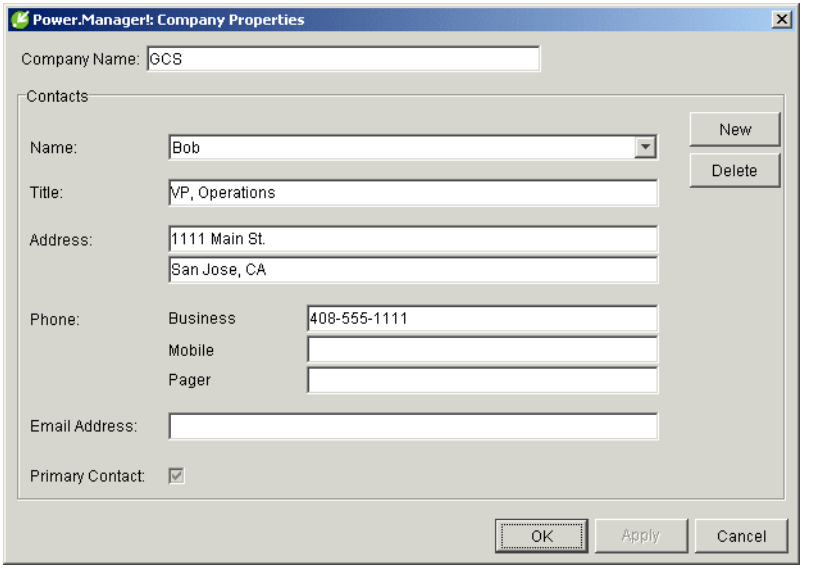


5. Create a Company Profile for GCS. Click the New Company icon  .

   The Company Properties dialog box is displayed.

6. Add the required information about GCS.

Figure 6-8 Company Properties Dialog Box for a New Company Profile



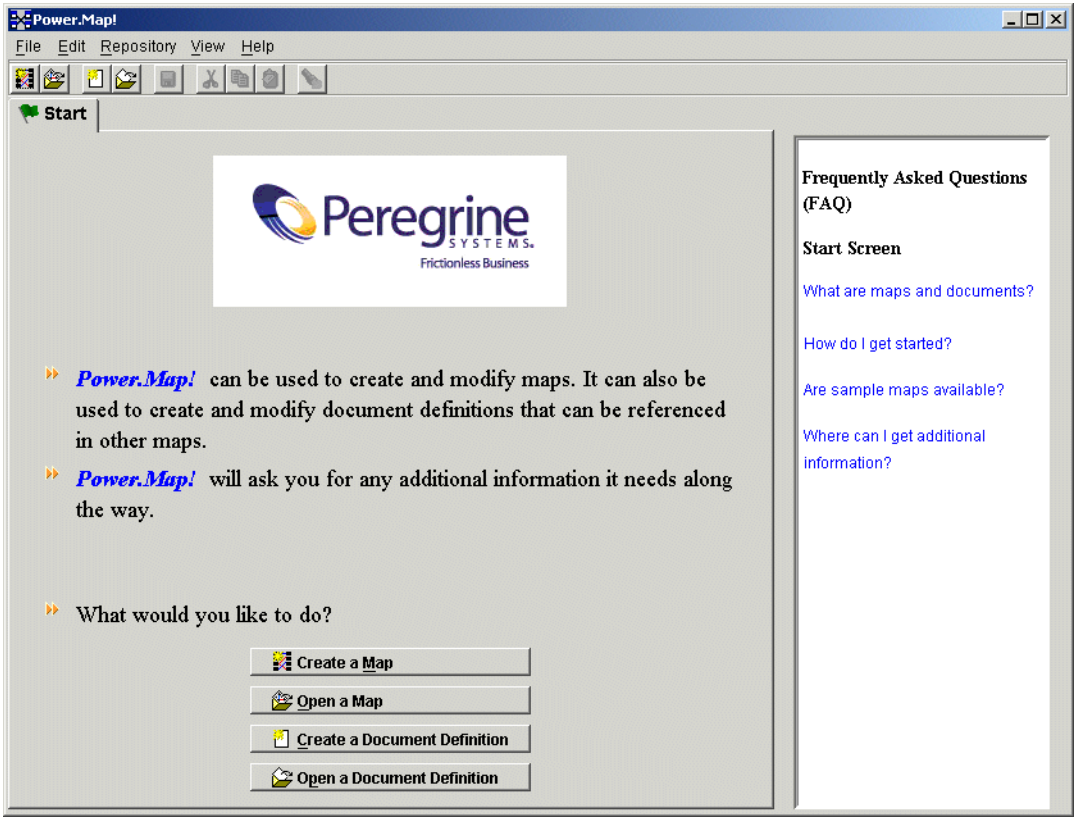
7. Create a Company Profile for AES. Click the New Company icon  .

8. When the Company Properties dialog box is displayed, enter the required information about AES.

Step 3: Start Power.Map! and Load Maps and Adapters

1. Start Power.Map! by choosing Start Menu→Programs→Power.It→Power.Map!.

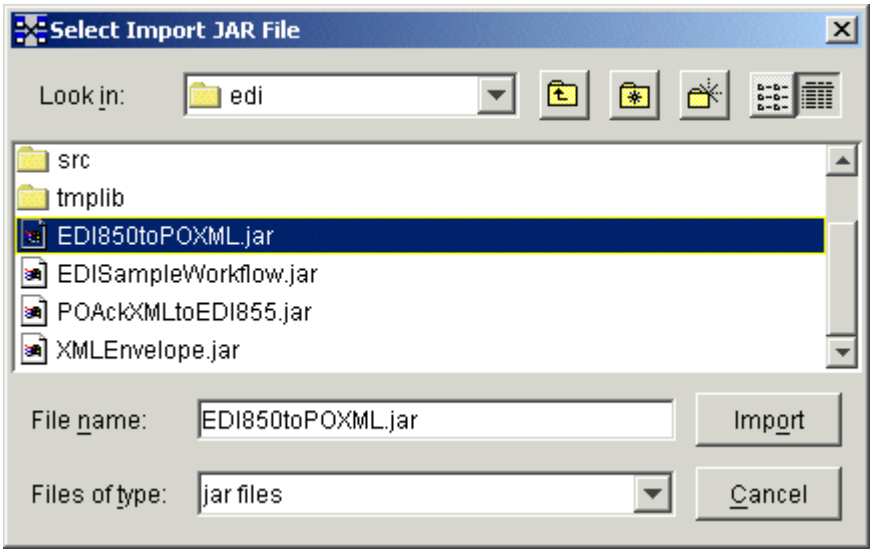
Figure 6-9 Power.Map! Main Window



2. Import the map to convert the EDI 850 transaction to Purchase Order XML. Choose File→ Import. From the Select Import JAR window select the following file:

   WLI_HOME\samples\edi\EDI850toPOXML.jar

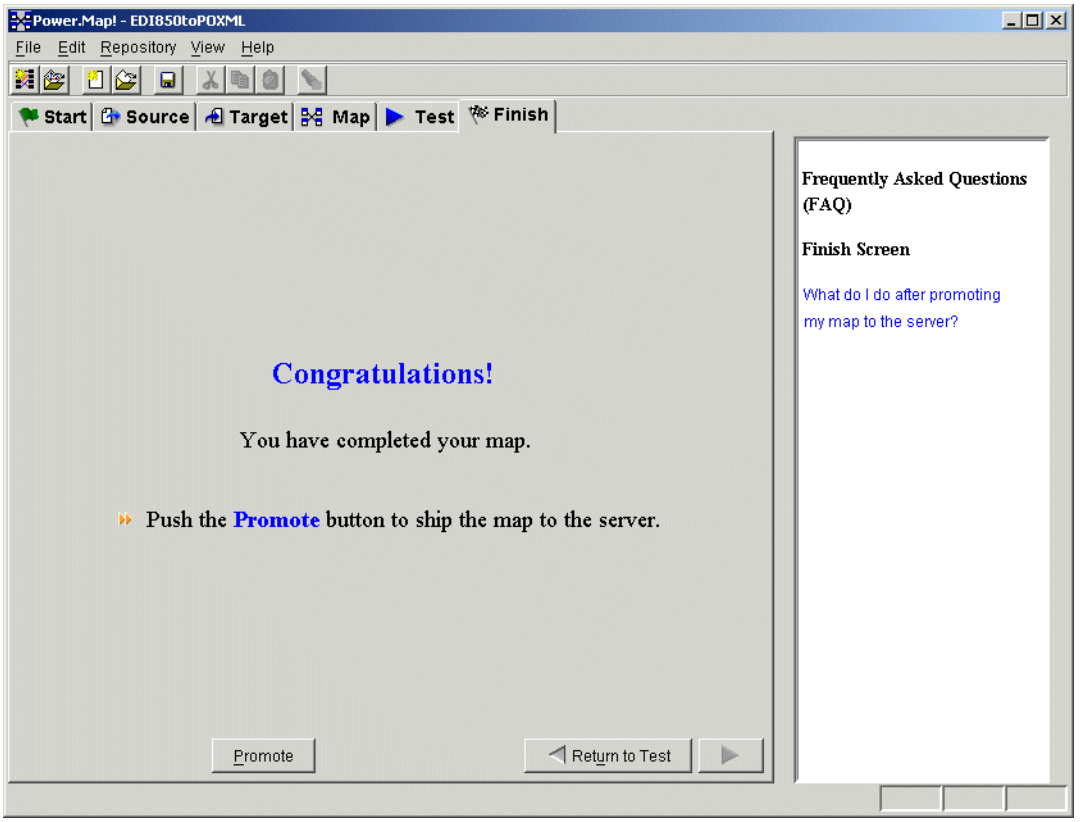
Figure 6-10 Import JAR Dialog Box



Click Import.

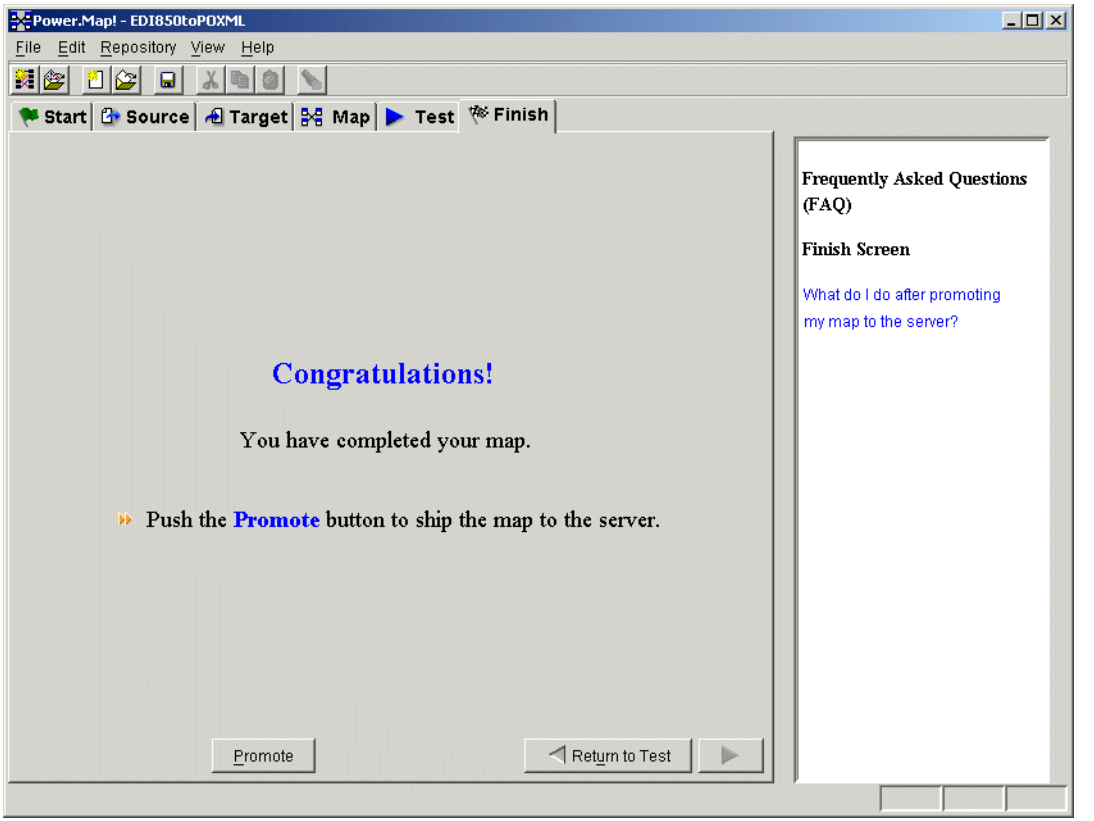
3. Open the `EDI850toPOXML` map file: choose File→Open Map, then select the `EDI850toPOXML` map.

Figure 6-11 Promoting the Finished Map



4. Export the resulting map to the Power.Server!. Select the Finish tab, then click Promote.

Figure 6-12 Promoting the Finished Map



5. Import the map to convert the Purchase Order Acknowledgment XML to the EDI 855 transaction. Choose File→Import. From the Select Import JAR window select the following file:

   WLI_HOME\samples\edi\POAckXMLtoEDI855.jar

   Click Import.

6. Choose File→Open Map, then select the `POAckXMLtoEDI855` map.

7. Export the resulting map to the Power.Server!. Select the Finish tab, then click Promote. Select Move Map to Production and click OK.

8. Import the XML envelope. Choose File→Import. Import the following file:

   WLI_HOME\samples\edi\XMLEnvelope.jar

9. Choose File→Open Document Definition, then select XMLEnvelope and click OK.

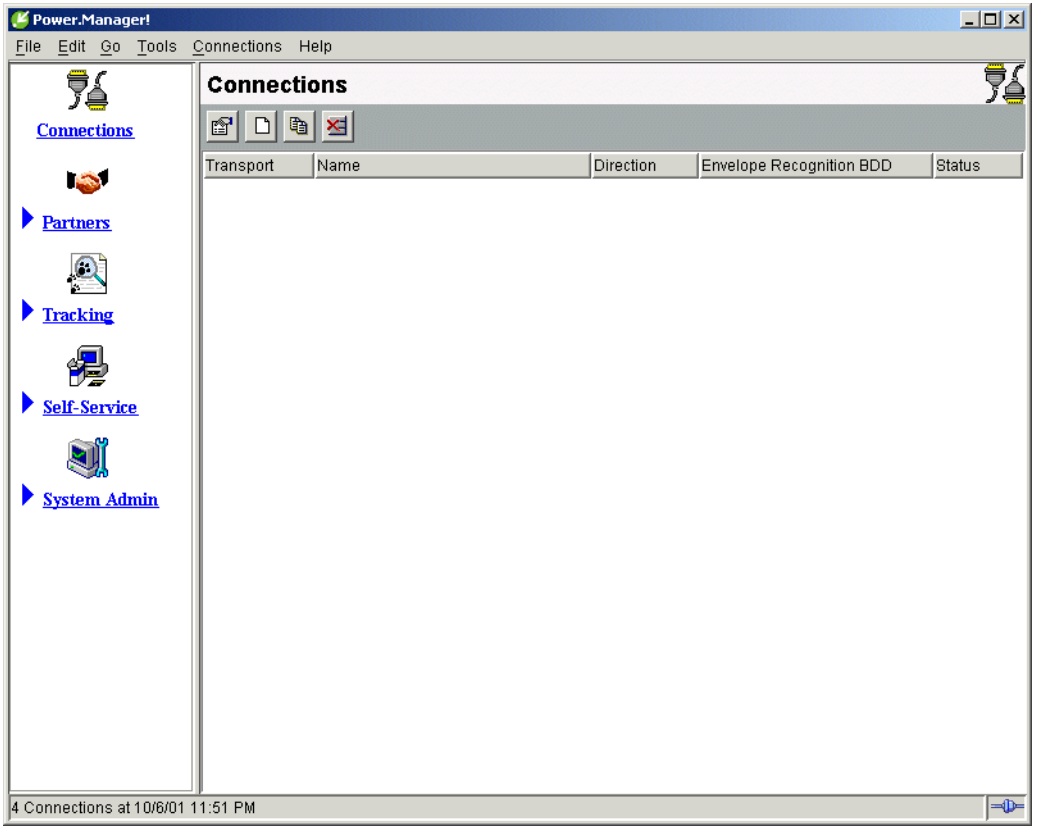
10. Export the result to the Power.Server!. Select the Finish tab, then click Promote. Select Move Doc to Production and click OK.

11. You are now finished with Power.Map. You can exit it at this time.

Step 4: Set Up the Connections

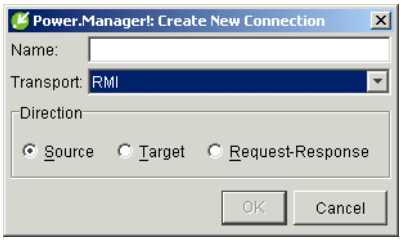
1. From within Power.Manager!, click Connections.

Figure 6-13 Power.Manager! Connections List



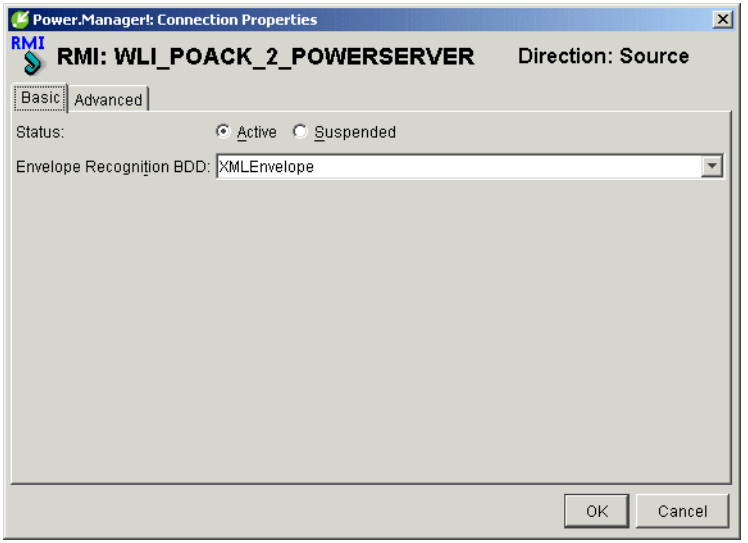
2. Create an RMI connection from WebLogic Integration to Power.Server!. Click the Add New icon  .

Figure 6-14 Create New Connection Dialog Box



3. Set the name to `WLI_POACK_2_POWERSERVER`, Transport to `RMI`, and Direction to Source. Click OK.

Figure 6-15 Inbound RMI Properties

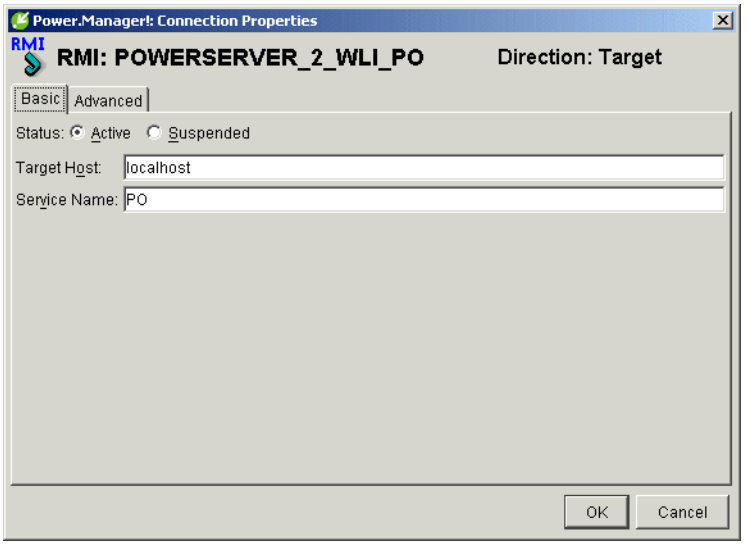


4. Set Status to Active and Envelope Recognition BDD to XMLEnvelope, then click OK.

5. Create an RMI connection from Power.Server! to WebLogic Integration. Click the Add New icon  .

6. Set the name to `POWERSERVER_2_WLI_PO`, Transport to `RMI`, and Direction to Target. Click OK.

Figure 6-16 Outbound RMI Properties

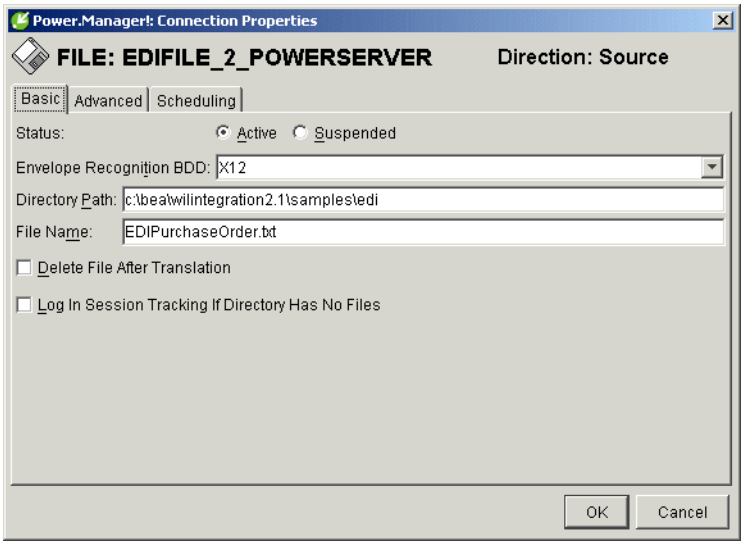


7. Set Status to Active, Target to `localhost`, and Service Name to `PO`, then click OK.

8. Create an inbound file connection. Click the Add New icon  .

9. Set the name to `EDIFILE_2_POWERSERVER`, Transport to `File`, and Direction to Source. Click OK.

Figure 6-17 Inbound File Properties



Set the following properties:

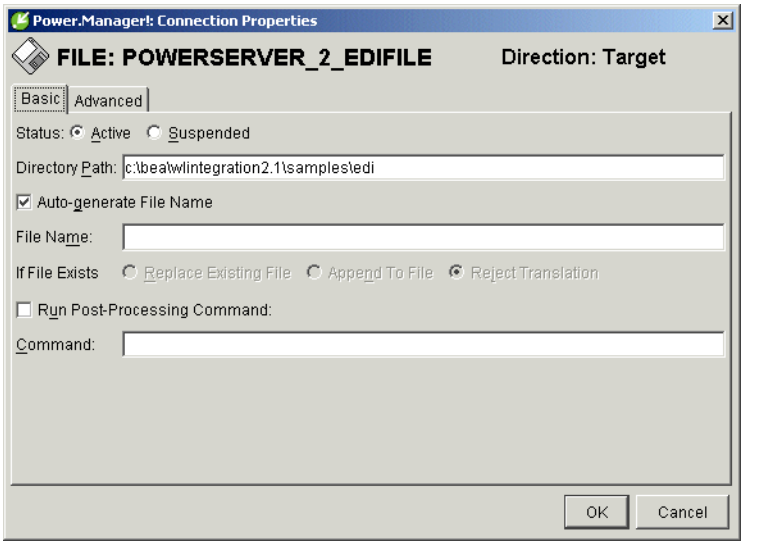
- Status: Active
- Envelope Recognition BDD: X12
- Directory Path: `<WLI_HOME>\samples\edi`
- Filename: `EDIPurchaseOrder.txt`
- Do not set any other options.

Click OK when you are finished.

10. Create an outbound file connection. Click the Add New icon  .

11. Set the name to `POWERSERVER_2_EDIFILE`, Transport to `File`, and Direction to Target. Click OK.

Figure 6-18 Outbound File Properties



Set the following properties:

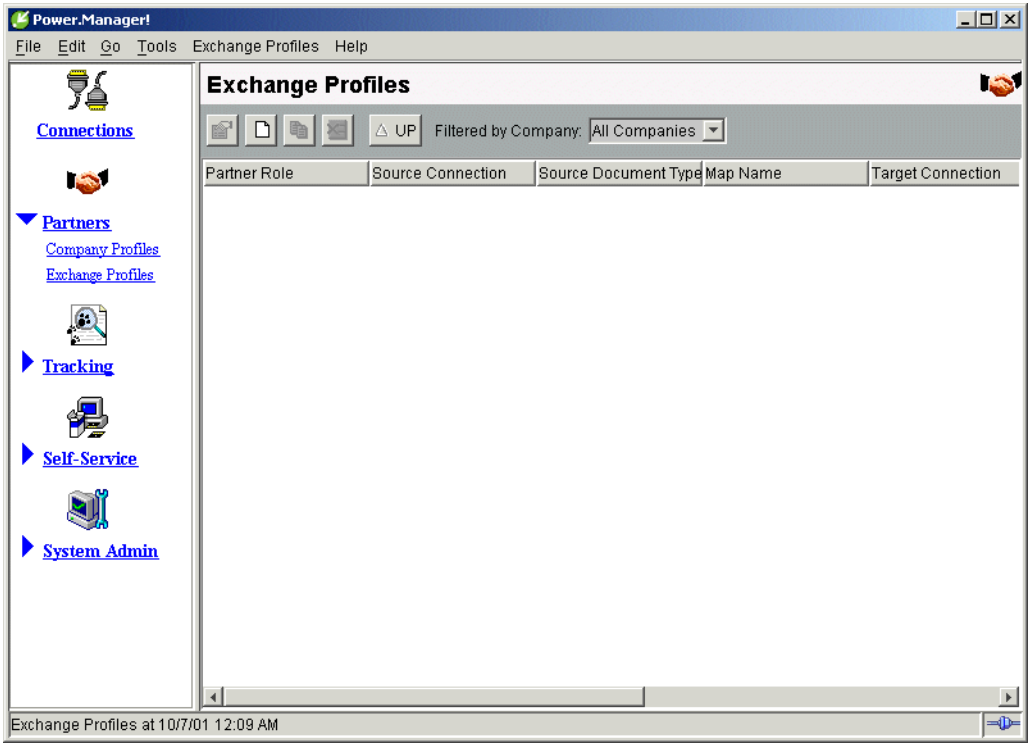
- Status: Active
- Directory Path: *WLI_HOME*\samples\edi
- Auto-generate File Name: Select this option.
- Do not set any other options.

Click OK when you are finished.

Step 5: Set Up the Exchange Profiles

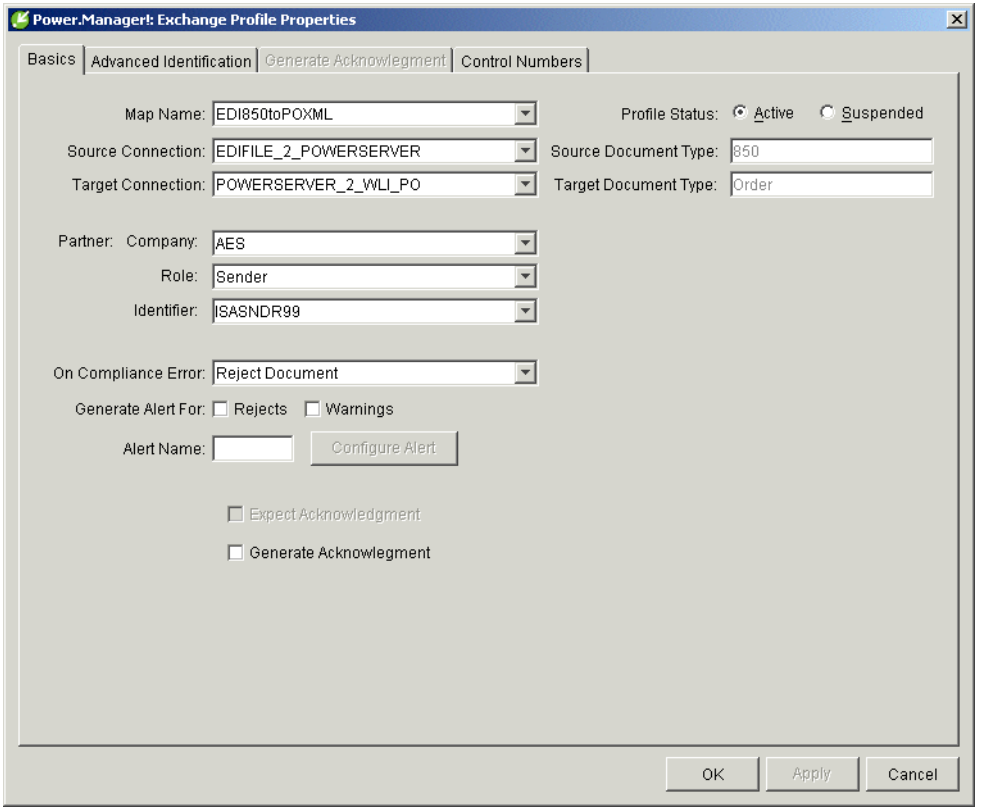
1. From within Power.Manager!, select Exchange Profiles.

Figure 6-19 Power.Manager! Exchange Profiles List



2. Set up the inbound EDI exchange profile. Click the Add New icon. The Power.Manager! Exchange Profile Properties window is displayed.

Figure 6-20 New Exchange Profile Dialog Box



3. Set the following properties:
   - Map Name: EDI850toPOXML
   - Source Connection: EDIFILE_2_POWERSERVER
   - Target Connection: POWERSERVER_2_WLI_PO
   - Profile Status: Active
   - Partner Company: AES
   - Role: Sender
   - Identifier: ISASNDR99

- On Compliance Error: Reject Document
- Do not set any other options.

Click OK when you are finished.

4. Set up the outbound EDI exchange profile. Click the Add New icon  .

5. Set the following properties:
   - Map Name: POAckXMLtoEDI855
   - Source Connection: WLI_POACK_2_POWERSERVER
   - Target Connection: POWERSERVER_2_EDIFILE
   - Profile Status: Active
   - Partner Company: AES
   - Role: Receiver
   - Identifier: ISASNDR99
   - On Compliance Error: Reject Document
   - Do not set any other options.

   Click OK when you are finished.

Step 6: Set Up the Workflow

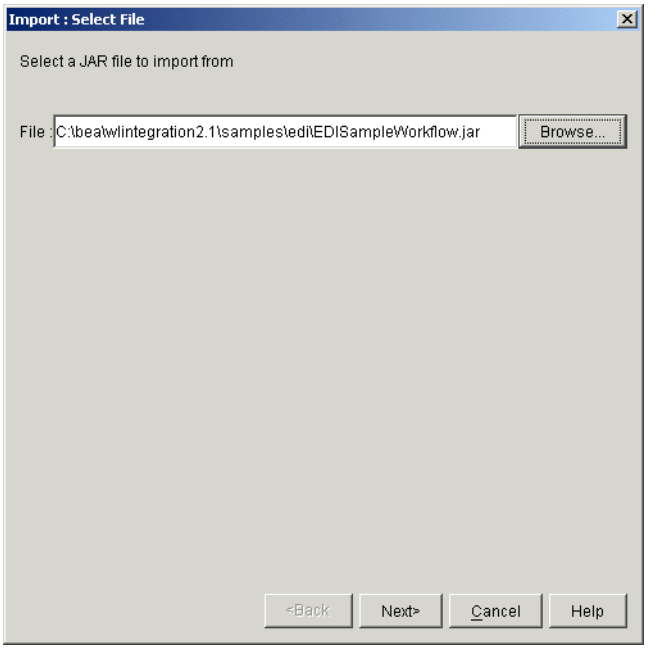
Note: If you have executed the Run Samples setup, as discussed in "Preparing to Run the Samples" in "Getting Started," in *Running the B2B Integration Samples*, you can skip Step 6: Set Up the Workflow and Step 7: Deploy the Application View and proceed to Step 8: Run the Sample.

1. Start WebLogic Server: choose Start→Programs→BEA WebLogic E-Business Platform→WebLogic Integration 2.1→Samples→Start Server.

2. Start the WebLogic Integration Studio: choose Start→Programs→BEA WebLogic E-Business Platform→WebLogic Integration 2.1→Start Studio.

3. Log on to WebLogic Integration Studio. The default login for the samples is:
   - User ID: joe
   - Password: password
4. Choose Tools→Import Package.
5. Select the file `EDISampleWorkflow.jar`, located in *`WLI_HOME`*`\samples\edi`.

Figure 6-21 Importing the EDI Workflow



6. Select Activate Workflows After Import. If prompted, use Org1.

Step 7: Deploy the Application View

1. Start a Web browser.
2. Connect to `http://localhost:7001/wlai`.

3. Log in using the system login ID:
   - ID: system
   - Password: security

   Alternately, create a new user using the application integration functionality provided by WebLogic Integration. Then log in as that user.
4. Select the Application View `EDIAppView`.
5. Click Deploy. Select the Deploy Persistently option.
6. Click Deploy on the Deploy Application View page. You should see the status change.

This concludes the configuration of the EDI sample.

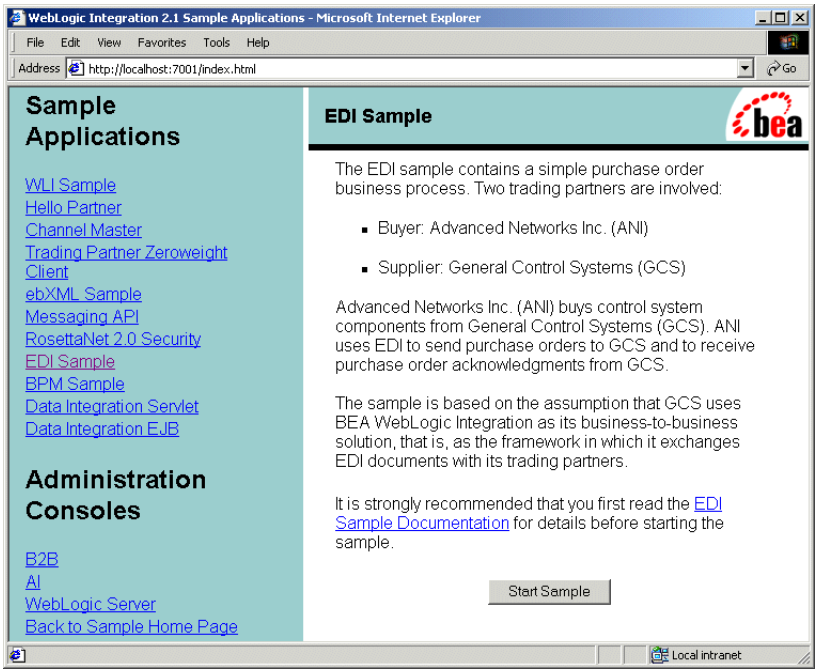
Step 8: Run the Sample

There are two ways to launch the sample:

1. You can run a script, which is located in the Power.Commerce! installation. In a command prompt window, run the following command line:

   power_enterprise_dir`\powerit\powerapi\file_request -c EDIFILE_2_POWERSERVER`
2. You can start the sample from the samples launcher page, as discussed in *Running the B2B Integration Samples*.

Figure 6-22 Samples Launcher Page



You can monitor the sample during its execution from within Power.Manager!:

- To track sessions in progress, choose Tracking→Session→Search. Then search for Any Status, Any Connection to find your sample session.
- To track documents through the system, choose Tracking→Documents→Search. Then set all of the search parameters to Any to find the broadest set of documents.

You can also monitor the sample from within WebLogic Integration Studio.

- From within WLI Studio, select the EDISample Instance, then double-click the instance that you have run, and examine the variables.

To verify that the sample has run correctly, go to *`WLI_HOME`*`\samples\edi`. You should see a new file in the directoy, which is auto-created by Power.Server! when the EDI message completes the cycle.

CHAPTER

7 Power.Enterprise! Tuning Guide

This section discusses tuning issues for Power.Enterprise! and Power.Server!. The following topics are discussed:

- Tuning the Java Virtual Machine
- Tuning the Database
- Tuning Power.Server!
- HTTP and HTTPS Server Configuration

Tuning the Java Virtual Machine

This section discusses the tuning options used with the Java Virtual Machine, which is used to run all of the Power.Enterprise! software. Tuning of JVM arguments for Windows and UNIX systems is discussed, as well as memory usage and the assignment of port numbers for Power.Server! access.

Specifying JVM Arguments under Windows

The file `applaunch.properties`, located in *`power_enterprise_install`*`\bin`, contains a separate section for each application: Power.Map!, Power.Manager!, Power.Server!, DBWizard.

For example:

```
[PowerMap]

install_dir="D:\Program Files\PowerE-3.0GA"
jvm_args="-Duser.dir=. -Dsun.java2d.noddraw
-Dvalidationlist.dir=.\data\codes"

jre_dir=.\jre

classpath=;.\lib\regional.jar;.\lib\activation.jar;
.\lib\mail.jar;.\lib\PowerMapper\ecm.jar;
.\lib\PowerMapper\hlvm.jar;
.\lib\hlmetadata.jar;.\lib\xml4j.jar;.\lib\standards.jar;
.\lib\mek.jar;.\jre\lib\ext\jhall.jar;.\lib\fesi.jar;
.\lib\fldapi.jar;.\lib\fldshared.jar;.\lib\hlcommon.jar;
.\lib\fldcommon.jar;.\lib\mekshared.jar;.\lib\fldrmi.jar;
.\lib\fldserver.jar;.\lib\PowerManager\ecm.jar;.\bin\resources;
.\bin\resources\msgd;.\lib\pipeline.zip;.\lib\edi.jar

connectors=.\connectors

database=.\database

standards=.\standards

imports=.\standards\import
```

To change the JVM arguments, or supply new ones, simply change the `jvm_args` line.

Note: Do not change any of the other values, as this will adversely affect the working of the application.

Specifying JVM Arguments under UNIX

On a UNIX platform, JVM arguments are simply edited directly in the script that calls the Java application. These are located in the directories *`power_enterprise_install`*`/bin` and *`power_enterprise_install`*`/powerapi`

For example, `server_start.sh`, located in *`power_enterprise_install`*`/bin`, contains the following:

```
. /home/fld/PE3.0VERYFINALGA/bin/power_env.sh

java -Xmx512m -Xms256m -Dfld.rmiregistry=true
-Djava.security.policy=$INSTALLDIR/bin/resources/fld.policy
```

```
-Dvalidationlist.dir=./data/codes -Dfld.trace=false
-user.dir=$INSTALLDIR com.harbinger.fld.jtd.container.HLFLDServer
```

JVM Memory Usage

The minimum and maximum amounts of memory available to the JVM are specified using the standard `-Xms` and `-Xmx` JVM arguments, respectively. If out-of-memory errors are generated when you are transforming large documents, increase the maximum memory size and restart the server. By default, the server is configured for a minimum of 256MB and a maximum of 512MB of memory.

Server Port Numbers

Four port numbers are used by the server for client communication and transformation requests.

Two of these numbers, configured through the System Administration section of Power.Manager!, are related to the port on which the RMI registry is running. If necessary, two RMI registries can be used for client communication and transformation requests. By default, however, only one registry, on port 1099, is used.

The two remaining numbers represent the actual ports on which the server listens for these requests. By default, these port numbers are 2500 and 2501. They may be changed only by adding two JVM arguments to the script: `powere.rmi.dcport` and `powere.rmi.apiport`, representing daemon control and a transformation API request, respectively. Add these arguments as follows:

```
. /home/fld/PE3.0VERYFINALGA/bin/power_env.sh

java -Xmx512m -Xms256m -Dpowere.rmi.dcport=2597
-Dpowere.rmi.apiport=2598 -Dfld.rmiregistry=true
-Djava.security.policy=$INSTALLDIR/bin/resources/fld.policy
-Dvalidationlist.dir=./data/codes -Dfld.trace=false
-user.dir=$INSTALLDIR com.harbinger.fld.jtd.container.HLFLDServer
```

or

```
[PowerServer]
install_dir="D:\Program Files\PowerE-3.0GA-Server"
jvm_args="-Xmx512m -Xms256m -Dpowere.rmi.dcport=2597
-Dpowere.rmi.apiport=2598
-Djava.security.policy=.\bin\resources\fld.policy
-Dfld.trace=false -Duser.dir=. -Dpowere.rmi.internalregistry=true
-Dvalidationlist.dir=.\data\codes"
jre_dir=.\jre
```

```
classpath=;.\lib\regional.jar;.\lib\PowerServer\j2ee.jar;
.\lib\PowerServer\jcert.jar;.\lib\PowerServer\jnet.jar;
.\lib\PowerServer\jsse.jar;.\lib\PowerServer\sslj.jar;
.\lib\PowerServer\jsafe.jar;.\lib\hlmetadata.jar;
.\lib\PowerServer\hlvm.jar;.\lib\serverrmi.jar;.\lib\xml4j.jar;
.\lib\fesi.jar;.\lib\mek.jar;.\lib\activation.jar;.\lib\mail.jar;
\jre\lib\ext\jhall.jar;.\lib\fldapi.jar;.\lib\fldshared.jar;
.\lib\fldserver.jar;.\lib\hlcommon.jar;.\lib\fldcommon.jar;
.\lib\standards.jar;.\lib\mekshared.jar;.\lib\pipeline.zip;
.\lib\ejalbert.jar;.\lib\fldrmi.jar;.\bin\resources;
.\bin\resources\msgd;.\lib\PowerServer\CertReqTool.jar;
.\lib\edi.jar
connectors=connectors
database=database
standards=standardsimports=standards\import
```

Tuning the Database

Database access information is maintained in the `power_server.properties` file, located on the server (specifically, in *`power_enterprise_install`*`/bin/resources`). When a client connects to the server this information is supplied so the client, in turn, can make a connection to the same database. The information stored in the file, which is specific to the type of database being used, consists of the following items:

`db_userid`	The user ID of the account holding the Power.Enterprise! tables.
`db_passwd`	The password for the account holding the Power.Enterprise! tables.
`db_type`	Type of database being used. Choose from `sqlserver`, `Oracle` or `db2`.
`no_dbconnections`	The number of database connections made by the Power.Enterprise! server to the database.
`db_host`	Name of host upon which the database is running. If it is necessary for this host to be accessible from both the server and client machines, the name (which is supplied to the client) must be fully qualified.

`db_server`	For SQL Server and DB2, the name of the database containing the Power.Enterprise! tables. For Oracle, the name of the Oracle instance containing the Power.Enterprise! tables.
`db_dbname`	For SQL server and DB2, the name of the database containing the Power.Enterprise! tables. For Oracle, the name of the Oracle instance containing the Power.Enterprise! tables.
`db_port`	The TCP/IP port for the database containing the Power.Enterprise! tables.

The following three sections provide examples files for the following types of databases: Microsoft SQL Server, Oracle, and IBM DB2.

SQL Server

```
#FLD Server Properties
#Thu Aug 30 12:03:49 GMT+01:00 2001
db_userid=fld2
db_passwd=fld2
db_type=sqlserver
no_dbconnections=5
db_host=greedo.man.harbinger.co.uk
db_server=fld2
db_dbname=fld2
db_port=1433
```

Oracle

```
#FLD Server Properties
#Tue Sep 18 16:00:18 BST 2001
db_userid=fld8
db_passwd=fld8
db_type=Oracle
no_dbconnections=5
db_host=mace.man.harbinger.co.uk
db_server=fldWE8ISO
db_port=1521
```

DB2

```
#FLD Server Properties
#Tue Sep 18 14:00:45 GMT+01:00 2001
db_userid=fld
db_passwd=fld
db_type=db2
no_dbconnections=5db_host=manuapartington
db_server=FLD
db_dbname=FLD
db_port=6789
```

Tuning Power.Server!

This section explains how you can continue making configuration changes via Power.Manager! even after the server is stopped and a connection to the server cannot be established.

1. When the Power.Manager! Server Connection dialog box is displayed, right-click in the left pane (where a list of previously connected servers is displayed). A pop-up menu is displayed.
2. Select Connect to database. The database configuration for that server appears.
3. Specify the details required to establish a database connection, and make changes directly to the database without relying on the server as a conduit.
4. After you finish making changes, you can start the server using the updated database. For details about this procedure, see the *Power.Manager! User Reference Guide*.

HTTP and HTTPS Server Configuration

You can configure the HTTP and HTTP servers at a low level through the `socket.properties` file. This file resides in *`power_enterprise_install`*`/bin/resources` on the server installation. Each parameter is documented within the file.