

***SeeBeyond ICAN Suite***

# **Sybase eWay Intelligent Adapter User's Guide**

***Release 5.0.6***



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# Contents

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## Chapter 1

<b>Introducing the Sybase eWay</b>	<b>6</b>
About Sybase	6
About the Sybase eWay	6
What's New in This Version	7
What's in This Document	7
Organization of Information in This Book	7
Scope	7
Intended Audience	7
Document Conventions	8
SeeBeyond Web Site	8
SeeBeyond Documentation Feedback	8
Related Documents	8

---

## Chapter 2

<b>Installing the Sybase eWay</b>	<b>9</b>
Supported Operating Systems	9
System Requirements	10
External System Requirements	10
Installing the eWay Product Files	10

---

## Chapter 3

<b>Properties of the Sybase eWay</b>	<b>12</b>
Setting the eWay Properties in the Connectivity Map	12
Setting the Properties in the Outbound eWay	12
ClassName	13
Description	13
InitialPoolSize	14
LoginTimeOut	14
MaxIdleTime	14
MaxPoolSize	14

MaxStatements	14
MinPoolSize	15
NetworkProtocol	15
PropertyCycle	15
RoleName	15
Setting the Properties in the Inbound eWay	16
Pollmilliseconds	16
PreparedStatement	16
Setting the Properties in the Outbound eWay Environment	17
DatabaseName	17
DataSourceName	17
Delimiter	18
Description	18
DriverProperties	18
Password	18
PortNumber	19
ServerName	19
User	19
Setting the Properties in the Inbound eWay Environment	20
DatabaseName	20
Password	20
PortNumber	20
ServerName	21
User	21

---

## Chapter 4

<b>Using the Sybase eWay Database Wizard</b>	<b>22</b>
<b>Using the Database OTD Wizard</b>	<b>22</b>
To create a new OTD using the Database Wizard	22

---

## Chapter 5

<b>Implementing the Sybase eWay(s)</b>	<b>33</b>
eInsight Engine and eGate Components	33
Using the Sample Project in eInsight	33
The Business Process	35
whereClause()	36
SelectAll	36
SelectMultiple	38
SelectOne	40
Insert	41
Update	42
Delete	44
Using the Sample Project in eGate	45
Working with the Sample Project in eGate	45
Configuring the eWays	46
Creating the Environment Profile	47
Deploying a Project	47

Running the Sample	47
<b>Common Data Type Conversions</b>	<b>48</b>
<b>Using OTDs with Tables, Views, and Stored Procedures</b>	<b>49</b>
The Table	49
The Query Operation	49
The Insert Operation	50
The Update Operation	51
The Delete Operation	52
The Stored Procedure	52
Executing Stored Procedures	52
Manipulating the ResultSet and Update Count Returned by Stored Procedure	54
<b>Alerting and Logging</b>	<b>56</b>

---

## Chapter 6

<b>Using eWay Java Methods</b>	<b>57</b>
--------------------------------	-----------

---

## Appendix A

<b>Support for WebSphere Application Server</b>	<b>58</b>
<b>Uploading the Application Server Interface</b>	<b>58</b>
WebSphere Application Server Support Limitations	58
<b>Setting up the eWay Environment for WebSphere 5.1</b>	<b>59</b>
<b>Creating an EAR File</b>	<b>60</b>
<b>Deploying an EAR File</b>	<b>61</b>
<b>Configuring the WebSphere Application Server</b>	<b>61</b>
Creating the Topic or Queue	61
Creating a Connection Factory	63
Installing the Application	64

<b>Index</b>	<b>71</b>
--------------	-----------

# Introducing the Sybase eWay

Welcome to the *Sybase eWay Intelligent Adapter User's Guide*. This document includes information about installing, configuring, and using the SeeBeyond® Integrated Composite Application Network Suite™ (ICAN) Sybase eWay Intelligent Adapter, referred to as the Sybase eWay throughout this guide.

### What's in This Chapter

- [“About Sybase” on page 6](#)
- [“About the Sybase eWay” on page 6](#)
- [“SeeBeyond Web Site” on page 8](#)
- [“SeeBeyond Documentation Feedback” on page 8](#)
- [“Related Documents” on page 8](#)

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## 1.1 About Sybase

Sybase Adaptive Server Enterprise (ASE) is a powerful data management platform for high performance business applications.

Sybase ASE's highly reliable data management technology provides a powerful data management platform that supports the demanding needs of mission critical enterprises, accelerating application development, securing critical company and customer data, and easing data administration tasks.

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## 1.2 About the Sybase eWay

The Sybase eWay enables eGate Integrator projects to exchange data with external Sybase databases. This user's guide describes how to install and configure the Sybase eWay.

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## 1.3 What's New in This Version

The Sybase eWay includes driver support for DataBase Drivers JDBC 3.4.

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## 1.4 What's in This Document

### 1.4.1 Organization of Information in This Book

This document includes the following chapters:

- **Chapter 1 “Introducing the Sybase eWay”**: Provides an overview description of the product as well as high-level information about this document.
- **Chapter 2 “Installing the Sybase eWay”**: Describes the system requirements and provides instructions for installing the Sybase eWay.
- **Chapter 3 “Properties of the Sybase eWay”**: Provides instructions for configuring the eWay to communicate with Sybase ASE.
- **Chapter 4 “Using the Sybase eWay Database Wizard”**: Provides instructions for creating Object Type Definitions to be used with the Sybase eWay.
- **Chapter 5 “Implementing the Sybase eWay(s)”**: Provides instructions for installing and running the sample projects.
- **Chapter 6 “Using eWay Java Methods”**: Provides instructions for accessing the Sybase eWay Javadocs.
- **Appendix A “Support for WebSphere Application Server”**: Provides instructions on how to deploy an Enterprise Archive (EAR) file to the WebSphere™ Application Server.

### 1.4.2 Scope

This document describes the process of installing, configuring, and running the Sybase eWay.

This document does not cover the Java methods exposed by this eWay. For information on the Java methods, download and view the Sybase eWay Javadoc files from the Enterprise Manager.

### 1.4.3 Intended Audience

This guide is intended for experienced computer users who have the responsibility of helping to set up and maintain a fully functioning ICAN Suite system. This person must also understand any operating systems on which the ICAN Suite will be installed (Windows, UNIX, and/or HP NonStop Server), and must be thoroughly familiar with Windows-style GUI operations.

## 1.4.4 Document Conventions

The following conventions are observed throughout this document.

**Table 1** Document Conventions

Text	Convention	Example
Names of buttons, files, icons, parameters, variables, methods, menus, and objects	<b>Bold</b> text	<ul style="list-style-type: none"> <li>▪ Click <b>OK</b> to save and close.</li> <li>▪ From the <b>File</b> menu, select <b>Exit</b>.</li> <li>▪ Select the <b>logicalhost.exe</b> file.</li> <li>▪ Enter the <b>timeout</b> value.</li> <li>▪ Use the <b>getClassname()</b> method.</li> <li>▪ Configure the <b>Inbound</b> File eWay.</li> </ul>
Command line arguments, code samples	Fixed font. Variables are shown in <i>bold italic</i> .	bootstrap -p <i>password</i>
Hypertext links	<b>Blue</b> text	See " <b>Document Conventions</b> " on page 8
Hypertext links for Web addresses (URLs) or email addresses	<b>Blue underlined</b> text	<a href="http://www.seebeyond.com">http://www.seebeyond.com</a> <a href="mailto:docfeedback@seebeyond.com">docfeedback@seebeyond.com</a>

## 1.4.5 SeeBeyond Web Site

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

<http://www.seebeyond.com>

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## 1.5 SeeBeyond Documentation Feedback

We appreciate your feedback. Please send any comments or suggestions regarding this document to:

[docfeedback@seebeyond.com](mailto:docfeedback@seebeyond.com)

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## 1.6 Related Documents

The following SeeBeyond documents provide additional information about the ICAN product suite:

- *eGate Integrator User's Guide*
- *SeeBeyond ICAN Suite Installation Guide*



# Installing the Sybase eWay

### What's in This Chapter

- “Supported Operating Systems” on page 9
- “System Requirements” on page 10
- “External System Requirements” on page 10
- “Installing the eWay Product Files” on page 10

---

## 2.1 Supported Operating Systems

The Sybase eWay is available on the following operating systems:

- Windows 2000, Windows XP, and Windows Server 2003
- HP Tru64 V5.1A
- HP-UX 11.0, 11i (PA-RISC), and 11i V2.0 (11.23)
- IBM AIX 5.1L and 5.2
- Red Hat Enterprise Linux AS 2.1 (Intel x86)
- Red Hat Linux 8.0 (Intel x86)
- Sun Solaris 8 and 9
- Korean Windows 2000, Windows XP, and Windows Server 2003
- Korean HP-UX 11.0, 11i (PA-RISC), and 11i V2.0 (11.23)
- Korean IBM AIX 5.1L and 5.2
- Korean Sun Solaris 8 and 9

Although the Sybase eWay, the Repository, and Logical Hosts run on the platforms listed above, the Enterprise Designer requires the Windows operating system. Enterprise Manager can run on any platform that supports Internet Explorer 6.0.

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## 2.2 System Requirements

The system requirements for the Sybase eWay are the same as for eGate Integrator. Refer to the *SeeBeyond ICAN Suite Installation Guide* for a complete listing of system requirements. It is also helpful to review the **Readme.txt** file for additional requirements prior to installation.

**Note:** *To enable Web services, you must also install and configure eInsight.*

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## 2.3 External System Requirements

The Sybase eWay supports the following external systems:

- Sybase Adaptive Server Enterprise 11.9 or 12.5
- Driver support for DataDirect Drivers JDBC 3.4

For full information on the requirements for Sybase ASE, see the Sybase ASE documentation.

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## 2.4 Installing the eWay Product Files

The installation process includes:

- Installing the ICAN Repository.
- Uploading products to the Repository (including the Sybase eWay, documentation, sample files, and Javadocs).
- Downloading components (including the Enterprise Designer and Logical Host) from the Repository.
- Updating products in the Enterprise Designer using the Update Center Wizard.

To install the Sybase eWay

- 1 Follow the instructions for installing ICAN in the *SeeBeyond ICAN Suite Installation Guide*.
- 2 After uploading **eGate.sar** to the Repository, upload the following additional product files:
  - ♦ **SybaseeWay.sar** (to install the Sybase eWay)
  - ♦ **FileeWay.sar** (to install the File eWay, used in the sample projects)
  - ♦ **SybaseeWayDocs.sar** (to install the Sybase eWay documentation)

**Note:** *These files may not be located on the same installation disc as the **eGate.sar** file.*

### To install the Sybase eWay Samples and Javadocs

- 1 From the Documentation tab of the Enterprise Manager, click **Sybase eWay** to view the list of files available for this product.
- 2 Click **Download Sample** to open the **SybaseeWaySample.zip** file.
- 3 Use WinZip to extract the sample files to the desired location.
- 4 Click **Download Javadocs** to open the **SybaseeWayJavadoc.zip** file.
- 5 Use WinZip to extract the Javadocs files to the desired location.

After you complete the process of installing the Repository, Logical Host, and Enterprise Designer (as described in the *SeeBeyond ICAN Suite Installation Guide*), refer to **Chapter 5** for instructions on importing the sample project into your repository via the Enterprise Designer.

*Note:* Depending on what products you have installed, and how they are configured, the screenshots in this document may differ from what you see on your system.

# Properties of the Sybase eWay

This chapter describes how to set the properties of the Sybase eWay.

### What's in This Chapter

- [“Setting the Properties in the Outbound eWay” on page 12](#)
- [“Setting the Properties in the Inbound eWay” on page 16](#)
- [“Setting the Properties in the Outbound eWay Environment” on page 17](#)
- [“Setting the Properties in the Inbound eWay Environment” on page 20](#)

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## 3.1 Setting the eWay Properties in the Connectivity Map

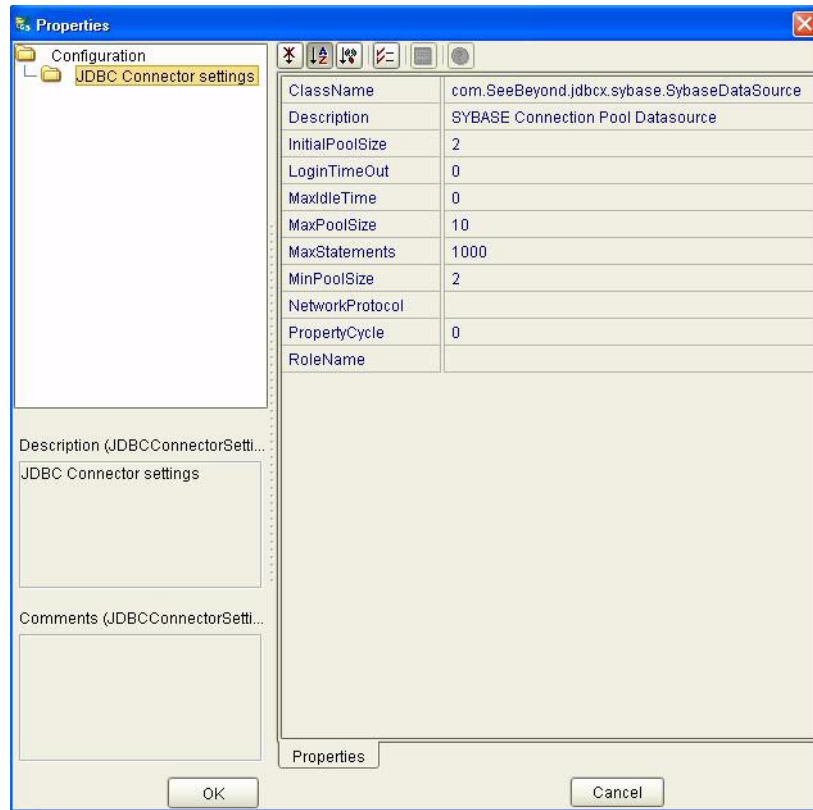
On the Properties sheet window and using the descriptions below, enter the information necessary for the eWay to establish a connection to the external application.

### 3.1.1. Setting the Properties in the Outbound eWay

The DataSource settings define the properties used to interact with the external database.

**Note:** *Not all parameters are supported in the current release, please contact SeeBeyond for more information.*

Figure 1 The eWay Properties



The DataSource settings define the properties used to interact with the external database.

## ClassName

### Description

Specifies the Java class in the JDBC driver that is used to implement the ConnectionPoolDataSource interface.

### Required Values

A valid class name.

The default is **com.SeeBeyond.jdbcx.sybase.sybaseDataSource**.

## Description

### Description

Enter a description for the database.

### Required Value

A valid string.

## InitialPoolSize

### Description

Enter a number for the physical connections the pool should contain when it is created.

### Required Value

A valid numeric value. The default is 2.

## LoginTimeout

### Description

The number of seconds driver will wait before attempting to log in to the database before timing out.

### Required Value

A valid numeric value.

## MaxIdleTime

### Description

The maximum number of seconds that a physical connection may remain unused before it is closed. 0 (zero) indicates that there is no limit.

### Required Value

A valid numeric value.

## MaxPoolSize

### Description

The maximum number of physical connections the pool should keep available at all times. 0 (zero) indicates that there is no maximum.

### Required Value

A valid numeric value. The default is 10.

## MaxStatements

### Description

The maximum total number of statements that the pool should keep open. 0 (zero) indicates that the caching of statements is disabled.

### Required Value

A valid numeric value. The default is 1000.

## MinPoolSize

The minimum number of physical connections the pool should keep available at all times. 0 (zero) indicates that there should be no physical connections in the pool and the new connections should be created as needed.

### Required Value

A valid numeric value. The default is 2.

## NetworkProtocol

### Description

The network protocol used to communicate with the server.

### Required Values

Any valid string.

## PropertyCycle

### Description

The interval, in seconds, that the pool should wait before enforcing the current policy defined by the values of the other connection pool properties in this deployment descriptor.

### Required Values

A valid numeric value. The default is 0.

## RoleName

### Description

An initial SQL role name.

### Required Values

Any valid string.

### 3.1.2. Setting the Properties in the Inbound eWay

**Figure 2** Properties of the Inbound eWay



#### Pollmilliseconds

##### Description

Polling interval in milliseconds.

##### Required Value

A valid numeric value. The default is 5000.

#### PreparedStatement

##### Description

Prepared Statement used for polling against the database.

##### Required Value

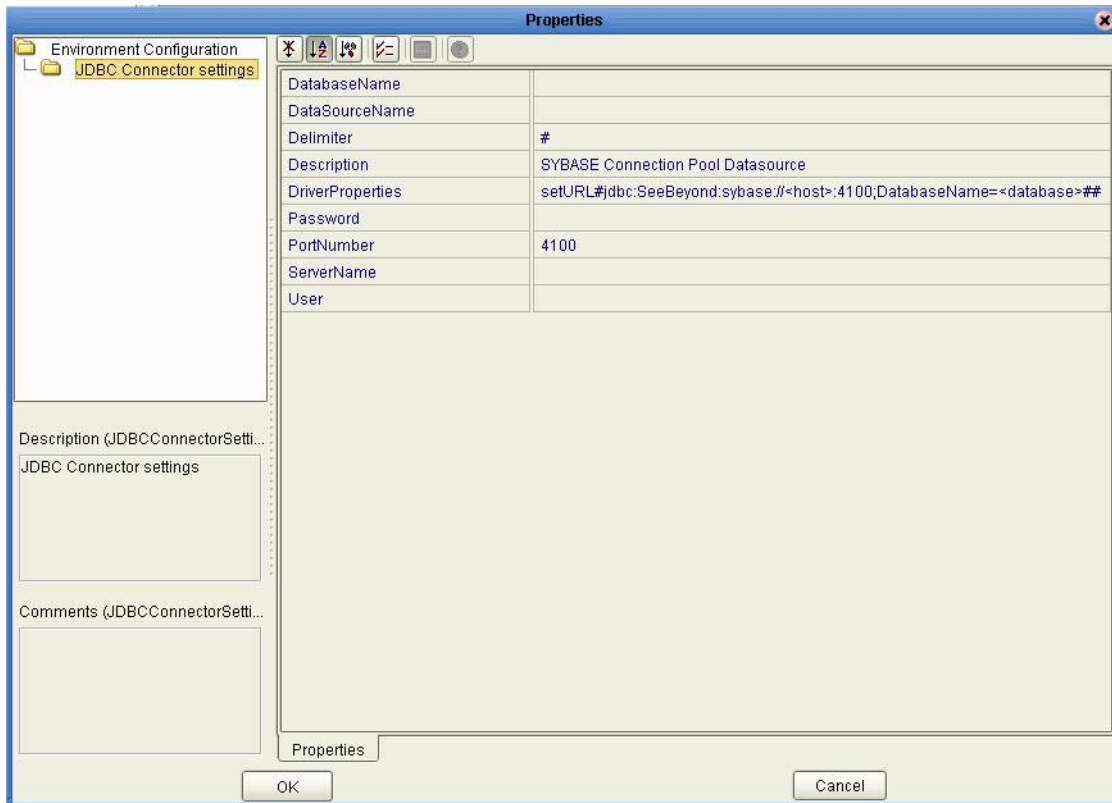
The Prepared Statement must be the same Prepared Statement you created using the Database OTD Wizard. Only SELECT Statement is allowed. Additionally, no place holders should be specified. There should not be any “?” in the Prepared Query.



### 3.1.3. Setting the Properties in the Outbound eWay Environment

Before deploying your eWay, you will need to set the properties of the eWay environment using the following descriptions.

**Figure 3** Outbound eWay Environment Configuration



#### DatabaseName

##### Description

Specifies the name of the database instance.

##### Required Values

Any valid string.

#### DataSourceName

##### Description

Provide the name of the ConnectionPoolDataSource object that the DataSource object delegates behind the scenes when connection pooling or distributed transaction management is being done.

##### Required Value

Optional. In most cases, leave this box empty.

## Delimiter

### Description

This is the delimiter character to be used in the DriverProperties prompt.

### Required Value

The default is #

## Description

### Description

Enter a description for the database.

### Required Value

A valid string.

## DriverProperties

### Description

If you choose to not to use the JDBC driver that is shipped with this eWay, you will need to add the drivers properties to the eWay. Often times the DataSource implementation will need to execute additional properties to assure a connection. The additional methods will need to be identified in the Driver Properties.

### Required Value

Any valid delimiter.

Valid delimiters are: "<method-name-1>#<param-1>#<param-2>##.....<param-n>##<method-name-2>#<param-1>#<param-2>#.....<param-n>##.....##".

For example: to execute the method setURL, give the method a String for the URL "setURL#<url>##".

**Note:** The setSpyAttributes, contained in the following examples (between the last set of double octothorps [##] within each example), are used for debugging purposes and need not be used on every occasion.

```
"setURL#jdbc:Seebeyond:Sybase://<server>:4100;DatabaseName=<database>##setSpyAttributes#log=(file)c:/temp/spy.log;logTName=yes##".
```

## Password

### Description

Specifies the password used to access the database.

### Required Values

Any valid string.

## PortNumber

### Description

Specifies the I/O port number on which the server is listening for connection requests.

### Required Values

A valid port number. The default is 4100.

## ServerName

### Description

Specifies the host name of the external database server.

### Required Values

Any valid string.

## User

### Description

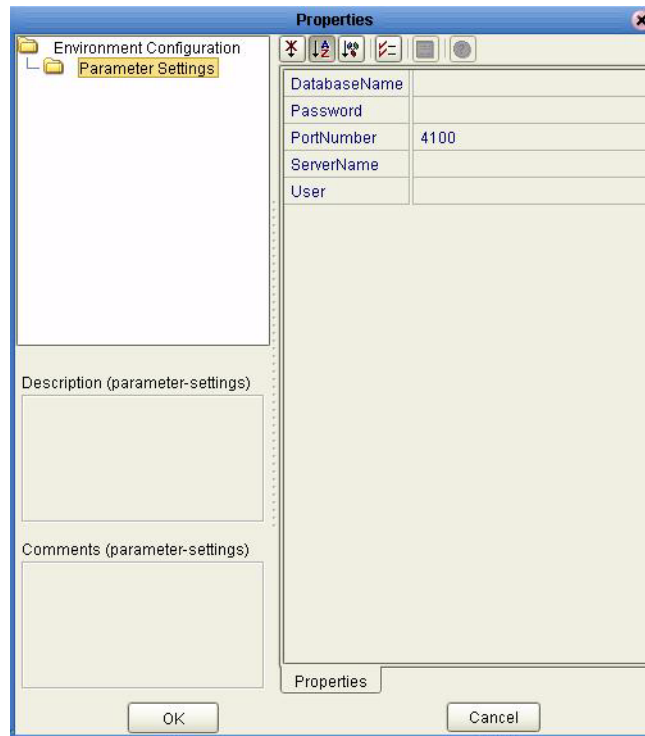
Specifies the user name the eWay uses to connect to the database.

### Required Values

Any valid string.

### 3.1.4. Setting the Properties in the Inbound eWay Environment

**Figure 4** Inbound eWay Environment



#### DatabaseName

##### Description

Specifies the name of the database instance.

##### Required Values

Any valid string.

#### Password

##### Description

Specifies the password used to access the database.

##### Required Values

Any valid string.

#### PortNumber

##### Description

Specifies the I/O port number on which the server is listening for connection requests.

### **Required Values**

A valid port number. The default is 4100.

### **ServerName**

#### **Description**

Specifies the host name of the external database server.

#### **Required Values**

Any valid string.

### **User**

#### **Description**

Specifies the user name the eWay uses to connect to the database.

#### **Required Values**

Any valid string.

# Using the Sybase eWay Database Wizard

This chapter describes how to use the Sybase eWay Database Wizard to build OTDs.

## What's in This Chapter

- “Select Wizard Type” on page 22
- “Connect to Database” on page 23
- “Select Database Objects” on page 24
- “Select Table/Views” on page 24
- “Select Procedures” on page 27
- “Add Prepared Statements” on page 30
- “Specify the OTD Name” on page 31

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## 4.1 Using the Database OTD Wizard

The Database OTD Wizard generates OTDs by connecting to external data sources and creating corresponding Object Type Definitions. The OTD Wizard can create OTDs based on any combination of Tables and Stored Procedures.

Field nodes are added to the OTD based on the Tables in the external data source. Java method and parameter nodes are added to provide the appropriate JDBC functionality. For more information about the Java methods, refer to your JDBC developer's reference.

The Sybase eWay also supports Double-Byte Character Set (DBCS) table and column names. The DBCS is a set of characters in which each character is represented by 2 bytes. The Korean language requires double-byte character sets.

*Note:* Database OTDs are not messagable. For more information on messagable OTDs, see the eGate Integrator User's Guide.

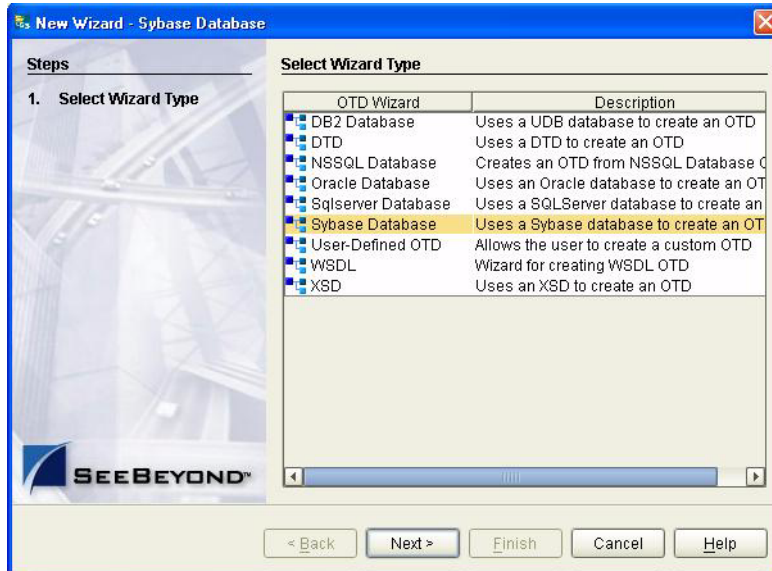
### To create a new OTD using the Database Wizard

#### Select Wizard Type

- 1 On the Enterprise Explorer, right click on the project and select **Create an Object Type Definition** from the shortcut menu.

- From the OTD Wizard Selection window, select the **Sybase Database** and click **Next**. See [Figure 5](#).

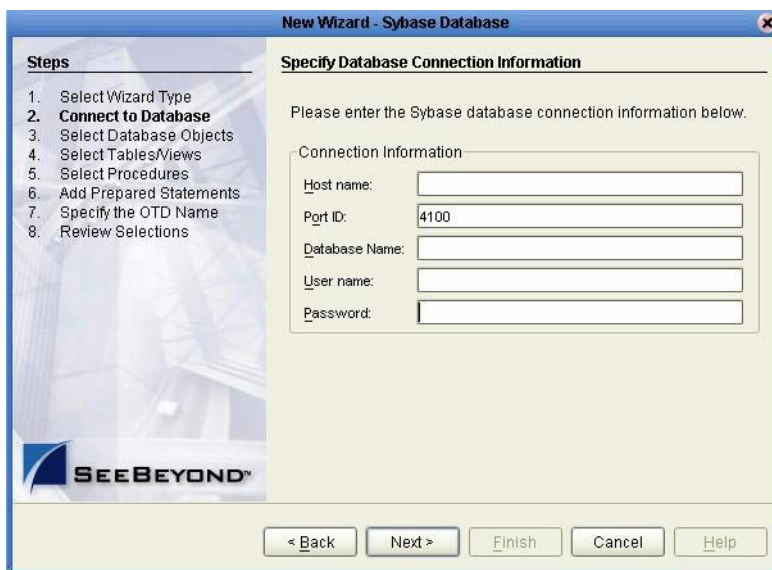
**Figure 5** OTD Wizard Selection



### Connect to Database

- Specify the connection information for your database including your **UserName** and **Password** and click **Next**. See [Figure 6](#).

**Figure 6** Database Connection Information

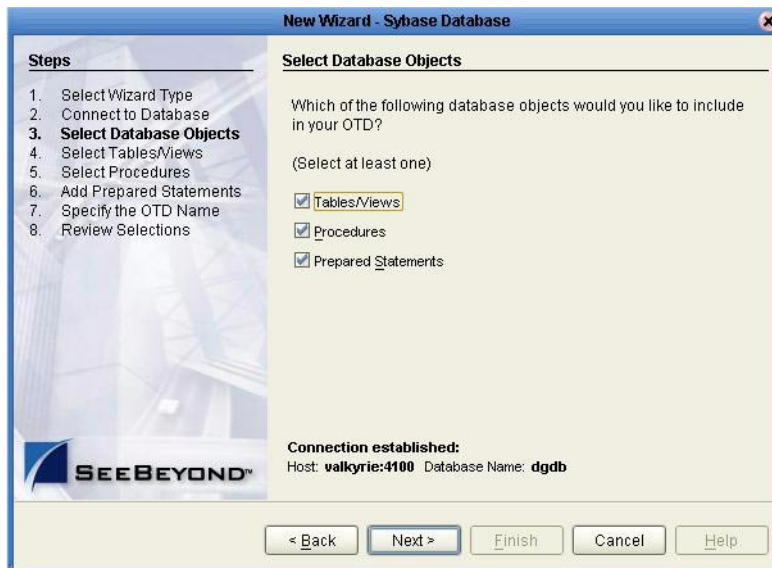


## Select Database Objects

- 1 When selecting Database Objects, you can select any combination of **Tables, Views, Procedures, or Prepared Statements** you would like to include in the .otd file. Click **Next** to continue. See [Figure 7](#).

*Note: Views are read-only and are for informational purposes only.*

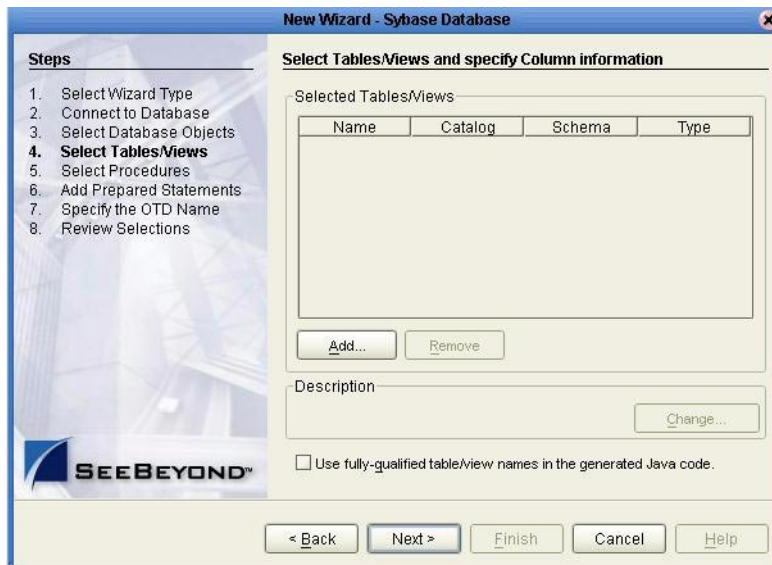
**Figure 7** Select Database Objects



## Select Table/Views

- 1 In the **Select Tables/Views** window, click **Add**. See [Figure 8](#).

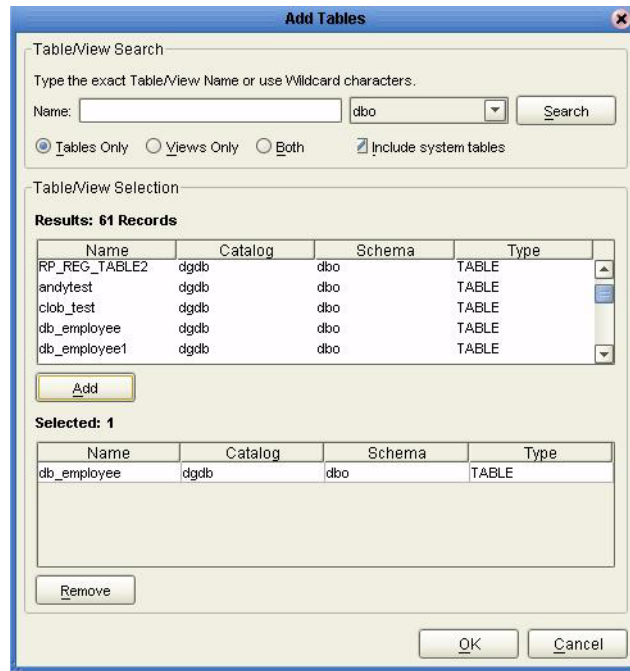
**Figure 8** Select Tables/Views





- 2 In the **Add Tables** window, select if your selection criteria will include table data, view only data, both, and/or system tables.
- 3 From the **Table/View Name** drop down list, select the location of your database table and click **Search**. See [Figure 9](#).

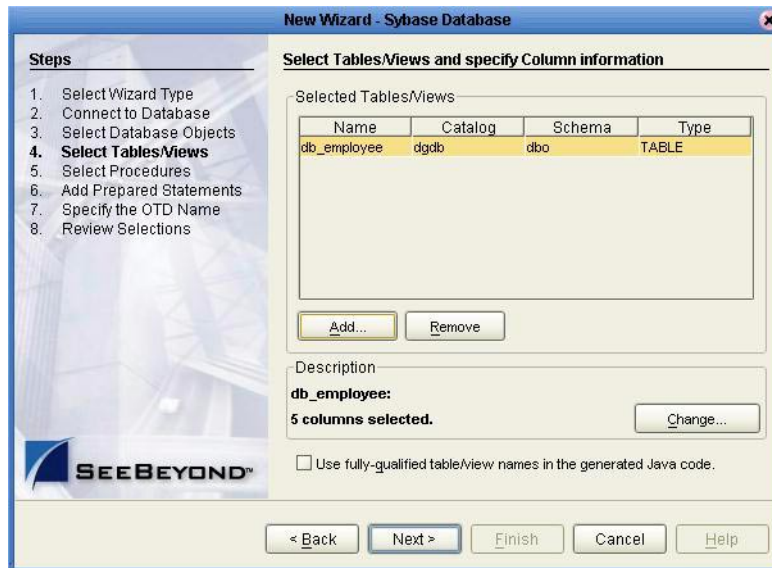
**Figure 9** Database Wizard - All Schemes



- 4 Select the table of choice and click **OK**.

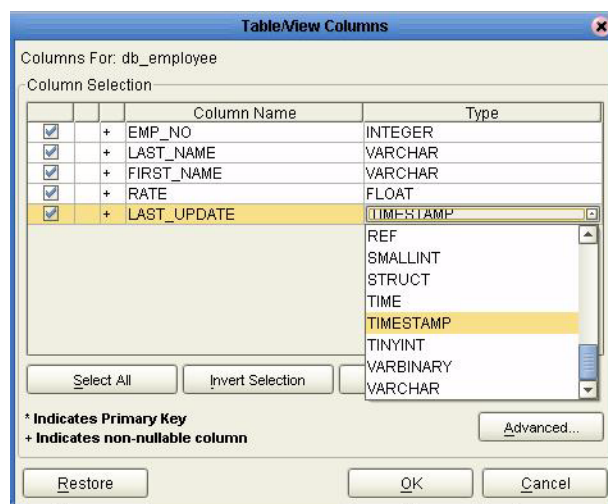
The table selected is added to the **Selected Tables/Views** window. See [Figure 10](#).

**Figure 10** Selected Tables/Views window with a table selected



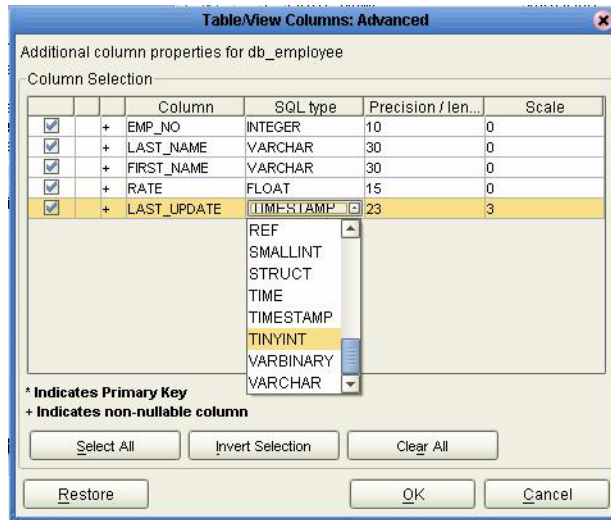
- 5 In the **Selected Tables/Views** window, review the table(s) you have selected. To make changes to the selected Table or View, click **Change**. If you do not wish to make any additional changes, click **Next** to continue.
- 6 In the **Table/View Columns** window, you can select or deselect your table columns. You can also change the data type for each table by highlighting the data type and selecting a different one from the drop down list. If you would like to change any of the tables columns, click **Change**. See [Figure 11](#).

**Figure 11** Table/View Columns



- 7 Click **Advanced** to change the data type, precision/length, or scale. Once you have finished your table choices, click **OK**. In general, you will not need to make any changes. See [Figure 12](#).

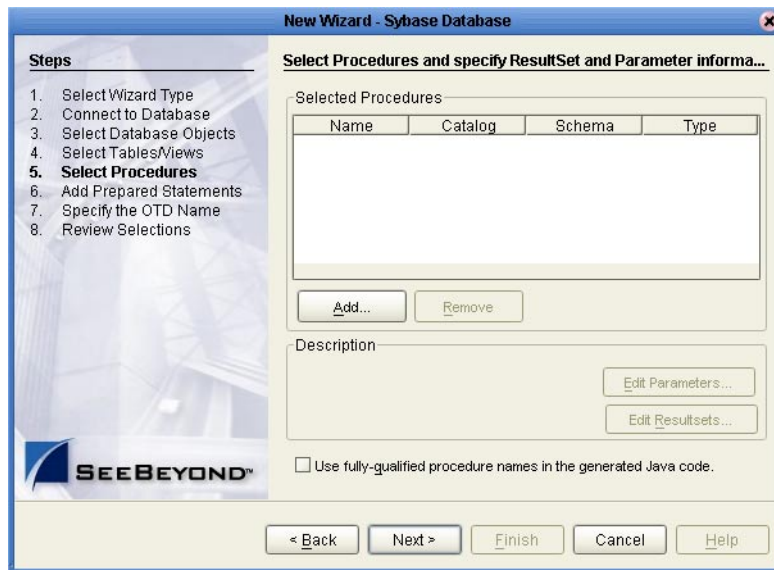
Figure 12 Table/View Columns – Advanced



### Select Procedures

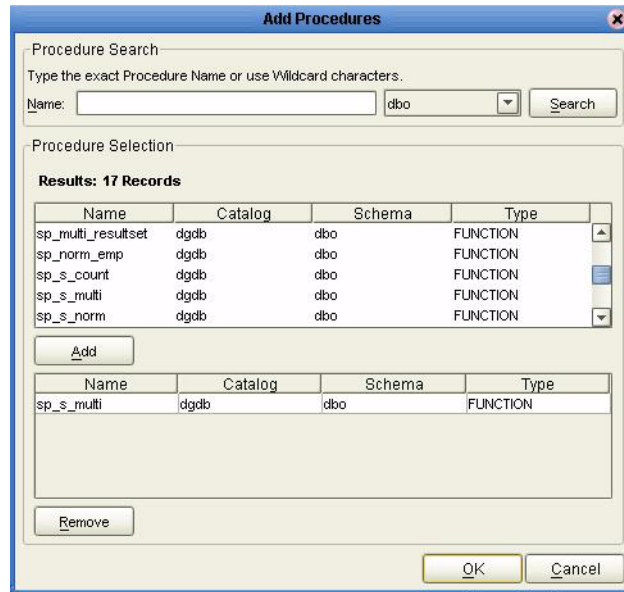
- 1 On the **Select Procedures and specify Resultset and Parameter Information** window, click **Add**.

Figure 13 Select Procedures and specify Resultset and Parameter Information



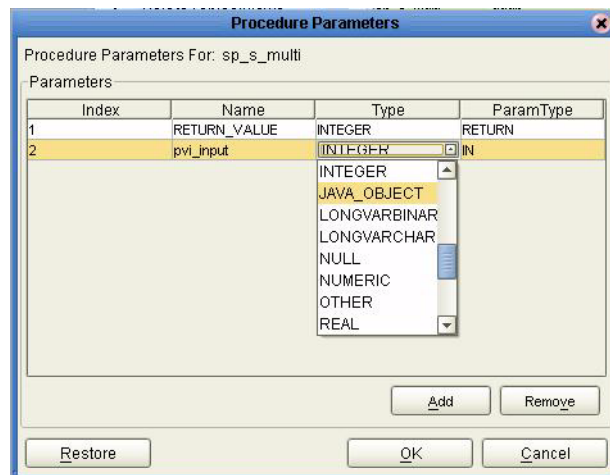
- 2 On the **Select Procedures** window, enter the name of a Procedure or select a table from the drop down list. Click **Search**. Wildcard characters can also be used.
- 3 In the resulting **Procedure Selection** list box, select a Procedure. Click **OK**.

Figure 14 Add Procedures



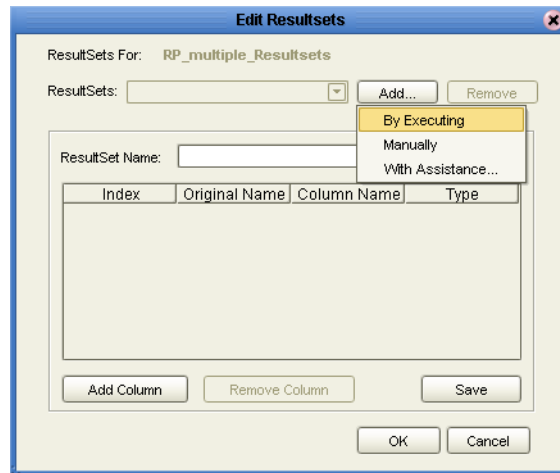
- 4 On the **Select Procedures and specify Resultset and Parameter Information** window click **Edit Parameters** to make any changes to the selected Procedure. See [Figure 15](#).

Figure 15 Procedure Parameters



- 5 To restore the data type, click **Restore**. When finished, click **OK**.
- 6 To select how you would like the OTD to generate the nodes for the Resultset click **Edit Resultsets**.
- 7 Click **Add** to add the type of Resultset node you would like to generate.

**Figure 16** Edit Resultset



The DBWizard provides three different ways to generate the ResultSet nodes of a Stored Procedure. They are "**By Executing**", "**Manually**", and "**With Assistance**" modes.

"**By Executing**" mode executes the specified Stored Procedure with default values to generate the ResultSet(s). Depending on the business logic of the Stored Procedure, zero or more ResultSets can be returned from the execution. In the case that there are multiple ResultSets and "**By Executing**" mode does not return all ResultSets, one should use the other modes to generate the ResultSet nodes.

"**With Assistance**" mode allows users to specify a query and execute it to generate the ResultSet node. To facilitate this operation, the DBWizard tries to retrieve the content of the specified Stored Procedure and display it. However, content retrieval is not supported by all types of Stored Procedures. We can roughly classify Stored Procedures into two types: SQL and external. SQL Stored Procedures are created using CREATE PROCEDURE SQL statements while external Stored Procedures are created using host languages (e.g. Java). Since external Stored Procedures do not store their execution plans in the database, content retrieval is impossible. When using "**Assist**" mode, highlight the execute statement up to and including the table name(s) before executing the query.

"**Manually**" mode is the most flexible way to generate the result set nodes. It allows users to specify the node name, original column name and data type manually. One drawback of this method is that users need to know the original column names and data types. This is not always possible. For example, the column name of 3\*C in this query.

```
SELECT A, B, 3*C FROM table T
```

is generated by the database. In this case, "**With Assistance**" mode is a better choice.

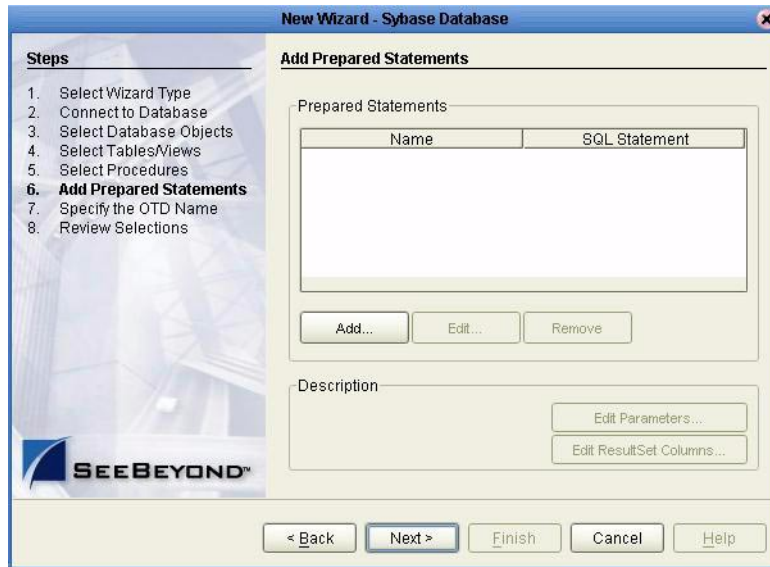
If you modify the ResultSet generated by the "**Execute**" mode of the Database Wizard you need to make sure the indexes match the Stored Procedure. This assures your ResultSet indexes are preserved.

- 8 On the **Select Procedures and specify Resultset and Parameter Information** window click **Next** to continue.

## Add Prepared Statements

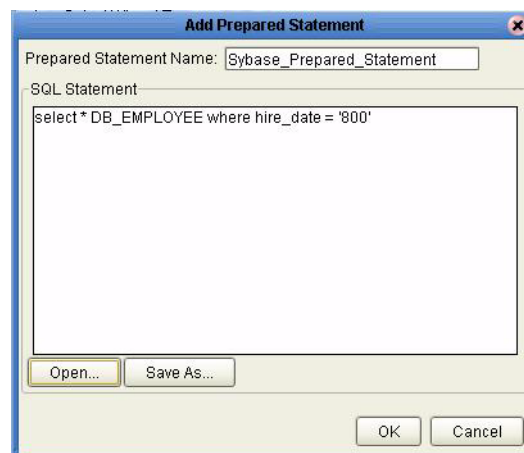
- 1 On the **Add Prepared Statements** window, click **Add**.

**Figure 17** Prepared Statement



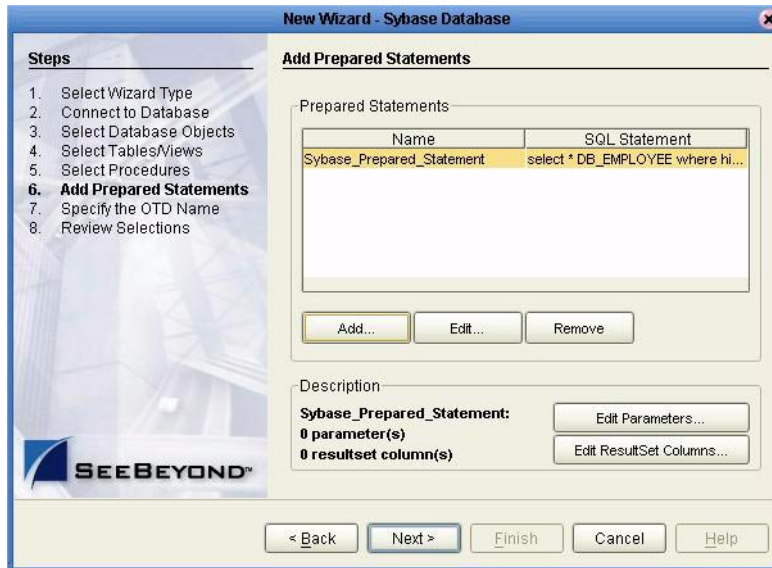
- 2 Enter the name of a Prepared Statement or create a SQL statement by clicking in the SQL Statement window. When finished creating the statement, click **Save As** giving the statement a name. This name will appear as a node in the OTD. Click **OK**. See **Figure 18**.

**Figure 18** Prepared SQL Statement



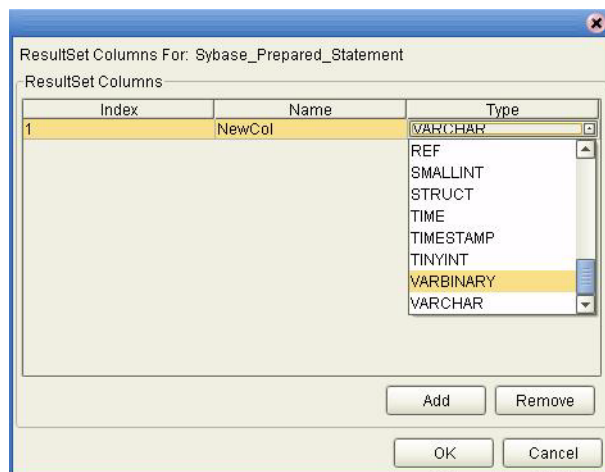
- 3 On the **Add Prepared Statement** window, the name you assigned to the Prepared Statement appears. To edit the parameters, click **Edit Parameters**. You can change the datatype by clicking in the **Type** field and selecting a different type from the list.
- 4 Click **Add** if you want to add additional parameters to the Statement or highlight a row and click **Remove** to remove it. Click **OK**. See **Figure 19**.

**Figure 19** Edit the Prepared Statement Parameters



- 1 To edit the Resultset Columns, click **Edit Resultset Columns**. Both the Name and Type are editable. Click **OK**. See [Figure 20](#).

**Figure 20** ResultSet Columns

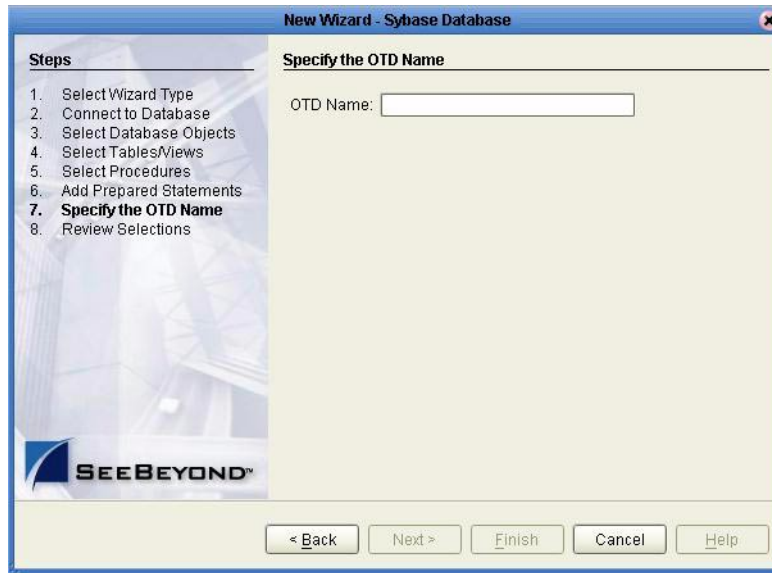


### Specify the OTD Name

- 1 Enter a name for the OTD. The OTD contains the selected tables and the package name of the generated classes. See [Figure 21](#).

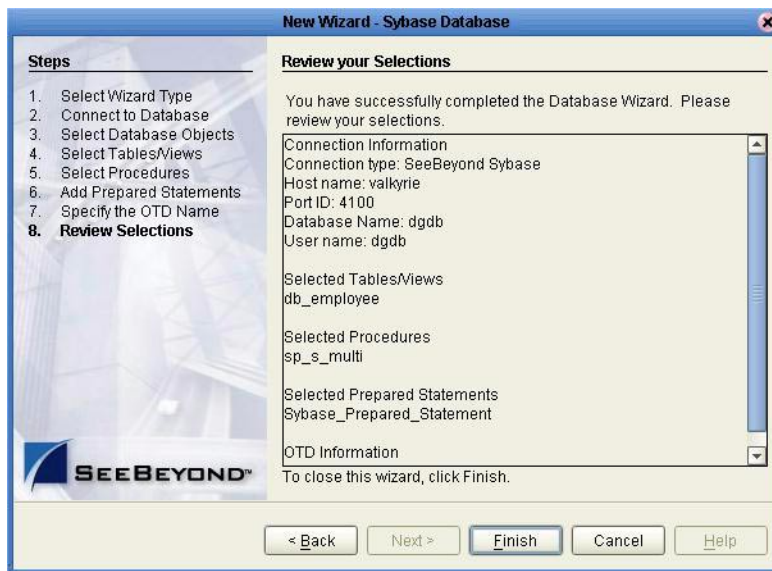


Figure 21 Naming an OTD



- 2 View the summary of the OTD. If you find you have made a mistake, click **Back** and correct the information. If you are satisfied with the OTD information, click **Finish** to begin generating the OTD. See [Figure 22](#).

Figure 22 Database Wizard - Summary



The resulting OTD will appear on the Enterprise Designer's canvas.



# Implementing the Sybase eWay(s)

This chapter describes how to build an eWay project in a production environment.

## What's in This Chapter

- [“eInsight Engine and eGate Components” on page 33](#)
- [“Using the Sample Project in eInsight” on page 33](#)
- [“Using the Sample Project in eGate” on page 45](#)
- [“Common DataType Conversions” on page 48](#)
- [“Using OTDs with Tables, Views, and Stored Procedures” on page 49](#)
- [“Alerting and Logging” on page 56](#)

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## 5.1 eInsight Engine and eGate Components

You can deploy an eGate component as an Activity in an eInsight Business Process. Once you have associated the desired component with an Activity, the eInsight engine can invoke it using a Web Services interface. Examples of eGate components that can interface with eInsight in this way are:

- Java Messaging Service (JMS)
- Object Type Definitions (OTDs)
- An eWay
- Collaborations

Using the eGate Enterprise Designer and eInsight, you can add an Activity to a Business Process, then associate that Activity with an eGate component, for example, an eWay. When eInsight runs the Business Process, it automatically invokes that component via its Web Services interface.

---

## 5.2 Using the Sample Project in eInsight

To begin using the sample eInsight Business Process project, you will need to import the project and view it from within the Enterprise Designer using the Enterprise

Designer Project Import utility. Import the **Syb\_BPEL\_Sample.zip** file contained in the eWay sample folder on the installation CD-ROM.

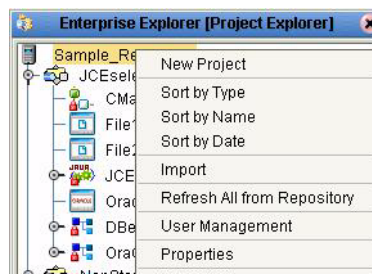
**Note:** *eInsight is a Business Process modeling tool. If you have not purchased eInsight, contact your sales representative for information on how to do so.*

Before recreating the sample Business Process, review the *eInsight Business Process Manager User's Guide* and the *eGate Tutorial*.

### Importing the Sample Project

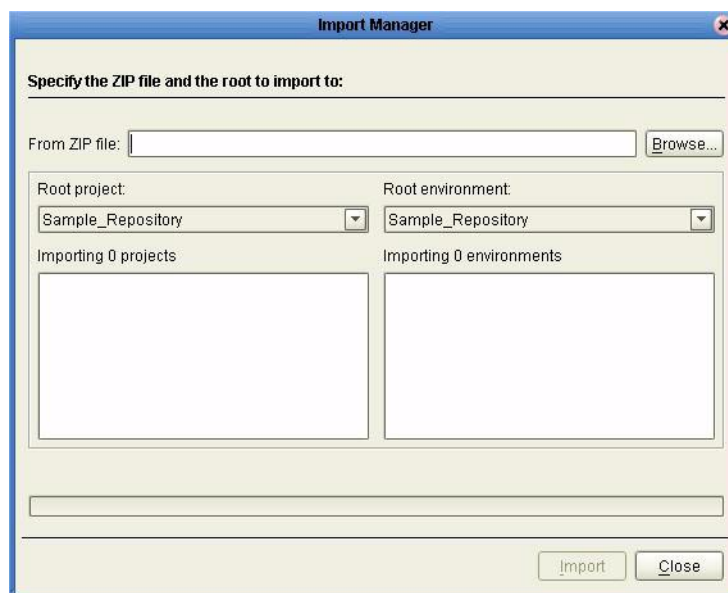
- 1 On the Enterprise Explorer highlight the repository and right click. Select **Import Project**. See [Figure 23](#).

**Figure 23** Importing the sample project



- 1 In the **Import Manager** window, **From ZIP file** browse to the location of the sample folder and select the following .zip file **Syb\_BPEL\_Sample.zip** and click **Import**. See [Figure 24](#).

**Figure 24** Select the project file



- 2 Click the **Refresh All From Repository** icon located on the **Enterprise Explorer** toolbar.

## The Business Process

The data used for this sample project is contained within a table called db\_employee. The table has the following columns:

**Table 2** Sample project data

Column Name	Mapping	Data Type	Data Length
EMP_NO	employee_no	integer	10
LAST_NAME	employee_lname	varchar	30
FIRST_NAME	employee_fname	varchar	30
LAST_UPDATE	update_date	timestamp	16
RATE	rate	float	53

The sample project consists of an input file containing data that is passed into a database collaboration, and then written out to an output file

- 3 Refer to the *eInsight Business Process Manager User's Guide* for specific information on how to create and use a Business Process

You can associate an eInsight Business Process Activity with the eWay, both during the system design phase and during run time. To make this association, select the desired **receive** or **write** operation under the eWay in the Enterprise Explorer and drag it onto the eInsight Business Process canvas. The following operations are available:

- SelectAll
- SelectMultiple
- SelectOne
- Insert
- Update
- Delete

The operation automatically changes to an Activity with an icon identifying the component that is the basis for the Activity.

At run time, the eInsight engine invokes each step in the order that you defined in the Business Process. Using the engine's Web Services interface, the Activity in turn invokes the eWay. You can open a file specified in the eWay and view its contents before and after the Business Process is executed.

**Note:** *Inbound database eWays are only supported within BPEL Collaborations.*

The table below shows the inputs and outputs to each of these eInsight operations:

eInsight Operation	Input	Output
SelectAll	where() clause (optional)	Returns all rows that fit the condition of the where() clause
SelectMultiple	number of rows where() clause (optional)	Returns the number of rows specified that fit the condition of the where() clause
SelectOne	where() clause (optional)	Returns the first row that fits the condition of the where() clause
Insert	definition of new item to be inserted	Returns status.
Update	where() clause	Returns status.
Delete	where() clause	Returns status.

### 5.2.1 whereClause()

A BPEL whereClause() statement may be joined by AND/OR with conditions of "=", "!=", "<>", "<", ">", "<=", ">=".

For example:

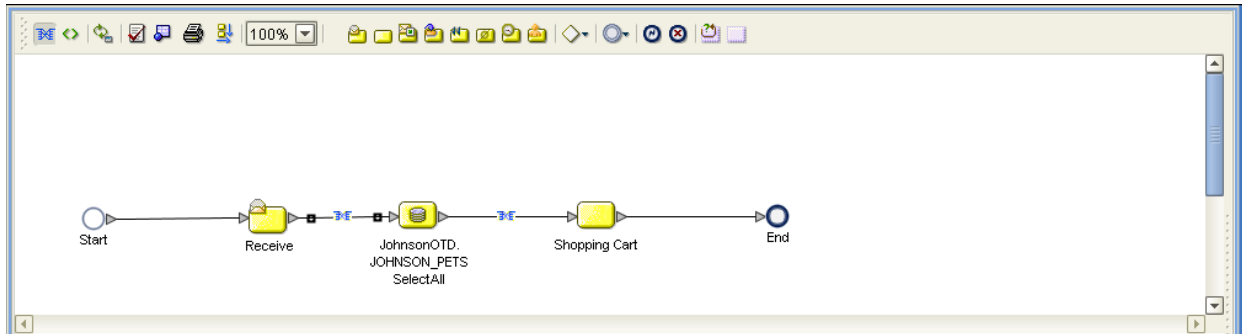
whereClause such as where column2=2 AND column1=1 OR column3=3 is valid

### 5.2.2 SelectAll

The input to a SelectAll operation is an optional where() clause. The where() clause defines to which criteria rows must adhere to be returned. In the SelectAll operation, all items that fit the criteria are returned. If the where() clause is not specified, all rows are returned.

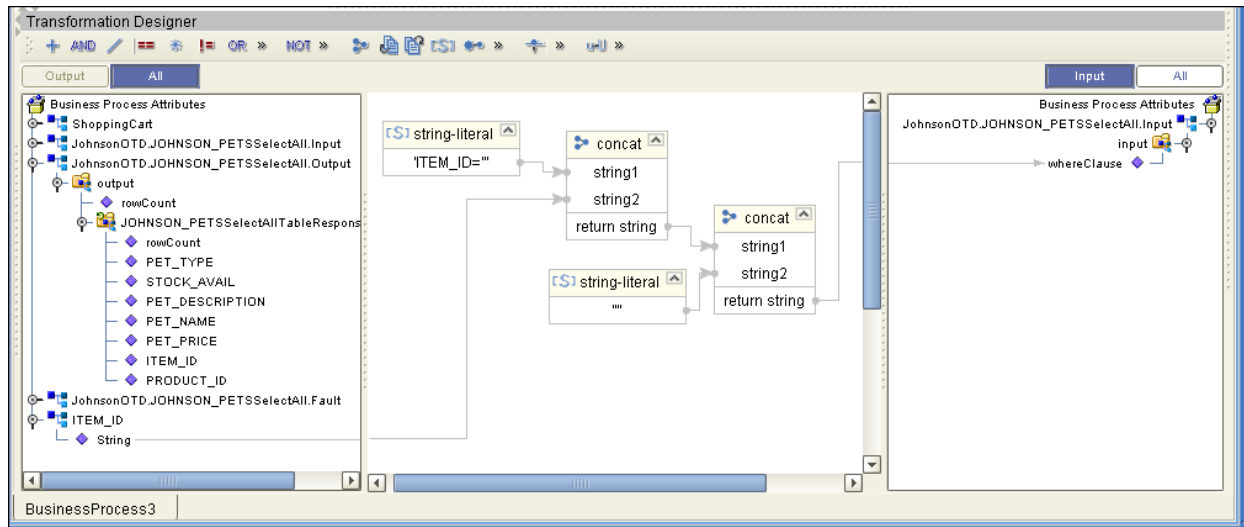
The figure below shows a sample eInsight Business Process using the SelectAll operation. In this process, the SelectAll operation returns all rows where the ITEM\_ID matches the selected ITEM\_ID to the shopping cart.

**Figure 25** SelectAll Sample Business Process



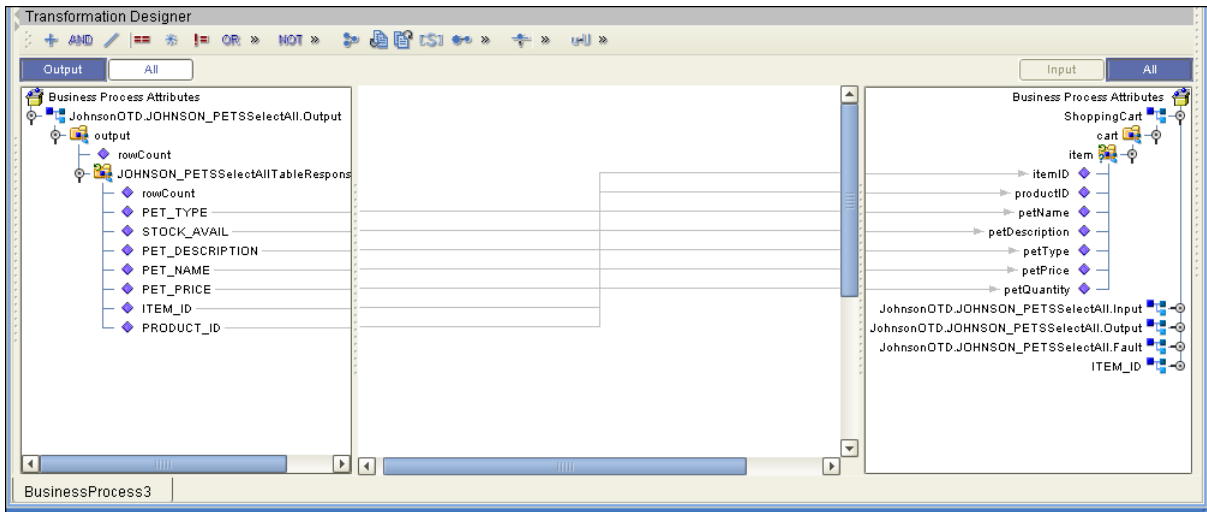
The figure below shows the definition of the where() clause for the SelectAll operation.

**Figure 26** SelectAll Input



The figure below shows the definition of the output for the SelectAll operation. For each row selected during the operation, the shopping cart shows the columns of those rows as defined here.

Figure 27 SelectAll Output

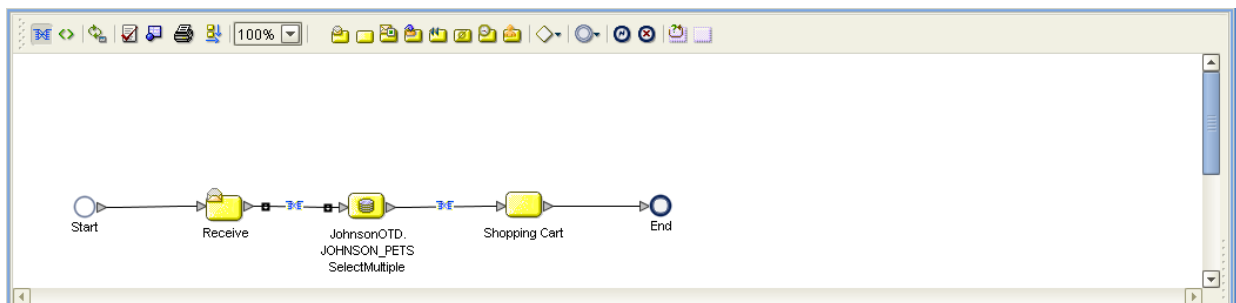


### 5.2.3 SelectMultiple

The input to a SelectMultiple operation is the number of rows to be selected and a where() clause. The number of rows indicates how many rows the SelectMultiple operation returns. The where() clause defines to which criteria rows must adhere to be returned.

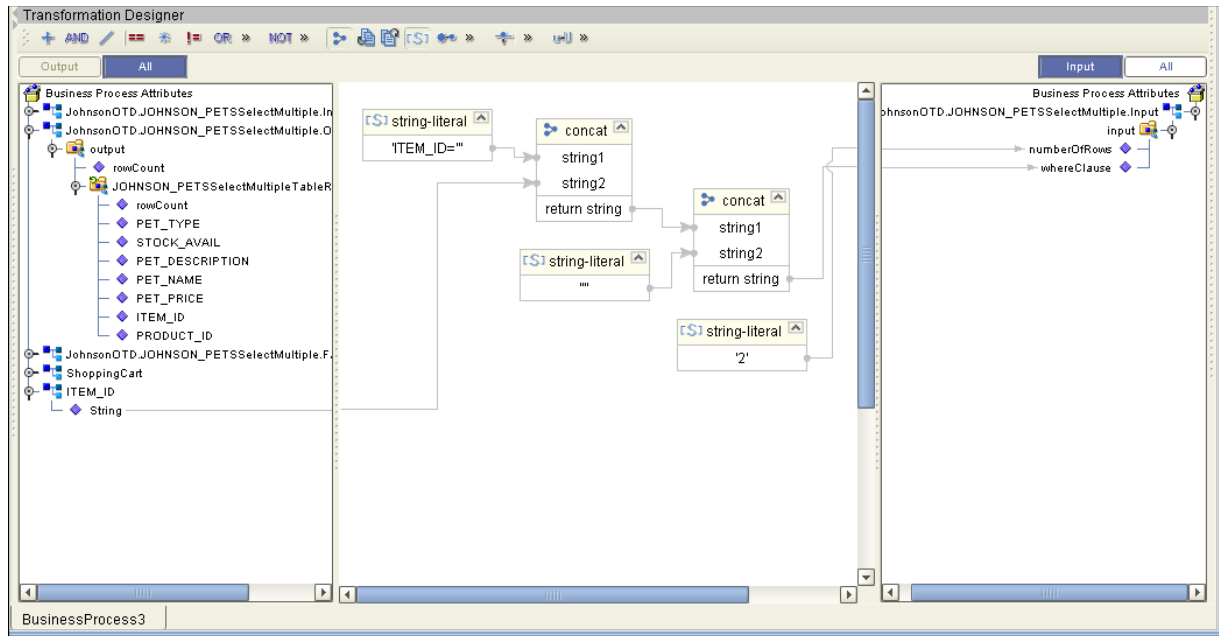
The figure below shows a sample eInsight Business Process using the SelectMultiple operation. In this process, the SelectMultiple operation returns the first two rows where the ITEM\_ID matches the selected ITEM\_ID to the shopping cart.

Figure 28 SelectMultiple Sample Business Process



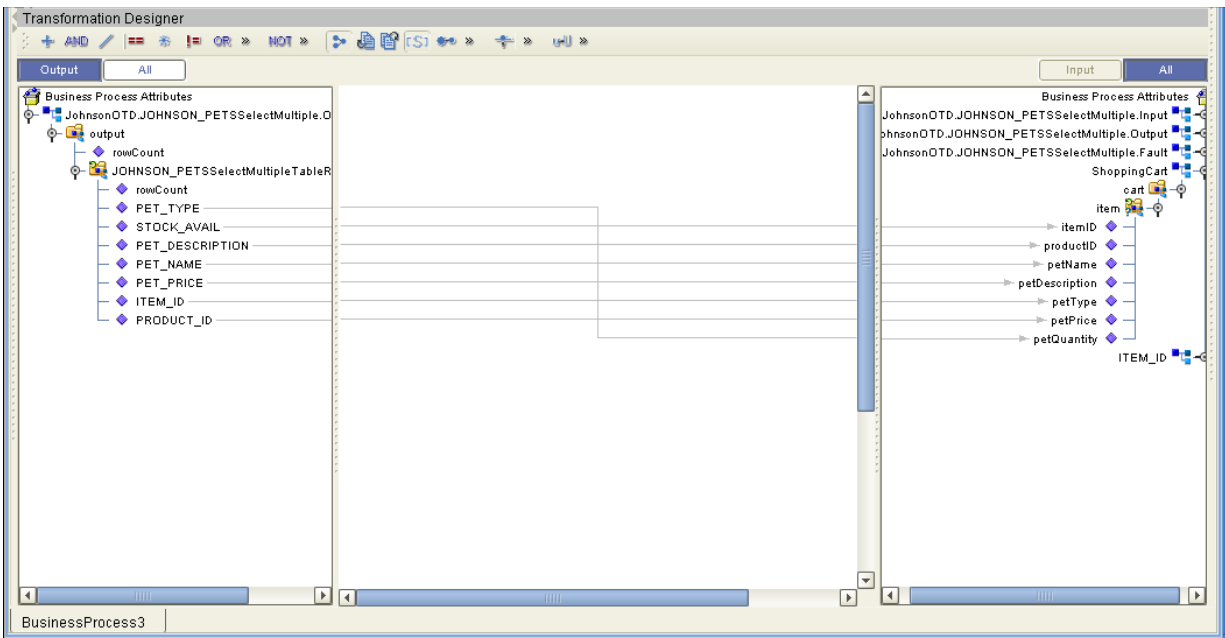
The figure below shows the definition of the number of rows and where() clause input for the SelectMultiple operation. You could also use an empty string for example item=ID=' '.

Figure 29 SelectMultiple Input



The figure below shows the definition of the output for the SelectMultiple operation. For each row selected during the operation, the shopping cart shows the columns of those rows as defined here.

Figure 30 SelectMultiple Output

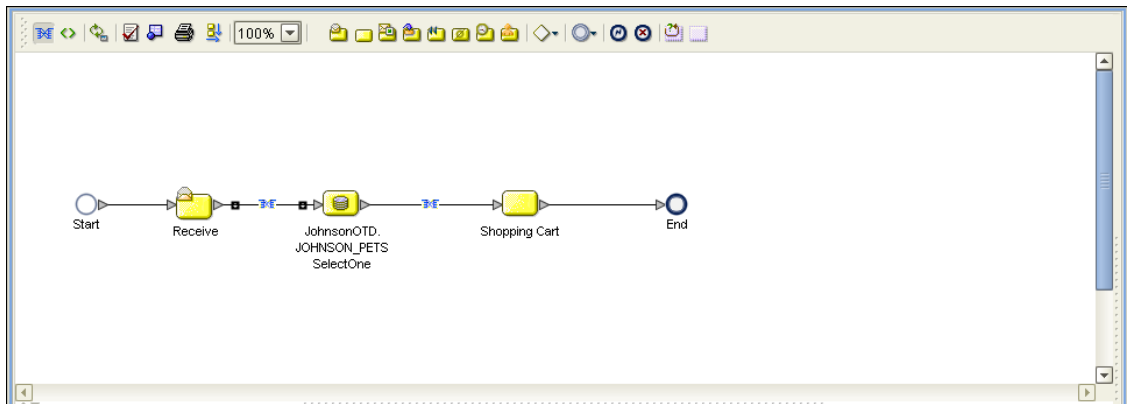


### 5.2.4 SelectOne

The input to a SelectOne operation is a where() clause. The where() clause defines to which criteria rows must adhere to be selected for the operation. In the SelectOne operation, the first row that fits the criteria is returned.

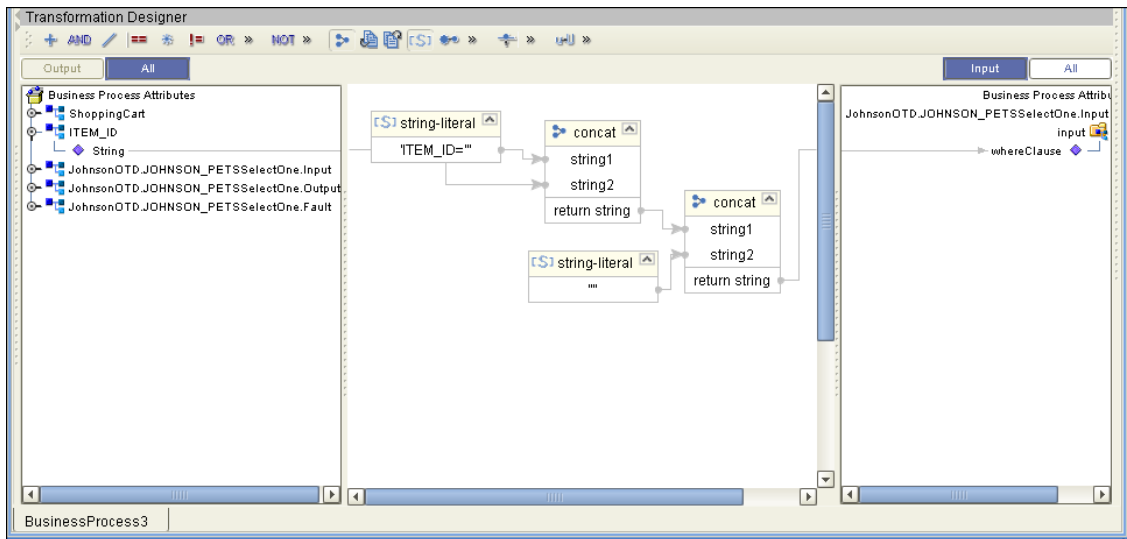
The figure below shows a sample eInsight Business Process using the SelectOne operation. In this process, the SelectOne operation returns the first row where the ITEM\_ID matches the specified ITEM\_ID to the shopping cart.

**Figure 31** SelectOne Sample Business Process



The figure below shows the definition of the where() clause for the SelectOne operation.

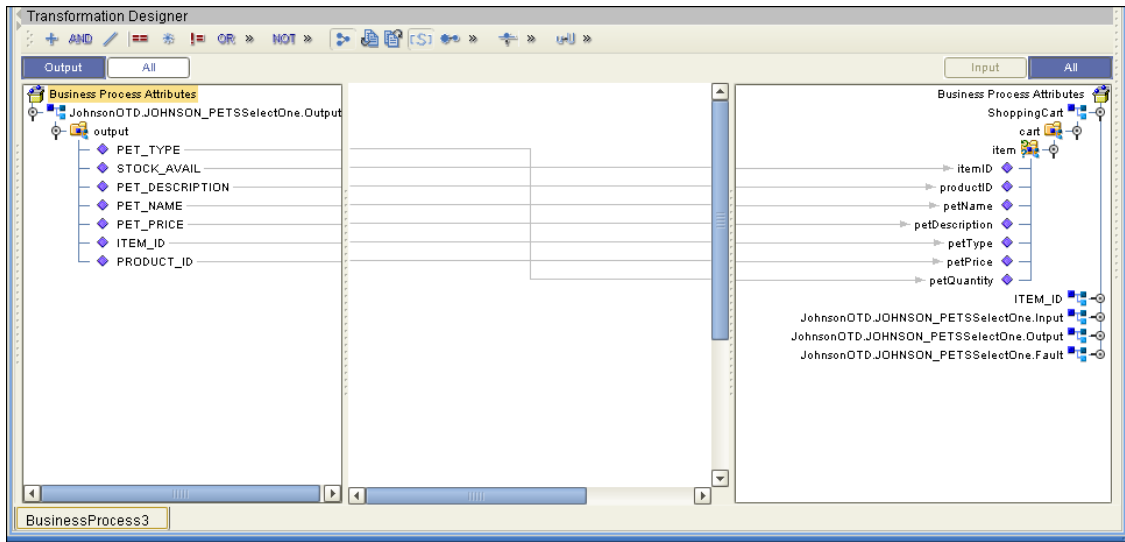
**Figure 32** SelectOne Input



The figure below shows the definition of the output for the SelectOne operation. For the first row selected during the operation, the shopping cart shows the columns of that row as defined here.



Figure 33 SelectOne Output

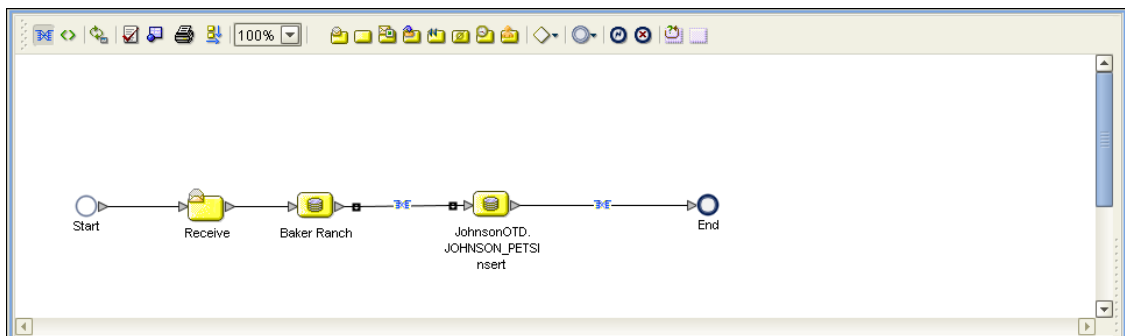


### 5.2.5 Insert

The Insert operation inserts a row. The input to an Insert operation is a where() clause. The where() clause defines to which criteria rows must adhere to be selected for the operation. In the Insert operation, the first row that fits the criteria is returned.

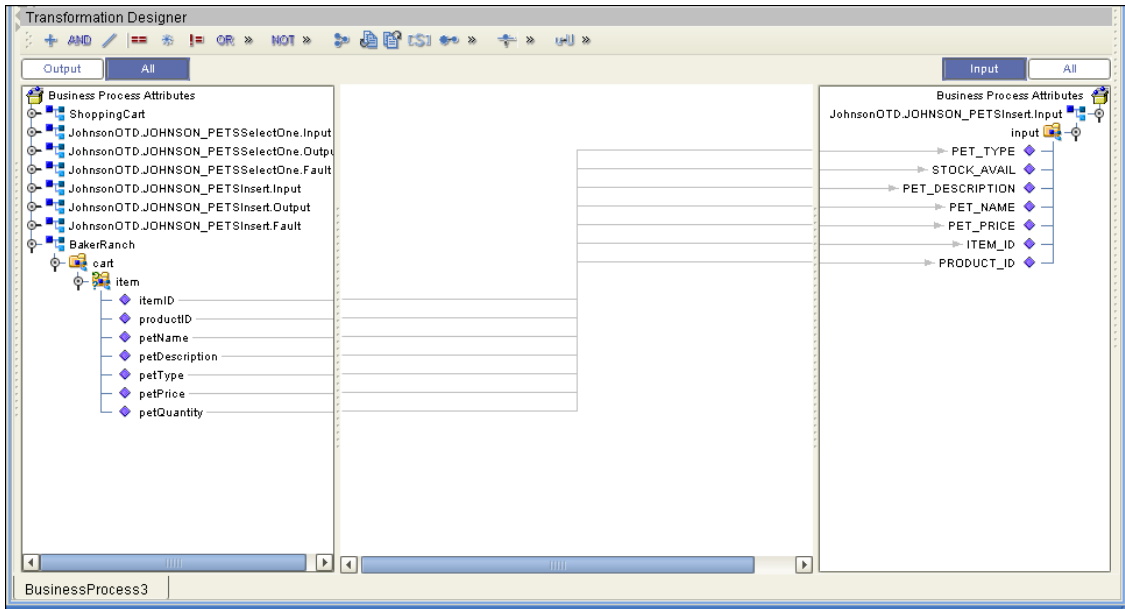
The figure below shows a sample eInsight Business Process using the Insert operation. In this process, the operation inserts a new row into the database to accommodate a new item provided by a vendor.

Figure 34 Insert Sample Business Process



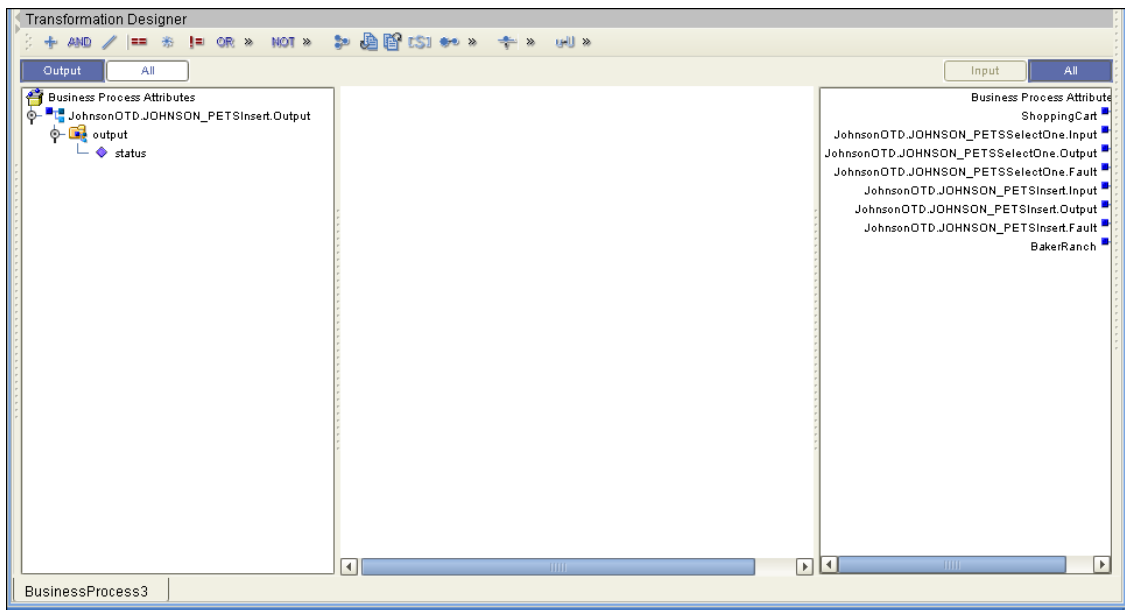
The figure below shows the definition of the input for the Insert operation.

Figure 35 Insert Input



The figure below shows the output of the Insert operation, which is a status indicating the number of rows created.

Figure 36 Insert Output

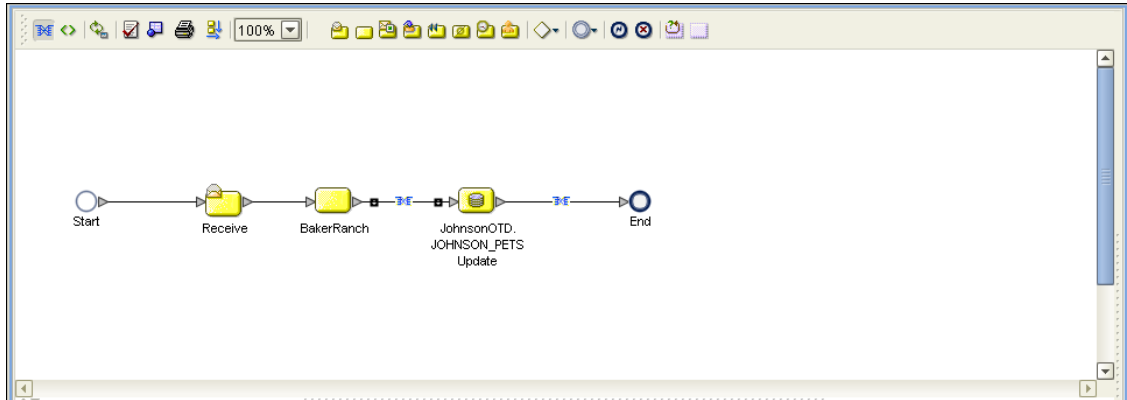


## 5.2.6 Update

The Update operation updates rows that fit certain criteria defined in a where() clause.

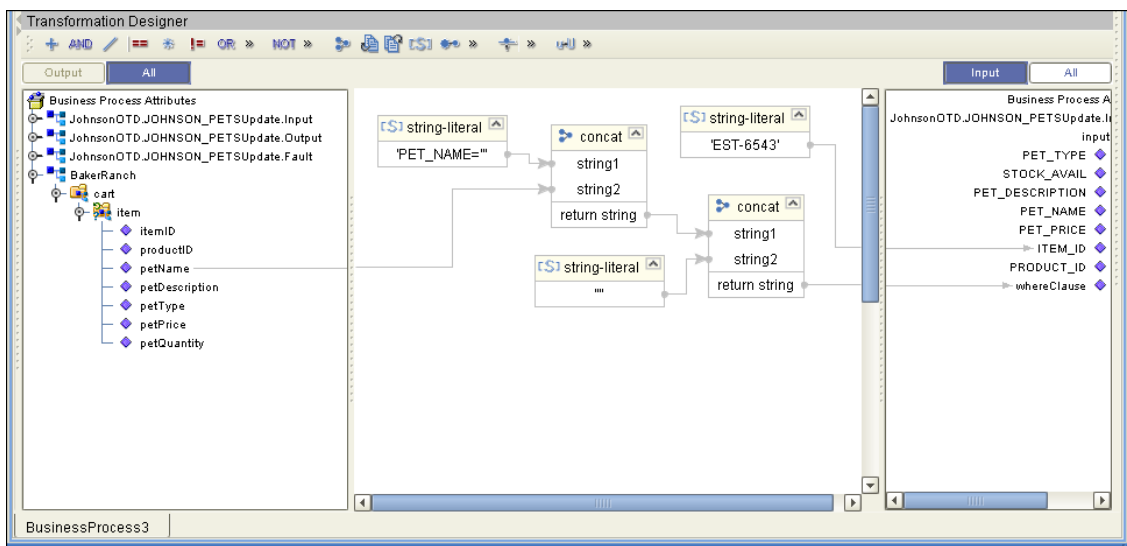
The figure below shows a sample eInsight Business Process using the Update operation. In this process, the operation updates the ITEM\_ID for all items with a certain name to ESR\_6543.

**Figure 37** Update Sample Business Process



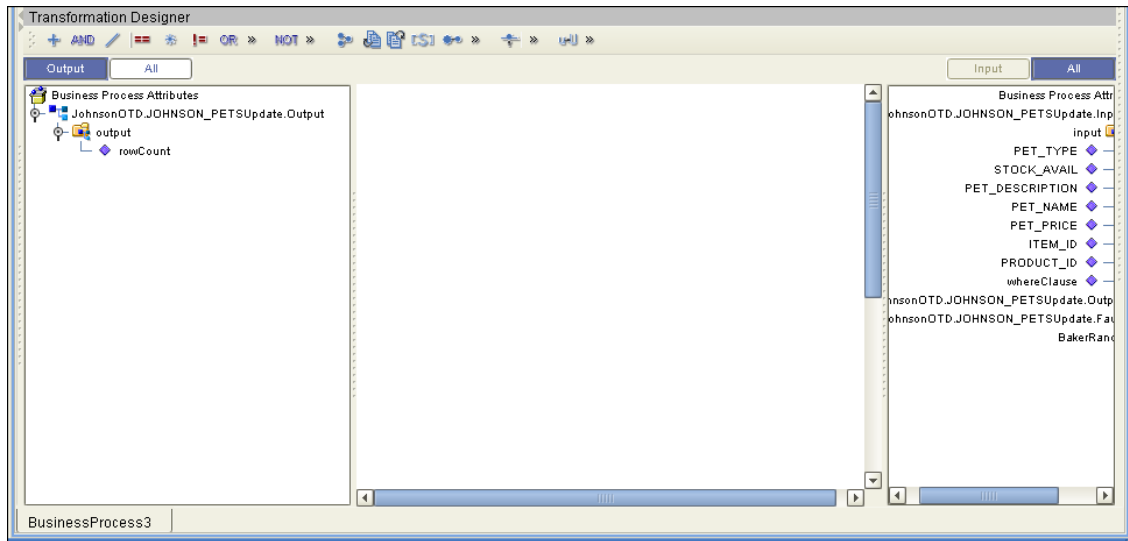
The figure below shows the definition of the where() clause for the Update operation.

**Figure 38** Update Input



The figure below shows the output of the Update operation, which is a status indicating the number of rows updated.

Figure 39 Update Output

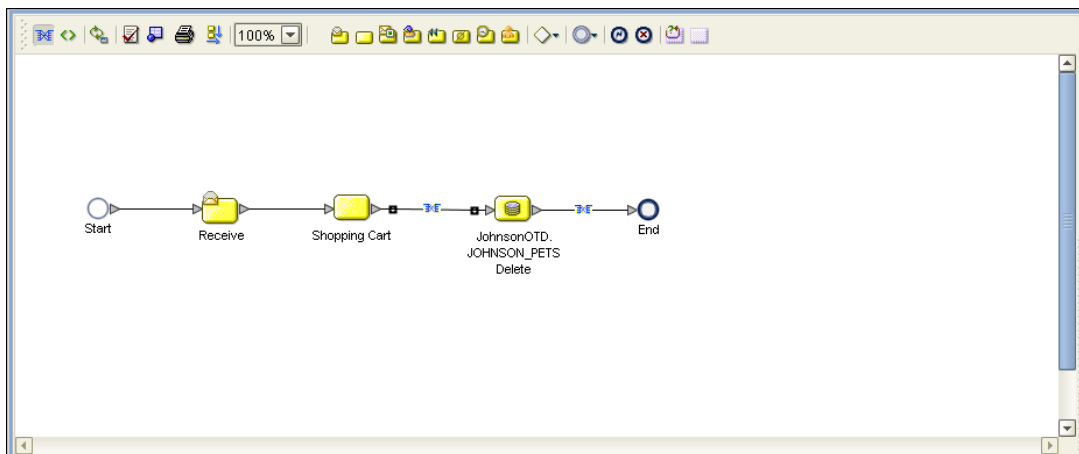


### 5.2.7 Delete

The Delete operation deletes rows that match the criteria defined in a where() clause. The output is a status of how many rows where deleted.

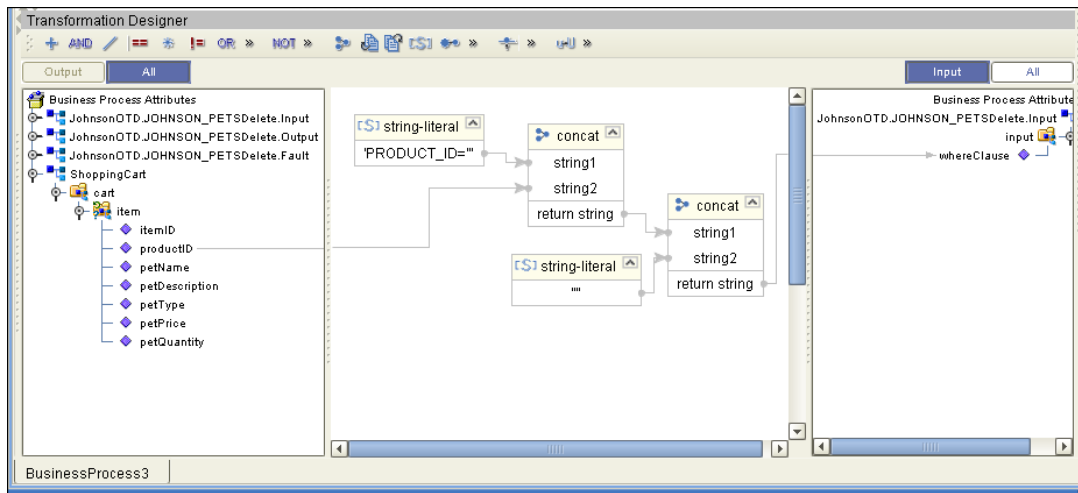
The figure below shows a sample eInsight Business Process using the Delete operation. In this process, the operation deletes rows with a certain product ID from the shopping cart.

Figure 40 Delete Sample Business Process



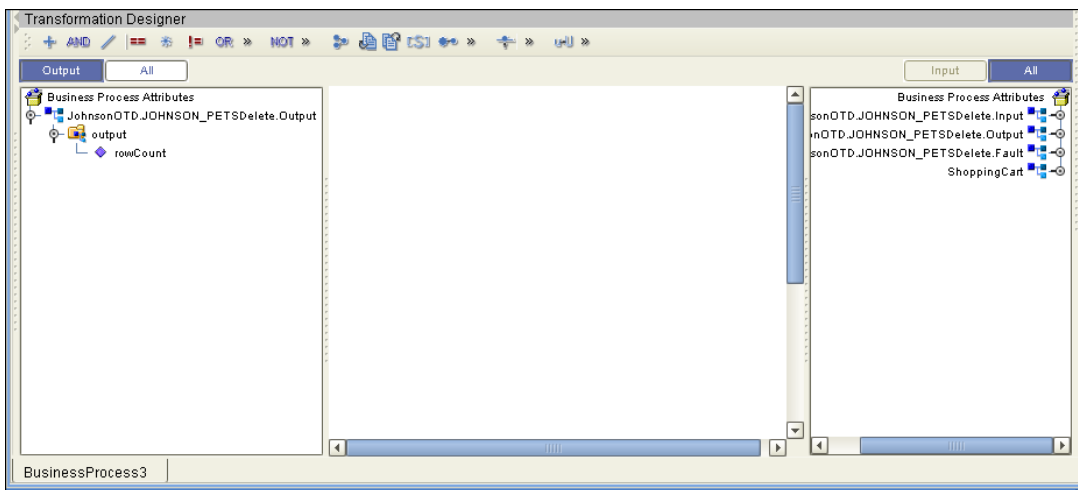
The figure below shows the definition of the where() clause for the Delete operation.

Figure 41 Delete Input



The figure below shows the output of the Delete operation, which is a status indicating the number of rows deleted.

Figure 42 Delete Output



## 5.3 Using the Sample Project in eGate

To import the sample project **Syb\_JCE\_Sample.zip** follow the instructions given in [Importing the Sample Project](#) on page 34.

### 5.3.1. Working with the Sample Project in eGate

This sample project selects the EMP\_NO, LAST\_NAME, FIRST\_NAME, RATE, LAST\_UPDATE, RATE and the columns from the table db\_employee and publishes the record to an output file.

The data used for this projects is within a table called db\_employees. The table contains the following columns:

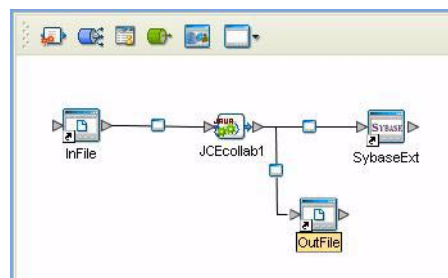
**Table 3** Sample project data

Column Name	Mapping	Data Type	Data Length
EMP_NO	employee_no	integer	10
LAST_NAME	employee_lname	varchar	30
FIRST_NAME	employee_fname	varchar	30
LAST_UPDATE	update_date	timestamp	16
RATE	rate	float	53

The sample project consists of an input file containing data that is passed into a collaboration and out to the database from which data is retrieved and passed back into the collaboration and then to an output file.

**Note:** Outbound database eWays are available when using a JCE Collaboration. To poll the database, you must use the Scheduler.

**Figure 43** Database project flow



To work with the sample project, follow the instructions given in the *eGate Tutorial*.

### 5.3.2. Configuring the eWays

The sample uses an inbound and an outbound File eWay as well as an outbound eWay. To configure the sample projects eWays, use the following information. For additional information on the eWay properties, see [Setting the eWay Properties in the Connectivity Map](#) on page 12.

To configure the Inbound File eWay:

- 1 On the Connectivity Map canvas, double click the eWay icon located between the **InFile** and **Service1 (JCECollab1)**.
- 2 On the resulting **Templates** window, select **Inbound File eWay** and click **OK**.
- 3 On the **Properties** window, enter the appropriate configurations for the Inbound File eWay. See the *File eWay User's Guide* for information on how to specifically configure the File eWay. For this sample, the default settings are used.
- 4 When you have completed your selections, click **OK**.

To configure the Outbound SybaseExt eWay:

- 1 On the Connectivity Map canvas, double click the eWay icon located between the **Service1 (JCECollab1)** and **SybaseExt** database.
- 2 On the resulting **Templates** window, select **Outbound SybaseExt** and click **OK**.
- 3 On the Properties window, enter the appropriate configurations for the Outbound Sybase eWay and click **OK**. See [Setting the Properties in the Outbound eWay](#) on page 12. For this sample, the default settings are used.
- 4 When you have completed your selections, click **OK**.

To configure the Outbound File eWay:

- 1 On the Connectivity Map canvas, double click the eWay icon located between **Service1 (JCECollab1)** and **OutFile** eWay.
- 2 On the resulting **Templates** window, select **Outbound File eWay** and click **OK**.
- 3 On the **Properties** window, enter the appropriate configurations for the Outbound File eWay. See the *File eWay User's Guide* for information on how to specifically configure the File eWay. For this sample, change the Directory field to **<valid path to the directory where the output file will be stored>**. The Output File Name to **Output1.dat**. For the remaining parameters, the default settings are used.
- 4 When you have completed your selections, click **OK**.

### 5.3.3. Creating the Environment Profile

To review the components of the Sample project, there is an Inbound and an Outbound File eWay, an eWay, and a Service.

To create the external environment for the Sample project:

- 5 On the Environment Explorer, highlight and right-click the eWay profile. Select **Properties**. Enter the configuration information required for your Outbound eWay. See [Setting the Properties in the Outbound eWay Environment](#) on page 17.

### 5.3.4 Deploying a Project

To deploy a project, please see the *"eGate Integrators User's Guide"*.

### 5.3.5. Running the Sample

For instruction on how to run the Sample project, see the *eGate Tutorial*.

Once the process has completed, the Output file in the target directory configured in the Outbound File eWay will contain all records retrieved from the database in an .xml format.

## 5.4 Common DataType Conversions

**Figure 44** The Sybase eWay Datatype Conversions

Sybase Server Data Type	OTD/Java Data Type	Methods to Use	Sample Data
BigInt	Long	Long: <b>java.lang.Long.parseLong(String)</b>	123
Int	Int	Integer: <b>java.lang.Integer.parseInt(String)</b>	123
tinyInt	Byte	Byte: <b>java.lang.Byte.parseByte(String)</b>	123
SmallInt	Short	Short: <b>java.lang.Short.parseShort(String)</b>	123
Number	BigDecimal	Call a NewConstructor BigDecimal: <b>java.math.BigDecimal(String)</b>	145.78
Decimal	BigDecimal	Call a NewConstructor BigDecimal: <b>java.math.BigDecimal(String)</b>	145.78
Bit	Boolean	Boolean: <b>java.lang.Boolean.getBoolean(String)</b>	true or false
Real	Float	Float: <b>java.lang.Float.parseFloat(String)</b>	3468.494
Float	Double	Double: <b>java.lang.Double.parseDouble(String)</b>	3468.494
Money	BigDecimal	Call a NewConstructor BigDecimal: <b>java.math.BigDecimal(String)</b>	2456.95
Smallmoney	BigDecimal	Call a NewConstructor BigDecimal: <b>java.math.BigDecimal(String)</b>	2456.95
Smalldatetime	TimeStamp	TimeStamp: <b>java.sql.TimeStamp.valueOf(String)</b>	2003-09-28 11:35:00
Timestamp	Binary	N/A (Used by the Database Internally)	N/A
DateTime	TimeStamp	Date: <b>java.sql.TimeStamp.valueOf(String)</b>	2003-09-28 11:35:42
Varchar	String	Direct Assign	Any Characters



Sybase Server Data Type	OTD/Java Data Type	Methods to Use	Sample Data
Char	String	Direct Assign	Any Characters
Text	String	Direct Assign	Any Characters
Binary(1)	Byte[]	String: <b>java.lang.String.getBytes()</b>	0 or 1

## 5.5 Using OTDs with Tables, Views, and Stored Procedures

Tables, Views, and Stored Procedures are manipulated through OTDs. Common operations include insert, delete, update, and query.

### 5.5.1 The Table

A table OTD represents a database table. It consists of fields and methods. Fields correspond to the columns of a table while methods are the operations that you can apply to the OTD. This allows you to perform query, update, insert, and delete SQL operations in a table.

By default, the Table OTD has `UpdatableConcurrency` and `ScrollTypeForwardOnly`. The type of result returned by the `select()` method can be specified using:

- `SetConcurrencytoUpdatable`
- `SetConcurrencytoReadOnly`
- `SetScrollTypeToForwardOnly`
- `SetScrollTypeToScrollSensitive`
- `SetScrollTypeToInsensitive`

The methods should be called before executing the `select()` method. For example,

```
getDBEmp().setConcurToUpdatable();
getDBEmp().setScroll_TypeToScrollSensitive();
getDBEmp().getDB_EMPLOYEE().select("");
```

## The Query Operation

To perform a query operation on a table

- 1 Execute the `select()` method with the “**where**” clause specified if necessary.
- 2 Loop through the `ResultSet` using the `next()` method.
- 3 Process the return record within a `while()` loop.

For example:

```
package SelectSales;
```

```

public class Select
{
    public com.stc.codegen.logger.Logger logger;

    public com.stc.codegen.alerter.Alerter alerter;

    public void receive(
com.stc.connector.appconn.file.FileTextMessage
input, com.stc.connector.appconn.file.FileApplication
FileClient_1, db_employee.Db_employeeOTD
db_employee_1, employeedb.Db_employee employeedb_db_employee_1 )
    throws Throwable
    {
        //@map:Db_employee.select(Text)
        db_employee_1.getDb_employee().select( input.getText() );

        //while
        while (db_employee_1.getDb_employee().next()) {
            //@map:Copy EMP_NO to Employee_no
            employeedb_db_employee_1.setEmployee_no(
java.lang.Integer.toString(
db_employee_1.getDb_employee().getEMP_NO() ) );

            //@map:Copy LAST_NAME to Employee_lname
            employeedb_db_employee_1.setEmployee_lname(
db_employee_1.getDb_employee().getLAST_NAME() );

            //@map:Copy FIRST_NAME to Employee_fname
            employeedb_db_employee_1.setEmployee_fname(
db_employee_1.getDb_employee().getFIRST_NAME() );

            //@map:Copy RATE to Rate
            employeedb_db_employee_1.setRate(
java.lang.Double.toString(
db_employee_1.getDb_employee().getRATE() ) );

            //@map:Copy LAST_UPDATE to Update_date
            employeedb_db_employee_1.setUpdate_date(
db_employee_1.getDb_employee().getLAST_UPDATE().toString() );
        }

        //@map:Copy employeedb_db_employee_1.marshallToString to
Text
        FileClient_1.setText(
employeedb_db_employee_1.marshallToString() );

        //@map:FileClient_1.write
        FileClient_1.write();
    }
}

```

## The Insert Operation

To perform an insert operation on a table

- 1 Execute the **insert()** method. Assign a field.
- 2 Insert the row by calling **insertRow()**

This example inserts an employee record.

```

//DB_EMPLOYEE.insert
    Table_OTD_1.getDB_EMPLOYEE().insert();

//Copy EMP_NO to EMP_NO
    insert_DB_1.getInsert_new_employee().setEmployee_no(
        java.lang.Integer.parseInt(
            employeeDb_with_top_db_employee_1.getEmployee_no() ) );

//@map:Copy Employee_lname to Employee_Lname
    insert_DB_1.getInsert_new_employee().setEmployee_Lname(
        employeeDb_with_top_db_employee_1.getEmployee_lname() );

//@map:Copy Employee_fname to Employee_Fname
    insert_DB_1.getInsert_new_employee().setEmployee_Fname(
        employeeDb_with_top_db_employee_1.getEmployee_fname() );

//@map:Copy java.lang.Float.parseFloat(Rate) to Rate
    insert_DB_1.getInsert_new_employee().setRate(
        java.lang.Float.parseFloat(
            employeeDb_with_top_db_employee_1.getRate() ) );

//@map:Copy java.sql.Timestamp.valueOf(Update_date) to Update_date
    insert_DB_1.getInsert_new_employee().setUpdate_date(
        java.sql.Timestamp.valueOf(
            employeeDb_with_top_db_employee_1.getUpdate_date() ) );

//@map:Insert Row
    Table_OTD_1.getDB_EMPLOYEE().insertRow();

//Table_OTD_1.commit
    Table_OTD_1.commit();
}

```

## The Update Operation

### To perform an update operation on a table

- 1 Execute the **update()** method.
- 2 Using a while loop together with **next()**, move to the row that you want to update.
- 3 Assign updating value(s) to the fields of the table OTD
- 4 Update the row by calling **updateRow()**.

```

//SalesOrders_with_top_SalesOrders_1.unmarshalFromString(Text)
    SalesOrders_with_top_SalesOrders_1.unmarshalFromString(
        input.getText() );

//SALES_ORDERS.update("SO_num =99")
    DB_sales_orders_1.getSALES_ORDERS().update( "SO_num ='01'" );

//while
    while (DB_sales_orders_1.getSALES_ORDERS().next()) {

//Copy SalesOrderNum to SO_num
    DB_sales_orders_1.getSALES_ORDERS().setSO_num(
        SalesOrders_with_top_SalesOrders_1.getSalesOrderNum() );

//Copy CustomerName to Cust_name
    DB_sales_orders_1.getSALES_ORDERS().setCust_name(
        SalesOrders_with_top_SalesOrders_1.getCustomerName() );
}

```

```
//Copy CustomerPhone to Cust_phone
DB_sales_orders_1.getSALES_ORDERS().setCust_phone(
SalesOrders_with_top_SalesOrders_1.getCustomerPhone() );

//SALES_ORDERS.updateRow
DB_sales_orders_1.getSALES_ORDERS().updateRow();
}
//DB_sales_orders_1.commit
DB_sales_orders_1.commit();

}
```

## The Delete Operation

To perform a delete operation on a table

- 1 Execute the **delete()** method.

In this example DELETE an employee.

```
//DB_EMPLOYEE.delete("EMP_NO = '".concat(EMP_NO).concat("'")
Table_OTD_1.getDB_EMPLOYEE().delete( "EMP_NO = '".concat(
employeeedb_with_top_db_employee_1.getEMP_NO() ).concat( "'") );

//DB_EMPLOYEE.commit
DB_EMPLOYEE.commit();

}
```

### 5.5.2 The Stored Procedure

A Stored Procedure OTD represents a database stored procedure. Fields correspond to the arguments of a stored procedure while methods are the operations that you can apply to the OTD. It allows you to execute a stored procedure. Remember that while in the Collaboration Editor you can drag and drop nodes from the OTD into the Collaboration Editor.

## Executing Stored Procedures

The OTD represents the Stored Procedure “LookUpGlobal” with two parameters, an inbound parameter (INLOCALID) and an outbound parameter (OUTGLOBALPRODUCTID). These inbound and outbound parameters are generated by the DataBase Wizard and are represented in the resulting OTD as nodes. Within the Transformation Designer, you can drag values from the input parameters, execute the call, collect data, and drag the values to the output parameters.

Below are the steps for executing the Stored Procedure:

- 1 Specify the input values.
- 2 Execute the Stored Procedure.
- 3 Retrieve the output parameters if any.

For example:

```
package Storedprocedure;

public class sp_jce
```

```

{
    public com.stc.codegen.logger.Logger logger;

    public com.stc.codegen.alerter.Alerter alerter;

    public void receive(
com.stc.connector.appconn.file.FileTextMessage
input, com.stc.connector.appconn.file.FileApplication
FileClient_1, employeedb.Db_employee
employeedb_with_top_db_employee_1, insert_DB.Insert_DBOTD insert_DB_1
)
    throws Throwable
    {
        //
        @map:employeedb_with_top_db_employee_1.unmarshalFromString(Text)
            employeedb_with_top_db_employee_1.unmarshalFromString(
input.getText() );

        //@map:Copy java.lang.Integer.parseInt(Employee_no) to
Employee_no
            insert_DB_1.getInsert_new_employee().setEmployee_no(
java.lang.Integer.parseInt(
employeedb_with_top_db_employee_1.getEmployee_no() ) );

        //@map:Copy Employee_lname to Employee_Lname
            insert_DB_1.getInsert_new_employee().setEmployee_Lname(
employeedb_with_top_db_employee_1.getEmployee_lname() );

        //@map:Copy Employee_fname to Employee_Fname
            insert_DB_1.getInsert_new_employee().setEmployee_Fname(
employeedb_with_top_db_employee_1.getEmployee_fname() );

        //@map:Copy java.lang.Float.parseFloat(Rate) to Rate
            insert_DB_1.getInsert_new_employee().setRate(
java.lang.Float.parseFloat(
employeedb_with_top_db_employee_1.getRate() ) );

        //@map:Copy java.sql.Timestamp.valueOf(Update_date) to
Update_date
            insert_DB_1.getInsert_new_employee().setUpdate_date(
java.sql.Timestamp.valueOf(
employeedb_with_top_db_employee_1.getUpdate_date() ) );

        //@map:Insert_new_employee.execute
            insert_DB_1.getInsert_new_employee().execute();

        //@map:insert_DB_1.commit
            insert_DB_1.commit();

        //@map:Copy "procedure executed" to Text
            FileClient_1.setText( "procedure executed" );

        //@map:FileClient_1.write
            FileClient_1.write();
    }
}

```

## Manipulating the ResultSet and Update Count Returned by Stored Procedure

For Stored Procedures that return ResultSets and Update Count, the following methods are provided to manipulate the ResultSet:

- `enableResultSetOnly`
- `enableUpdateCountsOnly`
- `enableResultSetandUpdateCounts`
- `resultsAvailable`
- `next`
- `getUpdateCount`
- `available`

Sybase stored procedures do not return records as ResultSets, instead, the records are returned through output reference cursor parameters. Reference Cursor parameters are essentially ResultSets.

The `resultsAvailable()` method, added to the OTD, simplifies the whole process of determining whether any results, be it update Counts or ResultSets, are available after a stored procedure has been executed. Although JDBC provides three methods (`getMoreResults()`, `getUpdateCount()`, and `getResultSet()`) to access the results of a stored procedure call, the information returned from these methods can be quite confusing to the inexperienced Java JDBC programmer and they also differ between vendors. You can simply call `resultsAvailable()` and if Boolean true is returned, you can expect either a valid Update Count when `getUpdateCount()` is called and/or the next ResultSet has been retrieved and made available to one of the ResultSet nodes defined for the Stored Procedure OTD, when that node's `available()` method returns true.

Frequently, Update Counts information that is returned from a Stored Procedures is insignificant. You should process returned ResultSet information and avoid looping through all of the Update Counts. The following three methods control exactly what information should be returned from a stored procedure call. The `enableResultSetsOnly()` method, added to the OTD allows only ResultSets to be returned and thus every `resultsAvailable()` called only returns Boolean true if a ResultSet is available. Likewise, the `enableUpdateCountsOnly()` causes `resultsAvailable()` to return true only if an Update Count is available. The default case of `enableResultsetsAndUpdateCount()` method allows both ResultSets and Update Counts to be returned.

### Collaboration usability for a Stored Procedure ResultSet

The Column data of the ResultSets can be dragged-and-dropped from their OTD nodes to the Business Rules. Below is a code snippet that can be generated by the Collaboration Editor:

```
// resultsAvailable() will be true if there's an update count and/or a  
// result set available.  
// note, it should not be called indiscriminantly because each time  
// the results pointer is
```

```
// advanced via getMoreResults() call.
while (getSPIn().getSpS_multi().resultsAvailable())
{
    // check if there's an update count
    if (getSPIn().getSpS_multi().getUpdateCount() > 0)
    {
        logger.info("Updated
"+getSPIn().getSpS_multi().getUpdateCount()+" rows");
    }
    // each result set node has an available() method (similar to OTD's)
    // that tells the user
    // whether this particular result set is available. note, JDBC does
    // support access to
    // more than one result set at a time, i.e., cannot drag from 2
    // distinct result sets
    // simultaneously
    if (getSPIn().getSpS_multi().getNormRS().available())
    {
        while (getSPIn().getSpS_multi().getNormRS().next())
        {
            logger.info("Customer Id =
"+getSPIn().getSpS_multi().getNormRS().getCustomerId());
            logger.info("Customer Name =
"+getSPIn().getSpS_multi().getNormRS().getCustomerName());
        }
        if (getSPIn().getSpS_multi().getDbEmployee().available())
        {
            while (getSPIn().getSpS_multi().getDbEmployee().next())
            {
                logger.info("EMPNO =
"+getSPIn().getSpS_multi().getDbEmployee().getEMPNO());
                logger.info("ENAME =
"+getSPIn().getSpS_multi().getDbEmployee().getENAME());
                logger.info("JOB =
"+getSPIn().getSpS_multi().getDbEmployee().getJOB());
                logger.info("MGR =
"+getSPIn().getSpS_multi().getDbEmployee().getMGR());
                logger.info("HIREDATE =
"+getSPIn().getSpS_multi().getDbEmployee().getHIREDATE());
                logger.info("SAL =
"+getSPIn().getSpS_multi().getDbEmployee().getSAL());
                logger.info("COMM =
"+getSPIn().getSpS_multi().getDbEmployee().getCOMM());
                logger.info("DEPTNO =
"+getSPIn().getSpS_multi().getDbEmployee().getDEPTNO());
            }
        }
    }
}
```

**Note:** *resultsAvailable() and available() cannot be indiscriminately called because each time they move ResultSet pointers to the appropriate locations.*

After calling "**resultsAvailable()**", the next result (if available) can be either a **ResultSet** or an **UpdateCount** if the default "**enableResultSetsAndUpdateCount()**" was used.

Because of limitations imposed by some DBMSs, it is recommended that for maximum portability, all of the results in a **ResultSet** object should be retrieved before OUT parameters are retrieved. Therefore, you should retrieve all **ResultSet(s)** and update counts first followed by retrieving the OUT type parameters and return values.

The following list includes specific **ResultSet** behavior that you may encounter:

- The method **resultsAvailable()** implicitly calls **getMoreResults()** when it is called more than once. You should not call both methods in your java code. Doing so may result in skipped data from one of the ResultSets when more than one ResultSet is present.
- The methods **available()** and **getResultSet()** can not be used in conjunction with multiple ResultSets being open at the same time. Attempting to open more the one ResultSet at the same time closes the previous ResultSet. The recommended working pattern is:
  - ♦ Open one Result Set, ResultSet\_1 and work with the data until you have completed your modifications and updates. Open ResultSet\_2, (ResultSet\_1 is now closed) and modify. When you have completed your work in ResultSet\_2, open any additional ResultSets or close ResultSet\_2.
- If you modify the ResultSet generated by the Execute mode of the Database Wizard, you need to assure the indexes match the stored procedure. By doing this, your ResultSet indexes are preserved.

Generally, getMoreResults does not need to be called. It is needed if you do not want to use our enhanced methods and you want to follow the traditional JDBC calls on your own.

---

## 5.6 Alerting and Logging

eGate provides an alerting and logging feature. This allows monitoring of messages and captures any adverse messages in order of severity based on configured severity level and higher. To enable Logging, please see the *eGate Integrator User's Guide*.



# Using eWay Java Methods

The Sybase eWay exposes various Java methods to add extra functionality, and make it easier to set, and get information in the Sybase eWay OTDs. For additional details, refer to the **Javadoc**.

To access the Javadoc

- 1 Log into Enterprise Manager and upload the **SybaseeWayDocs.sar** file, located on the installation CD-ROM, to the ICAN Repository.
- 2 Click the Documentation tab in Enterprise Manager and then select Sybase Intelligent Adapter from the list of products in the left frame. The details for the eWay appear in the right frame.
- 3 Click the **Download Javadoc** link and extract the **.zip** file to a local directory.
- 4 Open the **index.html** file to view the Javadoc.

The following classes appear in the Javadoc:

- ♦ SybaseCallableStatementAgent
- ♦ SybaseCallableStatementResultSet
- ♦ SybaseConnector
- ♦ SybaseCPManagedConnectionFactoryExt
- ♦ SybasePreparedStatementAgent
- ♦ SybasePreparedStatementResultSet
- ♦ SybaseSession
- ♦ SybaseTableResultSet

# Support for WebSphere Application Server

This section describes how to deploy an Enterprise Archive (EAR) file to the WebSphere™ Application Server. This includes information on installing the WebSphere Application Server interface and configuring the selected Application server to deploy the EAR file.

## What's in this Appendix:

- [Uploading the Application Server Interface](#) on page 58
- [Creating an EAR File](#) on page 60
- [Deploying an EAR File](#) on page 61
- [Configuring the WebSphere Application Server](#) on page 61

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## A.1 Uploading the Application Server Interface

To support the WebSphere Application Server, the following files must be uploaded to your system and installed:

### WebSphere Application Server

- websphereintegserver.sar
- webspherejmsmessageserver.sar

For information on uploading and installing the selected .sar files see the *SeeBeyond ICAN Suite Installation Guide*.

### 1.1.1 WebSphere Application Server Support Limitations

The following limitations apply when deploying eGate EAR files on WebSphere Application Server:

- eInsight projects are not supported for WebSphere Application Server 5.1
- Inbound eWays are not supported for WebSphere Application Server 5.1
- XA mode must be enabled in the WebSphere MQ eWay properties

---

## A.2 Setting up the eWay Environment for WebSphere 5.1

Environment setup steps that are required for eWays to run on WebSphere 5.1 include:

- 1 Install the IBM WebSphere 5.1 application.

**Note:** Refer to the *WebLogic WebSphere Installation and Setup* documentation for detailed instructions on these steps.

- 2 Stop the WebSphere server if it is already running.
- 3 Copy the files **com.ibm.mq.jar** and **com.ibm.mqjms.jar** from the zip file **IC42636.windows.zip** to:

`<WebsphereMQ Directory>\ibm\WebShpere MQ\java\lib`

- 4 Install ICAN, and upload the following WebSphere related sar files.

- ♦ `websphereintegserver.sar`
- ♦ `webspherejmsmessageserver.sar`

- 5 Download and then copy the **log4j.jar** file to the following WebSphere directory:

`<WebsphereMQ Directory>\WebSphere\AppServer\lib`

If you want to see eWay logging, then copy the **log4j.properties** file to the same directory.

- 6 Copy the **com.stc.antlrimpl.jar** file from:

`<ICAN Directory>\Ican505\eDesigner\modules\autoload.ext`

To the following WebSphere directory:

`<WebsphereMQ Directory>\WebSphere\AppServer\lib`

- 7 Copy the **com.stc.eventmanagementapi.jar**, **com.stc.eventmanagementimpl.jar**, and the **com.stc.jms.stcjms.jar** files from:

`<ICAN Directory>\Ican505\repository\server\webapps\monitor\WEB-INF\lib`

To the following WebSphere directory:

`<WebsphereMQ Directory>\WebSphere\AppServer\lib`

## A.3 Creating an EAR File

To create an EAR file from an eGate project, include the following steps during the creation of the project:

- 1 If you are using Topics or Queues in your project, make the following changes to the JMS Properties Sheet (accessed from the Connectivity Map). Set the properties to the following values:
  - ◆ Set the **JMS Client > Basic > Transaction Mode** property to **XA**
  - ◆ Set the **JMS Client > Basic > Run-as principal > Use for JMS connection** property to **false**
  - ◆ Set the **JMS Client > Advanced > Durability** property to **Nondurable**
  - ◆ Set the **JMS Client > Advanced > Security > Audit** property to **no**

**Note:** *The JMS Client > Basic > Run-as principal > Name property is limited to 12 characters*

- 2 During the creation of the project Environment do the following:
  - A Create the Logical Host in the Environment.
  - B From the Environment Explorer tree, right-click the logical host and select **New WebSphere Application Server** from the shortcut menu. The application server, **WebSphereSvr1**, is added to the Logical Host box and the Environment Explorer tree.
  - C If you are using JMS (Topics or Queues) you must also add the **New WebSphere JMS Server** to the Logical Host. From the Environment Explorer tree, right-click the logical host and select **New WebSphere JMS Server** from the shortcut menu. The WebSphere JMS message server, **WSMessageSvr1**, is added to the Logical Host box and the Environment Explorer tree.
- 3 During the creation of the Deployment Profile, do the following:
  - A If the service containing the Collaboration fails to be mapped to the WebSphere Application Server, drag and drop the Service to the WebSphere Application Server, **WebSphereSvr1**, in the Logical Host box.
  - B If any JMS Topics or Queues fail to be mapped to the WebSphere JMS Server, drag and drop the Topic or Queue to the WebSphere JMS Server, **WSMessageSvr1**, in the Logical Host box.
  - C Once all of the components have been mapped, click **Activate**. When prompted whether to apply the project to the logical host immediately, click **No**.
- 4 The project's EAR file is now available in the following location:

```
<ICAN>/repository/data/files/<environment name>/<logical host name>/<application server name> directory
```

where **<ICAN>** is the directory where the ICAN Suite is installed, **<environment name>** is the name of the project Environment, **<logical host name>** is the name of the logical host, and **<application server name>** is the name of the selected Application Server.

**Note:** For an eGate project EAR file to deploy to the WebSphere Application Server, the project must not contain any inbound eWays.

## B.2 Deploying an EAR File

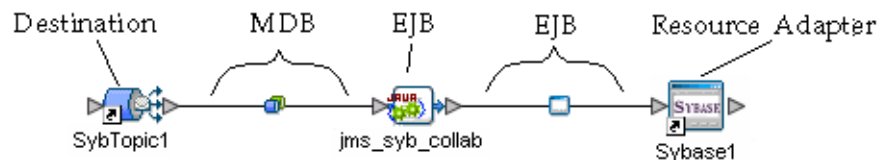
To deploy an EAR file using the WebSphere Application Server, you create the following components from the Application Server's Administrative Console:

- **Topics or Queues:** One Topic or Queue is needed for each Topic or Queue in the eGate project.
- **Connection Factories:** A Connection Factory enables JMS Clients to create JMS connections with predefined attributes. If the project contains Topics, a Topic Connection Factory is required. If it contains Queues a Queue Connection Factory is needed. If the project contains both Topics and Queues, create both a Queue and a Topic Connection Factory.

WebSphere also requires the following:

- **Listener Ports:** A listener port must be created for every MDB the project contains. The **MDB** is represented in the project's Connectivity Map as the connection between a **Topic** or **Queue** and a **Service** (see Figure 45).

**Figure 45** Project/EAR File



## A.1 Configuring the WebSphere Application Server

To deploy an EAR file in the WebSphere Application Server, start the Administrative Console, and do the following:

### Creating the Topic or Queue

- 1 From the left pane of the WebSphere Administrative console, select **Resources** and click **WebSphere JMS Provider**.

- From the **WebSphere JMS Provider** window, under **Additional Properties** (shown in Figure 50), click **WebSphere Queue Destinations** or **WebSphere Topic Destinations**, depending on whether you are creating a topic or queue. For this example click WebSphere Topic Destinations to create a topic.

**Figure 46** WebSphere Server Administrative Console - Additional Properties

Additional Properties	
<a href="#">WebSphere Queue Connection Factories</a>	
<a href="#">WebSphere Topic Connection Factories</a>	
<a href="#">WebSphere Queue Destinations</a>	
<a href="#">WebSphere Topic Destinations</a>	

- From the **WebSphere Topics Destinations** (or Queue Destinations) window click the **New** button.
- From the **Topic** or **Queue Destinations** configuration window, enter a name for the new Topic or Queue in the **Name** field. Enter the same name in the **JNDI Name** field. Enter the string value used to identify the Topic in the **Topic** field (for this example, **Topic1**) as displayed in Figure 47 . Click **OK**.

**Figure 47** WebSphere Server Administrative Console - Create a Topic

The screenshot shows the WebSphere Server Administrative Console interface. The main window is titled 'WebSphere JMS Provider > WebSphere Topic Destinations > Topic1'. Below the title bar, there is a 'Configuration' section with a 'General Properties' tab. The 'General Properties' section contains the following fields and options:

- Scope:** cells:LocalhostX260:nodes:LocalhostX260
- Name:** Topic1
- JNDI Name:** Topic1
- Description:** (empty text area)
- Category:** (empty dropdown menu)
- Topic:** Topic1
- Persistence:** APPLICATION DEFINED
- Priority:** APPLICATION DEFINED
- Specified Priority:** (empty text field)
- Expiry:** APPLICATION DEFINED
- Specified Expiry:** (empty text field) milliseconds

At the bottom of the configuration window, there are buttons for 'Apply', 'OK', 'Reset', and 'Cancel'. The left sidebar shows a navigation tree with 'Topic Destinations' selected.

- From the **WebSphere Topic Destinations** window, click **WebSphere JMS Provider** to return to the JMS Provider window.

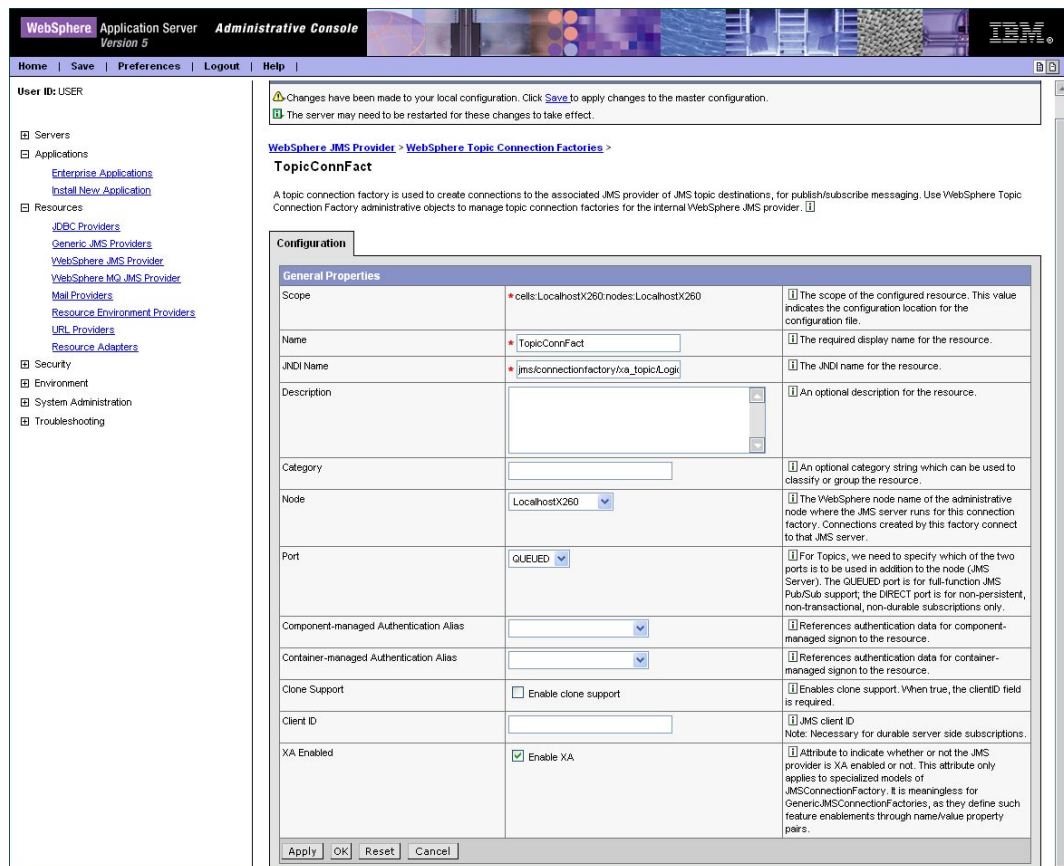
## Creating a Connection Factory

- 1 From the **WebSphere JMS Provider** window, under **Additional Properties**, click **WebSphere Topic Connection Factories** (or Queue Connection Factories if you created a Queue).
- 2 From the **WebSphere Topic Connection Factories** window, click the **New** button.
- 3 From the **WebSphere Topic Connection Factories** configuration window, enter the Topic Connection Factory name in the **Name** field (for this example, **TopicConnFact**).
- 4 Enter the Connection Factory JNDI Name in the **JNDI Name** field. The pattern for the JNDI Name is **jms/connectionfactory/<xa\_topic or xa\_queue (just topic or queue if xa is not selected as the Transaction Mode)>/<Logical Host name>\_<JMS Message Server name (from the Environment)>**.

For this example, the Connection Factory JNDI name is **jms/connectionfactory/xa\_topic/LogicalHost1\_WLMMessageSvr1**

- 5 Make sure that **XA Enabled** is selected (see Figure 48 ). Click **OK**.

**Figure 48** WebSphere Server Administrative Console - Create Connection Factory

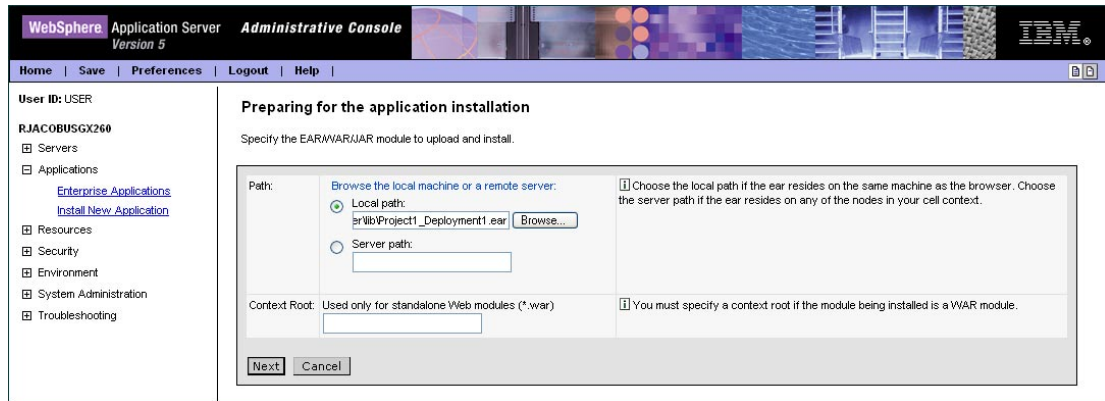




## Installing the Application

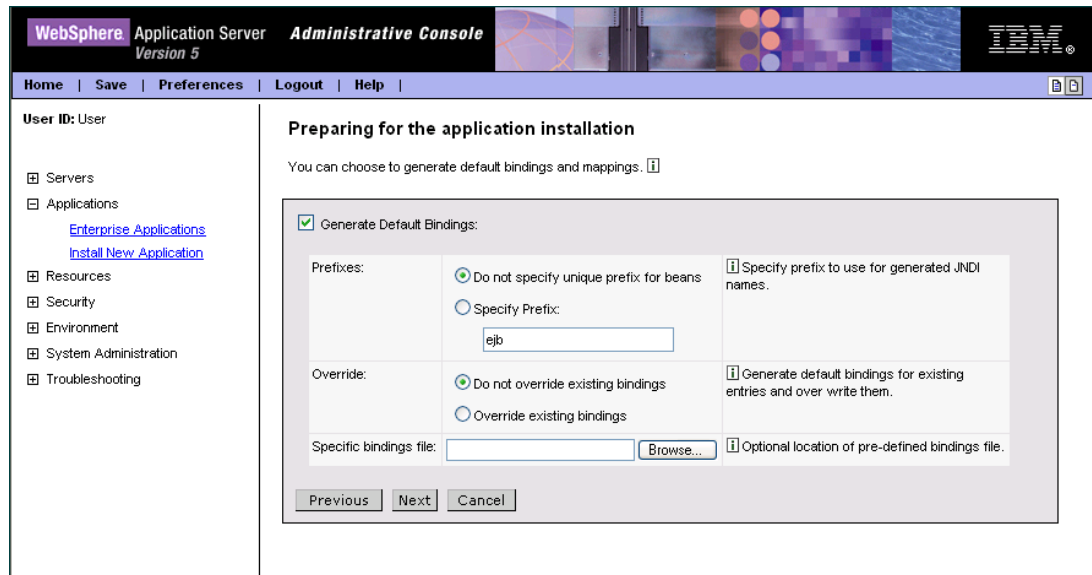
- 1 From the left pane of the WebSphere Administrative console, select **Applications**, and click **Install New Application**.
- 2 From the **Preparing for the application installation** window, select **Local path** or **Server path** and click **Browse**. Locate and select the appropriate EAR file (see Figure 49 ). Click **Next**.

**Figure 49** WebSphere Server Administrative Console - Install New Application



- 3 From the next window select **Generate Default Bindings** (see Figure 50 ). Click **Next**.

**Figure 50** WebSphere Server Administrative Console - Generate Default Bindings



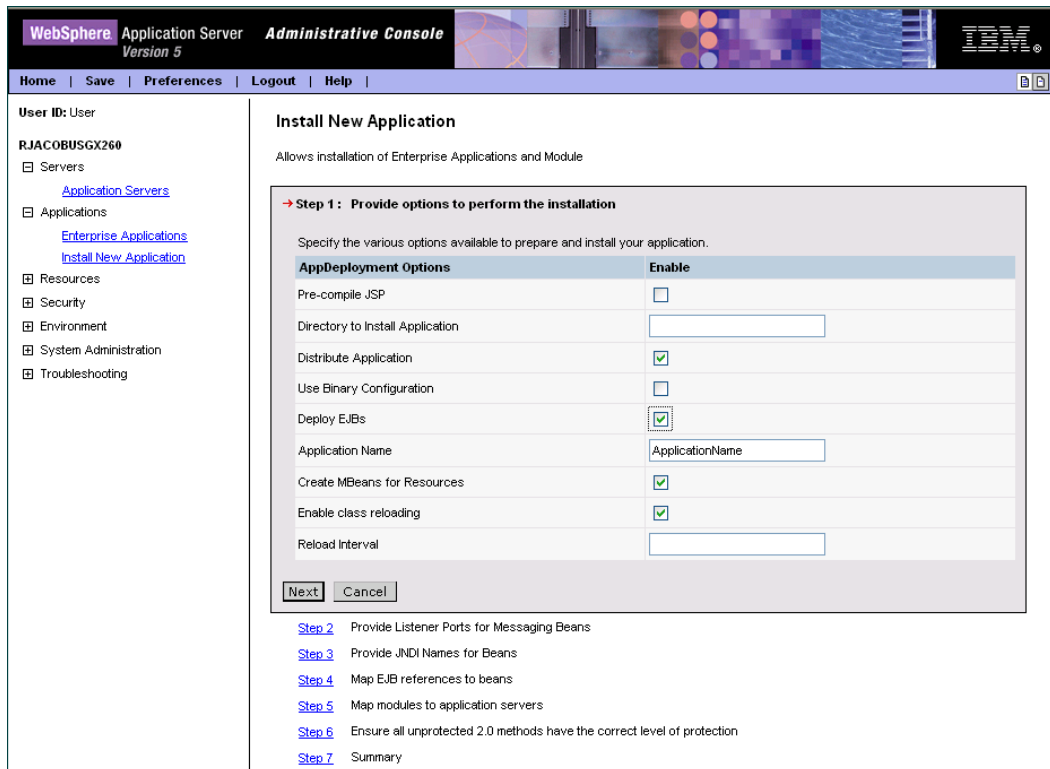
**Note:** *The following application installation steps may differ depending on the nature of the EAR file.*



- 4 From the **Step 1: Provide options to perform the installation** window (see Figure 51 ), specify a name for the application in the Application Name field, and select the following options:
  - ◆ **Distribute Application**
  - ◆ **Deploy EJBs**
  - ◆ **Create MBeans for Resources**
  - ◆ **Enable Class Reloading**

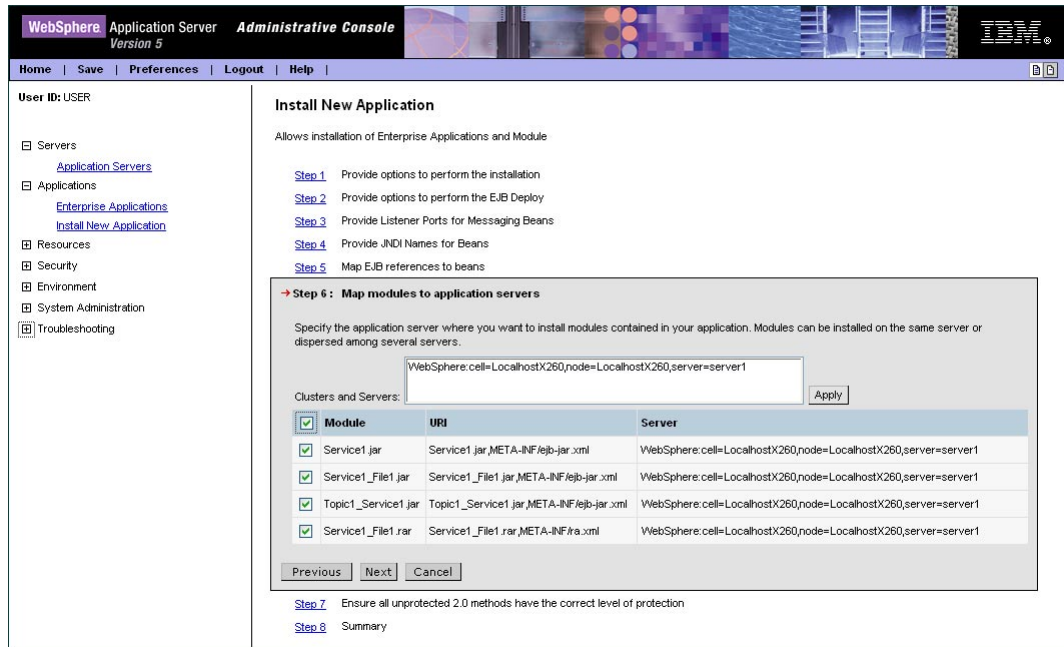
Click **Next**.

**Figure 51** WebSphere Administrative Console - Provide options to perform the installation



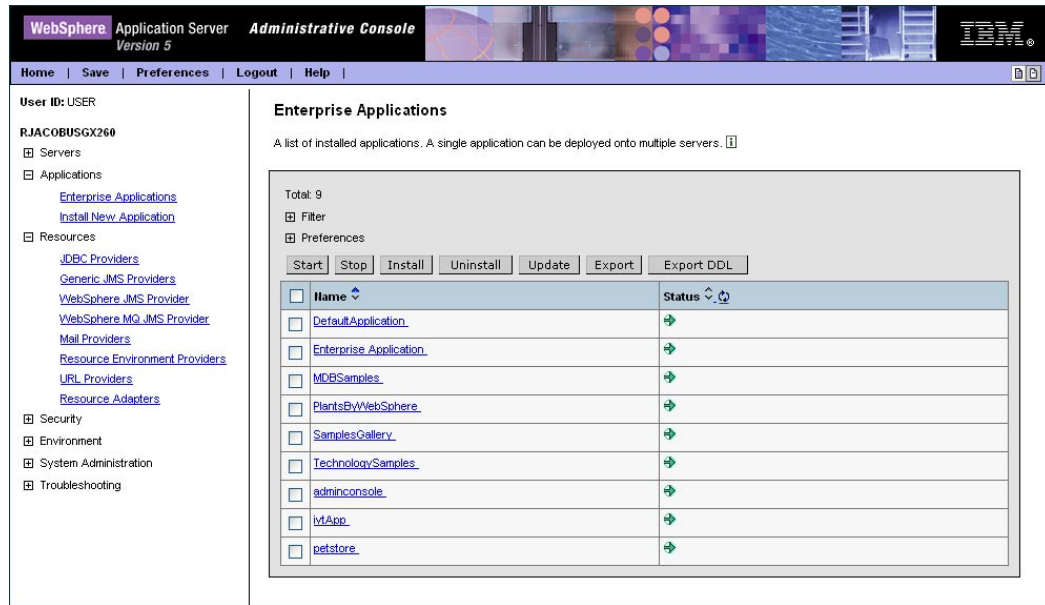
- 5 From the **Step 3: Provide Listener Ports for Messaging Beans** window, make a note of the name that you used for the Listener Port. This Listener Port name will be used later in step 12. Proceed to the **Step 6: Map modules to application servers** window.
- 6 From the **Step 6: Map modules to application servers** window, make a note of the Reference Binding field value (save this name as it appears). This name will be used in step 12-G.
- 7 From the **Step 6: Map modules to application servers** window, click the Module checkbox to select all of the modules. (see [Figure 52](#) on page 66). Click **Next**.

**Figure 52** WebSphere Administrative Console - Map Modules to Application Servers



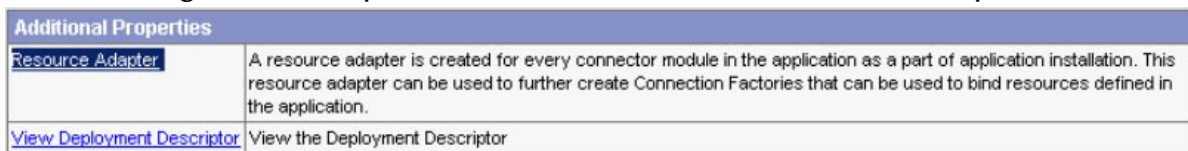
- 8 From the **Step 7: Ensure all unprotected 2.0 methods have the correct level of protection** window, click the Module checkbox to select all of the modules. Click **Next**
- 9 From the **Step 8: Summary** window, review the selected values and click **Finish**.
- 10 WebSphere begins installing the application. This may take several minutes. When the application installs successfully, click **Save to Master Configuration**.
- 11 To review the application's status or start or stop the application, from the right pane of the Administrative Console, click **Applications**, and click **Enterprise Applications** (see Figure 53 ).

**Figure 53** WebSphere Administrative Console - Enterprise Application



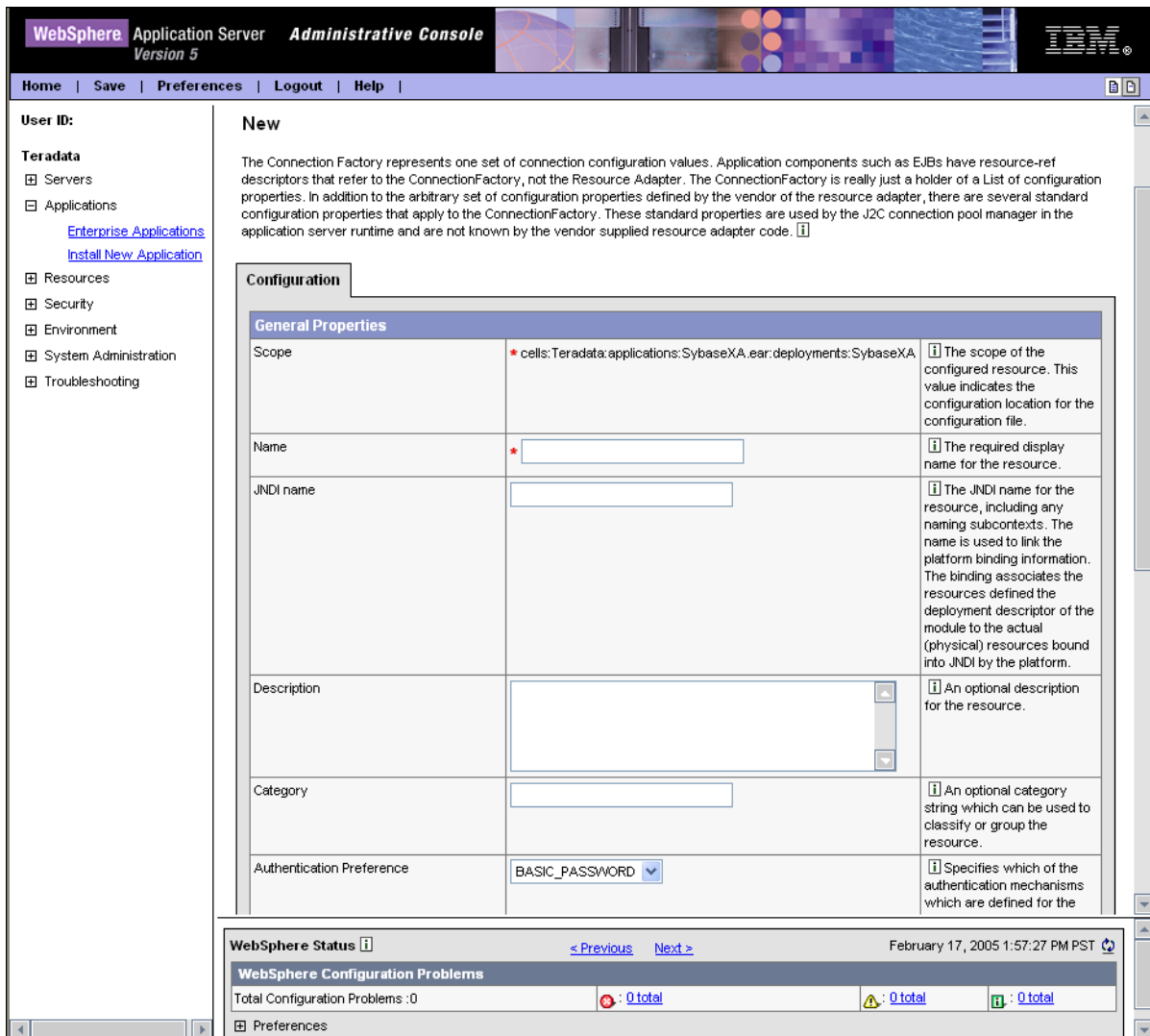
- 12 Complete the following steps to configure the J2C Connection Factories:
  - A From the Enterprise Applications window, select your application.
  - B From the Related Items box, click **Connector Modules**.
  - C From the Connector Modules window, click the deployed RAR file.
  - D From the deployed RAR file window's **Additional Properties** box, click **Resource Adapter** (see Figure 58).

**Figure 54** WebSphere Administrative Console - Resource Adapter



- E From the Resource Adapter window, Additional Properties box, click **J2C Connection Factories**. The J2C Connection Factories window appears.
- F Click the **New** button to create a new **J2C Connection Factory** (see [Figure 55 on page 68](#)).

Figure 55 WebSphere Administrative Console - J2C Connection Factory




- G From the **J2C Connection Factory's New** window, do the following:
  - ◆ Enter the **Name** for the new J2C Connection Factory.
  - ◆ Enter the **JNDI Name** for the new J2C Connection Factory. This is the same name that you saved in [step 6 on page 65](#) (This name can also be found as the **res-ref-name** in the **ejb-jar.xml** file)
  - ◆ Set **Mapping-Configuration Alias** to **DefaultPrincipleMapping**
- H Click **OK** to create the new J2C Connection Factory.










- 13 Create a Listener Port by completing the following steps:
  - A From the left pane of the WebSphere Application Server Administrative Console, expand Servers and click **Application Servers**.
  - B From Application Servers click **server1**.
  - C From the Additional Properties box, of the server1 window, click **Message Listener Service**.
  - D From the Additional Properties box, of the Message Listener Service window, click **Listener Ports**.
  - E From the Listener Ports window click **New** to create a new Listener Port.
  - F In the Configuration Tab, of the new Listener Port being created, fill in the following required fields (see Figure 58):
    - ♦ **Name** (Use the name of the Listener Port from Step 5)
    - ♦ **Initial State**
    - ♦ **Connection Factory JNDI Name**
    - ♦ **Destination JNDI Name**
  - G Click **OK** to create the Listener Port.

**Figure 56** WebSphere Administrative Console - Create a Listener Port

[Application Servers](#) > [server1](#) > [Message Listener Service](#) > [Listener Ports](#) >

**New**

Listener ports for Message Driven Beans to listen upon for messages. Each port specifies the JMS Connection Factory and JMS Destination that an MDB, deployed against that port, will listen upon. 

Runtime		Configuration
<b>General Properties</b>		
Name	* Topic1_jms_collabPort	 Name of the listener port
Initial State	* Started 	 The execution state requested when the server is first started.
Description		 A description of the listener port, for administrative purposes
Connection factory JNDI name	* jms/connectionfactory/xa_topicLogi	 The JNDI name for the JMS connection factory to be used by the listener port, for example, jms/connFactory1.
Destination JNDI name	* Topic1	 The JNDI name for the destination to be used by the listener port, for example, jms/destn1.
Maximum sessions	1	 The maximum number of concurrent JMS server sessions used by a listener to process messages, in the range 1 through 2147483647.
Maximum retries	5	 The maximum number of times that the listener tries to deliver a message before the listener is stopped, in the range 0 through 2147483647.
Maximum messages	1	 The maximum number of messages that the listener can process in one JMS server session, in the range 0 through 2147483647.
<input type="button" value="Apply"/> <input type="button" value="OK"/> <input type="button" value="Reset"/> <input type="button" value="Cancel"/>		

- 14 Save all changes you have made up to this point.

- 15 Start the Listener Port(s) that you created by doing the following:
  - A Navigate to the Listener Ports window (use steps 13, A through D to navigate to this location).
  - B Select the checkbox for your Listener Port(s).
  - C Click the **Start** button.
  - D Confirm that each Listener Port entry has a green icon on the **Status** column (last column on the right).
- 16 Start the application by doing the following:
  - A Navigate to the **Enterprise Applications** window.
  - B Select the checkbox of your application.
  - C Clicking the Start button.
  - D Confirm that the application started by checking the **Status** column.

# Index

## A

Add Prepared Statements 30

## B

book 58

## C

ClassName 13  
 Configuring eWay Connections 12  
 Connect to Database 23  
 conventions, document 8

## D

Database Wizard 22  
 DatabaseName 17, 20  
 DataSourceName 17  
 DBCS support 22  
 Delimiter 18  
 Description 13, 18  
 document  
   scope 7  
 document conventions 8  
 Double-Byte Character Set (DBCS) 22  
 driver class, JDBC 13  
 DriverProperties 18

## E

EAR file  
   deploying an EAR file 61  
 eWay properties 12

## I

Inbound Environment Properties  
   Database 20  
   Password 20  
   PortNumber 20  
   ServerName 21  
   User 21  
 Inbound Properties

Pollmilliseconds 16  
 PreparedStatement 16  
 index  
   book 58  
 InitialPoolSize 14  
 installation 9–11

## J

JDBC  
   driver class 13

## L

LoginTimeout 14

## M

MaxIdleTime 14  
 MaxPoolSize 14  
 MaxStatements 14  
 MinPoolSize 15

## N

NetworkProtocol 15

## O

Outbound Environment Properties  
   DatabaseName 17  
   DataSourceName 17  
   Delimiter 18  
   Description 18  
   DriverProperties 18  
   Password 18  
   PortNumber 19  
   ServerName 19  
   User 19  
 Outbound Properties  
   ClassName 13  
   Description 13  
   InitialPoolSize 14  
   LoginTimeout 14  
   MaxIdleTime 14  
   MaxPoolSize 14  
   MaxStatements 14  
   MinPoolSize 15  
   NetworkProtocol 15  
   PropertyCycle 15  
   RoleName 15

## P

Password 18, 20  
platforms. *See* operating systems  
Pollmilliseconds 16  
PortNumber 19, 20  
PreparedStatement 16  
Properties of the eWay  
  creating 12  
Property settings, Inbound  
  Pollmilliseconds 16  
  PreparedStatement 16  
Property settings, Inbound Environment  
  Database 20  
  Password 20  
  PortNumber 20  
  ServerName 21  
  User 21  
Property settings, Outbound  
  ClassName 13  
  Description 13  
  InitialPoolSize 14  
  LoginTimeOut 14  
  MaxIdleTime 14  
  MaxPoolSize 14  
  MaxStatements 14  
  MinPoolSize 15  
  NetworkProtocol 15  
  PropertyCycle 15  
  RoleName 15  
Property settings, Outbound Environment  
  DatabaseName 17  
  DataSourceName 17  
  Delimiter 18  
  Description 18  
  DriverProperties 18  
  Password 18  
  PortNumber 19  
  ServerName 19  
  User 19  
PropertyCycle 15

## R

requirements 10  
RoleName 15

## S

scope 7  
Select Database Objects 24  
Select Procedures 27  
Select Table/Views 24  
Select Wizard Type 22

ServerName 19, 21  
Setting 12  
SQL Server eWay Database Wizard 22  
system requirements  
  external 10  
  ICAN 10

## T

third-party requirements 10

## U

User 19, 21

## W

WebSphere Application Server  
  support 7, 58