SeeBeyond ICAN Suite

VSAM eWay Intelligent Adapter User's Guide

Release 5.0

SeeBeyond®

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Introducing the VSAM eWay

This guide explains how to install, set properties for, and operate the SeeBeyond Technology Corporation's (SeeBeyond) VSAM eWay Intelligent Adapter, referred to as the VSAM eWay throughout this document.

This chapter provides a brief overview of operations, components, general features, and system requirements of the VSAM eWay.

Chapter Topics

1.1 Overview

The VSAM eWay enables eGate Integrator to exchange data with an external IBM Virtual Storage Access Method (VSAM) mainframe file system. IBM uses a collection of three data-set organizations: sequential, indexed, and direct-access, together with the access methods and utilities used on mainframe operating systems. This collection of data-set organizations is called VSAM.

VSAM system

VSAM is one of several access methods that defines the technique by which data is stored and retrieved. It is a GET/PUT interface used to transfer data from a direct-access storage device (DASD) to an application program. VSAM does not support data stored on tape.

VSAM data sets must be cataloged in an integrated catalog facility (ICF) structure. Records are arranged by an index key or by relative byte addressing. VSAM uses direct or sequential processing of fixed and variable-length records stored on a DASD.

VSAM also provides the following features:

- Allows you to organize and access data (record management).

- Maintains information about this data, which is stored or referenced in a catalog (catalog management).

- Supports Entry-sequenced Data Set (ESDS) and Key-sequenced Data Set (KSDS) files.

The VSAM eWay allows you to utilize and extend all of these features. For more information on VSAM, see IBM's Web site.

VSAM eWay

This eWay is similar to other database eWays, such as IAM, ADABAS, DB2/UDB, and IDMS. The eWay uses its own properties settings and eGate components to enable VSAM data integration.

This eWay enables eGate to communicate with VSAM files on a mainframe host system via VSAM. The eWay utilizes a CrossAccess Corp. software component that allows you to view and access VSAM in the same way as a standard relational database system.

For details on operating and using eGate and its user interface, see the *eGate Integrator User's Guide.*

The VSAM eWay's properties settings provide the necessary parameters for the operation of the VSAM eWay. See **Chapter 3** for details on how to set the VSAM eWay properties.

1.2 Supported Operating Systems

The VSAM eWay is available for the following operating systems:

- Windows XP SP1a

- Windows 2000 SP3

- Windows Server 2003

- HP-UX 11.0 and 11i (RISC)

- IBM AIX 5.1 and 5.2

- Red Hat Linux 8 (Intel)

- Red Hat Linux Advanced Server 2.1 (Intel)

- Sun Solaris 8 and 9

1.3   System Requirements

To use the VSAM eWay, you need:

- eGate Logical Host, version 5.0.

- TCP/IP network connection.

Logical Host requirements

The VSAM eWay Installation program installs the CrossAccess JDBC driver, version 3.0.

The eWay must have its properties set and be administered using the Enterprise Designer. For complete information on the Enterprise Designer system requirements, see the *eGate Integrator Installation Guide*.

eInsight interface

To enable the eWay's eInsight interface (see **Chapter 4** for details), you must also install and set properties for SeeBeyond's eInsight Business Process Manager. See the *eInsight Business Process Manager User's Guide* for details.

1.4   External System Requirements

This section lists the eWay's external system requirements.

Additional Windows Requirements

To enable eGate Enterprise Designer's editors to communicate with the VSAM file system, the following CrossAccess items must be installed on any host machines running the editors:

- CrossAccess version 3.0, including:

    - eXadas DataMapper

    - JDBC driver (installed with the eWay)

Note: *The eXadas Data Mapper is shipped with the eWay, but you must install it separately.*

For more information, including installation procedure and serial numbers, see **Chapter 2**.

Additional UNIX Requirements

If you are installing the VSAM eWay on a UNIX system, you need:

- CrossAccess JDBC driver, version 3.0 (installed with the eWay)

z/OS External Requirements

- CrossAccess eXadas Data Integrator, version 3.0, installed via a 3480 cartridge tape

- The serial number for the installation, shipped with the tape

Note: *The eXadas Data Integrator is shipped with the eWay, but you must install it separately.*

- OS/390 version 2.10 and z/OS version 1.2

All of these eXadas software products are also available from the CrossAccess Corp. For more information, you can visit the company's Web site at:

www.crossaccess.com

Installing the VSAM eWay

This chapter explains how to install the VSAM eWay.

Chapter Topics

- **"Complete Installation: Overview" on page 10**
- **"Installing eXadas DataMapper" on page 11**
- **"Installing on Windows and UNIX Operating Systems" on page 12**

Note: *See the **eGate Integrator Installation Guide** for complete eGate installation instructions.*

2.1 Complete Installation: Overview

This section provides a brief overview of the eWay's installation components and the order of their installation.

Note: *The CrossAccess eXadas Data Integrator and eXadas DataMapper are shipped with the eWay, but you must install them separately.*

You must install the VSAM eWay and its components in the following order:

1 eXadas Data Integrator
2 eXadas DataMapper
3 VSAM eWay

Note: *Once the installation operation is complete, you may want to pass a small amount of data to ensure you have a working connection.*

Installing eXadas Data Integrator

For complete details on how to install eXadas Data Integrator on the mainframe, see the CrossAccess *eXadas Data Integrator Getting Started* manual, the chapter that details mainframe installation. All eXadas software products, as well as additional information on each product, are available from the CrossAccess Corp.

For more information on CrossAccess, you can visit their Web site.

Important: *When you install eXadas Data Integrator, be sure to set properties for it for VSAM. See the appropriate CrossAccess documentation for details.*

2.2   Installing eXadas DataMapper

This section describes installing eXadas DataMapper for Windows systems. This application must be installed on a Windows system.

To install eXadas DataMapper

1   After you have installed the eWay, as explained under **"Installing on Windows and UNIX Operating Systems" on page 12**, insert the CD-ROM provided for installing the eXadas DataMapper.

   The installation process automatically begins, and the **Welcome** dialog box appears.

2   Click **Next**.

   The **eXadas DataMapper Registration** dialog box appears.

3   Using this dialog box, register the eXadas DataMapper. In the appropriate text box, you must enter the following serial number:

   ex58dw43

4   Click **Next**.

5   A dialog box appears asking you to confirm the information you just entered. Click **Yes**.

6   Follow the instructions on each wizard dialog box to complete the installation. When you are done with the final wizard, click **Finish** to complete the installation.

   The installation program returns you to the process explained under **"Installing on Windows and UNIX Operating Systems" on page 12**.

The eXadas DataMapper installation has the following optional sets of files:

- **Program Files**: The executable files and run-time system for running DataMapper.

- **Help Files**: Make up the online Help system for DataMapper.

- **Sample Files**: Including sample COBOL Copybooks and IMS/DL/I DBDs and IDMS schemes and sub-schemas for testing DataMapper's features. CrossAccess recommends installing all three sets of files. The minimum requirement is installing the program files in option 1.

When installation is complete, a program group named eXadas is created in Windows. The group contains the program items for DataMapper, the DataMapper Help system, and the DataMapper **Readme.txt** file. To start DataMapper, double-click the mouse on the DataMapper icon in the eXadas program group.

Refer to the eXadas DataMapper documentation located on the eGate installation CD-ROM for further instructions.

2.3 Installing on Windows and UNIX Operating Systems

During the eGate Integrator installation process, the Enterprise Manager, a Web-based application, is used to select and upload eWays (**.sar** files for eWays) from the eGate installation CD-ROM to the Repository.

When the Repository is running on a UNIX operating system, eGate and the eWays are installed using the Enterprise Manager on a computer running Windows connected to the Repository server.

2.3.1 Installing eGate

The eGate installation process includes the following operations:

- Installing the eGate Repository
- Uploading products to the Repository
- Downloading components (such as eGate Enterprise Designer and Logical Host)
- Viewing product information home pages

2.3.2. Installing the VSAM eWay on an eGate-supported System

The VSAM eWay is installed during the installation of eGate Integrator. Follow the instructions in the *eGate Integrator Installation Guide* for installing eGate and include the following steps:

1 During the procedures for uploading files to the eGate Repository using the Enterprise Manager, after uploading the **eGate.sar** file, select and upload the following files:

- **VSAMeWay.sar** (to install the VSAM eWay)
- **FileeWay.sar** (to install the File eWay, used in the sample Project)

2 Continue installing eGate Integrator as instructed in the *eGate Integrator Installation Guide*.

2.3.3. After Installation

Once the eWay is installed and set up, it must then be incorporated into a Project before it can perform its intended functions. See the *eGate Integrator User's Guide* for more information on incorporating the eWay into an eGate Project.

Setting VSAM eWay Properties

This chapter explains how to set the properties for the VSAM eWay.

Chapter Topics

- **"VSAM eWay Properties Sheet" on page 13**
- **"Setting eWay Properties on the Connectivity Map" on page 15**
- **"Setting Properties on the Project Environment" on page 18**

3.1 VSAM eWay Properties Sheet

When you install the VSAM eWay, a default properties template for the eWay is also installed. The template's default properties are accessible via the eGate Enterprise Designer. These default settings apply to all VSAM eWays you use within your current Project or Business Process.

You can set properties for each individual eWay using the Enterprise Designer's eWay **Properties** sheet. This section describes general procedures on how to change these default properties for the eWay. For details on these steps, see the *eGate Integrator User's Guide*.

To set properties for the VSAM eWay on the Connectivity Map

1   From the eGate Enterprise Designer's **Project Explorer** create at least one Connectivity Map.

2   Create the desired external systems for your one or more Connectivity Maps.

3   Select the external application whose default eWay properties you want to change by clicking the **eWay** icon. This icon is located on the link between an **External Application** icon and a **Service** icon on the Connectivity Map canvas. See **Figure 1 on page 14**.

Figure 1 eWay Icon
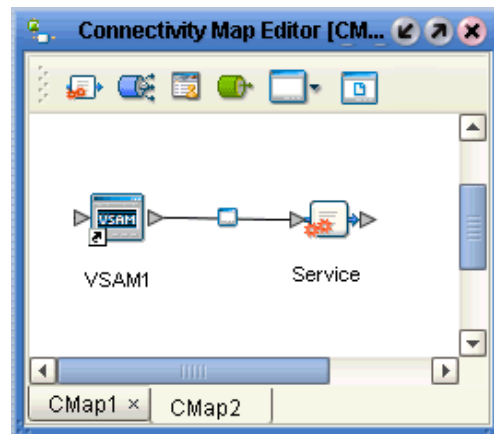
The eWay **Properties** sheet appears. **Figure 2 on page 15** shows the eWay's default properties available via the **Project Explorer** and Connectivity Map. You can use this window to modify the current eWay's properties settings.

4 Click **OK** then **Save All** to save your changes.

To set properties for the VSAM eWay on the Project Environment

1 From the Enterprise Designer, create your external systems.

2 Click the **Environment Explorer** tab (at the bottom of the left pane).

3 Create an environment for your project, then create external systems on the Environment canvas to correspond to the systems you created using the **Project Explorer**.

4 Select the external system whose default eWay properties you want to change by right-clicking the desired system's icon in the **Environment Explorer**.

The eWay **Properties** sheet appears. **Figure 3 on page 19** shows the eWay's default properties available from the **Environment Explorer**. You can use this dialog box to modify the eWay properties associated with the current external system.

5 Click **OK** then **Save All** to save your changes.

To use the eWay Properties sheet

▪ The VSAM eWay's properties are set using the eGate Enterprise Designer's eWay **Properties** sheet. The default properties are automatically provided.

▪ Clicking the **Configuration** (Connectivity Map) or **Environment Configuration** folder in the left pane displays the properties group subfolder in the right pane. Click any subfolder to display the eWay's editable properties.

▪ Many of the entries allow you to enter text. Click the desired text box, then click the ellipsis (**...**) that appears, to open a dialog box for this purpose.

Note: *Even if you do not change the eWay's properties, you must open each **Properties** sheet for every eWay and click **OK** to activate the eWay.*

The rest of this chapter explains all of the eWay's properties in detail, under the following sections:

3.2   Setting eWay Properties on the Connectivity Map

This section explains in detail the eWay's editable properties accessible on the Connectivity Map via the eGate Enterprise Designer's **Project Explorer**. You can set these properties using the eWay **Properties** sheet. See Figure 2.

Figure 2 eWay Properties Sheet: Settings on the Connectivity Map
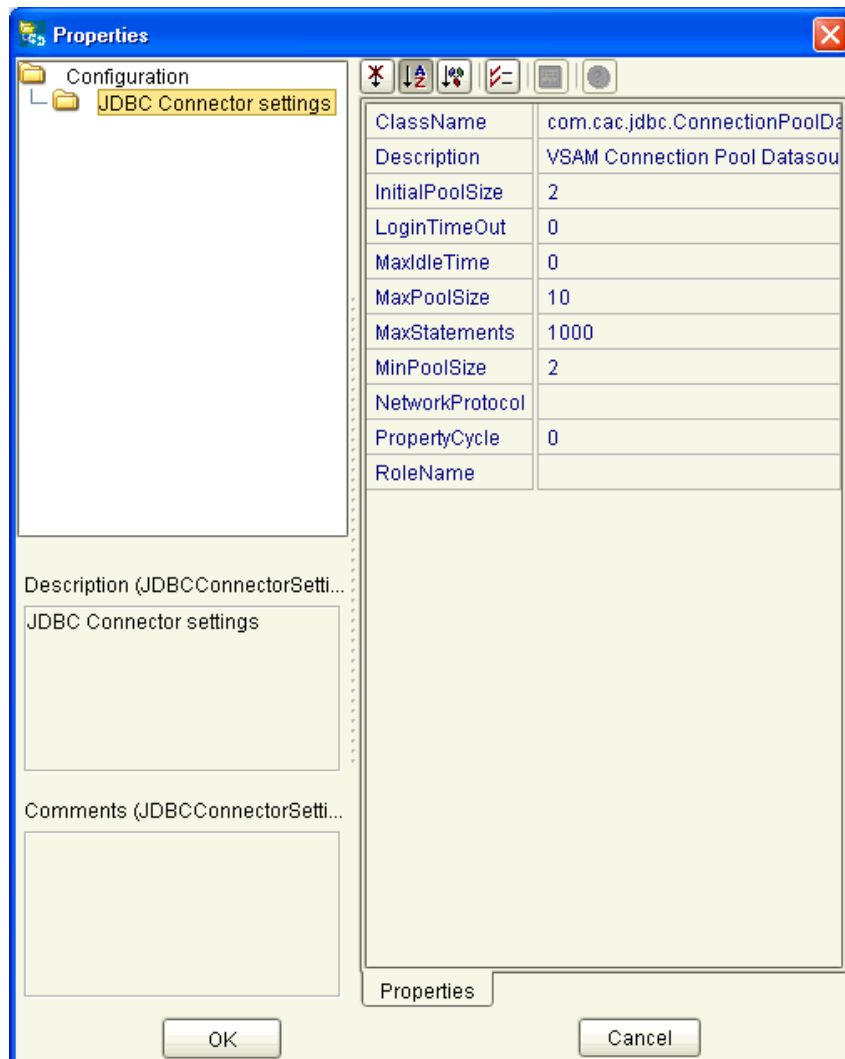
The eWay's properties settings define the properties used to interact with the external database, under the **JDBC Connector settings** folder. These settings are:

ClassName

Description

Specifies the Java class in the JDBC driver, which is used to implement the **ConnectionPoolDataSource** interface.

Required Values

A valid class name.

The default is **VSAM.jdbc.pool.VSAMConnectionPoolDataSource**.

Description

Description

Enter a description for the current database.

Required Values

A valid string. The default is **VSAM Connection Pool Datasource**.

InitialPoolSize

Description

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

Required Values

A valid numeric value.

LoginTimeOut

Description

Specifies the number of seconds the driver waits before attempting to log on to the database before timing out.

Required Values

A valid numeric value.

MaxIdleTime

Description

Specifies the maximum number of seconds that a physical connection can remain unused before it is closed. A 0 (zero) indicates there is no limit.

Required Values

A valid numeric value.

MaxPoolSize

Description

Specifies the maximum number of physical connections the pool must keep available at all times. A 0 (zero) indicates there is no maximum.

Required Values

A valid numeric value.

MaxStatements

Description

Specifies the maximum total number of statements the pool must keep open. A 0 (zero) indicates the caching of statements is disabled.

Required Values

A valid numeric value.

MinPoolSize

Description

Specifies the minimum number of physical connections the pool must keep available at all times. A 0 (zero) indicates there are no physical connections in the pool, and the new connections are created as needed.

Required Values

A valid numeric value.

NetworkProtocol

Description

Specifies the network protocol used to communicate with the server.

Required Values

Any valid string.

PropertyCycle

Description

Specifies the interval, in seconds, which the pool waits before enforcing the current policy defined by the values of the other connection pool properties specified in the eWay's properties.

Required Values

A valid numeric value.

RoleName

Description

Enter an initial SQL role name.

Required Values

Any valid string.

3.3   Setting Properties on the Project Environment

This section explains in detail the eWay's editable properties accessible via the eGate Enterprise Designer's **Environment Explorer**. You can set these properties using the eWay **Properties** sheet.

See **Figure 3 on page 19**.

Figure 3 eWay Properties Sheet: Settings on the Project Environment
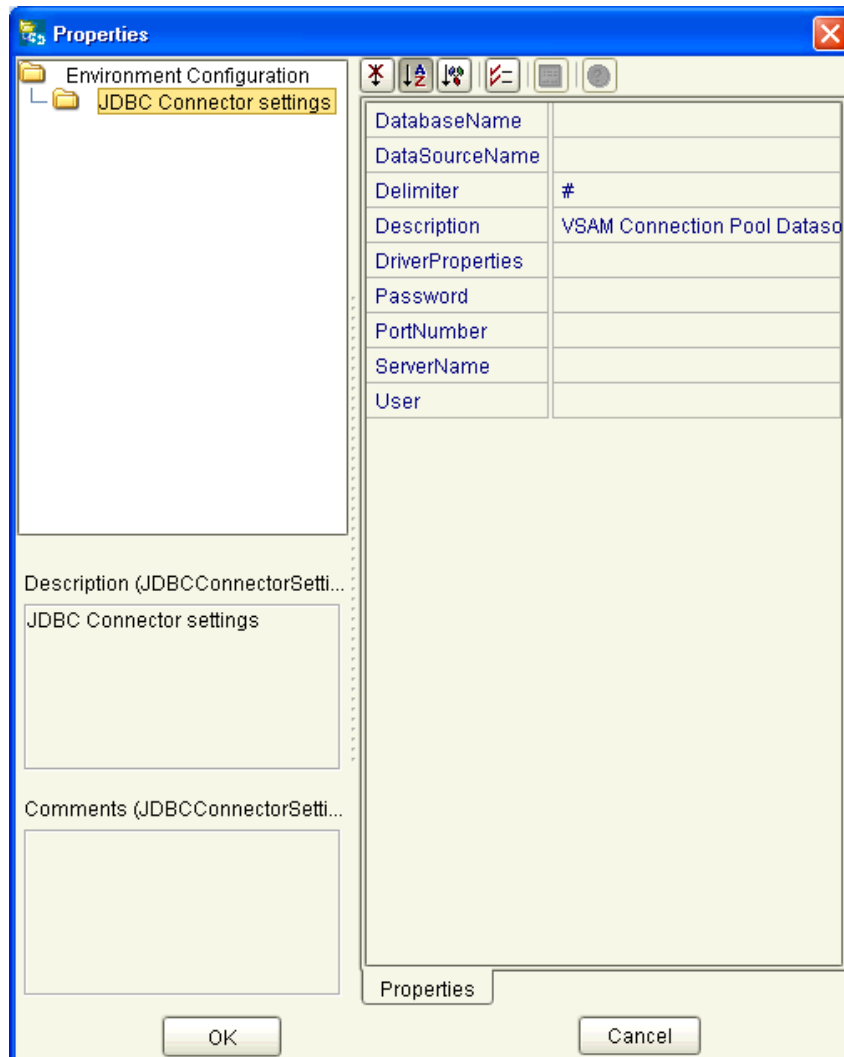
The eWay's properties, under the **JDBC Connector settings** folder, in the **Environment Explorer** are:

- **"DatabaseName" on page 20**
- **"DataSourceName" on page 20**
- **"Delimiter" on page 20**
- **"Description" on page 20**
- **"Password" on page 21**
- **"PortNumber" on page 21**
- **"ServerName" on page 21**
- **"User" on page 21**

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 Values

Optional. In most cases, leave this box empty.

Delimiter

Description

Specifies the delimiter character to be used in the **DriverProperties** prompt.

Required Value

The default is #.

Description

Description

Enter a description for the current database.

Required Values

A valid string. The default is **VSAM Connection Pool Datasource**.

DriverProperties

Description

Allows you to enter the properties of the driver you are using; this property is optional.

If you choose not to use the JDBC driver shipped with this eWay, you must add the driver's properties to the eWay. For example, often, the **DataSource** implementation needs to execute additional methods to ensure a connection. The additional methods need to be identified under this property.

You can also use this property to change some driver parameters "on the fly" such as turning on a driver trace (a description box that identifies a driver).

Required Values

Any valid delimiter and/or method as follows:

- **Delimiter**: Valid delimiters are:

```
"<method-name-1>#<param-1>#<param-2>##.........<param-n>##<method-
     name-2>#<param-1>#<param-2>#........<param-n>##......##"
```

- **Method**: For example: to execute the method **setURL()**, give the following method a string for the URL:

```
"setURL#<url>##"
```

Password

Description

Specifies the password the eWay must use to access the database.

Required Values

Any valid string.

PortNumber

Description

Specifies the input-output port number on which the server is listening for connection requests.

Required Values

A valid port number; there is no default.

ServerName

Description

Specifies the host name of the external database server.

Required Values

Any valid string.

User

Description

Specifies the user name the eWay must use to access the database.

Required Values

Any valid string.

Using the VSAM eWay With eInsight

This chapter describes how to use the VSAM eWay with SeeBeyond ICAN Suite's eInsight Business Process Manager.

Note: *You must have the **eInsight.sar** file installed to use the features explained in this chapter.*

Chapter Topics

4.1 eInsight Engine and Components

You can set up and deploy an eGate Integrator component using eInsight. Once you have associated the desired component with a Business Process, the eInsight engine can automatically invoke that component during run time, using a Business Process Execution Language (BPEL) interface.

Examples of eGate components that can interface with eInsight in this way are:

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

Using the eGate Enterprise Designer and its eInsight canvas, you can add a desired operation to a Business Process, then associate that process with an eGate component, for example, an eWay or a Service. In the Enterprise Designer, associate the Business Process and Service icons using drag-and-drop operations.

See the *eInsight Business Process Manager User's Guide* for details.

4.2 VSAM eWay With eInsight

You can add VSAM eWay objects to an eInsight Business Process during the system design phase. To make this association, select the desired operation, for example **Insert** or **Update,** under the eWay in the Enterprise Explorer and drag it onto the eInsight Business Process canvas. In turn, you can activate a Business Process in eGate by dragging it onto a Service or onto the Business Process canvas.

At run time, the eInsight Engine is able to invoke each of the steps in order as set up in the Business Process. Using the engine's BPEL interface, eInsight in turn invokes the VSAM eWay operations, as well as any other eWays in the current Project.

Table 1 shows the eInsight Business Process operations available to the VSAM eWay, as well as the inputs and outputs to each of these operations.

Table 1 Available eInsight VSAM Business Process Operations

eInsight Business Process 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 of the insert operation.
Update	where() clause	Returns status of the update operation.
Delete	where() clause	Returns status of the delete operation.

Note: *The **where** clause can be left blank for **SelectAll**, **SelectMultiple**, and **SelectOne**. If this clause is imbedded in an input file, the file can contain nothing (empty). If the clause is imbedded in a **Literal**, it can be a blank **Literal**.*

Figure 4 on page 24 shows the Enterprise Designer's **Project Explorer** with all the VSAM eWay Business Process operations exposed under the OTD icon.

Figure 4 Project Explorer With Business Process Operations
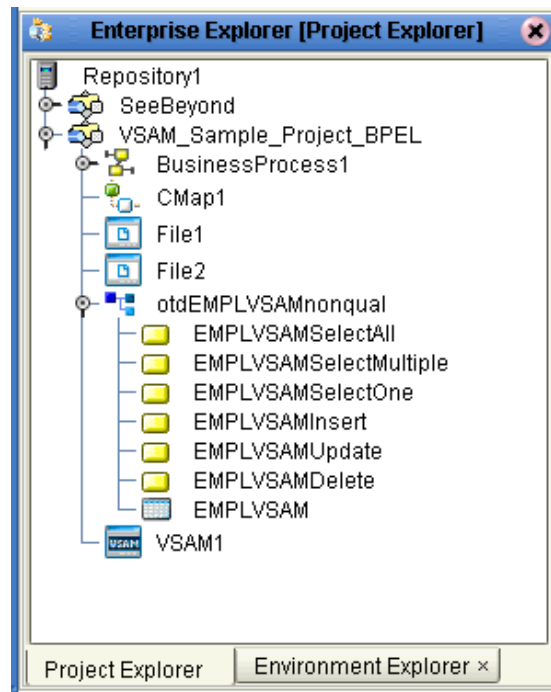
Before you can make these Business Process operations available, you must first create a VSAM OTD using the Database wizard. See **"Database OTD Wizard" on page 38** for details on this operation.

4.3 Building the Business Process Project

This section explains how to implement the VSAM eWay using the eGate Project sample with an eInsight Business Process, which is included on your installation CD-ROM. The sample is named **VSAM__Project_BPEL**. It allows you to observe an end-to-end data-exchange scenario involving eGate and the VSAM eWay.

This section also explains how to implement this sample Project, including the VSAM eWay. You can also use the procedures given in this chapter to create your own Projects based on the sample provided.

To import the sample Project

1   From the eGate Enterprise Designer, right-click the desired Repository in the **Project Explorer**.

2   From the pop-up menu, choose **Import Project**.

    The **Select File to Import** dialog box appears.

3   Browse to the directory where you downloaded the sample **.zip** file while you were installing the eWay. For details on how to download this file, see the *eGate Installation Guide*.

Note: *The .**zip** file you first download may contain more than one Project and/or additional files. If this is the case, you must unzip this file first, find the desired Project file, then import the Project file.*

> The container file you are looking for is **VSAM_eWay_Sample.zip**. The Project file name is **VSAM_Project_BPEL.zip**.

4   From the **File Destination** dialog box, select **Import to a New Project** and enter the name **VSAM_Sample_Project_BPEL** for the Project.

> The Enterprise Designer imports the selected Project, and its name appears in the **Project Explorer**.

5   Before opening the new Project, click **Save All** then **Refresh All From the Repository** to refresh the Enterprise Designer.

Important: *An imported Project does not contain an environment or a deployment profile. After importing a Project, you must use the Enterprise Designer to create these functions for the Project. See* **"Creating the Project's Environment" on page 64** *and* **"Deploying a Project" on page 66***. For additional information, see the **eGate Integrator User's Guide** and **SeeBeyond ICAN Suite Deployment Guide***.*

You must check out the major eGate components before you can change them. For details, see the *eGate Tutorial*.

4.3.1 Sample Project

The VSAM eWay sample Project demonstrates how the VSAM eWay processes information from a VSAM system. The resulting information is then written to a text file. Figure 5 shows a general diagram of how this scenario operates.

Figure 5 Sample Project Scenario
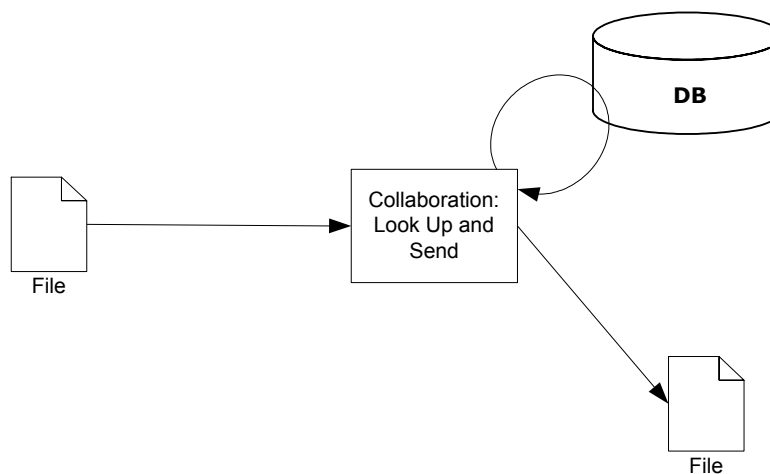
Project Components

The Project has the following components:

- File external application (inbound): **File1**
- Inbound File eWay
- Business Process for processing data: **BusinessProcessService**
- VSAM eWay
- External VSAM database: **VSAM1**
- Outbound File eWay
- File external application (outbound): **File2**

Project Operation

The Project operates as follows:

- **File1**: The external file system that provides query and selection instructions to the inbound File eWay; this eWay gets a text file containing the instructions and passes them to a Business Process, **BusinessProcessService**.
- **BusinessProcessService**: Sends instructions, using a **SelectOne** Business Process operation, to the desired VSAM database via the VSAM eWay. **BusinessProcessService** also receives the information looked up, via the VSAM eWay, then sends it to a File eWay, **FileOut**.
- **VSAM1**: The VSAM database system; the VSAM eWay handles inbound and outbound communication with this database.
- **File2**: The external file system that receives the query information; another File eWay writes the database information to a text file on this system.

The sample Project has the following input and output:

- **Input**: Use the file, **inputvsam.txt**, provided with the sample.
- **Output**: The information, in a text file, selected from the database.

4.3.2 Creating a New Project

To create and name a new Project in the eGate Enterprise Designer

1 Start the Enterprise Designer.

2 Select the Enterprise Explorer's **Project Explorer** tab, to show the **Project Explorer** pane (left pane).

3 Select the **Repository** icon on the Project Explorer tree.

4 Right-click the **Repository** and select **New** then **Project** on the pop-up menus.

   A new Project appears on the **Project Explorer** tree, named **Project1**.

5 Double-click on the Project name and rename the Project, for this sample, **VSAM_Sample_Project_BPEL**.

4.3.3 Using OTDs

An OTD contains a set of rules that define an object, which encodes data as it travels through eGate. OTDs are used as the basis for creating Business Processes for a Project. The VSAM eWay provides VSAM OTD for this purpose. See **"Using VSAM OTDs" on page 67** for complete information on how to use this OTD.

Creating OTDs Using the Database OTD Wizard

You must create a VSAM OTD in order to run the VSAM eWay sample Project. You create VSAM OTDs by using the Database OTD wizard. For details on how to use this wizard, see **"Database OTD Wizard" on page 38**.

Be sure to name the new OTD you create for this project **otdEMPLVSAMnonqual**.

4.3.4 Creating a Business Process

Once you have designed your Business Process for this sample, you can use the eGate Enterprise Designer to create it. See **"Sample Project" on page 25** for a description of the sample's Business Process.

To create a Business Process

1 Right-click the name of the sample Project, **VSAM_Sample__Project_BPEL**, in the **Project Explorer** and choose **New > Business Process** from the pop-up menus. You can use the default name, **BusinessProcess1**.

A blank Business Process canvas appears in the right pane, along with the Business Process toolbar.

2 In the **Project Explorer** expand the icons for **SeeBeyond > eWays** for **File** to expose the eWay's **receive** and **write** Business Process operations.

3 Expand the icon for the **otdEMPLVSAMnonqual** OTD under the **VSAM_Sample_Project_BPEL** Project to expose the OTD's Business Process operations as shown in **Figure 4 on page 24**.

4 Arrange the **Start** and **End** icons at opposite sides of the canvas, then drag the following icons onto the canvas from the **Project Explorer**:

- **VSAM eWay**
  - One **EMPLVSAMSelectOne** icon
- **File eWay**
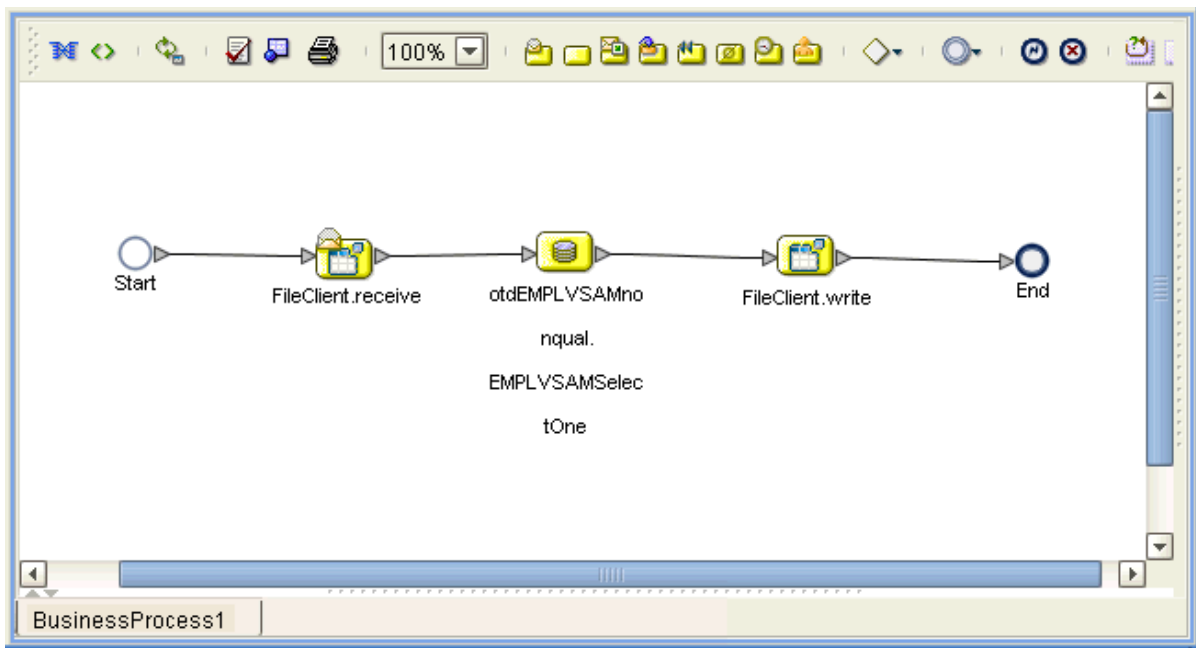 - One **receive** icon
  - One **write** icon

5   Again by dragging, arrange these icons on the canvas as shown in Figure 6.

**Figure 6** Business Process Icons
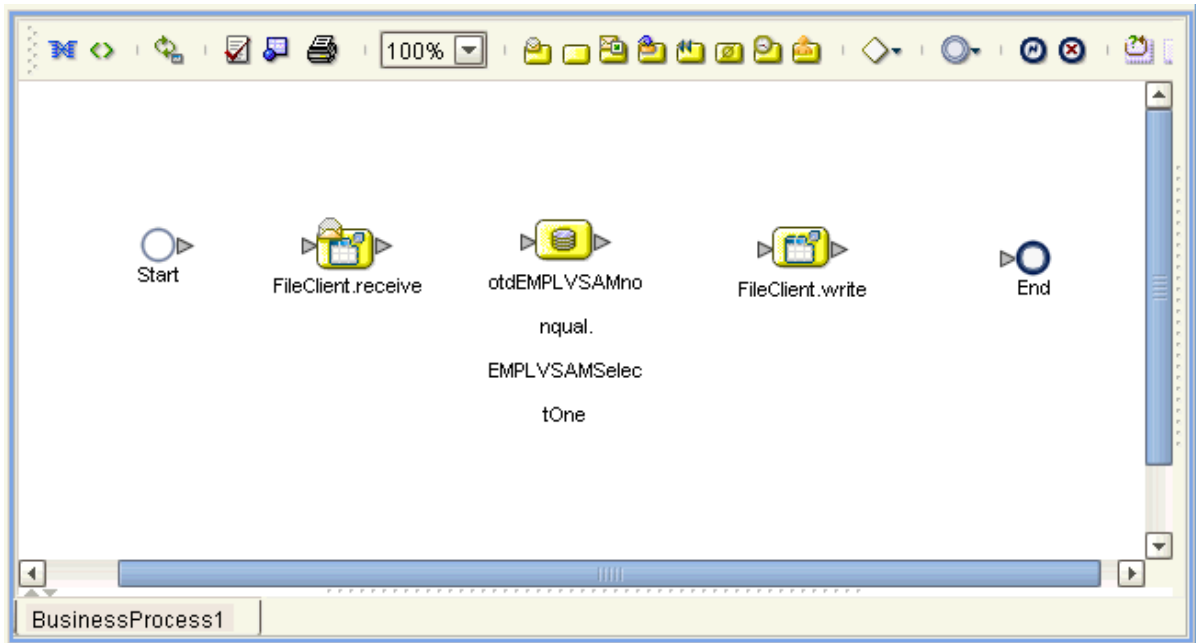
6   By dragging from one icon to another, link the icons on the canvas, as shown in Figure 7.

Figure 7 Business Process With Links

7 You must add additional Link Business Rules (represented by a small blue, star-shaped icons) to the appropriate links, as shown in Figure 8. To do this operation, right-click on the desired link and choose **Add Business Rule** from the pop-up menu. See Figure 8 for the appropriate links where you must add these Link Business Rules.

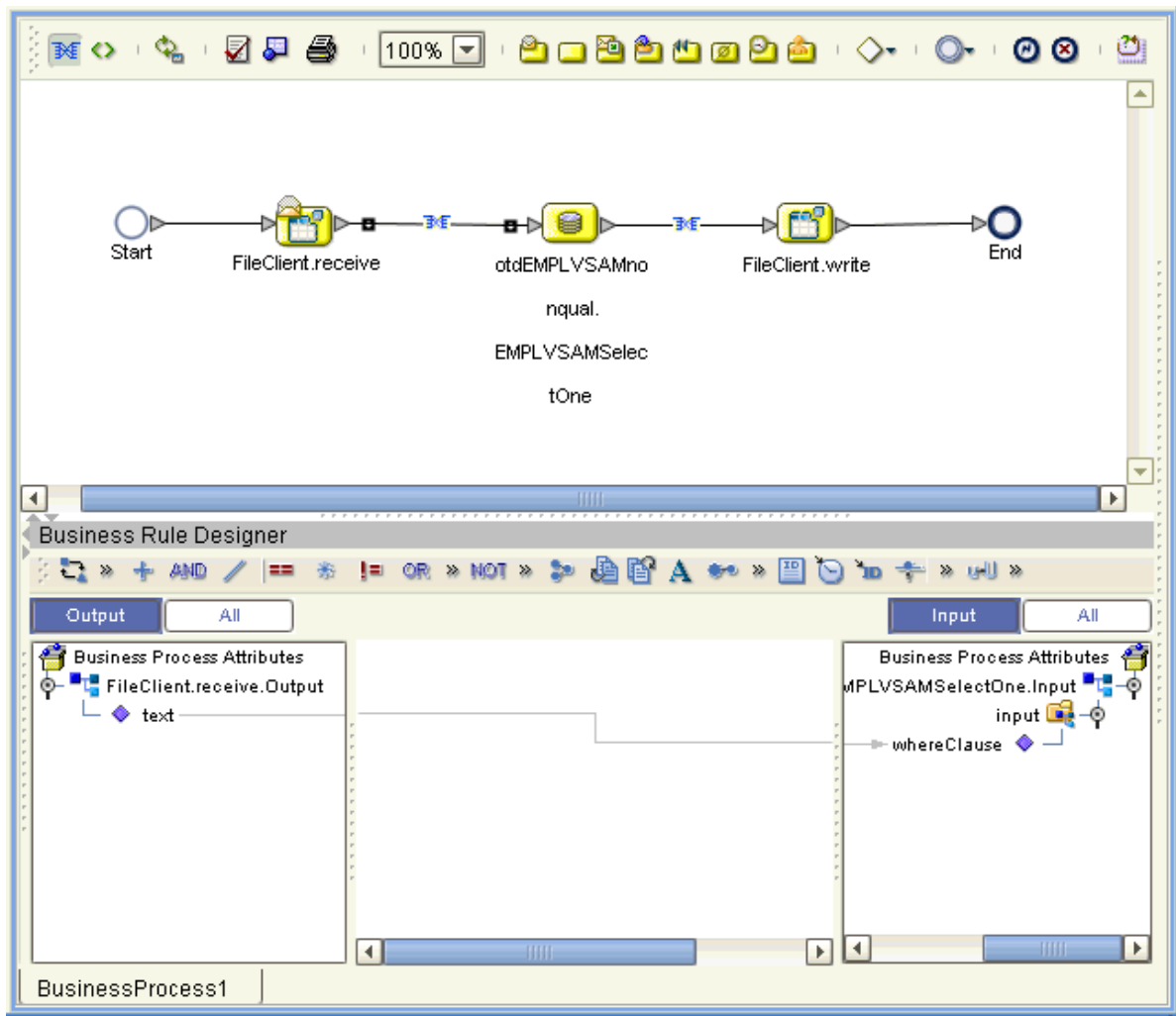**Figure 8** Business Process With Link Business Rules
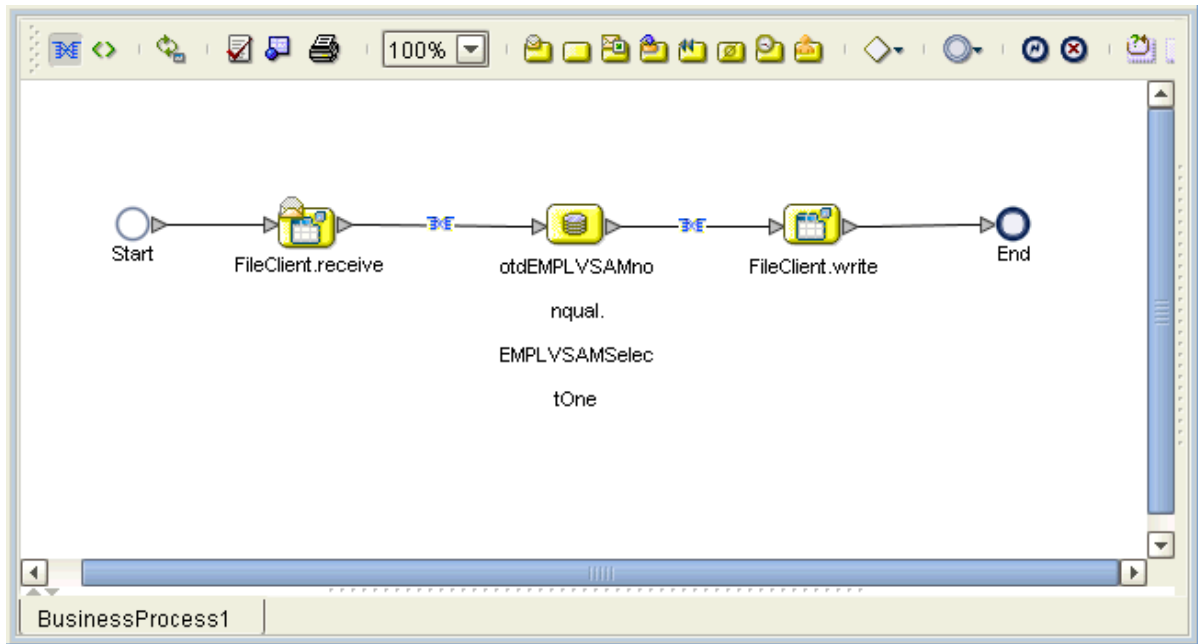
For each Business Rule (Link and **Business Rule** icon), you must create the settings you want in the Business Rule Designer.

8 Select the Link Business Rule on the left, then click the **Map Business Process Attributes** icon in the toolbar.

The Business Rule Designer pane appears at the bottom of the window. Use the Business Rule Designer to create your Business Rules.

9 Set properties for the first (left) Link Business Rule by dragging the **text** node from the **Output** pane, and dropping it onto the **whereClause** node in the **Input** pane. See Figure 9.

Figure 9 Business Rule Designer: First Link Business Rule

The text from the node instructs the Business Process exactly which data needs to be selected. For example, the content of the input text could be **EMPNO>100**.

10 Set properties for the second (right) Link Business Rule by dragging the **ENAME** node from the **Output** pane, and dropping it onto the **text** node in the **Input** pane. See Figure 10.

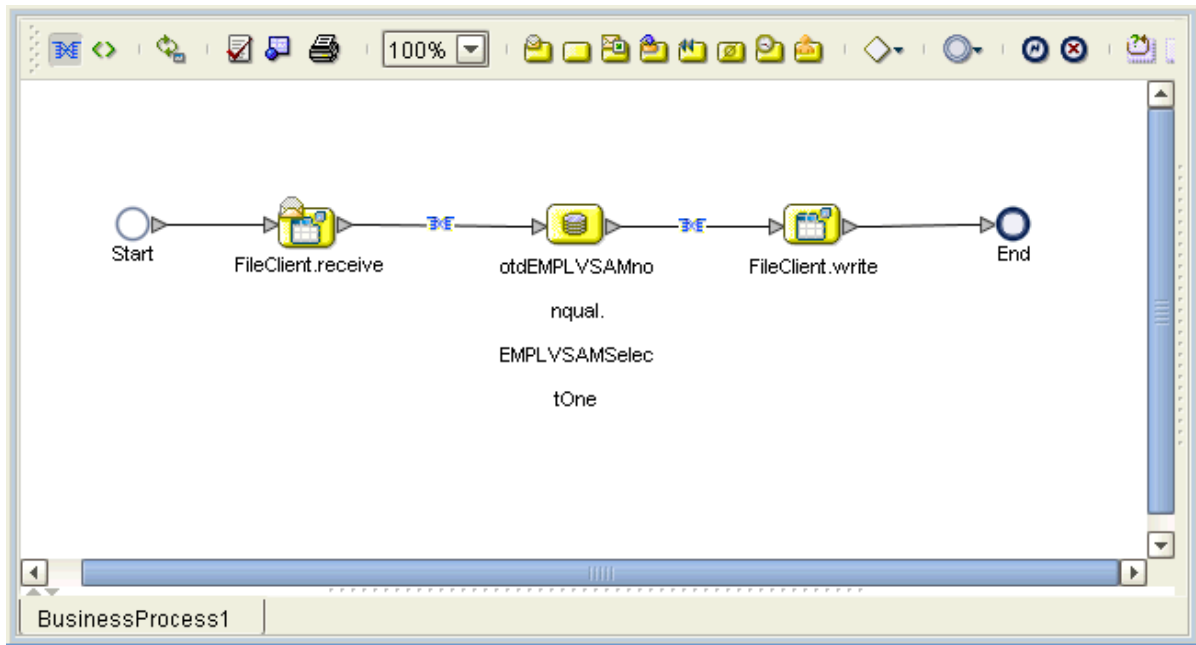**Figure 10** Business Rule Designer: Second Link Business Rule
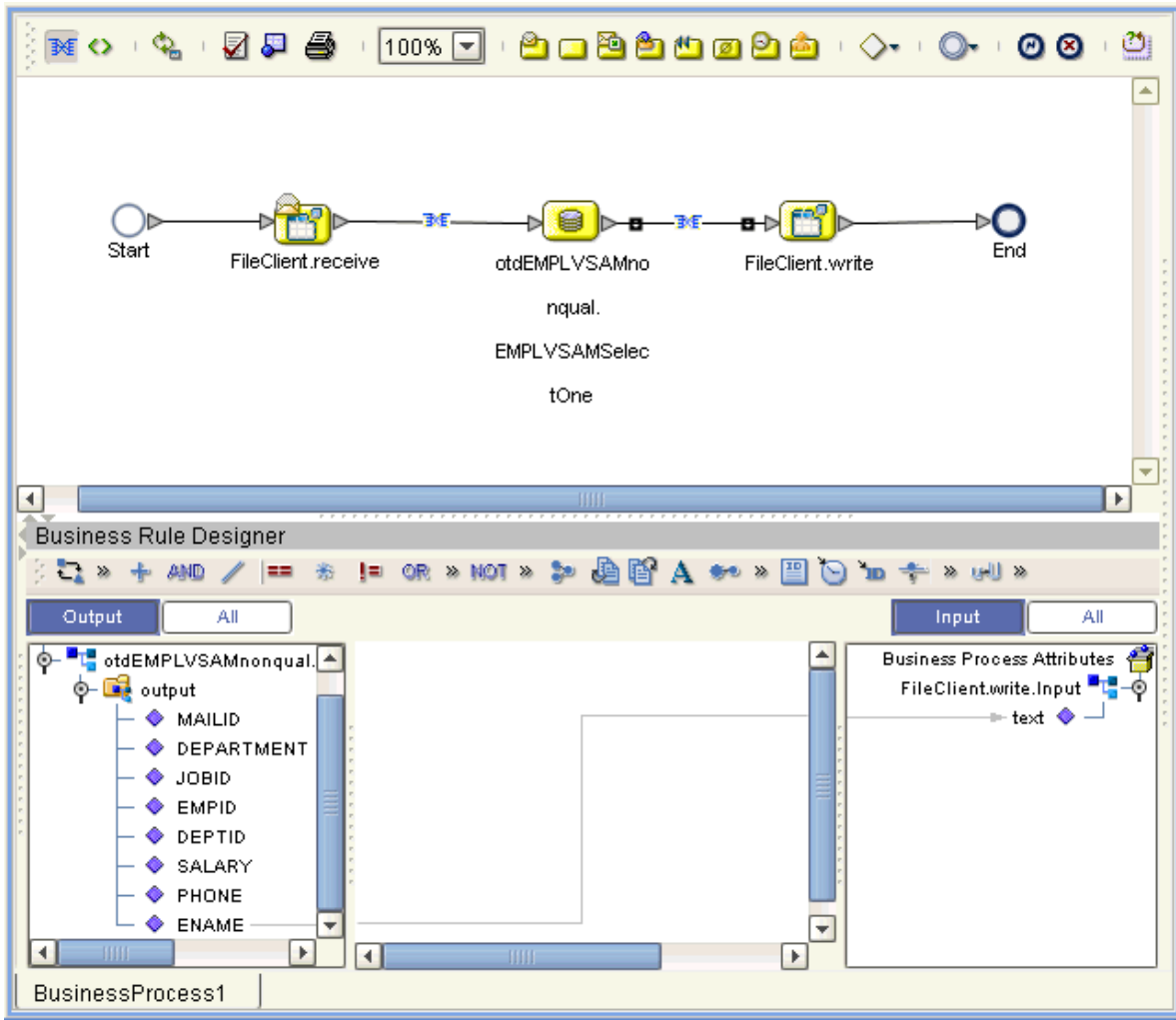
If you want to write out data from multiple columns, you can create a User-defined OTD or an XML schema (DTD or XSD). See the *eGate Integrator User's Guide* for details.

11 You can close the Business Rules Designer pane.

12 Figure 11 shows your finished Business Process.

Figure 11 Finished Business Process

13 Click **Save** to save your Business Process.

After you have finished creating your Business Process, you can use it to define one or more of the eGate Services on your Connectivity Map.

4.3.5 Creating a Connectivity Map

A Connectivity Map provides a canvas for assembling and setting up a Project's components.

To create a Connectivity Map

1 In the eGate Enterprise Designer's **Project Explorer** pane, right-click the new Project's name and select **New** then **Connectivity Map** on the pop-up menus.

2 The new Connectivity Map appears and adds a node for the Connectivity Map under the Project on the **Project Explorer** tree labeled **CMap1**.

3 You can rename the new Connectivity Map **CMapVSAM_BPEL**.

The icons in the toolbar represent the components used to populate the Connectivity Map workspace. When linked together, these components define the Connectivity Map for your Project.

4.3.6 Selecting External Applications

When creating a Connectivity Map, you must associate any Service, in this case a Business Process, with an External Application. For example, to establish a connection to VSAM, you must first select VSAM as the external application to use in your Connectivity Map.

To select external applications

1 Click the **External Application** icon on the Connectivity Map toolbar.

2 Select the external applications necessary for your Project. For this sample, select the File and VSAM external applications. Icons representing these external applications are then added to the Connectivity Map toolbar.

### 4.3.7 Populating the Connectivity Map

Add the Project components to the Connectivity Map by dragging the icons from the toolbar to the canvas. This operation creates the components for you.

For this sample Project, drag and drop the following components onto the Connectivity Map canvas.

- Two File eWays/external applications

- One Service

- VSAM eWay/external application

Figure 12 shows the components on the Connectivity Map.

Figure 12 Connectivity Map With Components
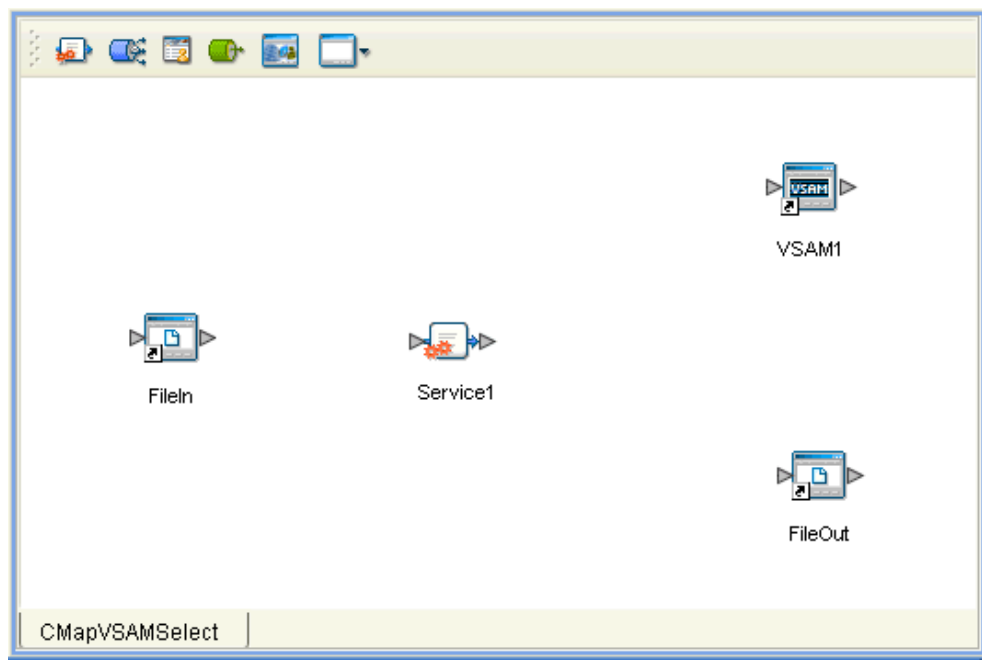
Rename the **Service1** component to **BusinessProcessService** by right-clicking on the icon. Name the other components as shown in the previous figure. Be sure to save the new Connectivity Map before you proceed. You can click **Save** on the Enterprise Designer toolbar for this purpose.

4.3.8 Defining the Business Process

After you have created the Connectivity Map, you need to define your Business Process on the Connectivity Map.

To do this operation, you can drag and drop the Business Process icon from the **Project Explorer** tree onto the desired Service component in the Connectivity Map.

If the Business Process is successfully defined, the "gears" icon changes from red to yellow.

Note: *You can also drag the desired Business Process onto the Connectivity Map by itself and create a Business Process Service without first creating the Service component.*

4.3.9 Binding OTDs in Business Processes

After you have set up the Business Process, you need to bind, that is, associate the appropriate OTDs with the desired eGate components.

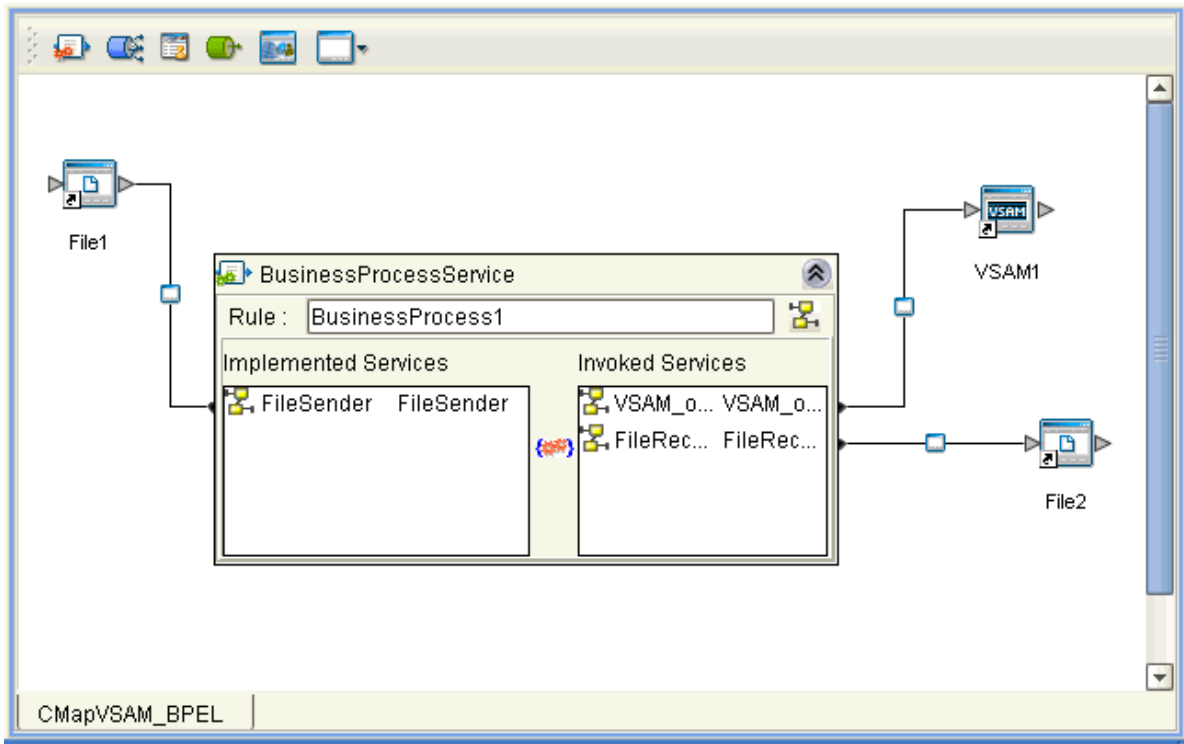### Using the Business Process Binding Window

Use the eGate Enterprise Designer's Business Process Binding window to associate OTDs and their corresponding eGate components.

To bind the OTDs in Business Process

1   From the Connectivity Map, double-click **BusinessProcessService** to open the Business Process Binding window.

2   Locate the **FileSender** OTD in the **Implemented Services** pane on the **BusinessProcess1** window.

3   Click the **FileSender** OTD and with the left mouse button depressed, drag it onto the Connectivity Map canvas and drop it onto the **File1** external application.

4   Following this same procedure, drag and drop the **VSAM_otdEMPLVSAMnonqual** OTD onto the **VSAM1** external application.

5   Following this same procedure, drag and drop the **FileReceiver** OTD onto the **File2** external application.

The Business Process binding appears with the components bound to the appropriate OTDs. If the binding is done correctly, the lines leading out from each OTD definition in the **BusinessProcess1 Rule** window line up with each associated component. See **Figure 13 on page 35**.

Figure 13 Connectivity Map: Binding the Business Process

Note: *For more information about assigning Definitions and Business Process Binding, see the* ***eGate Integrator User's Guide****.*

6 Click the **Close** button in the upper right corner of the Business Process Binding window, to close the window.

7 To save all of your bindings, click **Save** on the Enterprise Designer toolbar.

4.3.10 Completing the Project

For instructions on how to finish building your Project, see **Chapter 5**. The sections that contain this information are:

- **"Creating the Project's Environment" on page 64**
- **"Setting eWay Properties" on page 65**
- **"Deploying a Project" on page 66**

Building a VSAM eWay Project

This chapter describes how to create an eGate project. These procedures are the same as those used when implementing a eWay Intelligent Adapter for VSAM in a production environment.

See the *eGate Tutorial* for a complete explanation of how to use the eGate Enterprise Designer to create and set properties for the components of an eGate Project.

Chapter Topics

5.1 Project Canvas

Each eGate Project is created using the Enterprise Designer's Project canvas. The Project canvas contains windows that represent the various stages of your Project. The types of windows in your Project canvas area include:

- **Connectivity Map**: Contains the business logic components, such as Collaborations, Topics, Queues, and eWays, that you include in the structure of the project.

- **OTD Editor**: Contains the source files used to create Object Type Definitions (OTDs) to use with a project.

- **Java Collaboration Editor**: Contains a Java-based Collaboration definition that you want to add to the project. This feature makes it possible to develop external Collaboration definitions.

5.2 Setting Up the eWay

In general, you set up the VSAM eWay as follows:

- **Creating a Connectivity Map**: When you create a Connectivity Map using the VSAM eWay, the Enterprise Designer places the VSAM external application object on a toolbar where it can be dragged onto the canvas of the map, as needed. The Connectivity Map can contain other eGate components of a Project, as desired.

- **Creating an OTD**: Using the Enterprise Designer's OTD wizard, you can select the VSAM database file you want to create an OTD from. A VSAM OTD is then created, which has nodes for each eWay method and property. When you save the OTD, its structure and information are stored in the eGate Repository. You can also create other types of eGate OTDs, as desired.

- **Setting Up Tables**: You can use the VSAM OTD's methods to set up database tables and views. See **"Using VSAM OTDs" on page 67** for details.

- **Creating a Collaboration**: A wizard allows you to create a Java Collaboration Definition using a VSAM OTD, as well as other types of OTDs. A Java Collaboration Editor allows you to create the Collaboration's Business Rules. You can create the desired Business Rules by dragging and dropping values from a source OTD onto the nodes of a destination VSAM OTD and other OTDs. These nodes represent VSAM functions, which are in turn able to call VSAM methods. Another window also allows you to create Collaboration Bindings that control the Collaboration's inputs and outputs.

- **Setting eWay Properties**: Once a data flow is created between the current Collaboration and the external application, an eWay object is created on the Enterprise Designer's Connectivity Map. You can set the properties of this eWay object as desired using the eWay **Properties** sheet. You can also set eWay properties in the Project's Environment. For example, you can set properties for the data source and connector settings.

See the *eGate Integrator User's Guide* for details on how to use these features.

5.3   Database OTD Wizard

You can use the eGate Enterprise Designer's database wizard to generate an eGate OTD. For more information on Enterprise Designer features, see the *eGate Integrator User's Guide*.

5.3.1   Generated OTDs

The database wizard can create OTDs for the VSAM eWay. These types of OTDs can also be combined with each other. The types of OTDs are:

- **Table**: Contains fields for each of the columns in the selected table, as well as the methods required to exchange data with an external data source.

- **View**: The same as a table, except for read-only purposes.

For more information on these types, see **"Using VSAM OTDs" on page 67**.

5.3.2.   Using the Wizard

The database wizard generates OTDs by connecting to an external VSAM file system as if it were connecting to a database and creating corresponding OTDs. The OTD builder can then create corresponding OTDs based on any combination of tables.

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

To create a VSAM OTD using the wizard

1 From the eGate Enterprise Designer's **Enterprise Explorer** pane (**Project** tab), right-click on the desired **Project** folder and select **New** then **Create an Object Type Definition** from the pop-up menu.

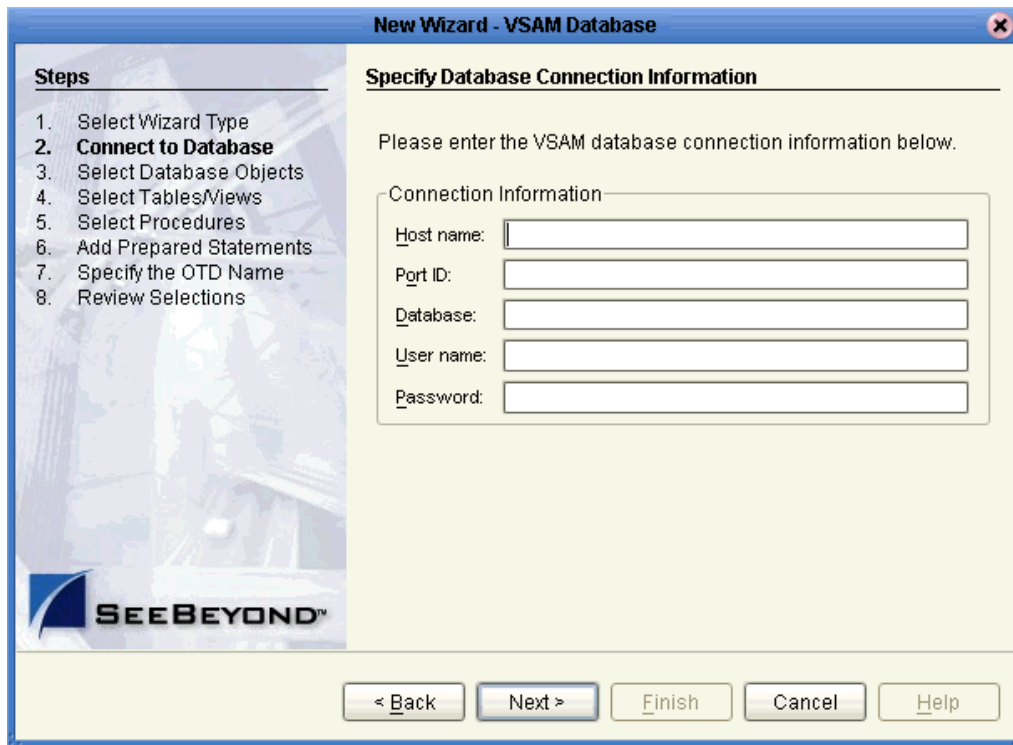2 The **OTD Wizard Selection** window appears, displaying all installed OTD wizards as shown in Figure 14.

Figure 14 OTD Wizard Selection Window
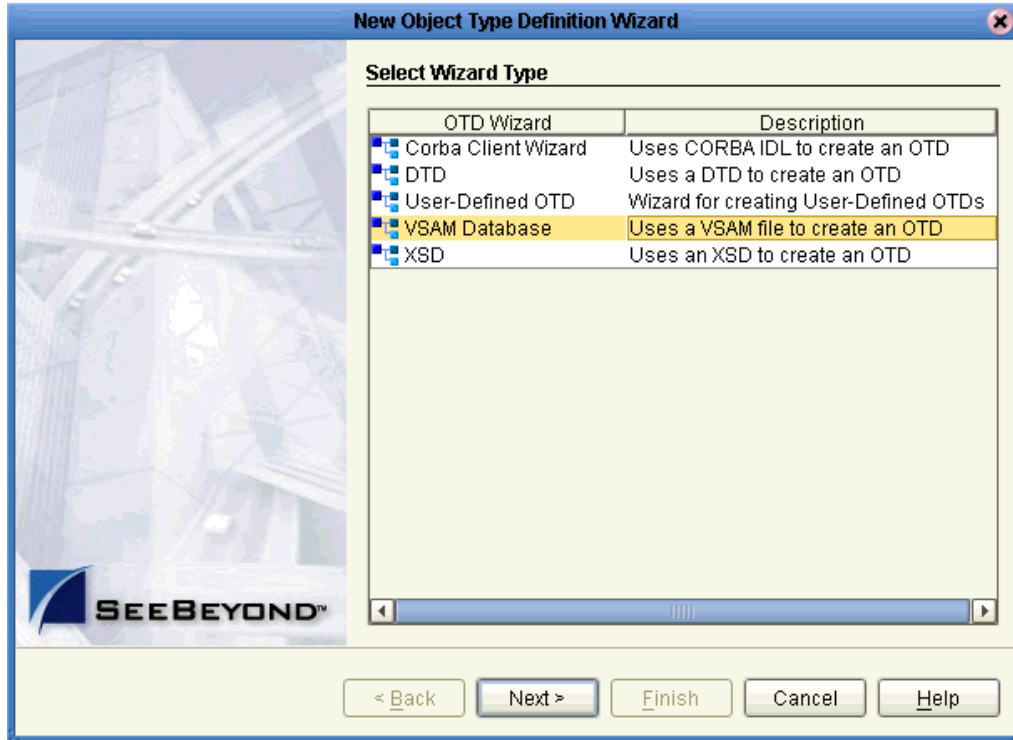
3 From the list, select the **VSAM Database** OTD. Click **Next**.

The **Specify Database Connection Information** window appears. See **Figure 15 on page 40**.

Figure 15 Specify Database Connection Information Window

4   Specify the connection information for the current database as follows:

   ◆ **Host name**: The name of the host you are connecting to.

   ◆ **Port ID**: The host port number.

   ◆ **Database**: The name of the database you are connecting to.

   ◆ **User name**: Your user ID.

   ◆ **Password**: Your password.

5   Click **Next**.

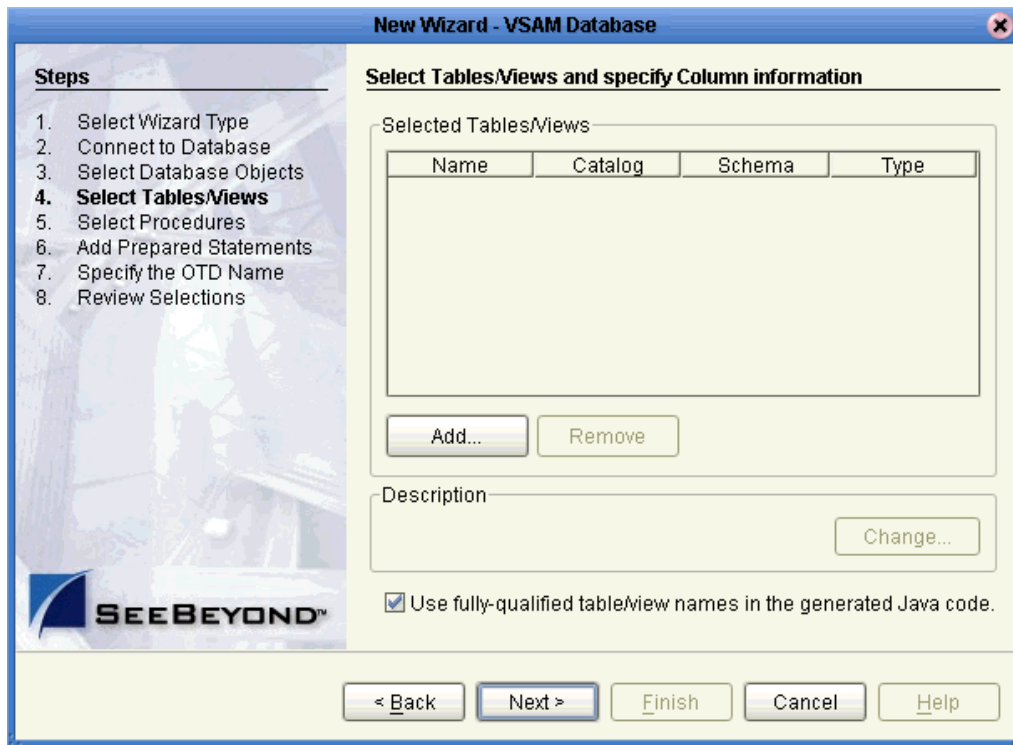6   When the **Connection Status** line says you are connected to the database, click **Next** to continue.

7   In the **Select Database Objects** window, select **Tables/Views**. Click **Next** to continue. See Figure 16.

Figure 16   Select Database Objects Window
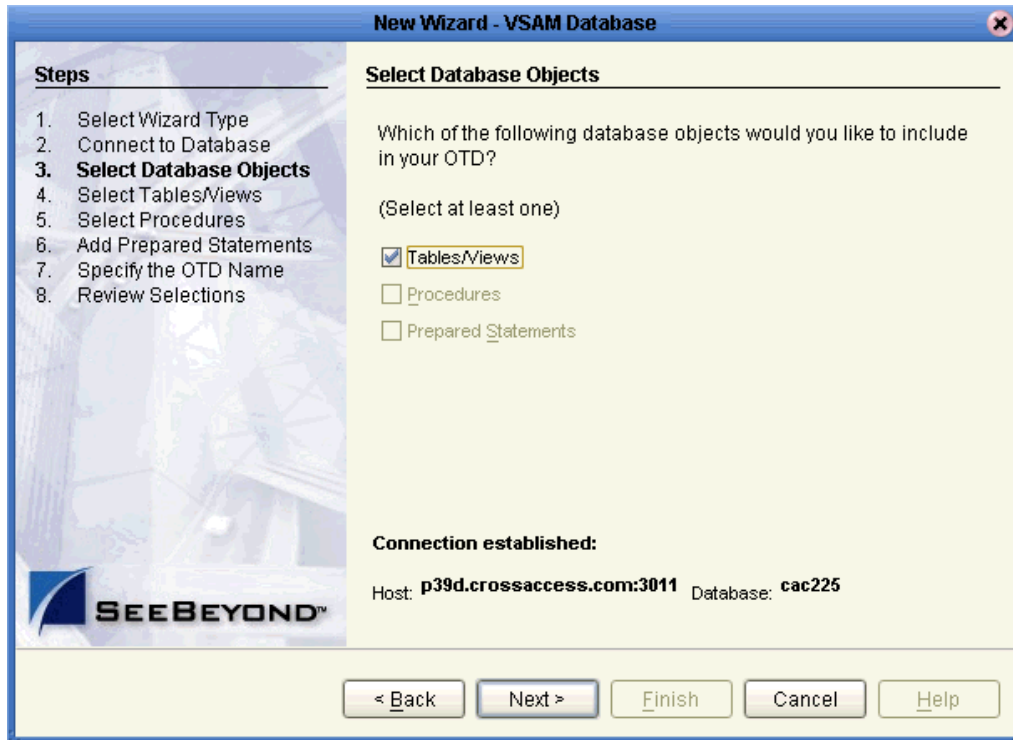
The **Select Tables/Views** window appears. See **Figure 17 on page 42**.

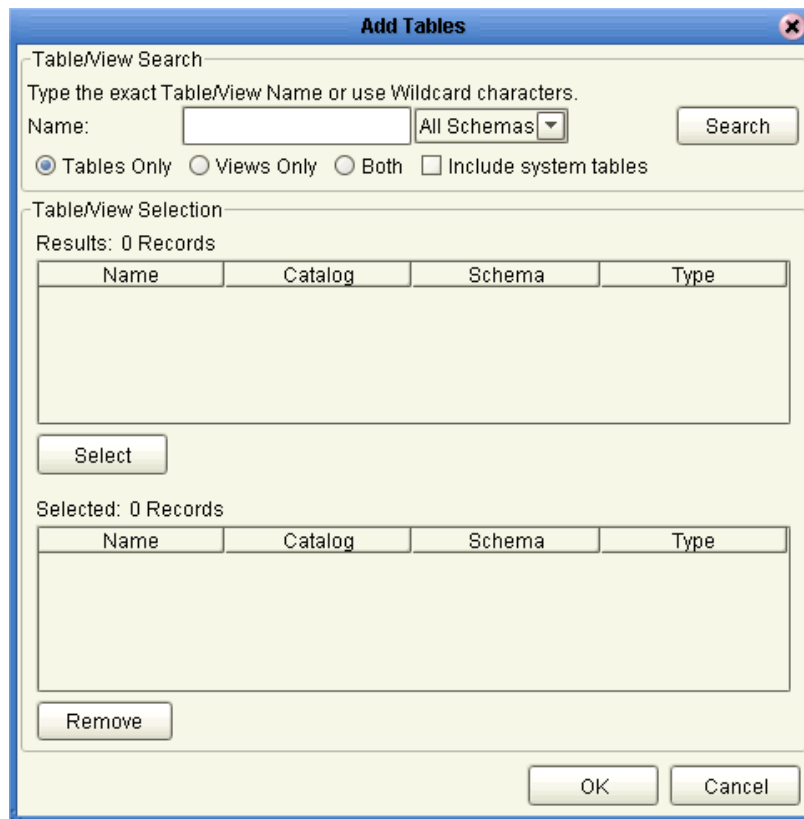**Figure 17** Select Tables/Views Window

Note: *You must select the **Use fully-qualified table/view names in the generated Java code** check box.*

8   Click **Add**.

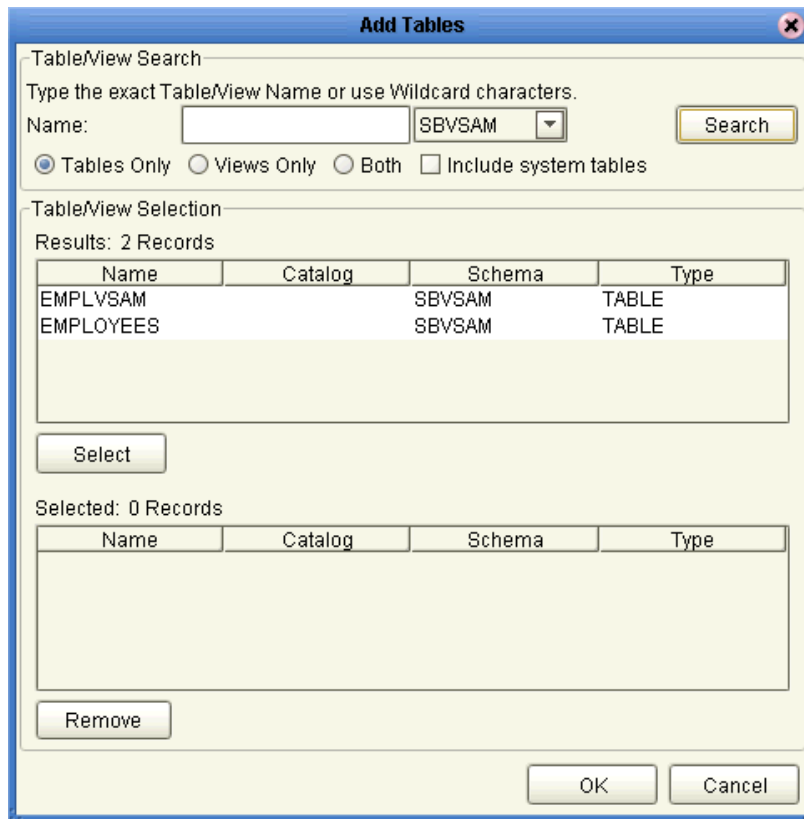The **Add Tables** window appears. See **Figure 18 on page 43**.

Figure 18 Add Tables Window: Beginning

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

9   Select the schema you want to search in the **All Schemas** drop-down list and click
Search. See **Figure 19 on page 44**.

Figure 19 Add Tables Window: With Schemas

10 Select the desired table and click **Select**. You can also use adjacent or nonadjacent selections to select multiple table names.

Every name of the table or tables you have selected appear in the lower pane. See **Figure 20 on page 45**.

You can click **Search** to find the desired table or tables.

You can use wildcard characters to search for a table or view. If desired, use the eWay wildcard characters "?", "_", and "*". For example, you can use "AB?CD", "AB_CD," or "AB*CD". However, do not use "%". Using this character results in nothing being returned.
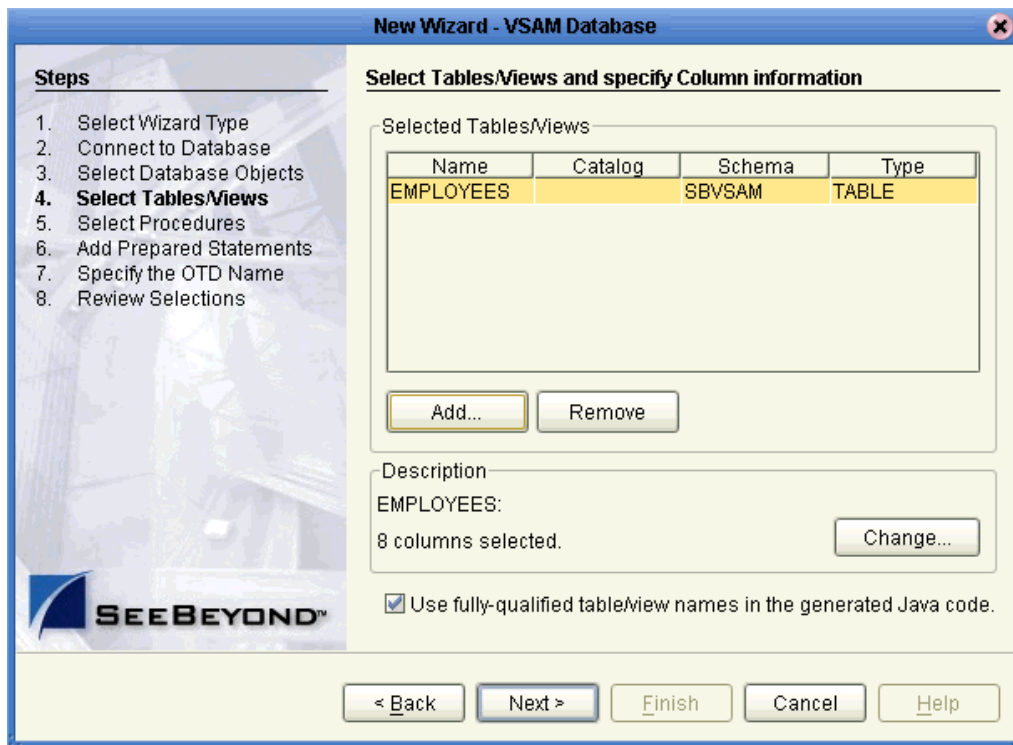
Figure 20 Add Tables Window: With Added Table
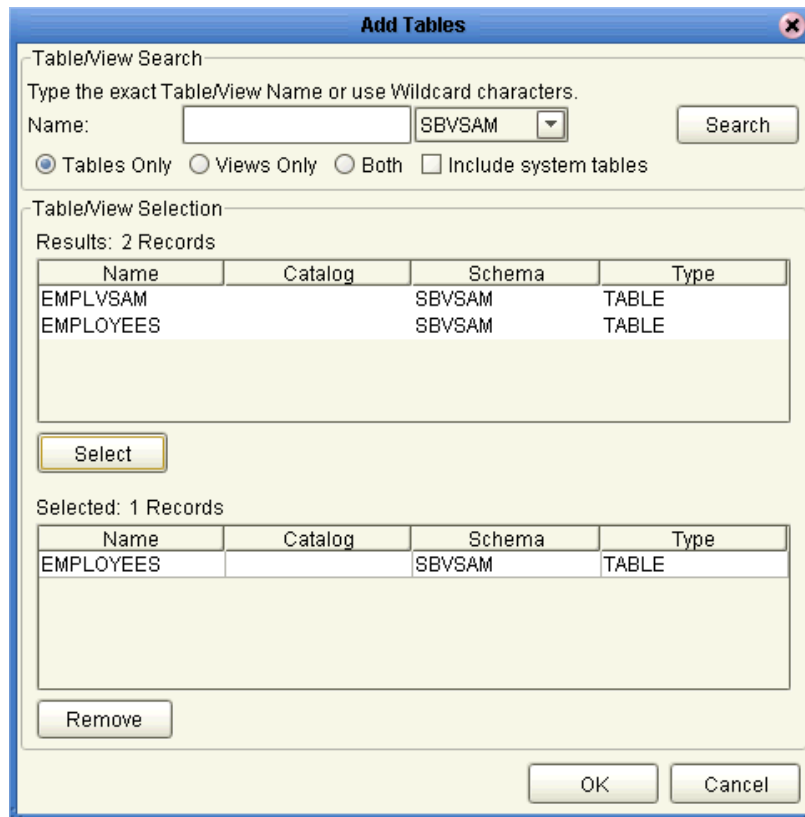

11   When you are finished, click **OK**.

The **Select Tables/Views** window appears again, showing your one or more selected tables. See **Figure 21 on page 46**. The figure shows one table selected, **EMPLOYEES**.

Figure 21 Select Tables/Views Window With Table

12 In the **Select Tables/Views** window, review the table or tables you have selected. You can make changes to the table columns, if desired, by clicking **Change** to open the **Table/View Columns** window.

See **"Using Tables" on page 67** for more information on how to use tables with the OTD.

13 If you click **Change** on the **Select Tables/Views** window, the **Table/View Columns** window appears. See **Figure 22 on page 47**.

Figure 22 Table/View Columns Window
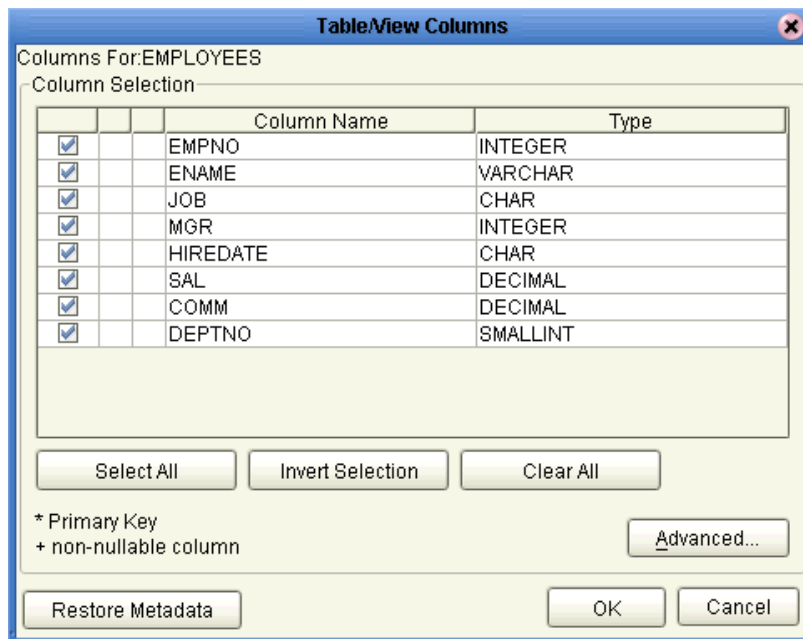
14 In the **Table/View Columns** window, you can select or deselect any table columns. You can also change the data type for each column by highlighting the data type and selecting a different data type from the drop-down list.

The buttons in this window operate as follows:

- **Select All**: Allows you to select all columns for inclusion in the OTD.

- **Invert Selection**: Allows you to invert the order of the selected columns.

- **Clear All**: Allows you to de-select all columns.

- **Advanced**: Opens a dialog box allowing you to change the current column properties of every column. You can edit the column's **SQL Type**, **Precision** or **Length**, and **Scale**.

- **Restore Metadata**: Allows you to restore the data to its original database state before you made any changes via the wizard.

When you are finished using this window, click **OK** to save your changes and return to the **Select Tables/Views** window.

15 When you are finished with the **Select Tables/Views** window (see **Figure 21 on page 46**), click **Next** to continue.

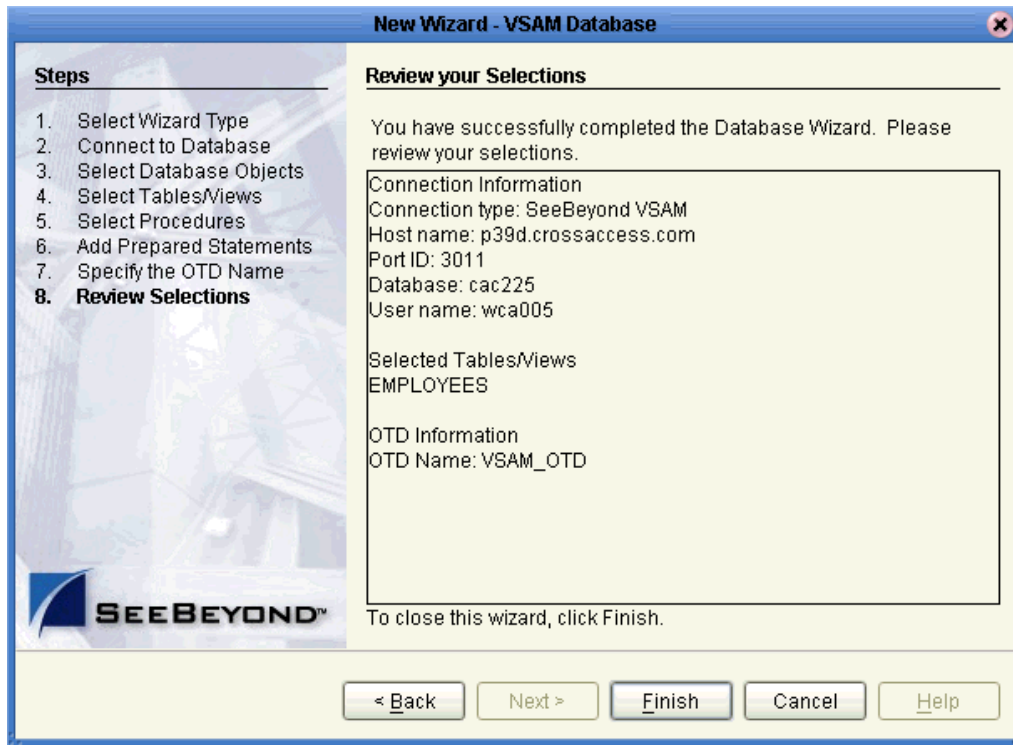The **Specify the OTD Name** window appears. See **Figure 23 on page 48**.

Figure 23 Specify the OTD Name Window
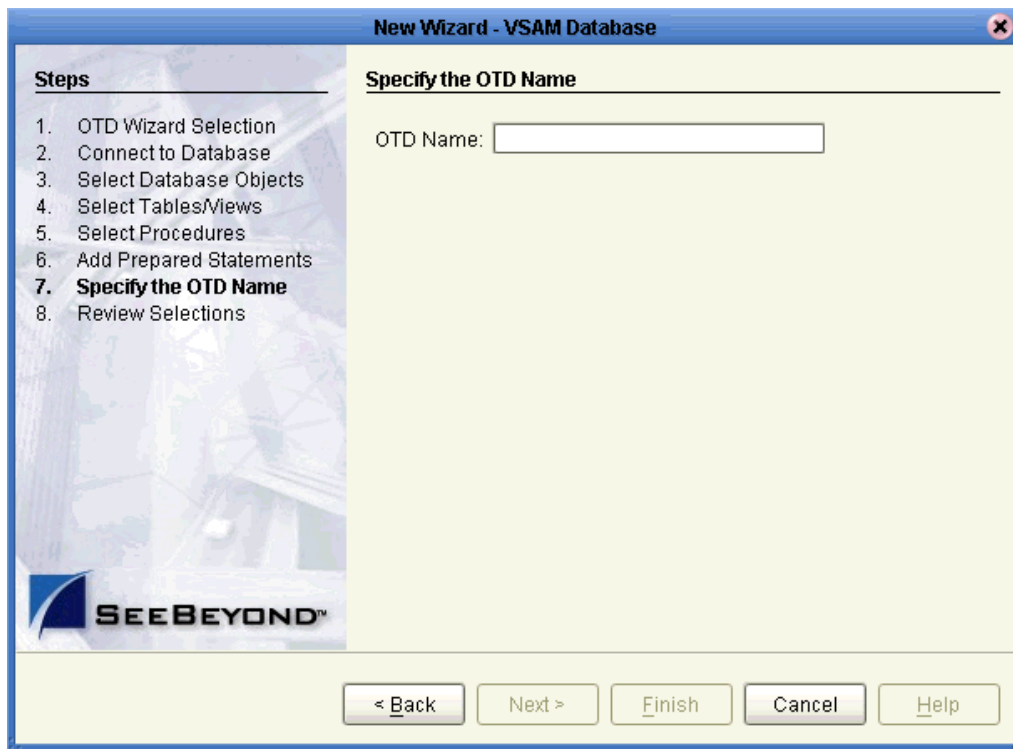
16 Enter a name you want to specify for the current OTD, for example, **VSAM_OTD**, and click **Next**.

The **Review your Selections** window appears. See **Figure 24 on page 49**.

Figure 24 Review Your Selections Window

17 Review the information you have entered. See Figure 24. If any information is incorrect, click **Back** to return to the desired window and correct it. If all the information is correct, click **Finish** to create your OTD.

Resulting OTD

The resulting VSAM OTD appears on the Enterprise Designer's canvas, in the OTD Editor window. See **Figure 25 on page 50**.

In the example, a node in the OTD has been expanded, allowing you to view some of its structure.

Figure 25 OTD Editor in Enterprise Designer
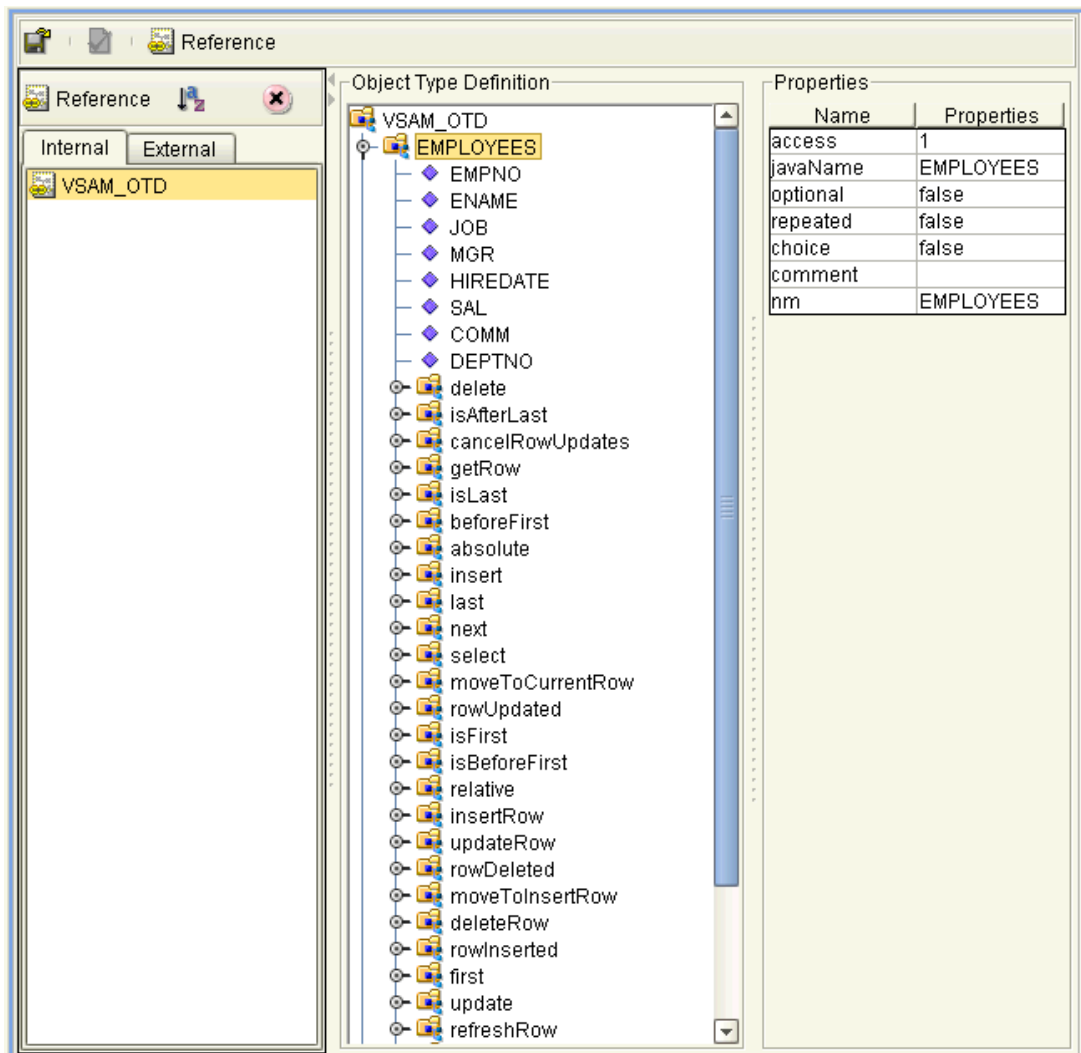
5.4 Overview of VSAM eWay Sample Project

This section explains how to implement the VSAM eWay using the eGate Project sample included on your installation CD-ROM. The sample is named **VSAM_Sample_Project_JCE**. It allows you to observe an end-to-end data-exchange scenario involving eGate and the VSAM eWay.

This section also explains how to implement this Java Collaboration-based Project, including the VSAM eWay. You can also use the procedures given in this chapter to create your own Projects based on the sample provided.

To import the sample Project

1   From the eGate Enterprise Designer, right-click the desired Repository in the **Project Explorer**.

2   From the pop-up menu, choose **Import Project**.

The **Select File to Import** dialog box appears.

3   Browse to the directory where you downloaded the sample **.zip** file while you were installing the eWay. For details on how to download this file, see the *eGate Installation Guide*.

Note: *The .zip file you first locate may contain more than one Project and/or additional files. If this is the case, you must unzip this file first, find the desired Project file, then import the Project file.*

The container file you are looking for is **VSAM_eWay_Sample.zip**. The Project file name is **VSAM_Project_JCE.zip**.

4   From the **File Destination** dialog box, select **Import to a New Project** and enter the name **VSAM_Sample_Project_JCE** for the Project.

The Enterprise Designer imports the selected Project, and its name appears in the **Project Explorer**.

5   Before opening the new Project, click **Save All** then **Refresh All From the Repository** to refresh the Enterprise Designer.

Important: *An imported Project does not contain an environment or a deployment profile. After importing a Project, you must use the Enterprise Designer to create these functions for the Project. See* **"Creating the Project's Environment" on page 64** *and* **"Deploying a Project" on page 66***. For additional information, see the* ***eGate Integrator User's Guide*** *and* ***SeeBeyond ICAN Suite Deployment Guide***.

You must *check out* the major eGate components before you can change them. For details, see the *eGate Tutorial*.

5.4.1   Basic eWay Components

To use the VSAM eWay, you must:

- Set the desired properties settings.
- Create one or more VSAM OTDs.

The sections that describe how to build the Project explain more about how to do these operations.

VSAM eWay properties

The properties for the VSAM eWay contains the settings used to connect with a specific external system. You can change these settings using the eGate eWay **Properties** sheet. For more information about VSAM eWay properties and this dialog box, see **Chapter 3**.

VSAM OTDs

You create the VSAM OTD using the VSAM OTD wizard feature. See **"Using VSAM OTDs" on page 67** for details on how to use this wizard.

5.4.2 Sample Project

The **VSAM_Sample_Project_JCE** Project demonstrates how the VSAM eWay processes information from a VSAM system. The resulting information is then written to a text file. Figure 26 shows a general diagram of how this scenario operates.

Figure 26 VSAM_Sample_Project_JCE Sample Project Scenario
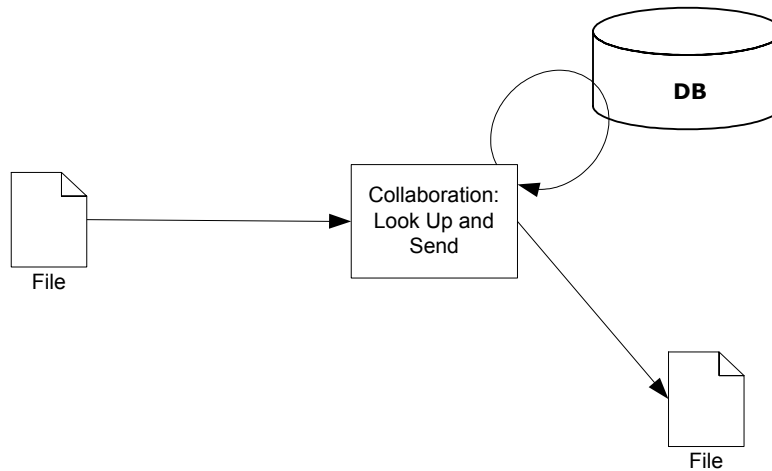
Project Components

The Project has the following components:

- ◆ File external application (inbound): **FileIn**
- ◆ Inbound File eWay
- ◆ Java Collaboration for processing data: **collabVSAM1**
- ◆ VSAM eWay
- ◆ External VSAM database: **VSAM1**
- ◆ Outbound File eWay
- ◆ File external application (outbound): **FileOut**

Project Operation

The Project operates as follows:

- **FileIn**: The external file system that provides query and selection instructions to the inbound File eWay; this eWay gets a text file containing the instructions and passes them to a Collaboration, **collabVSAM1**.

- **collabVSAM1**: Sends instructions, using a **select** method, to the desired VSAM database via the VSAM eWay. **collabVSAM1** also receives the information looked up, via the VSAM eWay then sends it to a File eWay, **FileOut**.

- **VSAM1**: The VSAM database system; the VSAM eWay handles inbound and outbound communication with this database.

- **FileOut**: The external file system that receives the query information; another File eWay writes the database information to a text file on this system.

The sample Project has the following input and output:

- **Input**: Use the file, **inputvsam.txt**, provided with the sample.

- **Output**: The information, in a text file, selected from the database.

5.5   Building the Sample Project

This section explains the general steps and operations you need to follow to build the **VSAM_Sample_Project_JCE** sample Project for the VSAM eWay.

5.5.1 Creating a New Project

To create and name a new Project in the eGate Enterprise Designer

1 Start the Enterprise Designer.

2 Select the Enterprise Explorer's **Project Explorer** tab, to show the **Project Explorer** pane (left pane).

3 Select the **Repository** icon on the Project Explorer tree.

4 Right-click the **Repository** and select **New** then **Project** on the pop-up menus.

   A new Project appears on the **Project Explorer** tree, named **Project1**.

5 Double-click on the Project name and rename the Project, for this sample, **VSAM_Sample_Project_JCE**.

5.5.2 Creating a Connectivity Map

A Connectivity Map provides a canvas for assembling and setting up a Project's components.

To create a Connectivity Map

1 In the eGate Enterprise Designer's **Project Explorer** pane, right-click the new Project's name and select **New** then **Connectivity Map** on the pop-up menus.

2 The new Connectivity Map appears and adds a node for the Connectivity Map under the Project on the **Project Explorer** tree labeled **CMap1**.

3 You can rename the new Connectivity Map **CMap_VSAMSelect**.

The icons in the toolbar represent the components used to populate the Connectivity Map workspace. When linked together, these components define the Connectivity Map for your Project.

5.5.3 Selecting External Applications

When creating a Connectivity Map, you must associate the inbound and outbound Collaborations with an External Application. For example, to establish a connection to VSAM, you must first select VSAM as the external application to use in your Connectivity Map.

To select external applications

1 Click the **External Application** icon on the Connectivity Map toolbar.

2 Select the external applications necessary for your Project. For this sample, select the File and VSAM external applications. Icons representing these external applications are then added to the Connectivity Map toolbar.

5.5.4 Populating the Connectivity Map

Add the Project components to the Connectivity Map by dragging the icons from the toolbar to the canvas. This operation creates the components for you.

For this sample Project, drag and drop the following components onto the Connectivity Map canvas.

- Two File eWays/external applications
- One Service
- VSAM eWay/external application

Figure 27 shows the components on the Connectivity Map.

Figure 27 Connectivity Map With Components
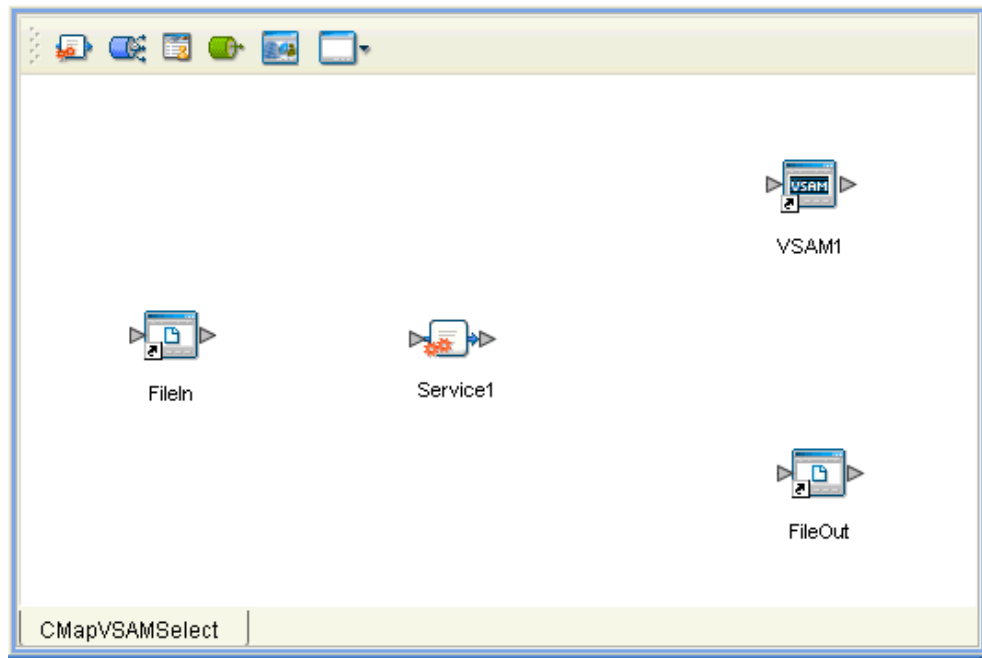
Rename the **Service1** component to **collabVSAM1** by right-clicking on the icon. Name the other components as shown in the previous figure. Be sure to save the new Connectivity Map before you proceed. You can click the **Save** on the Enterprise Designer toolbar for this purpose.

5.5.5 Creating an OTD

An OTD contains a set of rules that define an object, which encodes data as it travels through eGate. OTDs are used as the basis for creating Collaboration Definitions for a Project. The VSAM eWay allows you to create a VSAM OTD, using the eGate Enterprise Designer's VSAM OTD wizard.

Entering the appropriate database information, create a VSAM OTD using the VSAM wizard. See **"Database OTD Wizard" on page 38** for complete information on how to use this wizard.

Be sure to name the new VSAM OTD **otdEMPLOYEE**.

5.5.6 Creating the Java Collaboration Definition

The next step in the sample Project is to create the Java Collaboration Definitions. These components contain rules that define the processing and transport of data as it travels between eGate components.

You create Java Collaboration Definitions to assign to the Collaborations in your Project. This operation enables eGate to recognize the source and destination data relationships in your Project.

You must use the Java Collaboration Definition wizard to create a Java Collaboration Definition. After a Collaboration Definition is created, you can use the Java Collaboration Editor to create the Business Rules logic of the Collaboration.

Note: *See the **eGate Integrator User's Guide** for complete information on editing Collaborations.*

To create the Java Collaboration Definition

1 From the **Project Explorer** pane, right-click the sample Project and select **New** from the shortcut menu, and **Java Collaboration Definition** from the submenu.

   The **Java Collaboration Definition** wizard appears.

2 Enter the Collaboration Definition name, **collabVSAM**, and click **Next**.

3 For the wizard's **Step 2**, you must select a Web Services Interface. From the main selection pane, click **Existing Web Service** then double-click in succession the icons for **SeeBeyond** > **eWays** > **File** > **FileClient** > **receive**.

   The **Name** text box now displays **receive**.

4 Click **Next**.

5 For the wizard's **Step 3**, to select the OTD, double-click in succession the icons for **SeeBeyond > eWays > File > FileClient**.

   The **Selected OTDs** pane now lists **FileClient**.

6 At the main selection pane, return to the top of the selection tree.

7 Double-click in succession the icons for **VSAM_Sample_Project_JCE >
   otdEMPLOYEE**.

   See **Figure 28 on page 57**.

Figure 28 Java Collaboration Definition Wizard With OTDs
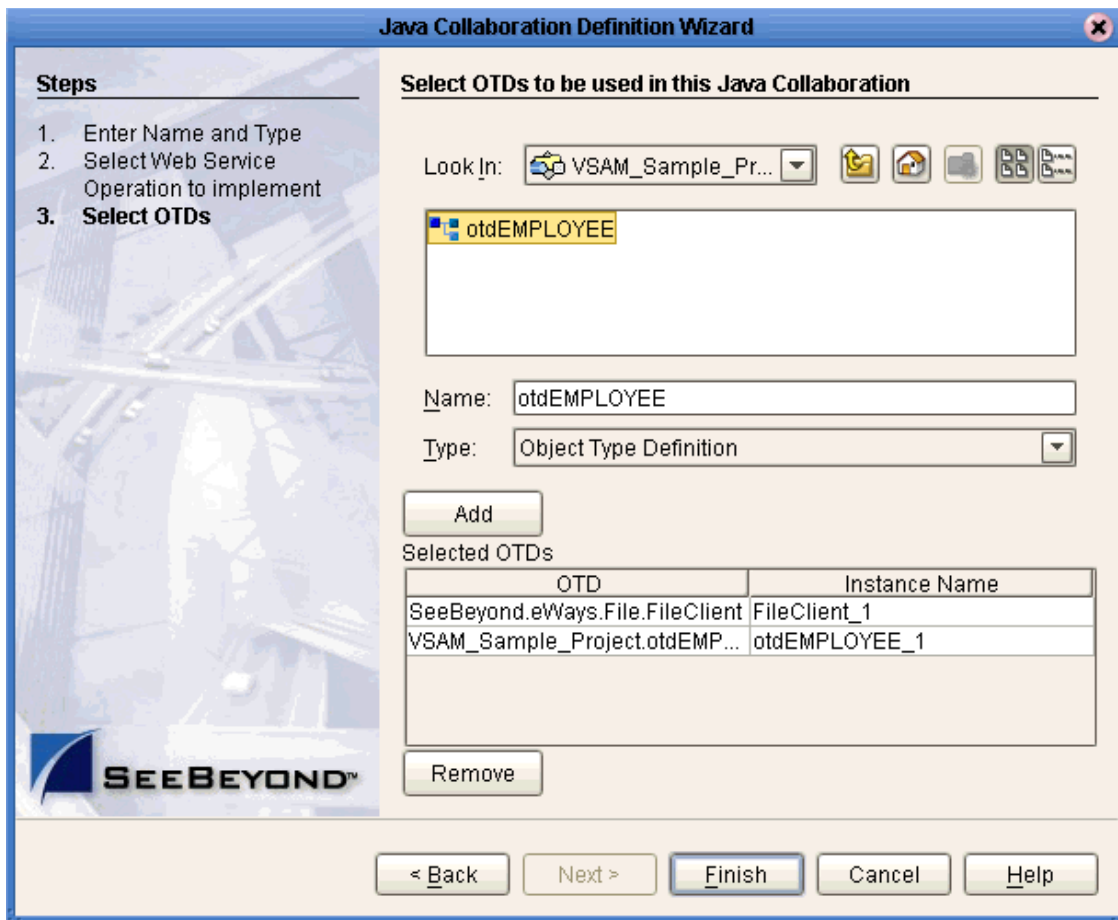
8   Click **Finish** to create the Java Collaboration Definition **collabVSAM**.

The Java Collaboration Editor with the new **collabVSAM** Collaboration Definition icon appears in the **Project Explorer** pane.

5.5.7 Creating Business Rules Within Collaboration Definitions

You can customize Collaboration Definitions by mapping Business Rules using the Java Collaboration Editor window in the Enterprise Designer. By clicking and dragging, you map items in the Business Rules Designer areas with other desired items via their icons.

Using the Java Collaboration Editor

This section explains generally how to create the Business Rules used in the sample Project.

The Java Collaboration Editor window displays in the Enterprise Designer after you create a Java Collaboration Definition. You can also open this Editor by right-clicking on the name of the desired Collaboration Definition in the **Project Explorer** and choosing **Open** from the pop-up menu.

See the *eGate Integrator User's Guide* for complete information on how to use the Java Collaboration Editor. To complete a Collaboration Definition, you can use this editor to create Business Rules.

To create Business Rules within collabVSAM

1 From the **Project Explorer** tree, double-click the **collabVSAM** Collaboration Definition.

   The Java Collaboration Editor displays **collabVSAM**.

2 In both panes of the **Business Rules Designer**, double-click and expand all the OTD nodes. Also, expand all the nodes in the **Business Rules** pane.

   There are four Business Rules under the **receive** method in the **Business Rules** pane.

3 For the first Business Rule, start from the left pane of the **Business Rules Designer**, and right-click on the **EMPLOYEES** node under **otdEMPLOYEE_1**, choosing **Select a method to call** from the pop-up menu.

A selection box appears with a list of methods.

4 Choose the **select** method.

A **Method** box appears in the middle pane.

5 Drag and drop the **Text** node under the **input** node, onto **where (String)** under **EMPLOYEES** in the **Method** box.

6 This step creates a Business Rule in the **Business Rules** pane. See Figure 29.

Figure 29 collabVSAM Collaboration Definition: First Business Rule
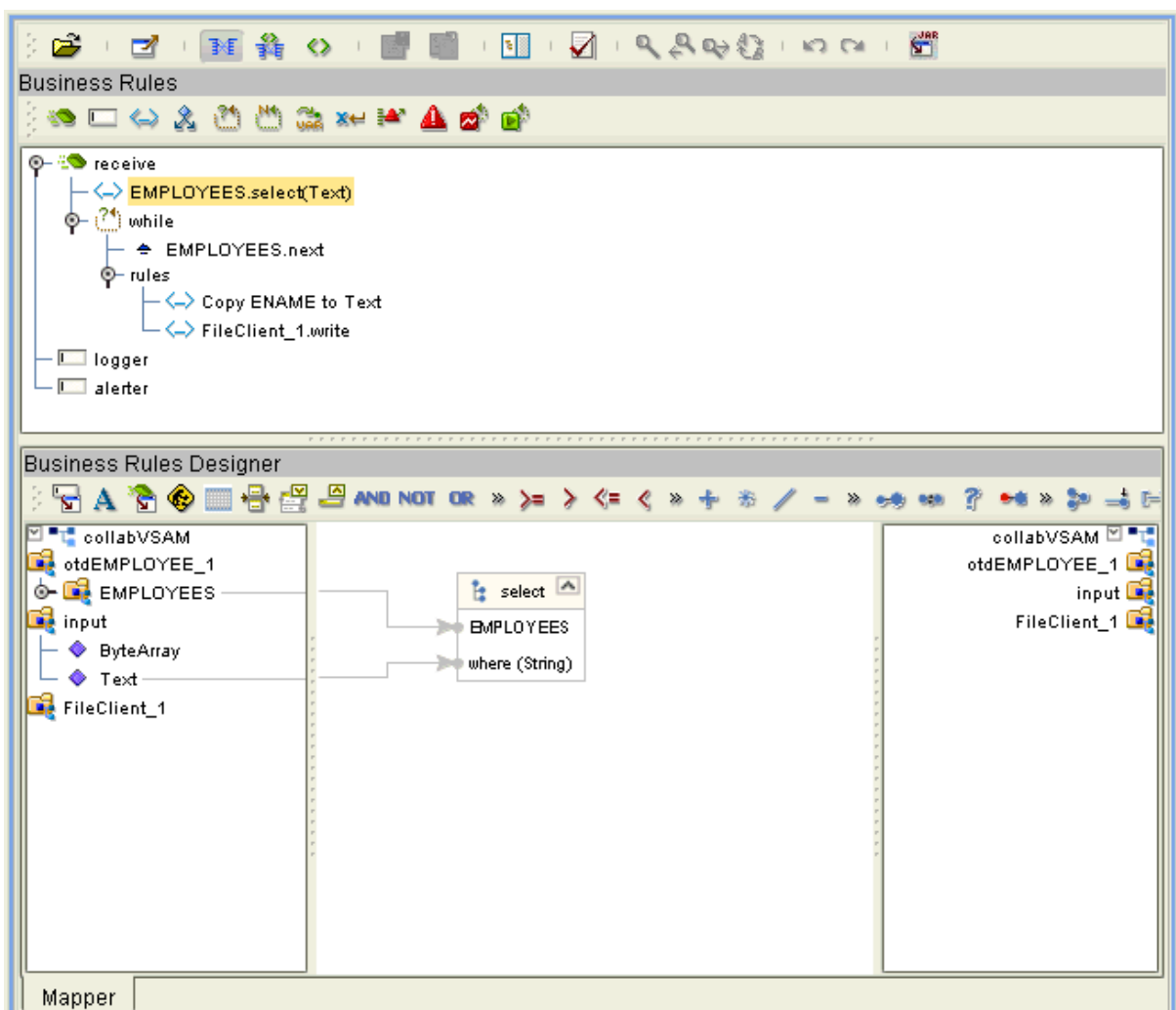
The Text node represents the input text file that tells the database where to query. In this case the query is **EMPNO>1**.

7 Click **Save** on the Enterprise Designer toolbar to save your changes.

Note: *Saving your Java Collaboration Definition automatically validates it. You can*
ignore any error messages until you are finished with the Collaboration.

8   To begin entering the rest of the Business Rules, create a **while rule** in the **Business Rules** pane by clicking the icon in the toolbar.

9   For the second Business Rule, a **while condition**, start from the left pane of the **Business Rules Designer**, and select the **EMPLOYEES** node under **otdEMPLOYEE_1**.

10 In the same way as before, create a **next** method in the middle pane.

Another **Method** box appears in the middle pane, creating the second Business Rule. See Figure 30.

Figure 30 collabVSAM Collaboration Definition: Condition, Second Business Rule
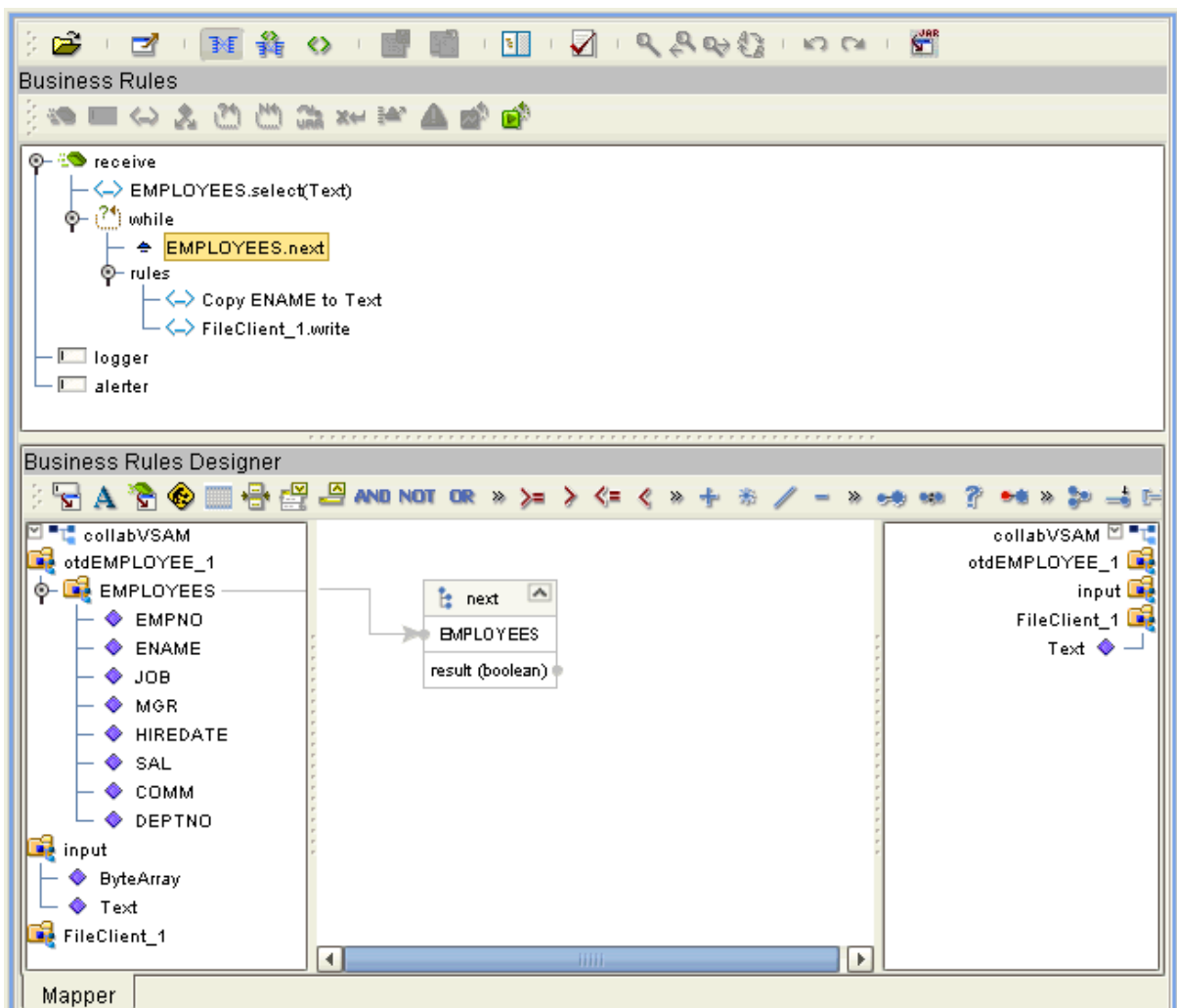
11 Click **Save** to save your changes.

12 For the third Business Rule, start from the left pane of the **Business Rules Designer**, and select the **ENAME** node under the **EMPLOYEES** node (under **otdEMPLOYEE_1**).

13 Drag the **ENAME** node across the window to the **Text** node under **FileClient_1** in the right pane.

This step creates the third Business Rule. See Figure 31.

**Figure 31** collabVSAM Collaboration Definition: Third Business Rule
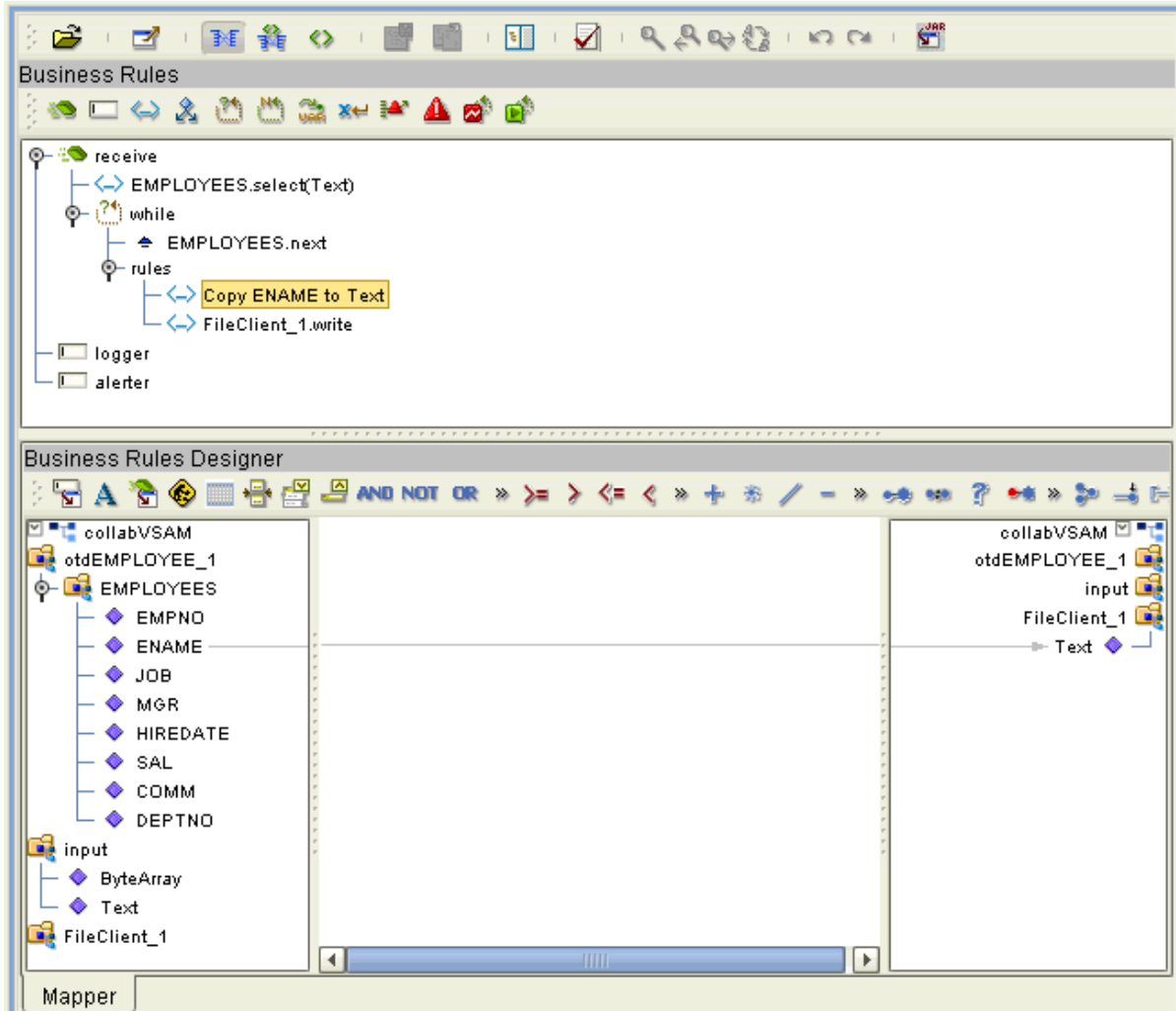
14 Click **Save** to save your changes.

15 For the fourth Business Rule, create a **rule** in the **Business Rules** pane by clicking the icon in the toolbar.

16 Start from the left pane of the **Business Rules Designer**, and select the **FileClient_1** node.

17 In the same way as before, create a **write** method in the middle pane.

Another **Method** box appears in the middle pane, creating the fourth Business Rule. See Figure 32.

Figure 32 collabVSAM Collaboration Definition: Fourth Business Rule
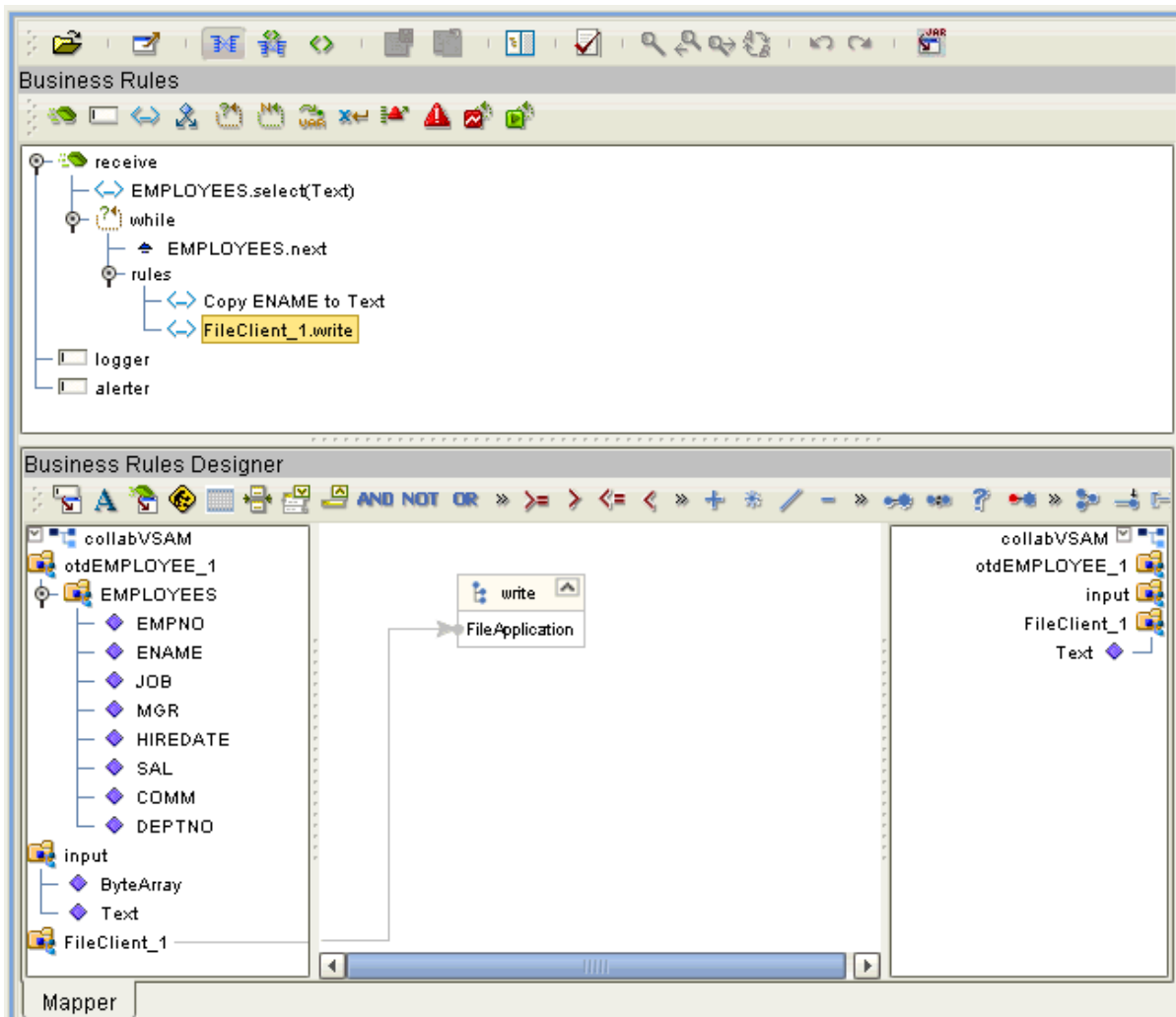
You can create additional pairs of **Copy** and **FileClient_1.write** rules to write additional data, as desired, by repeating steps 13 through 17. You can also accomplish this operation, for example, in requesting large quantities of data, by creating and using a repeatable XML schema.

18 Click **Save** to save your new Java Collaboration Definition. If the validation shows any errors, use the exception information in the Validation pane to troubleshoot the errors.

5.5.8 Defining the Collaboration

After you have finished with the Collaboration Definitions, you need to define the Service in the Connectivity Map as a Java Collaboration.

To do this operation, you can drag and drop the Collaboration Definition, **collabVSAM**, from the **Project Explorer** tree onto its corresponding Service component the Connectivity Map.

If the Service is successfully defined, the "gears" icon changes from red to green and becomes a Java Collaboration.

Note: *You can also drag the desired Collaboration Definition onto the Connectivity Map by itself and create a Collaboration without first creating the Service component.*

5.5.9 Binding OTDs in the Collaboration

After you have defined the Collaboration, you need to bind, that is, associate the appropriate OTDs with the desired components.

Using the Collaboration Binding Window

Use the eGate Enterprise Designer's Collaboration Binding window to associate OTDs with their corresponding eGate components.

To bind the OTDs in Collaborations

1 From the Connectivity Map, double-click **CollabVSAM1** to open the Collaboration Binding window.

2 Locate the **FileClient input** OTD in the **Implemented Services** pane on the **collabVSAM1** window.

3 Click the **FileClient input** OTD and with the left mouse button depressed, drag it onto the Connectivity Map canvas and drop it onto the **FileIn** External Application.

4 In the **Implemented Services** pane, click the **otdEMPLOYEE_1** OTD and with the left mouse button depressed, drag it onto the Connectivity Map canvas and drop it onto the **VSAM1** external system.

5 Also in the **Invoked Services** pane, click the **FileClient_1** OTD, and with the left mouse button depressed, drag it onto the Connectivity Map canvas and drop it onto the **FileOut** external system. See **Figure 33 on page 64**.

Figure 33 Connectivity Map: Binding collabVSAM1
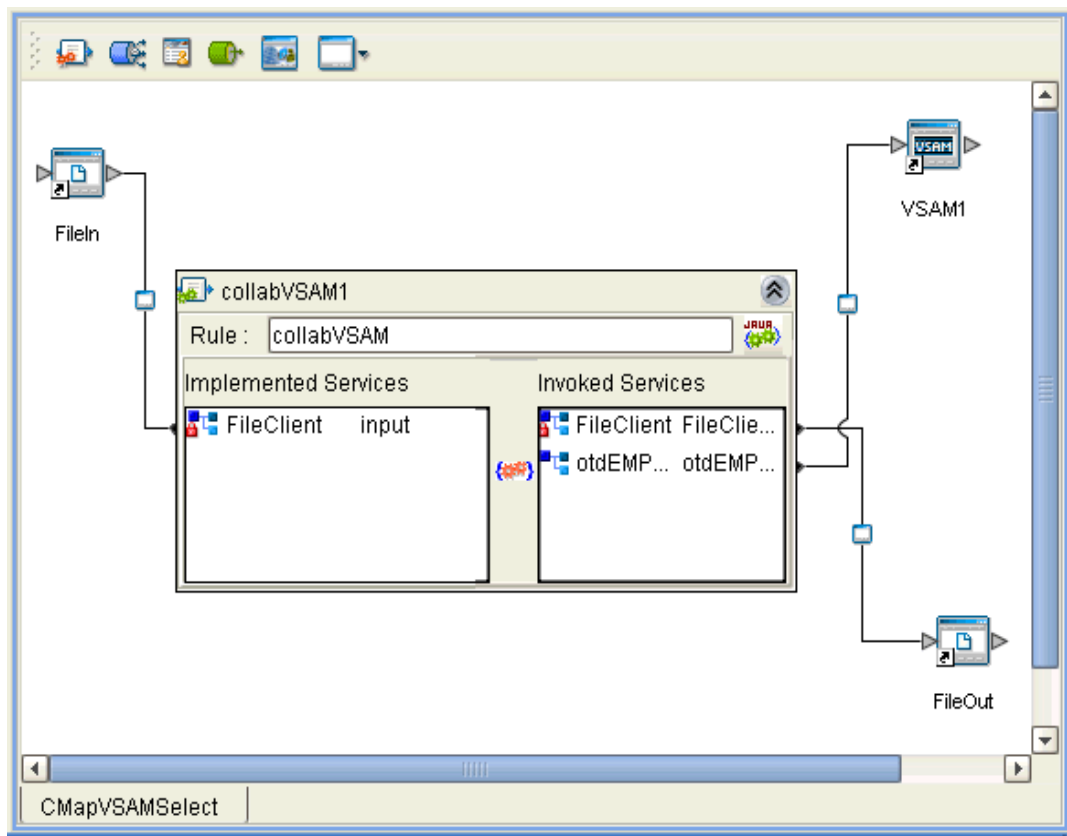
6 Click the icon in the window's upper right corner to close the Collaboration Binding window.

7 To save all of your bindings, click **Save** on the Enterprise Designer toolbar.

5.5.10. Creating the Project's Environment

This section provides general procedures for creating an Environment for your Project. For a complete explanation, see the *eGate Tutorial.*

To create an Environment

1 From the Enterprise Designer, click the **Environment Explorer** tab on the Enterprise Explorer.

2 Under the current **Repository** icon in the **Environment Explorer**, create a new environment for your Project and name it as desired.

3 In the **Environment Explorer**, right-click the **Environment** icon and select the desired external systems from the pop-up menu. Include external systems for the VSAM eWay and the File eWays. Give them the same names as you did the corresponding external applications on the Connectivity Map.

4   Use the same pop-up menu to create a Logical Host for your Project, and name it as desired.

5   Click **Save** and return to the **Project Explorer** tab.

5.5.11 Setting eWay Properties

You must set the eWay properties for your specific system and for the current Project, using the eGate Enterprise Designer. For directions on accessing and using the eWay **Properties** sheet, as well as a complete explanation of the VSAM eWay properties, see **Chapter 3**.

To set properties for the File eWays

1   From the **Project Explorer**, open the **CMap_VSAMSelect** Connectivity Map for the sample Project.

2   To change the default properties for the inbound File eWay, double-click the **FileIn** external system's eWay icon. For this eWay, select the **Inbound** properties.

The eWay **Properties** sheet appears. This eWay can use the current default properties settings for the sample Project. However, if you are using different file names and/or folders than the defaults, you must enter the names of the files/folders you are using.

Note: Even if you do not change the eWay's properties, you must open each Properties sheet for every eWay and click OK to activate the eWay.

3   For this sample, use the **C:\temp** as the property for **Directory**, and for **Input file name**, enter ***.txt**.

4   Click **OK** to save the settings and close the eWay **Properties** sheet.

5   To change the default properties for the outbound File eWay, double-click the **FileOut** external system's eWay icon. For this eWay, select the **Outbound** properties.

Use your file and folder names if they differ from the defaults. For all other properties, you can use the defaults.

6   Click **OK** to close the dialog box and save.

To set properties for the VSAM eWays

1   To begin changing the default properties for the VSAM eWay, double-click the **VSAM1** external system's eWay icon.

The eWay **Properties** sheet appears.

2   The properties settings appear in the **Properties** pane on the left.

3   Set the properties as desired then click **OK** to close the dialog box and save.

4   From the Enterprise Designer, click the **Environment Explorer** tab.

5 In the **Environment Explorer**, right-click the new Environment you created for your project, and select **New VSAM External System**. Give this system the same name as you gave the corresponding external application (**VSAM1**) created on the Connectivity Map in the **Project Explorer**.

For details on how to do these operations, see the *eGate Tutorial.*

6 In the left pane, right-click the **VSAM1** external system icon and select **Properties** from the pop-up menu.

The eWay **Properties** sheet appears. Use this dialog box to set additional properties settings.

7 The properties settings appear in the **Properties** pane on the left.

8 For the settings, enter the information appropriate to your system.

9 Click **OK** to close the dialog box and save.

Project deployment

For information on how to deploy your Project, see the next section.

5.6   Deploying a Project

This section provides general procedures for Project deployment.

5.6.1 Basic Steps

For a complete explanation of how to deploy and run an eGate Project, see the *eGate Tutorial.*

To deploy the Project

1 From the **Project Explorer,** select the current Project and right-click, choosing **New > Deployment Profile** from the pop-up menus.

2 From the **Create a Deployment Profile** dialog box, enter the name of the current Project and select the Environment you created for this Project.

3 Click **OK**.

The Deployment Profile canvas appears as follows:

 ◆ The Project's external applications and Services show up as icons on the left side of the canvas.

 ◆ The external systems and Logical Host you created under **"Creating the Project's Environment" on page 64** show up as windows on the right side of the canvas.

4 Set up your Deployment Profile by dragging the icons on the left into the corresponding window on the right.

5 Click **Save All** then **Activate**.

When the Project has been activated, a pop-up message appears stating the activation was successful.

For additional information, see the *eGate Integrator User's Guide* and *SeeBeyond ICAN Suite Deployment Guide.*

To run the Project

For instructions on how to run a Project, see the *eGate Tutorial*.

5.6.2 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*.

5.7 Using VSAM OTDs

This section explains the types of VSAM OTDs used with the eWay within the Java Collaboration Editor, including the OTD's methods.

You can use VSAM OTD methods with:

- Tables (table OTD)
- Views (view OTD)

Views are read-only and for informational purposes only. Use the OTD wizard (see **"Database OTD Wizard" on page 38**) to create the VSAM Database OTDs.

User-defined OTD

You can use the OTD wizard to create an eGate User-defined OTD. See the *eGate Integrator User's Guide* for a complete explanation of how to create a User-defined OTD.

5.7.1. Using Tables

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 setup allows you to perform query, update, insert, and delete SQL operations in a table.

Using the select Method

The **select** method returns result sets according to a group of predefined defaults. However, you can change these defaults, if desired. In using the **select** method, you can specify the following types of result sets:

- TYPE_FORWARD_ONLY
- TYPE_SCROLL_INSENSITIVE
- TYPE_SCROLL_SENSITIVE

You can also specify the following result sets with a type of concurrency:

- CONCUR_READ_ONLY
- CONCUR_UPDATABLE

To perform an update, insert or delete operation, the type of the result set returned by the **select** method must be CONCUR_UPDATABLE.

Instead of specifying the type of result set and concurrency in the **select** method, you can also use the following methods:

- **setConcurrencytoUpdatable**
- **setConcurrentlytoReadOnly**
- **setScrollTypetoForwardOnly**
- **setScrollTypetoScrollSensitive**
- **setScrollTypetoInsensitive**

These methods must be called before executing the **select** method.

Note: *Because of driver limitations, before you can do any modifications (insert, update, or delete) to a table, the table must be under CICS control on the mainframe.*

To call a method in the Java Collaboration Editor

1 Open the eGate Enterprise Designer's Java Collaboration Editor for the desired Collaboration Definition.

2 In the editor, navigate to the Business Rules Designer.

3 Right-click on the desired node (right or left pane) where you want to call the method.

A pop-up **Method** selection menu appears, showing the methods available for the node. See Figure 34.

Figure 34 Method Selection Menu for the select Method
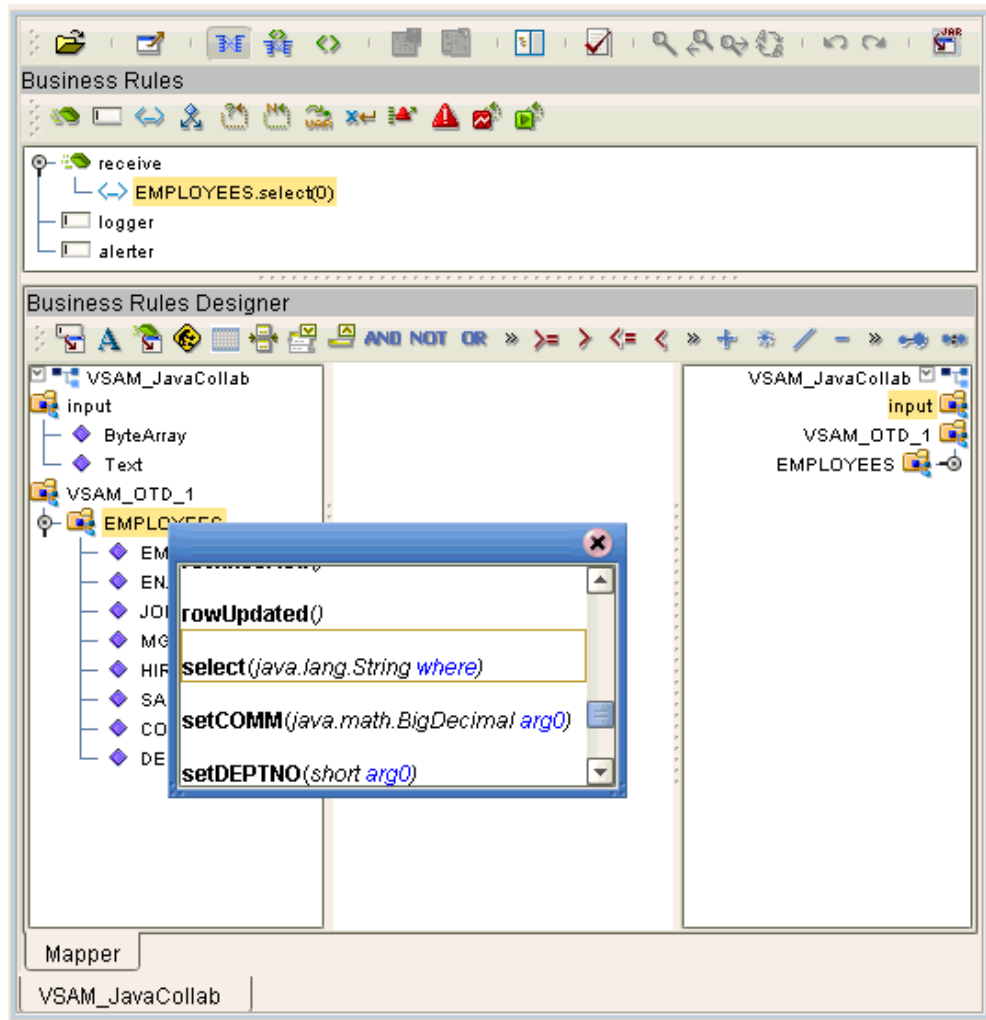
4 Select the desired method.

A **Method** box appears in the center pane of the Business Rules Designer. This box represents the chosen method.

Query Operations

To perform a query operation on a table

1 Call the **select** method with the **where** clause specified, if necessary. See Figure 35.

Figure 35 Query Operation: select Method
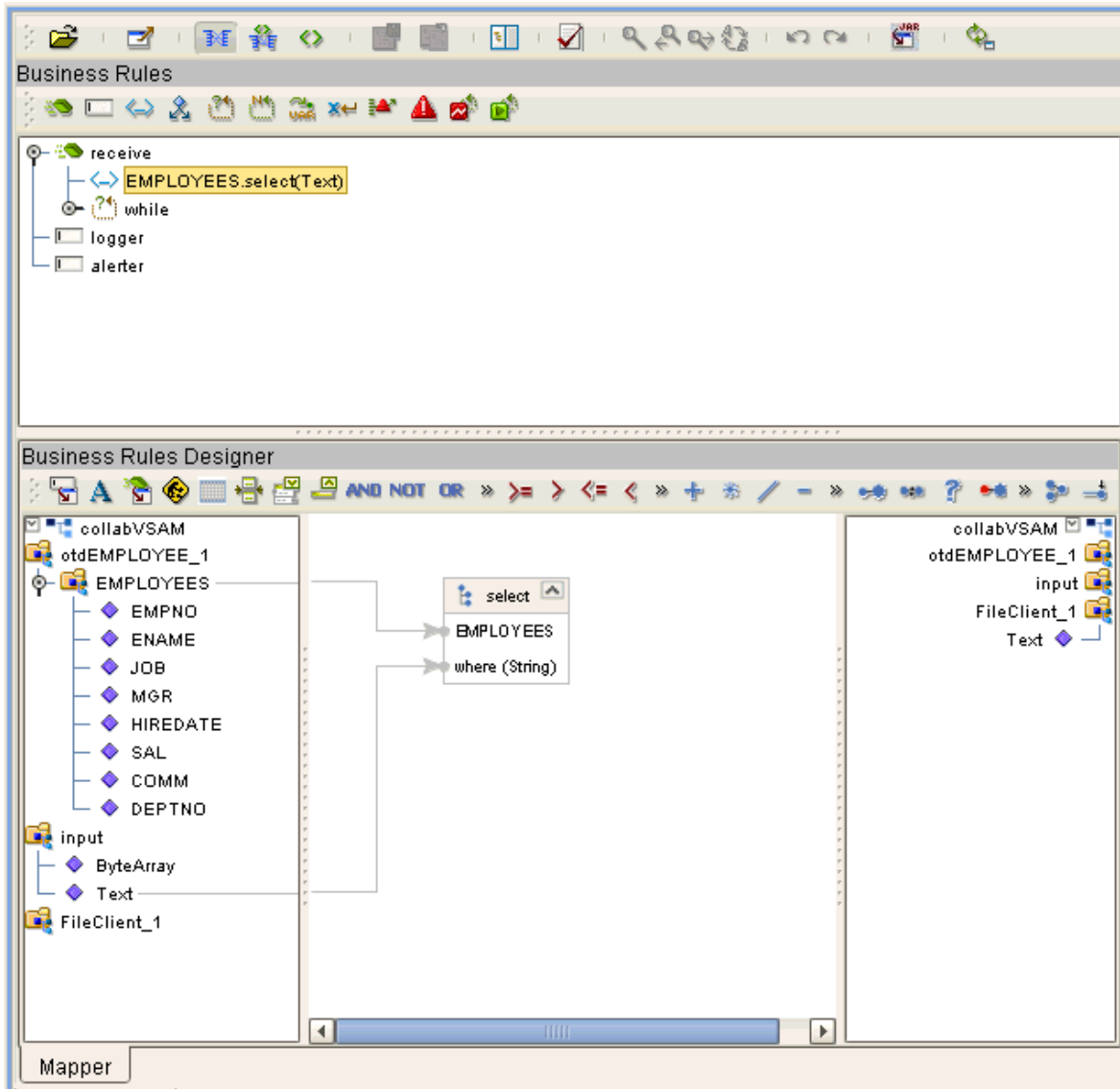
The text from the **Text** node instructs the Business Process exactly which data needs to be selected. For example, the content of the input text could be **EMPNO>100**.

2   Loop through the result set using the **next** method. See Figure 36.

Figure 36 Query Operation: next Method
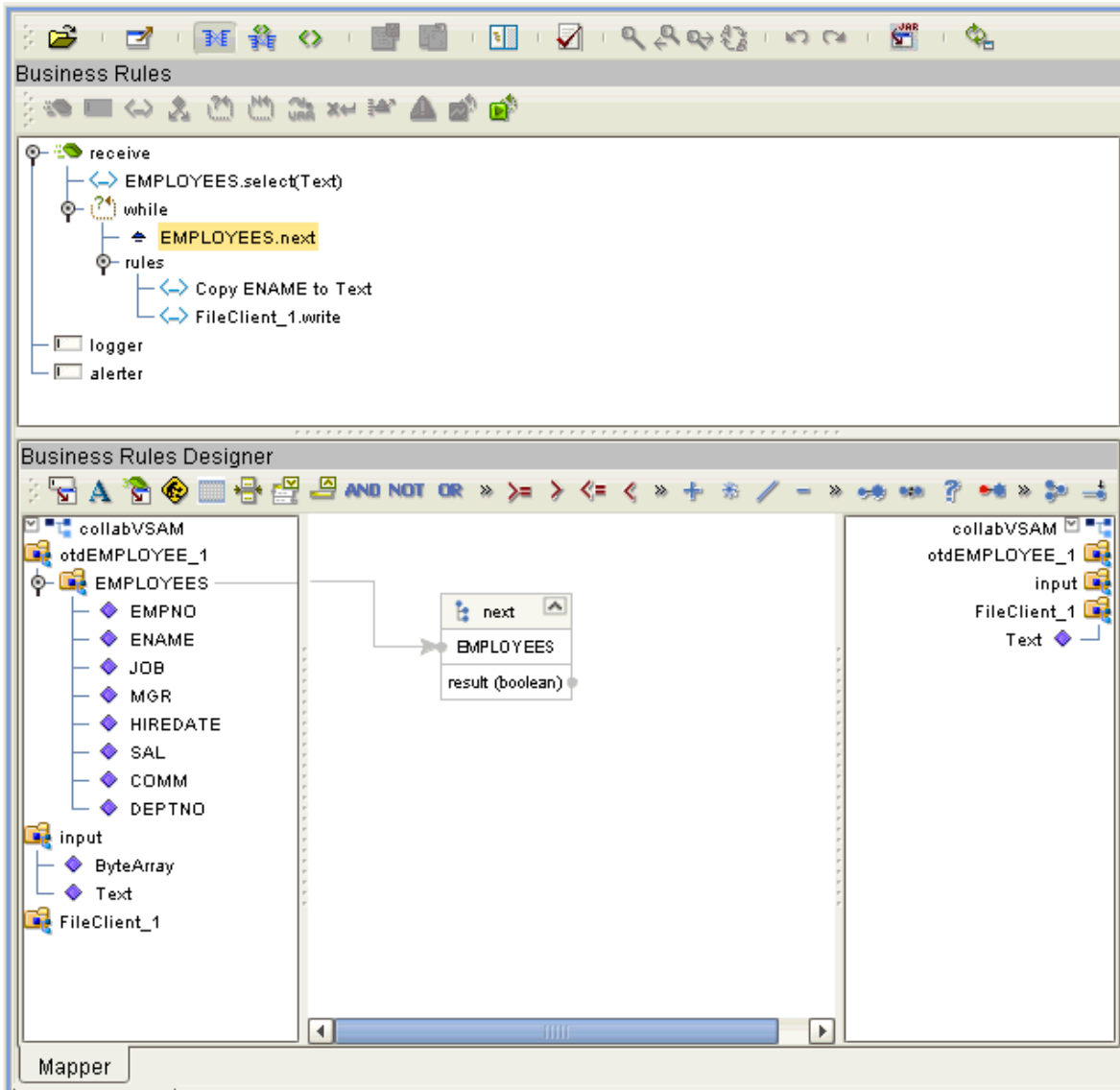
3   For each loop, process the return record.

Insert Operations

To perform an insert operation on a table

    1   Call the **select** method. See Figure 37.

Figure 37 Insert Operation: select Method
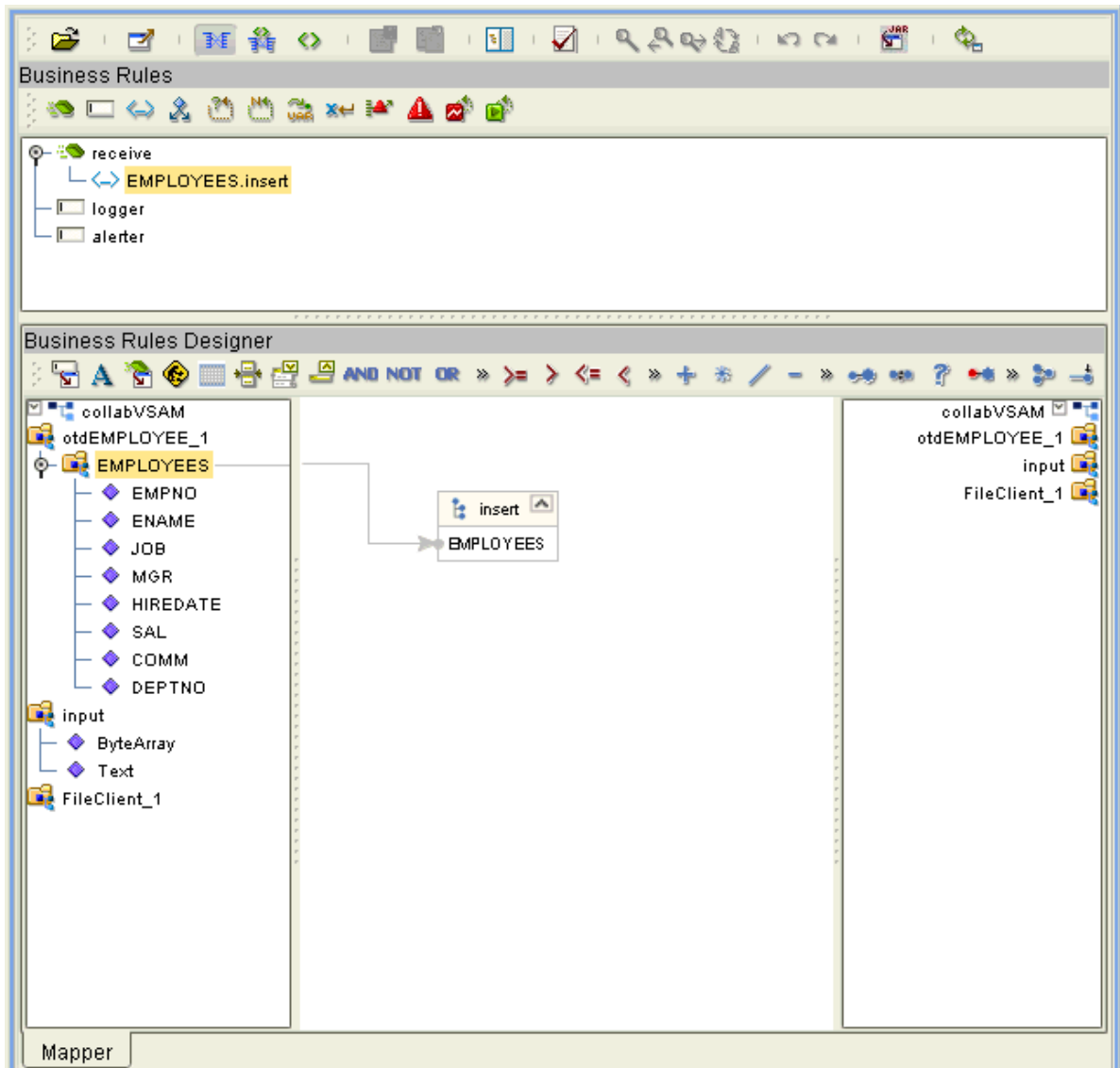
2   Set the fields of the table OTD where you want to do the insertion and insert the row using a **Literal**. See Figure 38.

Figure 38 Insert Operation: Literal Indicates Point of Insertion
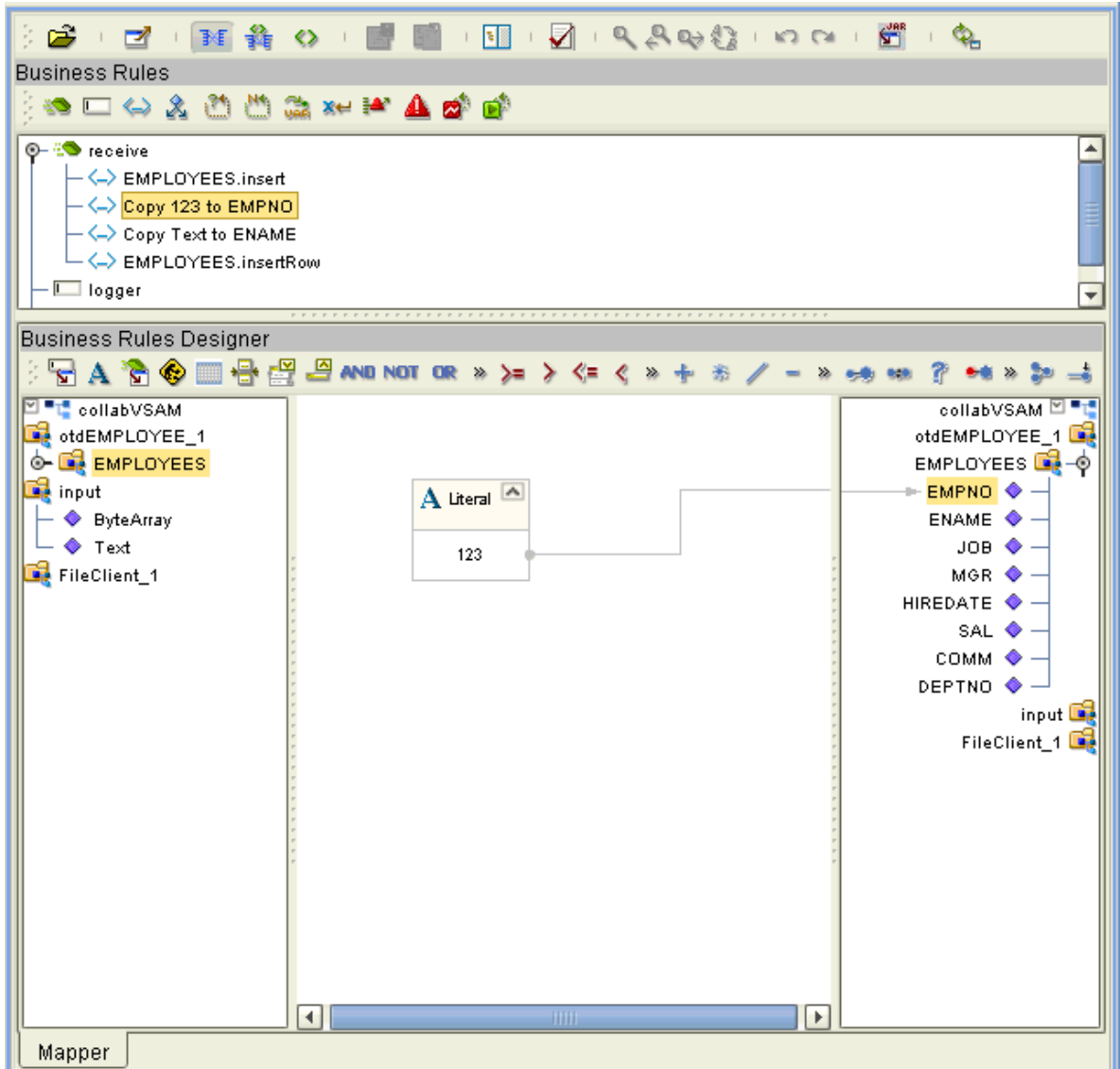
If you want to update multiple columns, you can repeat the **Copy** rule, as desired.

3   Activate the insertion by calling the **insertRow** method. See Figure 39.

Figure 39 Insert Operation: insertRow Method
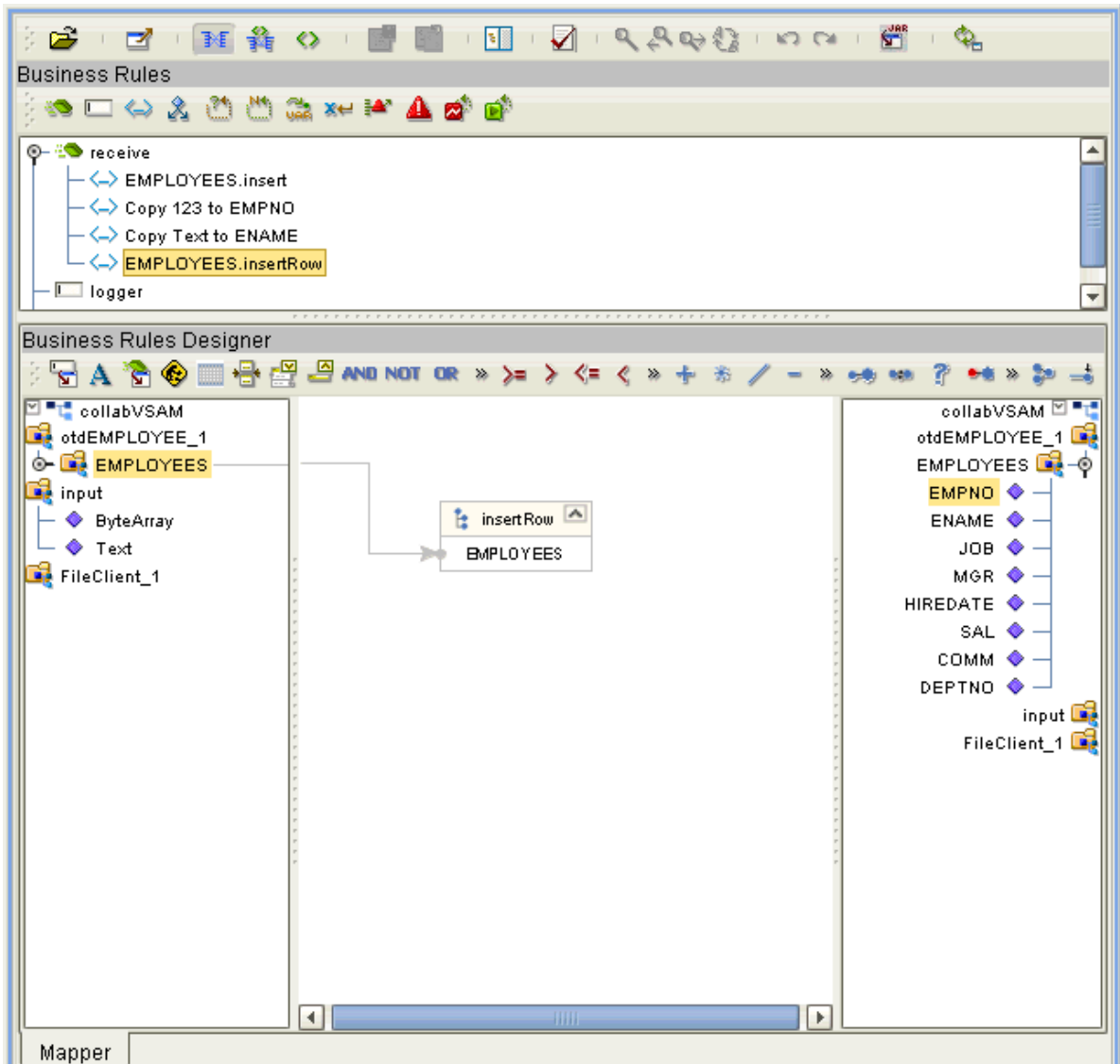
4 Finalize the operation using the **commit** method. See Figure 40.

Figure 40 Insert Operation: commit Method
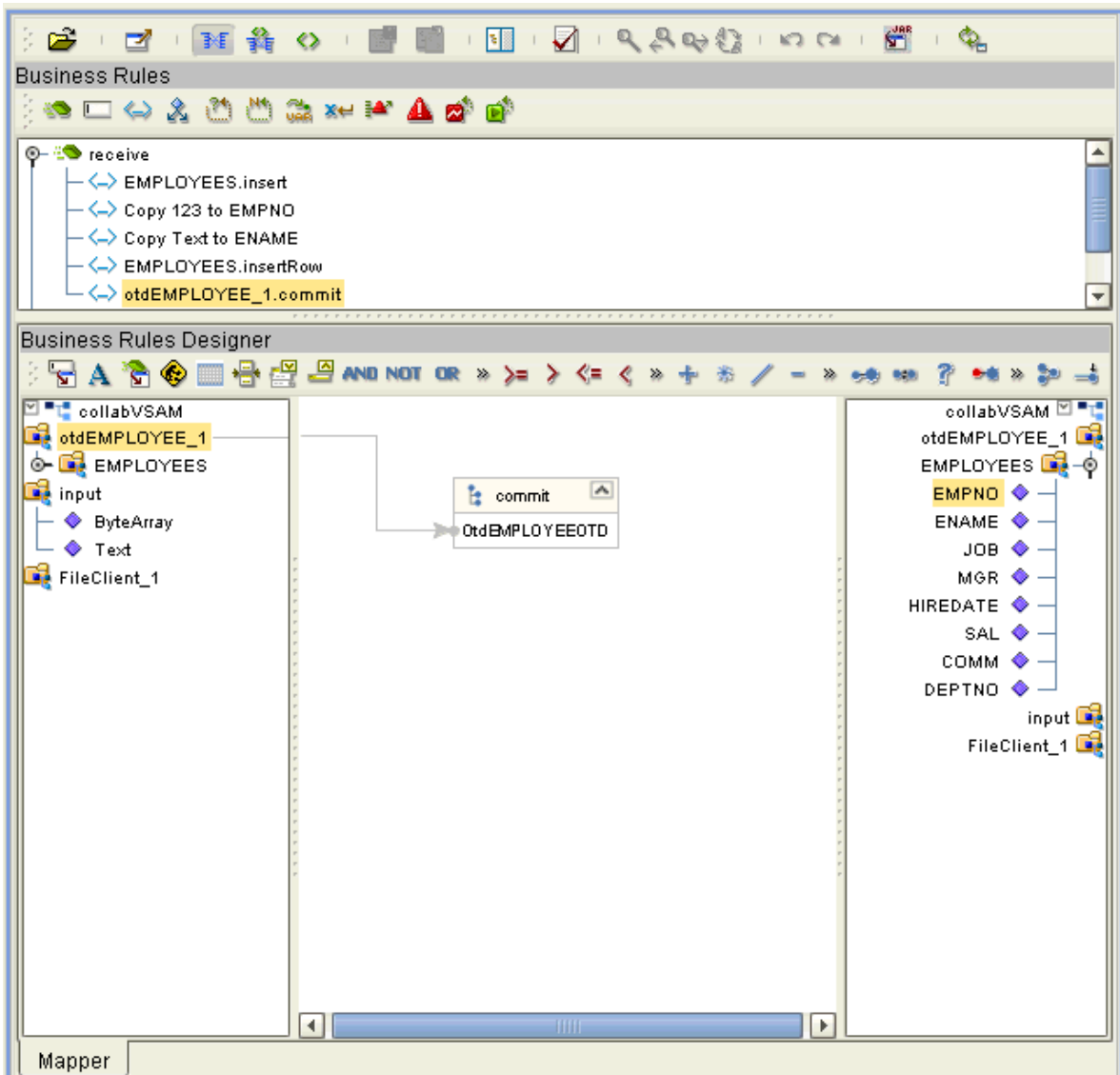
For multiple insert operations, you can use a **while** rule.

Update Operations

To perform an update operation on a table

1 Call the **select** method with the **where** clause specified, if necessary. See Figure 41.

Figure 41 Update Operation: select Method With Literal
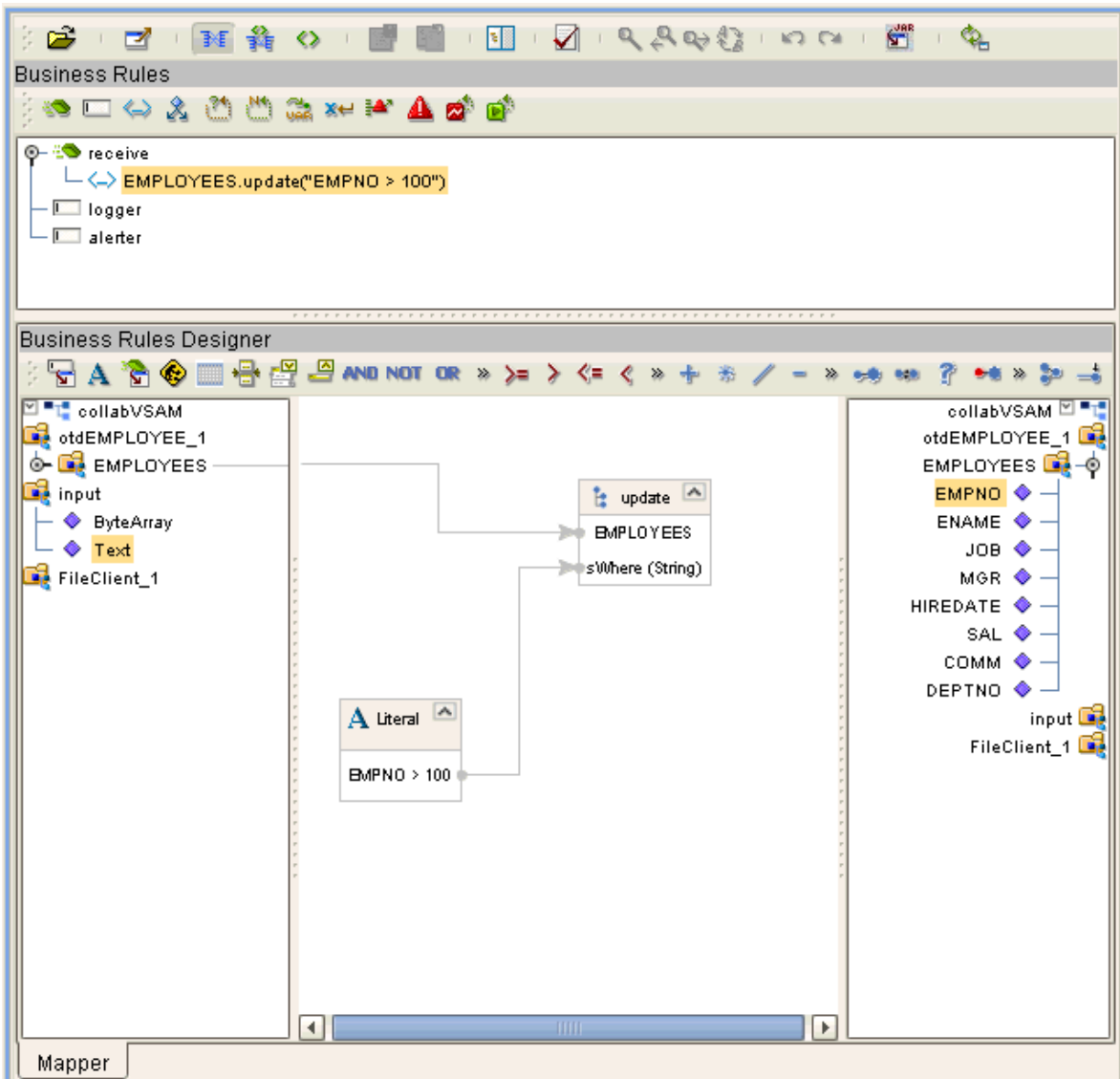
In this case, a **Literal** is used instead of the text node as shown in **Figure 37 on page 72**. Either way of specifying the **where** clause is acceptable.

2   Call the **next** method. See Figure 42.

Figure 42 Update Operation: next Method
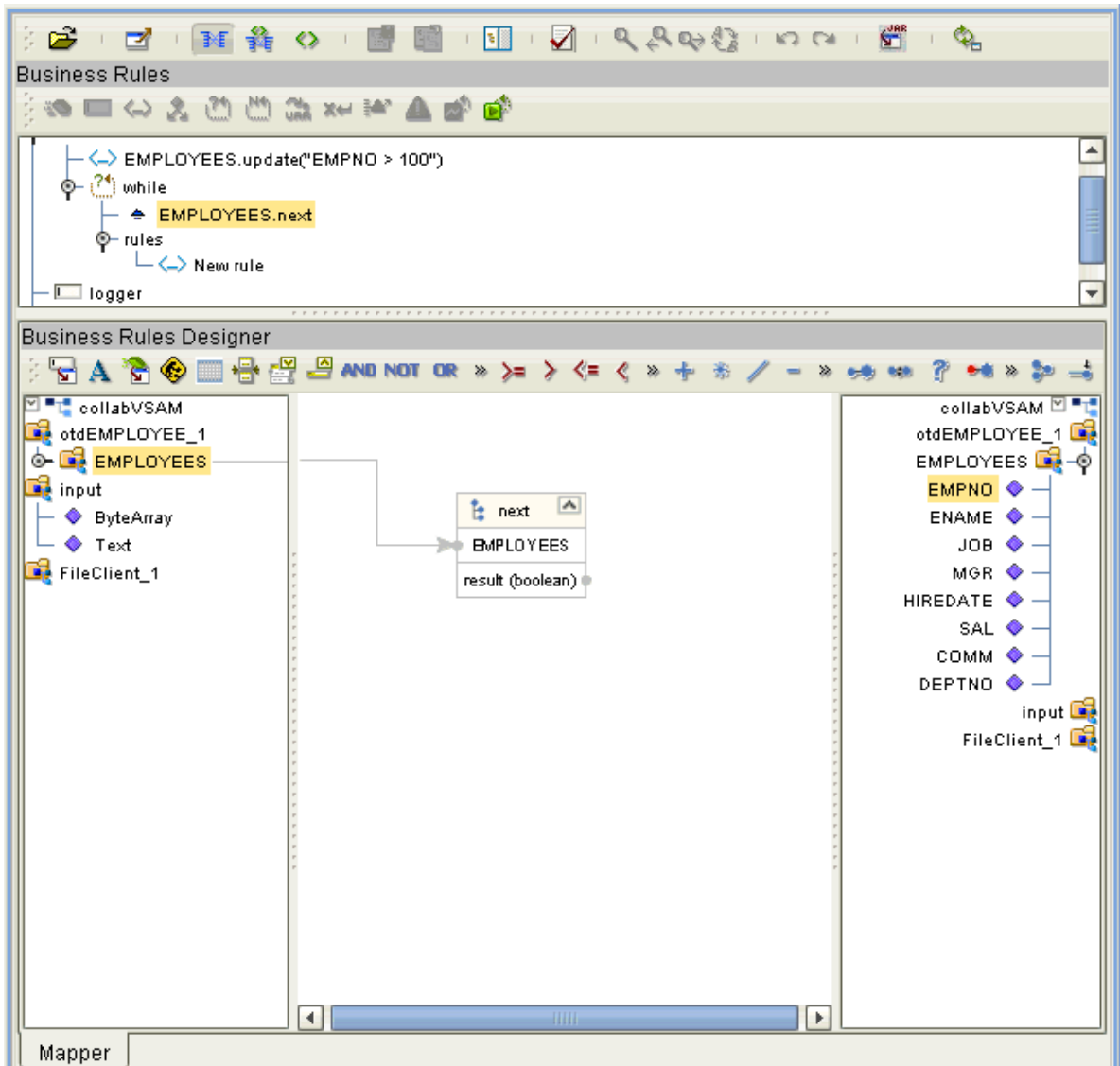
3   Update the row by calling **updateRow**. See Figure 43.

Figure 43 Update Operation: updateRow Method
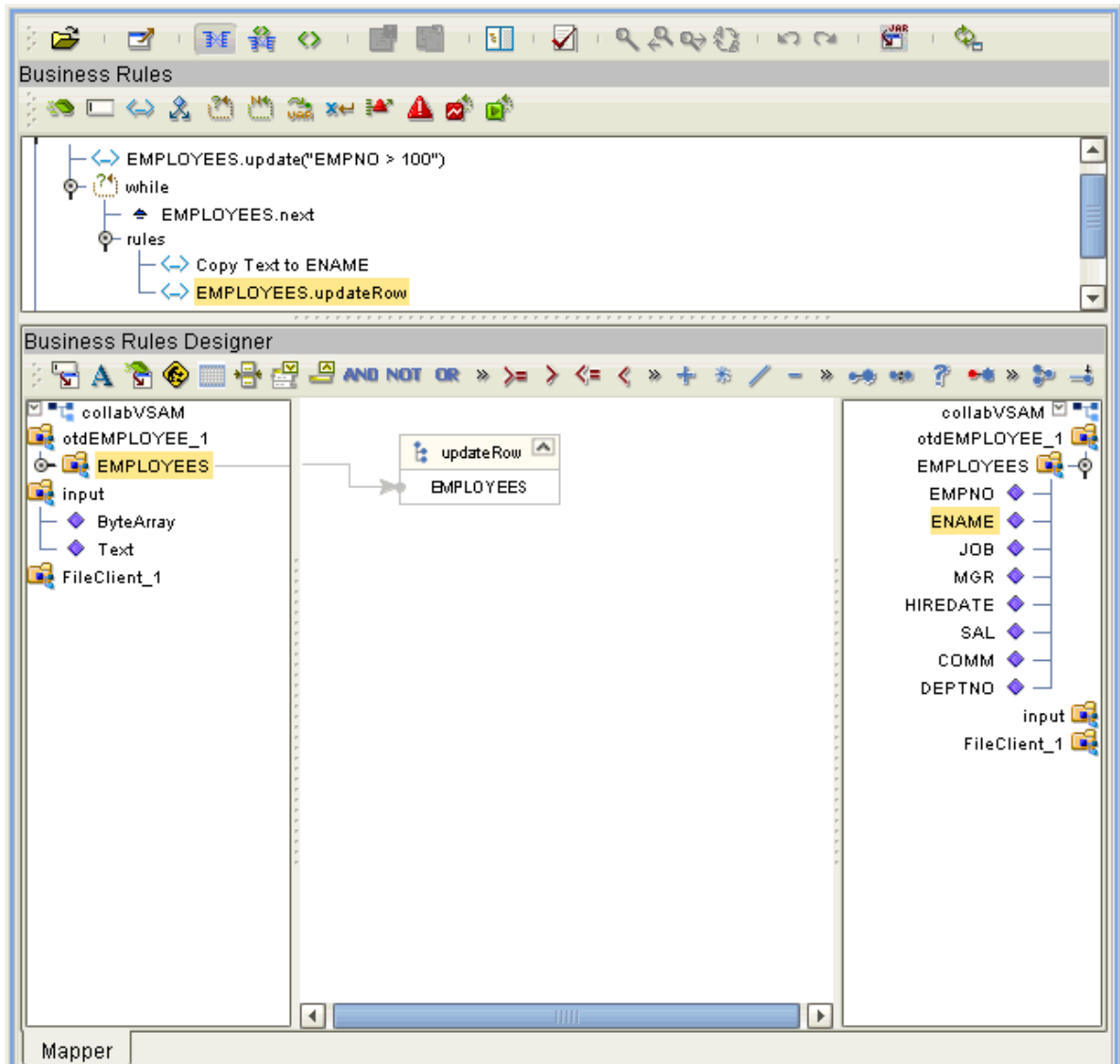
To update more than one column, you can repeat the **Copy** rule, as desired.

4 Finalize the operation using the **commit** method. See Figure 44.

Figure 44 Update Operation: commit Method
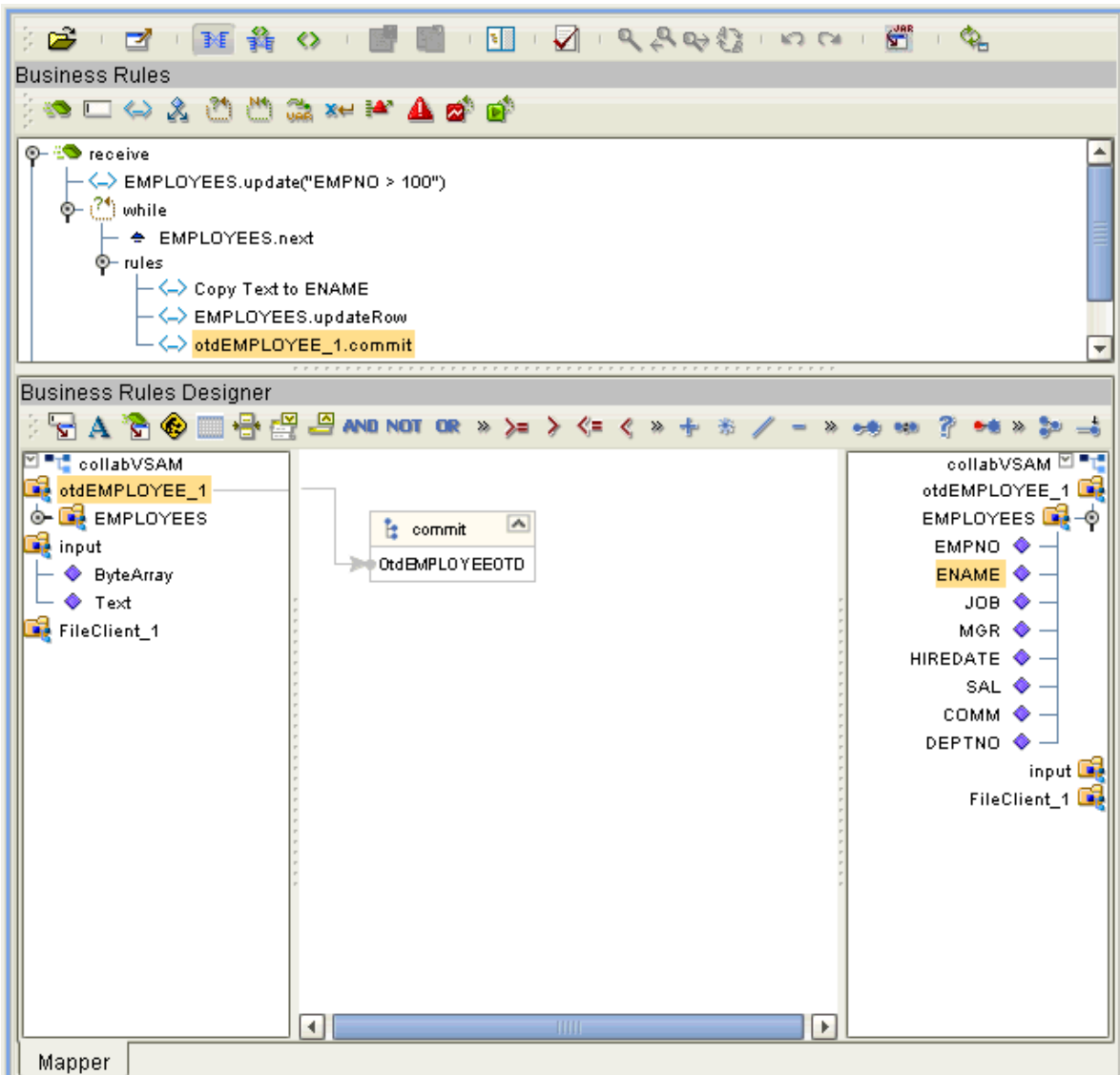
Delete Operations

To perform a delete operation on a table

1 Call the **delete** method with the **where** clause specified, if necessary. See Figure 45.

Figure 45 Delete Operation: delete Method

2 Finalize the operation using the **commit** method. See Figure 36.

Figure 46 Delete Operation: commit Method

5.7.2 Using Views

Views are used to look at data from selected columns within selected tables. View OTDs are read-only.

For query operations, see **"Query Operations" on page 70**.
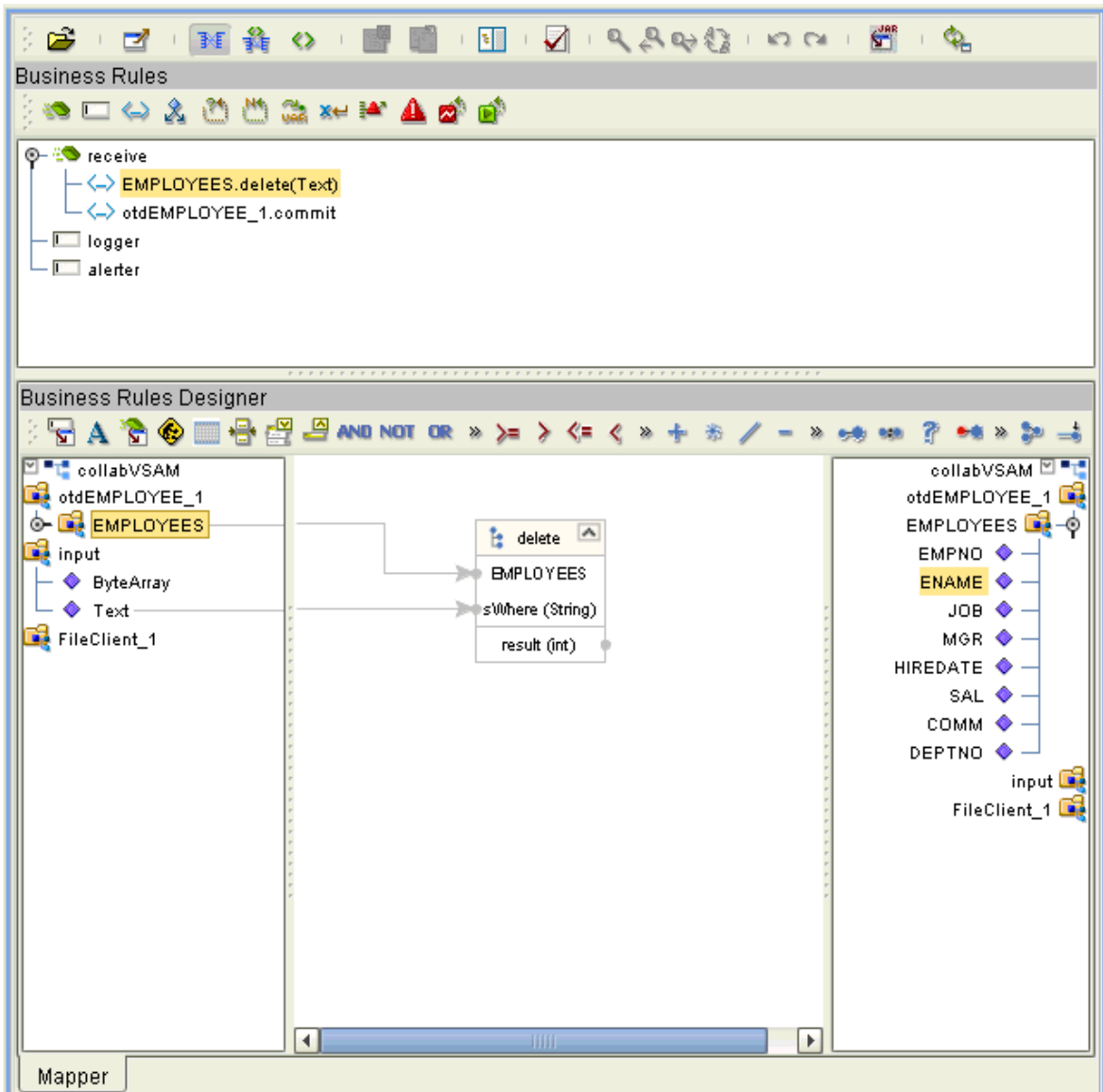
Using eWay Java Methods

This chapter provides an overview of the Java classes/interfaces and methods contained in the VSAM eWay. These methods are used to extend the functionality of the eWay.

Chapter Topics

6.1 VSAM eWay Methods and Classes: Overview

The VSAM eWay exposes various Java methods to add extra functionality to the eWay. These methods make it easier to set information in the VSAM eWay Object Type Definitions (OTDs), as well as get information from them.

6.1.1 Relation to eWay Properties

The nature of this data transfer depends on the properties you set for the eWay in the eGate Enterprise Designer. For more information on the eWay's properties, see **Chapter 3**.

6.1.2 VSAM eWay Javadoc

For a complete list of the Java methods within the classes listed in this chapter, refer to the **Javadoc**. You can download the Javadoc while you are installing the eWay. For complete instructions, see the *eGate Integrator Installation Guide*.

6.2 eWay Java Classes/Interfaces

The VSAM eWay provides the following Java classes/interfaces:

- **VSAMApplicationConnection**: The class that implements the **ApplicationConnection** interface for the database application connection.

- **VSAMApplicationConnectionFactory**: A factory class for creating the VSAM application connection.

- **VSAMCallableStatementAgent**: The agent that hosts a VSAM callable statement.

- **VSAMConnector**: The connector class for the VSAM database eWay.

- **VSAMCPManagedConnectionFactoryExt**: The factory for the VSAM connection pool managed connection.

- **VSAMSession**: The session that hosts a connection interface.

- **VSAMTableResultSet**: The result set to map selected records of a table in VSAM.

- **VSAMXAManagedConnectionFactoryExt**: The factory for VSAM's XA-managed connection.

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