SeeBeyond ICAN Suite

# HP NonStop Server SQL eWay Intelligent Adapter User's Guide

Release 5.0.1



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# Chapter 1

# Introducing the HP NonStop SQL eWay

This document describes how to install and configure the HP NonStop SQL eWay Intelligent Adapter.

This chapter includes

- Overview on page 6
- Supported Operating Systems on page 6
- System Requirements on page 6
- External System Requirements on page 7

#### 1.1 **Overview**

The HP NonStop SQL eWay enables the eGate system to exchange data with external HP NonStop SQL databases. This document describes how to install and configure the HP NonStop SQL eWay.

# **1.2 Supported Operating Systems**

The HP NonStop SQL eWay is available on the following operating systems:

• HP NonStop Server, G06.22.

# **1.3** System Requirements

To enable the Enterprise Designer's editors to communicate with the external system, the following items must be installed on any host machines running the Graphical User Interface (GUI) editors:

- Windows Server 2003, Windows XP SP1a, and Windows 2000 SP3. This is a requirement for the Enterprise Designer.
- Microsoft Internet Explorer 6.0 SP1 or later.
- TCP/IP network connection.

- ODBC DataSourceName configured and named NSODBCMX.
- FTP or Telnet capabilities.

The HP NonStop SQL eWay installation program installs the DataDirect Sequelink 1.0 for HP NonStop SQL driver required to connect to the external HP NonStop SQL database.

# 1.4 External System Requirements

The HP NonStop SQL eWay supports the following external systems:

- HP NonStop SQL 1.8.5 AAP
- JDBC/MX T1225 V2.1 AAD required for runtime.
- HP NonStop SQL/MP G07

*Note:* For a full list of requirements, see the SeeBeyond ICAN Suite Installation Guide.

# **HP NonStop Server Requirements**

Refer to the *SeeBeyond ICAN Suite Installation Guide* for a list of HP NonStop Server requirements.

# **Chapter 2**

# Installing the HP NonStop SQL eWay

This chapter describes how to install the HP NonStop SQL eWay.

**This Chapter Includes** 

• "Installing the HP NonStop SQL eWay from a Windows System" on page 8

# 2.1 Installing the HP NonStop SQL eWay from a Windows System

The installation process includes installing the following components:

- Installing the Repository.
- Upload products to the Repository.
- Download components (including Enterprise Designer and Logical Host).
- View product information home pages.

Please review the *SeeBeyond ICAN Suite Installation Guide* for complete installation instructions.

#### To install the HP NonStop SQL eWay from a Windows system

- 1 You must have Administrator privileges to install this eWay.
- 2 Exit all Windows programs before running the setup program, including any antivirus applications.
- 3 Insert the eGate installation CD-ROM into the CD-ROM drive.
- 4 Following the installation instructions provided in the *SeeBeyond ICAN Suite Installation Guide*, install the following components:
- Install the Repository.
- From the Enterprise Manager, select the **NSSQLeWay.sar** file. To install and upload this file, see the chapter on uploading files to the Repository in the *SeeBeyond ICAN Suite Installation Guide*.
- Install the eGate Enterprise Designer as instructed

# Chapter 3

# Properties of the HP NonStop SQL eWay

This chapter describes the properties of the HP NonStop SQL eWay. The properties of the HP NonStop SQL eWay must be configured in both the Connectivity Map and in the Environment.

This chapter includes

- Setting the eWay Properties in the Connectivity Map on page 9
- Setting the External Properties in the Environment on page 14

# 3.1 Setting the eWay Properties in the Connectivity Map

The HP NonStop SQL eWay has three possible modes in the Connectivity Map. Each type has a unique set of properties to control the behavior of the eWay. The three types of HP NonStop SQL eWays are:

- Inbound NSSQL eWay: This eWay is used to poll external databases and retrieve data into ICAN Projects. For more information, see "Setting the Properties of the Inbound NSSQL eWay" on page 10.
- Outbound NSSQL eWay: This eWay is used to publish data from ICAN Projects into the external database. For more information, see "Setting the Properties of the Outbound NSSQL eWay" on page 11.
- NSSQL eWay: This outbound eWay is provided for backward compatibility with ICAN Projects created with version 5.0 of the HP NonStop Server SQL eWay. For more information, see "Setting the Properties of the NSSQL eWay" on page 13.

Use the eWay properties to configure each eWay.

To set an eWay's properties in the Configuration Map

- 1 In the Project Explorer, create your Connectivity Map with all the components your Project requires.
- 2 Double click the properties icon of the eWay you want to configure.

#### Figure 1 eWay Properties Icon



3 Enter the property settings as described in the following sections.

# 3.1.1. Setting the Properties of the Inbound NSSQL eWay

Properties			
Configuration			
	PollMilliseconds 5000		
Description (parameter-settings)	PreparedStatement		
Comments (parameter-settings)			
	·		
	Properties		
ок	Cancel		

#### Figure 2 Inbound NSSQL eWay Properties

# PollMilliseconds

#### Description

Polling interval in milliseconds.

#### **Required Values**

A valid numeric value. The default is 5000.

# PreparedStatement

#### Description

A prepared statement used for polling the database.

#### **Required Values**

The prepared statement must be the same prepared statement you created using the Database OTD Wizard. Only "SELECT" statements are allowed. Additionally, no place holders should be specified. There should not be any "?" values in the prepared statement.

# 3.1.2. Setting the Properties of the Outbound NSSQL eWay

Properties 🛛 😵		
Configuration	* 12 12 12 10 10	
UDBC Connector settings	ClassName	com.tandem.sqlmx.SQLMXConnectionPoolDataSource
	Delimiter	#
	Description	NSSQL Connection Pool Datasource
	DriverProperties	setCatalog#SBYNCAT##
	LoginTimeOut	0
	MaxPoolSize	0
IDBC Connector settings	MaxStatements	100
obbo connector settings	MinPoolSize	2
Comments (JDBCConnectorSetti	Properties	
ОК		Cancel

Figure 3 Outbound NSSQL eWay Properties

#### ClassName

#### Description

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

If you use any driver other than the JdbcMx driver specified as the default, you must also specify the length of time to wait for the connection to be established (see "LoginTimeOut" on page 12).

#### **Required Values**

A valid class name. The default value is **com.tandem.sqlmx.SQLMXConnectionPoolDataSource**.

#### Delimiter

#### Description

Defines the delimiter character to be used in the **DriverPorperties** property. (See **"DriverProperties" on page 12**).

#### **Required Values**

A valid ASCII character. The default is **#**.

# Description

#### Description

Specifies the description for the database.

#### **Required Values**

A valid string. The default is NSSQL Connection Pool Datasource.

### **DriverProperties**

#### Description

Specifies the properties for the JDBC driver being used with this eWay. Use this in the case where a DataSource implementation needs to execute additional methods to establish and maintain a connection.

#### **Required Values**

Any valid method name(s) and parameter(s). You must use the Delimiter you specified in **"Delimiter" on page 11**.

The format for the method names and parameters is:

methodName1#param1##param2##...paramN#methodName2##param1##param2

The default value is **setCatalog#SBYNCAT##**.

# LoginTimeOut

#### Description

Specifies the maximum length of time in seconds to wait while establishing a connection with the external database. This value has no effect if you use the default JdbcMx driver (see "ClassName" on page 11).

#### **Required Values**

A valid number. The default is **0**.

#### MaxPoolSize

#### Description

Defines the maximum connection pool size. To specify an unlimited connection pool, use a value of **0**. This option is not required.

#### **Required Values**

A valid number. The default is **0** (unlimited).

#### MaxStatements

#### Description

Specifies the maximum number of prepared statements to be cached. This option is not required.

#### **Required Values**

A valid number. The default is **100**.

### MinPoolSize

#### Description

Specifies the minimum number of connections in the connection pool. This option is not required.

#### **Required Values**

A valid number. The default is **2**.

# 3.1.3. Setting the Properties of the NSSQL eWay

This outbound eWay is provided for backward compatibility with ICAN Projects created with version 5.0 of the HP NonStop Server SQL eWay.

Properties 🛛 🛞		
Configuration	* 12 📭 🛌	
DBC Connector settings	Delimiter	#
	Description	NSSQL Datasource
Description (JDBCConnectorSetti	DriverProperties	setCatalog#SBYNCAT##
JDBC Connector settings	LoginTimeOut	0
Comments (JDBCConnectorSetti		
	Properties	
ОК		Cancel

Figure 4 NSSQL eWay Properties

# Delimiter

#### Description

Defines the delimiter character to be used in the **DriverProperties** property. (See **"DriverProperties" on page 14**).

#### **Required Values**

A valid ASCII character. The default is #.

# Description

#### Description

Specifies the description for the database.

#### **Required Values**

A valid string. The default is **NSSQL Datasource**.

### **DriverProperties**

#### Description

Specifies the properties for the JDBC driver being used with this eWay. Use this in the case where a DataSource implementation needs to execute additional methods to establish and maintain a connection.

#### **Required Values**

Any valid method name(s) and parameter(s). You must use the Delimiter you specified in **"Delimiter" on page 13**.

The format for the method names and parameters is:

methodName1#param1##param2##...paramN#methodName2##param1##param2

The default value is **n##**.

### LoginTimeOut

Specifies the maximum length of time in seconds to wait while establishing a connection with the external database.

#### **Required Values**

A valid number. The default is **0**.

# 3.2 Setting the External Properties in the Environment

The HP NonStop SQL eWay has three possible modes in the Environment Explorer. Each type has a unique set of properties to control the behavior of the eWay. The three types of HP NonStop SQL eWay Externals are:

- Inbound NSSQL eWay: This eWay is used to poll external databases and retrieve data into ICAN Projects. For more information, see "Setting the Properties of the Inbound NSSQL eWay External" on page 16.
- Outbound NSSQL eWay: This eWay is used to publish data from ICAN Projects into the external database. For more information, see "Setting the Properties of the Outbound NSSQL eWay External" on page 17.
- **NSSQL eWay**: This outbound eWay is provided for backward compatibility with ICAN Projects created with version 5.0 of the HP NonStop Server SQL eWay. For

more information, see "Setting the Properties of the NSSQL eWay External" on page 19.

Use the Environment Explorer to configure the properties of the HP NonStop SQL eWay External.

#### To set the properties of the eWay External

- 1 In the Environment Explorer, create a new Environment (if necessary).
- 2 Right click your environment and click New NSSQL External System.
- 3 Type the name of the External System and select one of the three External System Types:
  - Outbound NSSQL eWay
  - NSSQL eWay
  - Inbound NSSQL eWay



Create an External System		
External System Name:	My_Outbound_NSSQL_eWay	
External System Type:	Outbound NSSQL eWay	
	Outbound NSSQL eWay	N
	NSSQL eWay	43
	Inbound NSSQL eWay	

- 4 Click **OK** to create the External System.
- 5 Right click the newly created External System and click **Properties**.
- 6 Enter the property settings as described in the following sections.

# 3.2.1. Setting the Properties of the Inbound NSSQL eWay External

Properties 🛛 🛞		
Environment Configuration		
	DatabaseName	
·	Password	
Description (parameter-settings)	PortNumber 1521	
	ServerName	
	User	
Comments (parameter-settings)		
	Properties	
ОК	Cancel	

Figure 6 Inbound NSSQL eWay External Properties

### 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 1521.

#### 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.

# 3.2.2. Setting the Properties of the Outbound NSSQL eWay External

This outbound eWay is provided for backward compatibility with ICAN Projects created with version 5.0 of the HP NonStop Server SQL eWay.



Properties 🗴		
Environment Configuration		
	DataSourceName	
]	Password	
Description (IDBCConnectorSetti	PortNumber	19996
JDBC Connector settings	ServerName	localhost
	User	
Comments (JDBCConnectorSetti	Properties	
ОК		Cancel

#### DataSourceName

#### Description

Specifies the name of the database instance.

#### **Required Values**

# 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 19996

#### 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 external database.

#### **Required Values**

# 3.2.3. Setting the Properties of the NSSQL eWay External

Properties 🛛 🛞		
Environment Configuration	* 12 18 1= 1	
DBC Connector settings	ClassName	com.tandem.sqlmx.SQLMXDataSource
	DataSourceName	
	Password	
	PortNumber	19996
Description (JDBCConnectorSetti	ServerName	localhost
SDBC Connector settings	User	
Comments (JDBCConnectorSetti ;		
	Duran anti-ara	]
	Properties	
ок		Cancel

#### Figure 8 NSSQL eWay External Properties

#### 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 value is **com.tandem.sqlmx.SQLMXDataSource**.

#### DataSourceName

#### 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**

# 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 **1433**.

#### 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 external database.

#### **Required Values**

# **Chapter 4**

# Using the HP NonStop SQL eWay Database Wizard

This chapter describes how to use the HP NonStop SQL eWay Database Wizard to build OTDs.

**This Chapter Includes** 

- Select Wizard Type on page 22
- Connect to Database on page 22
- Select Database Objects on page 23
- Select Table/Views on page 24
- Prepared Statement on page 29
- Specify the OTD Name on page 31

# 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 or Prepared SQL Statements.

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.

- *Note:* Database OTDs are not messagable. For more information on messagable OTDs, see the eGate Integrator User's Guide.
- *Note:* Prior to selecting tables using this wizard you must have created an MP Alias for each table. For more information regarding an MP Alias for tables, see your NonStop SQL MX documentation.

# 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.
- 2 From the OTD Wizard Selection window, select the **HPSQL Database** and click **Next**. See **Figure 9**.

	New Wizard - NSSQL Dat	abase 🗴
Steps	Select Wizard Type	
1. Select Wizard Type	OTD Wizard	Description
	DB2 Database	Uses a UDB database to create an OTD Uses a DTD to create an OTD
	NSSQL Database	Creates an OTD from NSSQL Database (
	📲 Oracle Database	Uses an Oracle database to create an OT
11/12	Sqlserver Database	Uses a SQLServer database to create an
Var	Sybase Database	Uses a Sybase database to create an OT
		Millows the user to create a custom OTD
TO Ben	XSD	Uses an XSD to create an OTD
SEEBEYOND"	4	
	< Back Next >	Einish Cancel Help

Figure 9 OTD Wizard Selection

#### Connect to Database

3 Specify the connection information for your database including your UserName and Password and click Next. See Figure 10.

	New Wizard - NSSQL Database	×
Steps	Specify Database Connection Information	
<ol> <li>Select Wizard Type</li> <li>Connect to Database</li> <li>Select Database Objects</li> <li>Select Tables/Views</li> <li>Select Procedures</li> <li>Add Prepared Statements</li> <li>Specify the OTD Name</li> <li>Review Selections</li> </ol>	Please enter the NSSql database connection info         Connection Information         Host name:         Port ID:         User name:         Password:	ormation below.
SEEBEYOND		
	< <u>B</u> ack Next > Finish Canc	el <u>H</u> elp

#### Figure 10 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 11**.
- *Note: Views are read-only and are for informational purposes only.*





#### Select Table/Views

1 In the **Select Tables/Views** window, click **Add**. See **Figure 12**.

	New Wizard - NSSQL Database 🛛 🕺 🕺
Steps	Select Tables/Views and specify Column information
1. Select Wizard Type	Selected Tables/Views
Select Database Objects     Select Tables Aviews     Select Procedures     Add Prepared Statements     Specify the OTD Name     Review Selections	Name Catalog Schema Type
SEE BEYOND"	Description Change Use fully-qualified table/view names in the generated Java code.
(	< Back Next > Finish Cancel Help

Figure 12 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 13**. You can search for **Table/View Names** by entering a table name.

	RAJIBL		Search
<u>⊻</u> iews Only ○ <u>B</u>	joth 🛛 🗹 include system	tables	
n			
Catalog	Schema		Туре
RAJCAT	RAJTBL	TABLE	
RAJCAT	RAJTBL	TABLE	
RAJCAT	RAJIBL	TABLE	
Catalog	Schema		Туре
	Views Only E	Views Only O Both Include system  Catalog Schema  RAJCAT RAJTBL  RAJCAT RAJTBL  RAJCAT RAJTBL  RAJCAT RAJTBL  Catalog Schema	Views Only Both Include system tables n Catalog Schema RAJCAT RAJTBL TABLE RAJCAT RAJTBL TABLE RAJCAT RAJTBL TABLE RAJCAT RAJTBL TABLE Catalog Schema

#### Figure 13 Database Wizard - All Schemes

- 4 Select the table of choice and click **OK**.
- *Note:* Prior to selecting tables using this wizard you must have created an MP Alias for each table. For more information regarding an MP Alias for tables, see your NonStop SQL MX documentation.

The table selected is added to the **Selected Tables/Views** window. See Figure 14.

Table/View Search <b>Type the exact Tabl</b> <u>Name:</u> <u>0</u> <u>T</u> ables Only Table/View Selection	le/View Name or us ⊻Views Only ○ Bo	e Wildcard characters RAJTBL 💌 th 🗹 Include system	s. Search
Type the exact Table       Name:       Image:       Image:	le/View Name or us	e Wildcard characters RAJTBL 💌 th 🗹 Include system	<b>s.</b> Search
<u>N</u> ame: I ables Only C Table/View Selectic	⊻iews Only ○ <u>B</u> o	RAJTBL  The Include system	<u>S</u> earch
	Views Only OBo	th 🗹 Include system	tables
Table/View Selectio			
	n		
Results: 4 Records	•		
Name	Catalog	Schema	Туре
DBEMP	RAJCAT	RAJTBL	TABLE
DBEMP1	RAJCAT	RAJTBL	TABLE
DBSAL	RAJCAT	RAJTBL	TABLE
TSTTYP	RAJCAT	RAJTBL	TABLE
Select	s		
Name	Catalog	Schema	Туре
DBEMP	RAJCAT	RAJTBL	TABLE

#### Figure 14 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 15**.

urm Ium	ns r in S	or. elei	ction	
	Τ	Γ	Column Name	Type
1	*	+	EMPNO	NUMERIC
1			FIRSTNAME	CHAR
1			LASTNAME	CHAR
1			RATE	FLOAT
	Sel	ect .	All Invert Selection	Qear All

#### Figure 15 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 change these settings. See Figure 16.

Figure 16 📑	Table/View	Columns –	Advanced
-------------	------------	-----------	----------

litio	nol i	olu	mn proportioe fi			
nuo	nan	oiu	mm propenties in	OLDBEIML		
lum	in S	elec	tion	123		
		_	Column	SQL type	Precision / len	Scale
V	*	+	EMPNO	NUMERIC	19	0
1			FIRSTNAME	CHAR	25	0
<b>V</b>			LASTNAME	CHAR	25	0
1			RATE	FLOAT	54	0
Prim	Sele ary	zt Al Key	II [nvert	Selection	<u>C</u> lear All	

#### **Select Procedures**

1 On the Select Procedures and specify ResultSet and Parameter Information window, click Add.

. Select Wizard Type	Selected Procedures
Select Database Objects     Select Tables/Views     Select Procedures     Add Prepared Statements     Specify the OTD Name     Review Selections	Name Catalog Schema Type
	Add Remove

Figure 17 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 18 Add Procedures

Add	Procedures		(
Procedure Search Type the exact Procedure Name or use Wi <u>N</u> ame:	ldcard character	s.	Search
Procedure Selection			
Results:246 Records			
Name	Catalog	Schem	a Type
COPY_DB_EMPLOYEE_TO_DB_E		DGDB	PROCED
DB_AVG_RATE		DGDB	PROCED
DB_EMPLOYEE_INSERT		DGDB	PROCED
DB_EMPLOYEE_PROC		DGDB	PROCED
DB_EMPLOYEE_PROC2		DGDB	PROCED 🔽
Select			
Name Catalog	Sche	ma	Туре
DB_EMPLOYEE_I	DGDB		PROCEDURE
Remove			
			<u>C</u> ancel

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 19**.

	Procedu	re Parameters	8
Procedure Paran -Parameters	neters For: DB_EMP	LOYEE_INSERT	
Index	Name	Туре	ParamType
1	EMPNO	OTHER	IN
2	LASTNAME	VARCHAR	IN
3	FIRSTNAME	VARCHAR	- IN
4	RATE	DECIMAL	IN III
		DECIMAL	
		DISTINCT	
		DOUBLE	
		FLOAT	
		INTEGER	
		JAVA_OBJECT	
		LONGVARBINAF	
		LONGVARCHAR	
		Add	Remo <u>v</u> e
<u>R</u> estore	]	<u>o</u> k	<u>C</u> ancel

Figure 19 Procedure Parameters

- 5 To restore the data type, click **Restore**. When finished, click **OK**.
- 6 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**.

Select Wizard Type     Connect to Database	Prepared Statements
<ol> <li>Select Database Objects</li> <li>Select Tables/Views</li> <li>Select Procedures</li> <li>Add Prepared Statements</li> <li>Specify the OTD Name</li> <li>Review Selections</li> </ol>	Name     SQL Statement       Add     Edit

Figure 20 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 21**.

*Note:* When creating a SQL statement, you must use fully qualified names; for example <Catalog.Schema.Table Name> would be RAJCAT.RAJTBL.DBEMP. These names can be found under the corresponding headings on the Select Tables/Views window. See Figure 14 on page 26

repared Stat SQL Stateme	ementName: <mark>SQL_Server_Prep_Statement</mark>	
select * DB_	EMPLOYEE where EMP_NO = '800'	

Figure 21 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 22**.



Figure 22 Edit the Prepared Statement Parameters

5 To edit the ResultSet Columns, click **Edit ResultSet Columns**. Both the Name and Type are editable but it is recommend you do not changed the Name. Doing so will

cause a loss of integrity between the ResultSet and the Database. Click **OK**. See **Figure 23**.

NewCol	Venouen
1464000	VARCHAR

Figure 23 ResultSet Columns

- 6 Click OK to return to the Database Wizard Prepared Statements window.
- 7 Add additional prepared statements or click **Next** to continue.

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 24.

Figure 24 Specific OTD Name

	New Wizard - NSSQL Database	8
Steps	Specify the OTD Name	
<ol> <li>Select Wizard Type</li> <li>Connect to Database</li> <li>Select Database Objects</li> <li>Select Tables/Views</li> <li>Add Prepared Statements</li> <li>Specify the OTD Name</li> <li>Review Selections</li> </ol>	OTD Name: Employee_Table_OTD	
	< <u>Back</u> Next > <u>Finish</u> Cancel	<u>H</u> elp

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 25**.

	New Wizard - NSSQL Database	
Steps	Review your Selections	
Select Wizard Type     Connect to Database     Select Database Objects     Select Tables/Views     Select Procedures     Add Prepared Statements     Specify the OTD Name     Review Selections	You have successfully completed the Database Wizard. Please review your selections.	
	Connection Information Connection type: NSSQL SequeLink Host name: phobos Port ID: 19996 SID: User name: kmelendr Selected Tables/Views DBEMP	
	OTD Information OTD Name: Employee_Table_OTD	
SEEBEYOND"	To close this wizard, click Finish.	

Figure 25 Database Wizard - Summary

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

# **Building an eWay Project**

This chapter discusses how to build an HP NonStop SQL eWay project in a production environment.

This chapter includes

- "Building a Project" on page 33
- "Alerting and Logging" on page 34
- "Creating the Project" on page 34
- "Common DataType Conversions" on page 37
- "Using OTDs with Tables, Views, and Prepared Statements" on page 37
- "Deploying a Project to an HP NonStop Server" on page 41

# 5.1 Building a Project

To meet your specific business challenge, you first need to identify your business needs and then create a Project that satisfies those needs. To create a Project, you need to identify which of the following components to include to control the flow of data:

- Services—A component that uses Collaboration Definitions to define how data should be routed between Project components. Collaborations are used when data translation is required.
- Topics—A component that is a shareable object conforming to the publish-and subscribe (pub/sub) messaging domain. This means that one publisher broadcasts messages to multiple subscribers, ensuring that all subscribers receive a message.
- Queues—A component that is a sharable object conforming to the point-to-point messaging domain. This means that one publisher sends a message to exactly one subscriber.
- External Applications—A component that connects to an external file. Different external applications allow eGate to connect with various types of databases and servers.

# 5.2 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*.

# 5.3 Creating the Project

Before beginning a project, you need to create a Project Folder. This folder will be comprised of all the components you identified as being part of your project or business process. For information on how to create a Project folder, please see the *eGate Tutorial*.

#### **Importing the Sample Project**

1 On the Enterprise Explorer highlight the repository and right click. Select **Import**. See **Figure 26**.

Figure 26 Importing the sample project



2 In the **Import Manager** window, **From ZIP file** browse to the location of the sample folder and select the following .zip file **HPNonStop\_SQL\_eWay\_Sample.zip** and click **Import**. See **Figure 27**.

rom ZIP file:		Browse.
Root project:	Root environment:	
Sample_Repository	Sample_Repository	-

#### Figure 27 Select the project file

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

# 5.3.1. Working with the Sample Project in eGate

This sample project selects the EMPNO, LASTNAME, FIRSTNAME, and the RATE columns from the table DBEmployee and publishes the record to an output file.

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

lable 2			
Column Name	Mapping	Data Type	Data Length
EMPNO	Empno	largeint	
LASTNAME	Lastname	char2	25
FIRSTNAME	Firstname	char2	25
RATE	Rate	float	

Table 1	Sample project data
	Table 2

The sample project consists of topic message containing data that is passed into a collaboration and out to the database.

#### Figure 28 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 a topic as well as an HP NonStop SQL eWay. To configure the sample project, use the following information. For additional information on the properties of the NonStop SQL eWay, see **"Setting the eWay Properties in the Connectivity Map" on page 9**.

#### To configure the HPNonStop eWay:

- 1 On the Connectivity Map canvas, double click the eWay icon located between the **Service1** and **NSSQL1**.
- 2 On the resulting **Templates** window, select **Outbound NSSQL eWay** and click **OK**.
- 3 On the **Properties** window, enter the appropriate configurations for the Outbound NSSQL eWay. See 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**.

# 5.3.3. Creating the External Environment

To review the components of the Sample project, there is an Outbound HP NonStop SQL eWay, and a topic.

To create the external environment for the Sample project:

- 1 On the Environment Explorer, highlight and right-click the HP NonStop SQL eWay profile. Select **Properties**.
- 2 Enter the configuration information required for your Outbound HP NonStop SQL eWay. See **"Setting the External Properties in the Environment" on page 14**.

# 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 a Sample project, see the "eGate Integrator Tutorial."

Once the process has completed, the database in the target directory configured in the Outbound HP NonStop eWay will update the database.

# 5.4 Common DataType Conversions

SQL Data Type	Methods to Use
LargeInt	java.math.BigDecimal
Char(n)	java.lang.String
Date	java.sql.Date
Decimal(m,n)	java.math.BigDecimal
Float	double
Int	int
Numeric(n,m)	java.math.BigDecimal
* see NonStop Server for Java Programmer's Reference(426947- 003)	java.lang.String
SmallInt	short
Time	java.sql.Time
TimeStamp	java.sql.Timestamp
Varchar(n)	java.lang.String

#### Figure 29 The HP NonStop SQL eWay Datatype Conversions

# 5.5 Using OTDs with Tables, Views, and Prepared Statements

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.marshalToString to Text
   FileClient_1.setText(
employeedb_db_employee_1.marshalToString() );
//@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() ) );
  Table OTD 1.getDB EMPLOYEE().insertRow();
//Table OTD 1.commit
 Table OTD 1.commit();
```

# The selectStream Method

The selectStream method of the NSSQL eWay is a limited implementation of the SQL/MX Pub/Sub functionality. The select Stream method performs continuous selects on the any new data inserted into the table. Any new data selected by the selectStream is then subsequently deleted automatically from the table.

The selectStream method treats a SQL table as a work queue whereby all existing and any new rows inserted into the table are returned in the subsequent next() method call and any rows returned by the selectStream are removed automatically from the table as one integral operation. A time-out feature is also available allowing you to programmatically determine if your program will continue receiving rows from the table after a period of inactivity. The selectStream method relies on the NS SQL/MX advanced queuing feature.

```
try {
//EMPLOYEE.selectStream("")
empTables_1.getEMPLOYEE().selectStream("");
...
//while EMPLOYEE.next
while (empTables_1.getEMPLOYEE().next()) {
// Do work for each row
}
catch ( java.sql.SQLException sqlExp ) {
if (sqlExp.getErrorCode() == -8006) {
// Timeout
} else {
logger.info("....Timeout" + sqlExp.getErrorCode())
}
...
}
```

# 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();
//Copy "Update completed" to Text
 FileClient 1.setText( "Update completed" );
//FileClient 1.write
 FileClient_1.write();
```

# The Delete Operation

To perform a delete operation on a table

- 1 Execute the **delete()** method.
- 2 Move to the row that you want to delete.
- **3** Delete the row by calling **deleteRow()**.

In this example DELETE an employee.

```
//DB_EMPLOYEE.delete("EMP_NO = '".concat(EMP_NO).concat("'"))
Table_OTD_1.getDB_EMPLOYEE().delete( "EMP_NO = '".concat(
    employeedb_with_top_db_employee_1.getEMP_NO() ).concat( "'" ) );
}
```

# 5.5.2 Prepared Statement

A Prepared Statement OTD represents a SQL statement that has been compiled. Fields in the OTD correspond to the input values that users need to provide.

Prepared statements can be used to perform insert, update, delete and query operations. A prepared statement uses a question mark (?) as a place holder for input. For example:

```
insert into EMP TAB(Age, Name, Dept No) value(?, ?, ?)
```

To execute a prepared statement, set the input parameters and call **executeUpdate()** and specify the input values if any.

```
getPrepStatement().getPreparedStatementTest().setAge(23);
getPrepStatement().getPreparedStatementTest().setName("Peter Pan");
getPrepStatement().getPreparedStatementTest().setDeptNo(6);
getPrepStatement().getPreparedStatementTest().executeUpdate();
```

# 5.6 Deploying a Project to an HP NonStop Server

To deploy a project on an HP NonStop Server, please see the "*eGate Integrator User's Guide*".

# **Appendix A**

# **Known Limitations**

The JDBC Driver for SQL/MX conforms to the Sun Microsystems JDBC 2.1 API specification. This appendix describes the JDBC methods that are not supported. The JDBC features that conform to the specification are not described in this appendix.

#### This chapter includes

- "Overview" on page 42
- "Non-Implemented Interfaces" on page 43

#### 1.1 **Overview**

The JDBC Driver for SQL/MX conforms to the Sun Microsystems JDBC 2.1 API specification. This appendix describes the JDBC methods that are not supported. The JDBC features that conform to the specification are not described in this appendix.

For additional information on the following non-supported packages and JDBC/MX compliance in general, see the following documents available from HP.

- SQL/MX Reference Manual
- JDBC Driver for SQL/MX Programmer's Reference (ver 2.1)

#### The selectStream Method

The selectStream functionality of the NonStop SQL eWay is a limited implementation of the SQL/MX Pub/Sub functionality. The **selectStream** functionality performs continuous selects on any new data inserted into the table and any data selected by the **selectStream** is subsequently deleted from the table.

The **selectStream** method views a SQL table as a work queue whereby all existing and any new rows inserted into the table are returned in the subsequent **next()** method call automatically removing any rows returned by the **selectStream** from the table as one integral operation. A time-out feature allows you to programmatically decide whether to continue receiving rows from the table after a period of inactivity. The **selectStream** method relies on the NonStop SQL/MX advanced queuing feature.

# **1.2** Non-Implemented Interfaces

The following interfaces in the **java.sql** package are not implemented in the JDBC Driver.

- java.sql.Array
- java.sql.Blob
- java.sql.CallableStatement
- java.sql.Clob
- java.sql.Ref
- java.sql.SQLData
- java.sql.SQLInput
- java.sql.SQLOutput
- java.sql.Struct
- *Note:* This eWay supports only those data types handled by the JDBC driver for NonStop SQL/MX.

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