Configuring Warehouse Builder Data Sources: Lotus Domino

## Overview

Warehouse Builder can pull data from Lotus® Domino® databases on a Lotus Domino server on iSeries (AS/400). Here are the general setup steps:

1. Verify your STRATEGY installation. See p. 4.

2. Set up an ODBC data source. Add or configure a Lotus data source. See p. 5.

3. Modify the showcase.cfg file. Add a Lotus driver definition pointing to your data source. See p. 8.

4. Start the Enterprise Server. The Enterprise Server links your control server and your database. See p. 9.

5. Create a data source mapping. Map an ODBC connection used at definition time to the Enterprise Server connection used at run time. See p. 9.

6. Connect to your new data source. Open your Lotus Domino data with Warehouse Builder. See p. 11.

Figure 1 shows the components you will use to configure your Lotus data source.

1/25/02

Figure 1 *Components used in configuration*
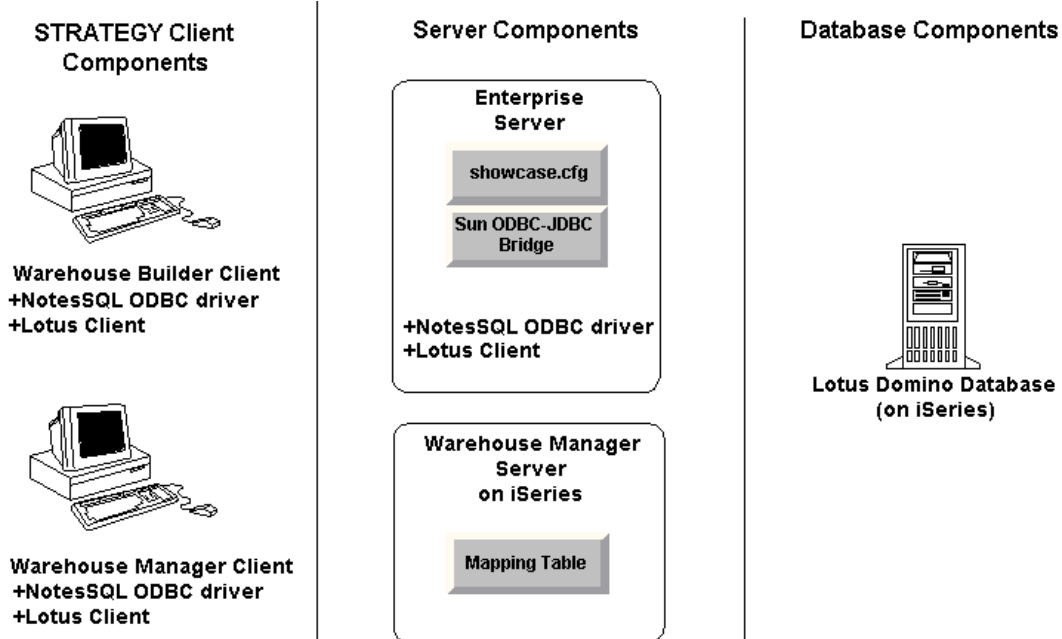
Prerequisites

Before you begin configuration, make sure your environment is ready:

❑ **STRATEGY.** A minimum of version 4.1 with patch 3 or later. Requires these components:

- **Warehouse Manager Server.** Control server on your iSeries.

- **Warehouse Builder Client**. Specifies Lotus database (source) and iSeries target table. Install on Windows 95, 98, NT, or 2000.

- **Warehouse Manager Client**. Configures Data Source Mapping. Install on Windows 95, 98, NT, or 2000.

- **Enterprise Server.** Provides the connection between the Warehouse Builder control server on the iSeries and the database. Install on a PC with Windows 2000 or Windows NT 4.0 or later. Enterprise Server includes the following components:
  - **showcase.cfg file**
  - **Sun ODBC-JDBC Bridge**

❑ **Lotus Domino Server 5.0.5 or later for iSeries.** Can run on any supported iSeries.

❑ **Lotus Notes® SQL 3.00 ODBC Driver.** Provided by Lotus (www.lotus.com). Install on the PCs running Enterprise Server, Warehouse Builder, and Warehouse Manager Client.

The driver requires one of the following Lotus client products, which must be licensed, installed, and configured on the PCs running the driver.

- Lotus Notes Designer version 4.6 or later

- Lotus Notes Client version 4.6 or later

- Domino Off-Line Services version 1.01 or later

❑ When you are configuring data sources from non-DB2 systems, the user profile CCSID for the Warehouse Builder running distributions *cannot* be 65535 (*HEX). On Japanese systems, the CCSID *cannot* be 290, or 5026.

Lotus Domino Data Type Mappings

Table 1 shows how the iSeries maps Lotus Notes data types. Those not shown are not supported.

Table 1 *Lotus Notes data type mappings*

Lotus Notes Data Type	Lotus Notes ODBC Types	iSeries Target Data Type
Numbers in fixed format	DECIMAL(15,scale)	DECIMAL (15, scale)
Numbers in varying format	FLOAT(15)	FLOAT (15)
Time	TIME(8)	TIME (hour, minute, second)
Date	DATE(10)	DATE (year, month, day)
Time/Date	TIMESTAMP(19)	TIMESTAMP (year, month, day, hour, minute, second)
Text	VARCHAR*	VARCHAR**
Keyword	VARCHAR*	VARCHAR**
Multi-value list	VARCHAR*	VARCHAR**

*Length can vary up to 15,360 bytes per column. For Lotus VARCHAR data type considerations, see the third bullet under "Warehouse Builder Run-Time Hints" on p.13.

**Can be any length up to 15,360 bytes per column.

Notes:

- Numeric values greater than 10 to the 99th power are not supported. Some products that use ODBC drivers have limitations on the exponent and precision size of real numbers. Please check the limits of the product you are using for additional limit information.

- The Lotus Notes TIMESTAMP type does not support fractions of a second.

- For details about functionality, limitations, valid SQL syntax, and data types related to the Lotus NotesSQL ODBC driver, see your Lotus NotesSQL documentation.

Domino Security with STRATEGY

The following guidelines apply as a result of NotesSQL ODBC driver security:

Domino Field Level Security. Not supported.

Domino Form Level Security. If you set form level security after records are in the form, users secured from reading the form will still see the original records. Users won't see records added after you apply form security.

Domino Database Level Security. Supported.

Configuring Your Environment

The next sections lead you through the steps to configure your STRATEGY environment to pull data from your Lotus Domino database with Warehouse Builder.

Step 1: Verify Your STRATEGY Installation

► Verify that you have installed a minimum of version 4.1 with patch 3 or later, including Warehouse Manager Server, Warehouse Builder client, Warehouse Manager Client, and Enterprise Server.

To verify the correct version, open any STRATEGY component, and on the *Help* menu, click *About*. If the version number is *4.10.030* or greater, continue to "Step 2: Set Up ODBC Data Sources" on p.5.

If you must update your STRATEGY setup, continue with Step 1.

► When you install STRATEGY PC components, choose Warehouse Builder, Warehouse Manager, and Enterprise Server, as shown in Figure 2. You may install these components on separate PCs if your situation warrants it.

The ODBC-JDBC bridge and showcase.cfg file are installed with Enterprise Server.

Figure 2 *Selecting STRATEGY installation components*
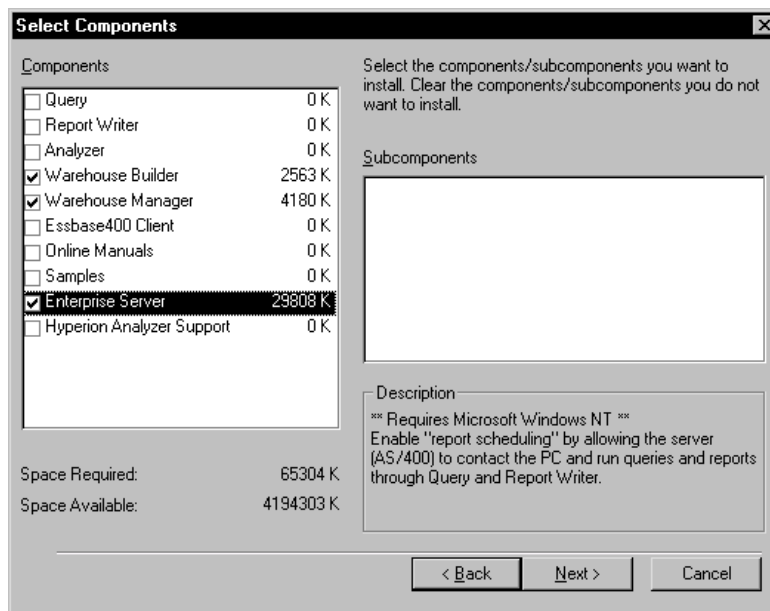
► Download and install STRATEGY 4.1's patch 3 or later from the ShowCase division Support Web site at http://support.spss.com.

Step 2: Set Up ODBC Data Sources

Set up ODBC data sources on each PC hosting Warehouse Builder, Warehouse Manager Client, and Enterprise Server.

▶ On the Windows *Start* menu, choose:

Programs
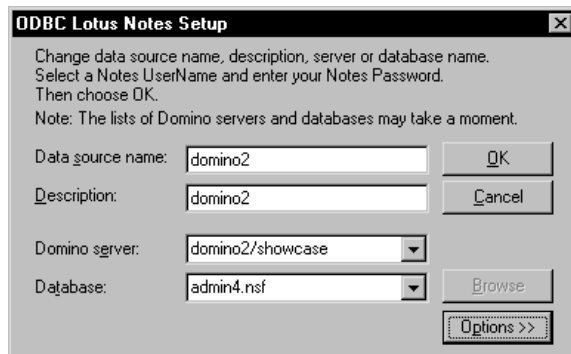
  ShowCase STRATEGY

    Microsoft ODBC Administrator

▶ To add a Lotus data source, click *Add*.

This opens the *Create New Data Source* dialog box.

▶ Choose *Lotus NotesSQL Driver (*.nsf)*, and click *Finish*.

This opens the *ODBC Lotus Notes Setup* dialog box, as shown in Figure 3.

Figure 3 *ODBC Lotus Notes setup*

▶ Type a name for your Lotus data source.

▶ Write the name of your data source here. You will use this name in "Step 3: Modify showcase.cfg File" on p.8 and "Step 5: Create a Data Source Mapping" on p.9.

Lotus data source:_____

▶ In the *Domino server* drop-down list, choose the Domino server where your database resides. If your Notes ID is password-protected, you will be prompted for a Lotus Notes password to access your database.

If you are unable to retrieve your database, see your administrator or Lotus documentation.

▶ In the *Database* drop-down list, choose the database you want to pull data from. If you are unable to retrieve a database list, see your administrator or Lotus documentation.

Note: You must create a separate data source for each database you want to access.

Setting Text Field Length

Warehouse Builder uses the length of your source fields to determine the default length of target fields, yet Lotus Domino text fields are not declared with a maximum size. Therefore, you must use the NotesSQL ODBC driver to specify the length of VARCHAR (text) fields. The length can be a constant size up to 15,360 characters. However, when you move your Lotus data to the iSeries, the total length of your target table record cannot exceed 32K.

For example, if you set the maximum length of your text fields to 8192, any definition with more than four text fields will fail (4 x 8192=32K).

To set the length the NotesSQL ODBC driver uses for VARCHAR (text) fields:

▶ In the *ODBC Lotus Notes Setup* dialog box, click *Options*.

▶ In the box labeled *Max length of text fields*, type the number of characters the ODBC driver transfers to each of your target table columns (up to 15,360), as shown in Figure 4.

For maximum performance, do not set the length greater than needed to handle the longest field. Remember that total length of all fields for the target table cannot exceed 32K.

Figure 4 *Setting text field length*
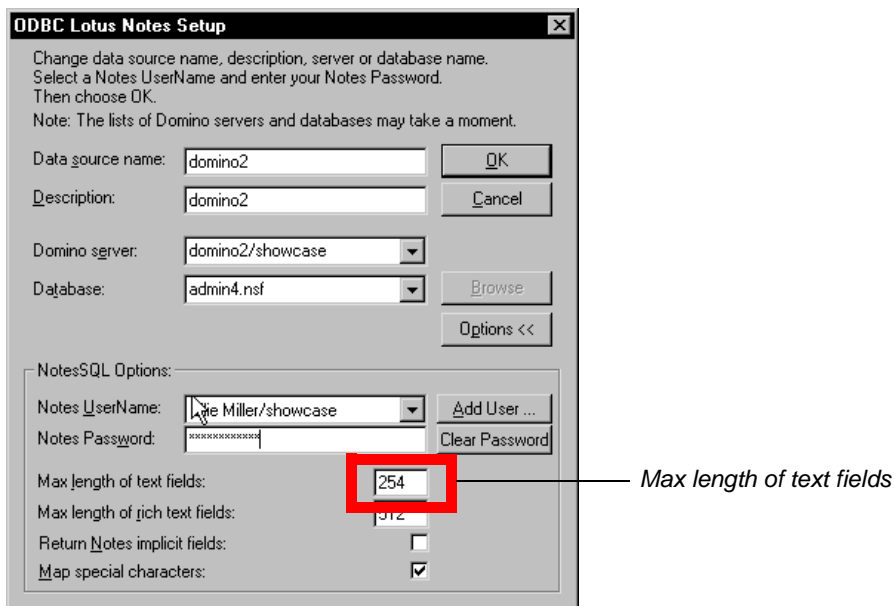
If this PC is hosting Warehouse Builder or Enterprise Server, continue with "Adding User .id Files" on p.6. Otherwise, click *OK* to complete your ODBC Lotus Notes setup.

Adding User .id Files

You must add user .id files on:

■ The PC hosting Warehouse Builder.

■ The Enterprise Server PC. All Enterprise Server users must be added to the Notes UserName drop-down list. You can add using local .id files (instructions below) or with the NotesSQL Administrative Tool.

To add user .id files and passwords:

▶ In the *ODBC Lotus Notes Setup* dialog box, click *Options.*

▶ If the user name is not in the *Notes UserName* drop-down list, click *Add User*, as shown in Figure 5.

Figure 5 *Additional ODBC Lotus Notes setup for Warehouse Builder or Enterprise Server PC*

This opens the *Add New User* dialog box, as shown in Figure 6.

Figure 6 *Adding your user .id file*
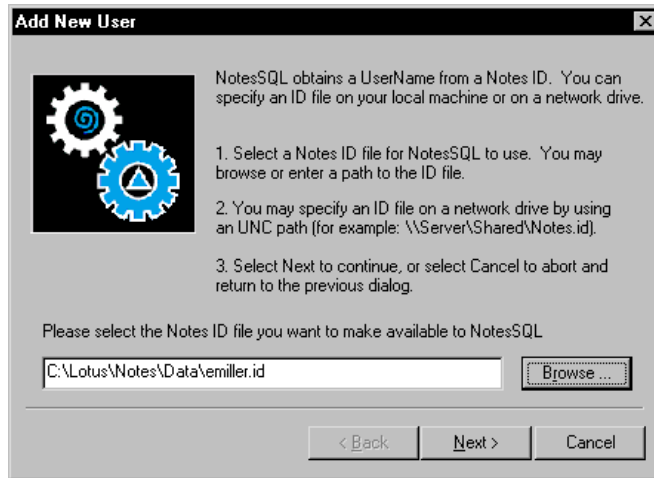
▶ Click *Browse*, and locate your Lotus user .id file.

  Example: *C:\Lotus\Notes\Data\emiller.id*

▶ Click *Next*.

▶ Click *Finish*.

▶ **For the Warehouse Builder PC only:** In the *ODBC Lotus Notes Setup* dialog box, choose your *Notes UserName* and type your *Notes password*, as shown in Figure 5.

▶ Click *OK*. You have set up your ODBC data sources.

Step 3: Modify showcase.cfg File

The showcase.cfg file is installed with the Enterprise Server component. If you cannot find the file on your system, make sure you installed the Enterprise Server.

▶ Use a text editor to open your showcase.cfg file. It is located in the folder where you installed STRATEGY.

  Example: *C:\Program Files\ShowCase STRATEGY\proddata\config\showcase.cfg*

  Note: You can copy the configuration file to the userdata directory. For example: *C:\Program Files\ShowCase STRATEGY\userdata\config\showcase.cfg*

  When the Enterprise Server starts, it reads the configuration files from the *proddata* and *userdata* directory. Configuration file properties in the *userdata* directory will override those in the *proddata* directory. STRATEGY installations will never overwrite the *userdata* directory. Therefore, you won't lose *userdata* directory settings when you install new software.

▶ Locate the [LotusNotesDatasource1] section of your .cfg file. If your .cfg file does not have a Lotus Notes section, copy the following Lotus Notes information and paste it into the *Driver*

Definition Properties section in the showcase.cfg file.

```
[LotusNotesDatasource1]

showcasecorp.driverClassName=sun.jdbc.odbc.JdbcOdbcDriver
showcasecorp.driverURL=jdbc:odbc:YOURDominoDATASOURCEname

# Trace properties used only by this driver definition.
# Note: Turning these properties on can dramatically reduce
# performance.

# showcasecorp.traceService=ALL
# showcasecorp.traceLevel=ALL
# showcasecorp.traceUser=ALL
# showcasecorp.traceLog=scserver.log
```

▶ Replace YOURDominoDATASOURCEname with the data source you named on p. 5.

▶ Save and close the showcase.cfg file. You are finished modifying it.

Step 4: Start the Enterprise Server
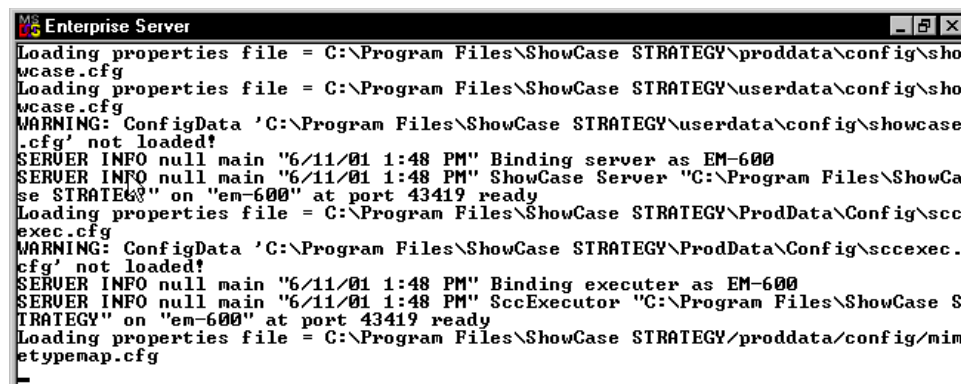
▶ On the Windows *Start* menu, choose:

Programs

ShowCase STRATEGY

Enterprise Server

When the Enterprise Server starts, you will see a window similar to Figure 7.

Figure 7 *Enterprise Server*


▶ You can minimize this window, but do not close it.

Step 5: Create a Data Source Mapping

Here you will save your data source information in your control table and specify the Enterprise Server information to use at run time. You must create a mapping for each database.

▶ Open Warehouse Manager Client, and connect to your iSeries data source.

▶ On the *Manage* menu, choose *Data Source Mapping.* This opens the *Data Source Mapping* dialog box.

▶ Click *Add.* This opens the *Add an ODBC to JDBC Data Source Mapping* dialog box.

▶ In the *Data Source Name* drop-down list, choose the Lotus data source you named on p. 5.

▶ Click *Retrieve.* If your Notes ID is password-protected, you will be prompted for a Lotus Notes password to access your database.

In the *ODBC Connection* section, your SQL server name (Domino server) and SQL database name (the .nsf file you chose on p. 5) appear, as shown in Figure 8.

Figure 8 *Mapping your ODBC data source*
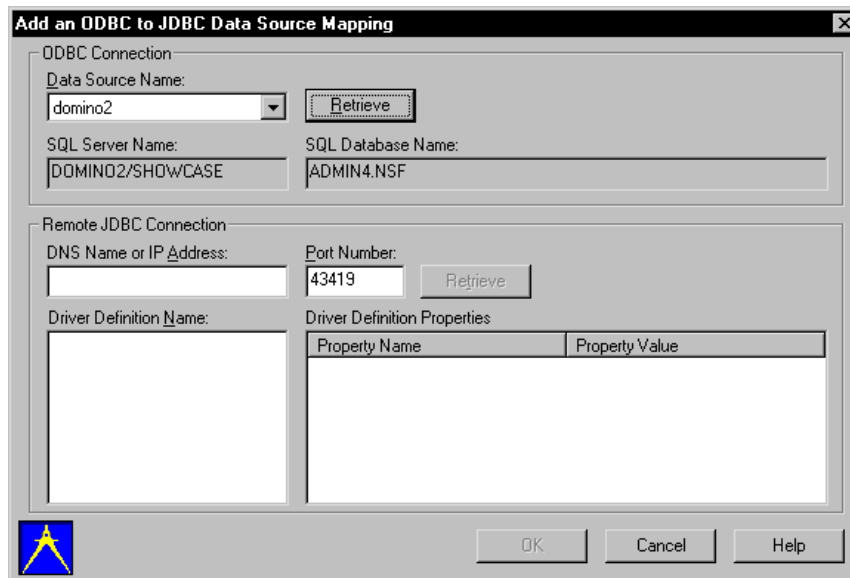
▶ In the *DNS Name or IP Address* section, type the name or IP address of the PC running Enterprise Server.

▶ Type your Enterprise Server port number. Typically, the port number is *43419.*

Note: This port number is the default port on the Enterprise Server PC. It is not the same port as your iSeries server port.

▶ Click *Retrieve.* If you receive and error message, make sure your Enterprise Server is running.

▶ In the *Driver Definition Name* section, select your data source driver definition. The name matches the bracketed heading for the Lotus section in the showcase.cfg file. The sample (on p. 9) is `[LotusNotesDatasource1]`. See Figure 9.

Figure 9 *Mapping your driver definition*
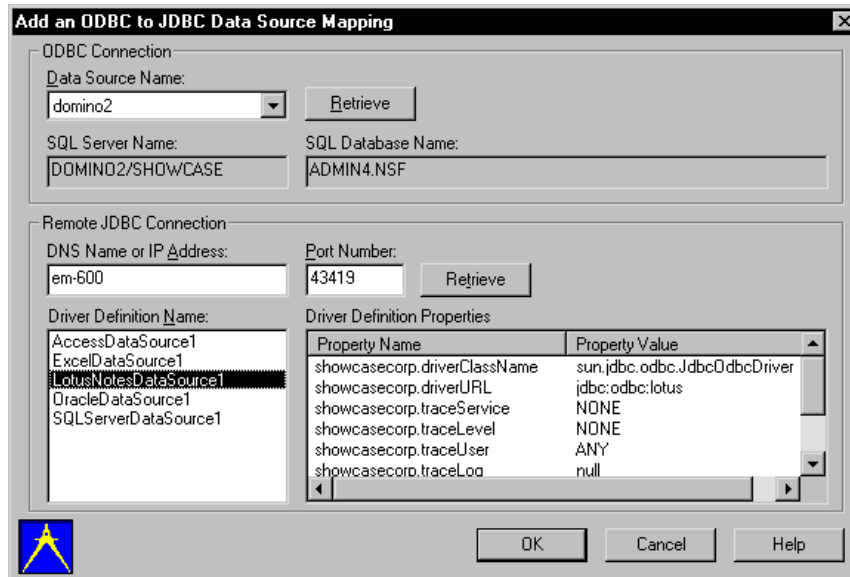
► In the *Driver Definition Properties* section, verify that you've chosen the correct driver definition.

Notes: The combination of the SQL Server Name and SQL Database Name must be unique. The combination of the DNS Name/IP Address, Port Number, and Driver Definition Name must be unique. That is, no two mappings can have the same combination of these values.

► Click *OK* to update the iSeries control table with your mapping.

Step 6: Connect to Your New Data Source

► Open Warehouse Builder, and sign on to your control server.

► In the *Warehouse Builder Assistant* dialog box, click *OK* to create a new definition. (If the *Warehouse Builder Assistant* dialog box is not already displayed, select *File | New | New.*)

► In the *Source and Target Servers* dialog box, choose your new source server data source (Lotus Domino), as shown in Figure 10.

If your Notes ID is password-protected, you will be prompted for a Lotus Notes password to access your database.

Figure 10 *Choosing your new data source*
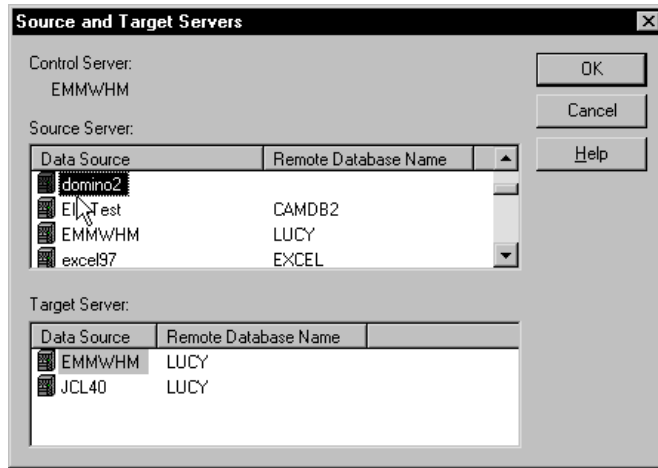
▶ Select the target server, and click *OK*.

▶ Continue to create your definition.

▶ When you run your definition, make sure the Enterprise Server is running. To start it, see "Step 4: Start the Enterprise Server" on p.9.

Hints and Troubleshooting

General Hints

■ Each time you modify the showcase.cfg file, end the Enterprise Server (Ctrl+C), and then restart it to allow the updates to take effect.

■ If you cannot find the showcase.cfg file on your system, make sure you installed the Enterprise Server. The .cfg file is installed with the Enterprise Server.

■ When you move Lotus Domino data to the iSeries, the NotesSQL ODBC driver maps certain characters to the underscore character (_) on forms, views and their aliases, form fields, and view columns. For each data source, you can choose whether to allow the special character mapping. The default is to map the names. We recommend using the default unless it causes a form or view to be inaccessible, which can happen when two similar names (for example, "*Employees$*" and "*Employees_*") are mapped to the same name.

The characters mapped are ~ ` ! @ # $ % ^ & * ( ) - + = { } [ ] \ : ; " ' < > , . / ? and the space character.

To retain your original data and avoid character mapping:
Open the Microsoft ODBC Administrator, choose your Lotus data source, and click *Configure* to view your ODBC Lotus Notes Setup. Click *Options*, and uncheck the box labeled *Map special characters*, as shown in Figure 11.

■ Note that the SCCHKPWD utility for changing passwords does not work with Domino data sources.

Figure 11 *Avoiding character mapping*
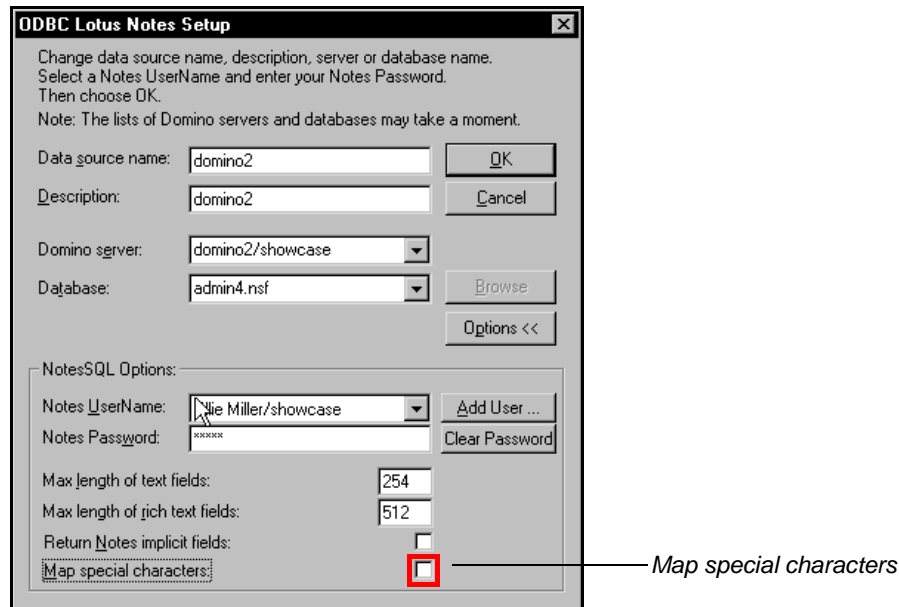
Warehouse Builder Definition Hints

- When creating a definition, if you receive an error that your mapped database cannot be found, check your SQL Server name and SQL Database name in the Data Source Mapping you specified in "Step 5: Create a Data Source Mapping" on p.9. They must match your Domino Server name and Database name in the ODBC Data Source Administrator.

Warehouse Builder Run-Time Hints

- If you receive errors running your SELECT statement in Warehouse Builder, test the SELECT statement in Query or another query application.

- If you cannot run your definition after you create it, make sure your Enterprise Server is running.

- If you receive a connection error during run time or in Data Source Mapping, make sure your Enterprise Server and Warehouse Manager Server library are at the same STRATEGY release and patch levels.

- If you are using Enterprise Reporting and have the *QUTCOFFSET* set on your system, your start and end time statistics for scheduled queries will be off by that amount unless you also set a time zone. To set the correct time:

  1. Change the *QUTCOFFSET* system value to *-0.00*.
  OR
  Create an IFS file called */Qibm/UserData/Java400/SystemDefault.properties*.
  In this file, enter one line specifying the user time zone. **Example:** *user.timezone=CST*

  2. Restart the Warehouse Manager Server. Then restart any Java applications by stopping and restarting the HTTP server using the commands *ENDTCPSVR *HTTP* and *STRTCPSVR *HTTP*. You may also need to adjust the *QUTCOFFSET* system value for Daylight Savings time.

  For more information, see your IBM documentation.