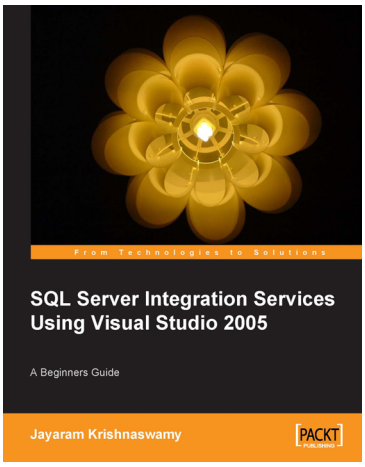
SQL Server Integration Services Using Visual Studio 2005

A Beginners Guide

Jayaram Krishnaswamy



Chapter No. 13

"Package to Copy a Table from Oracle XE"

In this package, you will find:

A Biography of the author of the book

A preview chapter from the book, Chapter NO.13 "Package to Copy a Table from Oracle XE"

A synopsis of the book's content

Information on where to buy this book

About the Author

Jayaram Krishnaswamy has been working in IT related fields since 1997. He was once a Microsoft Certified Trainer in Networking and a Siebel developer. He has worked with several IT related companies, such as Butler International in their Siebel practice; several other IBM sub-contractors, and smaller companies.

At present, he is active in writing technical articles in the IT field to many online sites such as Code Project.com, ASPFree.com, DevShed.com, DevArticles.com, OfficeUsers.com, Aspalliance.com, and many others. During 2006-2007 he wrote more than 200 articles, mostly related to database and web-related technologies covering Microsoft, Oracle, Sybase, ColdFusion, Sun, and other vendor products.

SQL Server Integration Services Using Visual Studio 2005

A Beginners Guide

SQL Server Integration Services, with the acronym SSIS, is a comprehensive ETL tool that made its debut with SQL Server 2005. It is a tool tightly integrated with Visual Studio 2005, having all the functionalities that its forerunner DTS (Data Transformation Services) had in SQL Server 2000. This does not mean that it is just an improvement over DTS, but a product that is totally different with a vastly improved interface; an extensible architecture; an enlarged tool set; ease of integration with other SQL Server Tools such as Analysis Services; capable of supporting connectivity with third party databases, and bringing into a central location many database management tasks.

Beginners Guide to SQL Server Integration Services Using Visual Studio 2005 provides you with the basic knowledge that you should have before you move onto more advanced ETL (Extraction, Transformation, and Loading). This step-by-step, hands-on guide will take you right into the Visual Studio 2005 Integrated Development Interface, making you appreciate and understand how Business Intelligence Projects and Packages are created using the Visual Studio designer. The book will also provide you with a comprehensive description of the many designer windows that you may encounter while working with the designer. This guide provides the building blocks, describing each block by way of an example, as well as describing the nuts and bolts that bind the blocks. You start building packages right from Chapter 2 and continue onto Chapter 20, gathering and building upon your knowledge in each step.

What This Book Covers

Chapter 1 will see the various roles played by SSIS in the enterprise business. You will also learn about the various objects used in SSIS, most importantly the Package object; the Control Flow Elements; the Data Flow Components; the Event Handlers, and other miscellaneous features of the VS 2005 IDE.

Chapter 2 will take a look at how to create your first business intelligence project for SSIS using the Visual Studio 2005 IDE. You will be introduced to the many windows that are used by SSIS specifically, and a few other windows of the VS 2005 IDE used for projects and solutions. The hands-on exercise at the end of the chapter helps you to examine on your own the key features of the IDE as well as how you may retrieve a VS 2005 created package using the SQL Server 2005 Management Studio.

Chapter 3 will cover how to send a mail by creating the Send Mail Task using the SMTP server that you can access. If you are not sure about your SMTP Server, you may find that Hands-On Exercise 2 gives you a better understanding of how to access the SMTP server.

Chapter 4 will take a look at how to create a SSIS package that transfers a table on your SQL Server 2005 to a fl at file on your C:\ drive. You will also learn how to work with the Connection Managers that are so essential for data transformation tasks.

Chapter 5 will see how to create a SSIS package that transfers a table on your SQL Server 2005 database to an Excel spreadsheet. You will also learn how to connect to an Excel data destination.

Chapter 6 will create a package that transfers data from a table on SQL Server 2005 to a MS Access Database. You will learn how to work with the Data Viewer that monitors the data flow.

Chapter 7 will create a package that uses the Bulk Insert Task to transfer data in a text file on your computer to a table in the SQL Server 2005. You will also learn about creating a table on SQL Server 2005 using the Management Console.

Chapter 8 will create a package that conditionally splits the data from a SQL Server 2005 query and sends them to multiple destinations. You will also learn to work with Recordset Destination, an in-memory ADO Recordset Object, and use it to display the results of data splitting. In addition, you will learn about using Variables in a SSIS Package.

Chapter 9 will create a package that can aggregate data from a database using the Aggregate Data Transformation. You will extract data from a SQL Server 2005 and load it into a Recordset Object to review the aggregated results.

Chapter 10 will create a package that converts the data extracted from an Excel spread sheet source before loading it into a MS Access Database. You will also learn how to direct the data that is not accepted by the destination to another destination using the errors in data transformation.

Chapter 11 will create a package that shows you how to work with the XML Task. You will learn how to find differences between two XML files as well as applying XSLT (Transformation) to convert an XML file to an HTML file.

Chapter 12 will cover how to work with the various options of a File System Object and how to use a precedence constraint that orders the tasks before executing the Package. You will learn how to copy a file from one location on your computer to another.

Chapter 13 will take a look at how to copy a table on an Oracle 10G XE database to a database on the SQL Server 2005. You will also learn how to install an Oracle 10G XE server and work with its database objects.

Chapter 14 will create a package that returns the value returned by accessing a Web Service Task. You will also learn how to create a Web Service Task in Visual Studio 2005.

Chapter 15 will create a package that uses a Transfer Database Task from one SQL Server to another SQL Server (a different version). You will also learn how to access a SQL Server database on a network node.

Chapter 16 will create a package that uses event handlers and you will be learning about OnError and on OnPostExecute events. You will also learn about the ExecuteSQL Task as well as the Execute Process Task.

Chapter 17 will create a package for transferring files using the File Transfer Task. You will learn to work with both a local FTP site as well as a remote FTP site.

Chapter 18 will create a package using the ActiveX Script Task. You will have access to a fully commented code to help you along. You will be using this task to work with a word document; SQL Server Management Objects; and an internet browser object.

Chapter 19 will talk about the Script Task by creating packages that you use to interact with your file system as well SQL Server 2005 for a variety of tasks, such as making a simple calculation to retrieving data sets and loading into text files.

Chapter 20 will create a package that uses a Management Plan Task to backup a database on SQL Server 2005. You will also get a general understanding of the Management Plan tasks.

13
Package to Copy a Table from Oracle XE

Modern business enterprises have to contend with resources from disparate vendors of databases for many different reasons, that includes historical: new developments in technology; cost concerns; acquisition of resources (M & R), etc. For example, although a large hospital might have its main database using Oracle or SQL Server 2005, the various departments and cost centers may use other products. In these cases, it is important to have the capability of easily transferring objects from one vendor type product to the other. Every database vendor provides a built-in toolset to address the migration of database objects, or whole databases to another vendor type database.

Although this tutorial describes the details of copying a *Table* from Oracle 10G XE to an SQL Server 2005 database using a SSIS task, you should review an earlier article (`http://www.devshed.com/showblog/28087/StepByStep-Guide-to-Importing-Data-from-Oracle-XE-to-SQL-2005/`), which uses the IMPORT / EXPORT utility to import data from Oracle 10G XE to SQL Server 2005.

In this exercise, we will transfer a Table from the **hr** database on the local Oracle 10G XE server to the *MyNorthwind* database on the local SQL Server 2005 using a Data Flow Task. In order to follow the steps indicated, you will need a source and a destination—the source, data extracted from an Oracle 10G XE server and the destination, loading this to *MyNorthwind* database on the SQL Server 2005. You also need to establish a path connecting them.

Hands-On Exercise: Transferring a View from Oracle 10G XE to an SQL Server 2005 Database

The following are the major steps in this exercise:

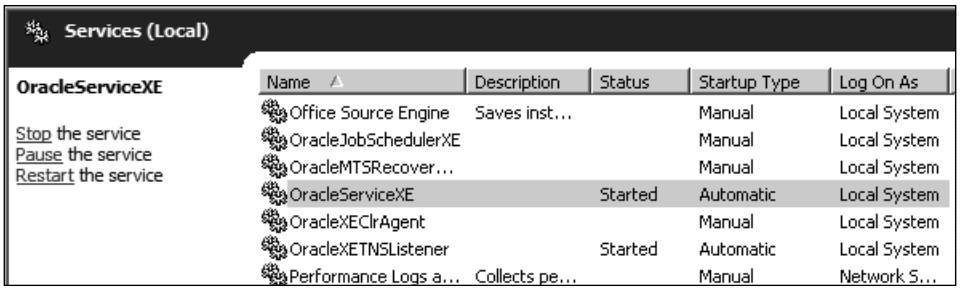
- Installing and viewing objects on the Oracle 10G XE.
- Creating a BI project and adding a Data Flow Task.
- Adding an OLE DB Source and configuring it to connect to a local Oracle 10G XE Server.
- Configuring the OLE DB Source.
- Adding an SQL Server Destination and configuring its connection manager.
- Establishing a path from the OLE DB Source to the SQL Server Destination.
- Configuring the SQL Server Destination Component.
- Building and executing the package.

Oracle 10G XE Server

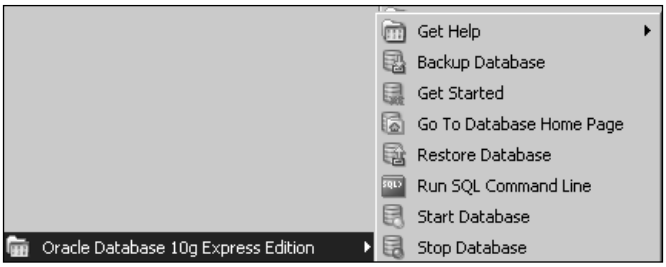
The Oracle 10G XE is available as a free download from Oracle's website (`http://www.oracle.com/technology/software/products/database/xe/index.html`). Downloading and installing Oracle 10G XE is fully described in the tutorial (`http://www.devshed.com/c/a/Oracle/Experience-the-Possibilities-with-Oracle-10g-Express-Edition`).

Starting and Stopping the Oracle 10G XE Server

With the Oracle 10G XE installed, you should be able to configure its stop / start mode using the Window's Services. From **Start** you can get to the **Services** folder after clicking **Control Panel**, **Administrative Tools**, and **Services** in succession. This opens the **Services** window as shown in the next screenshot where you can scroll down to the Oracle XE Server. Here, you can click on the hyperlinks in the left to stop, restart or pause the service.



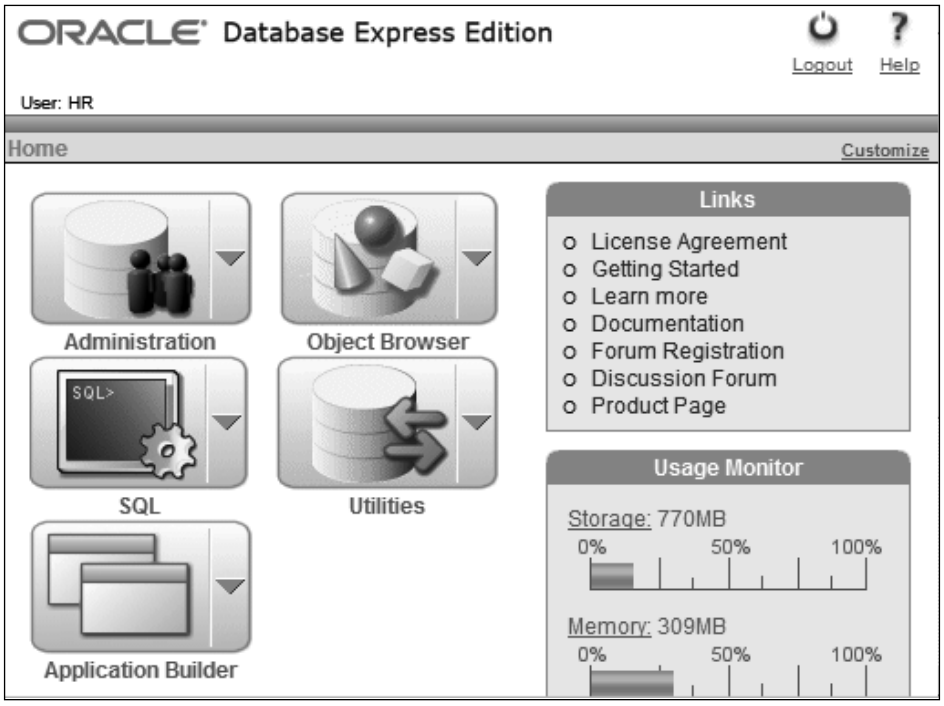
Another convenient way is to use the shortcuts installed when the Oracle 10G XE is installed, as shown in the next screenshot. Some times the short-cuts could get displaced and it is a better practice to look up in the **Services** folder. The shortcut also gives you access to the home page of the database.



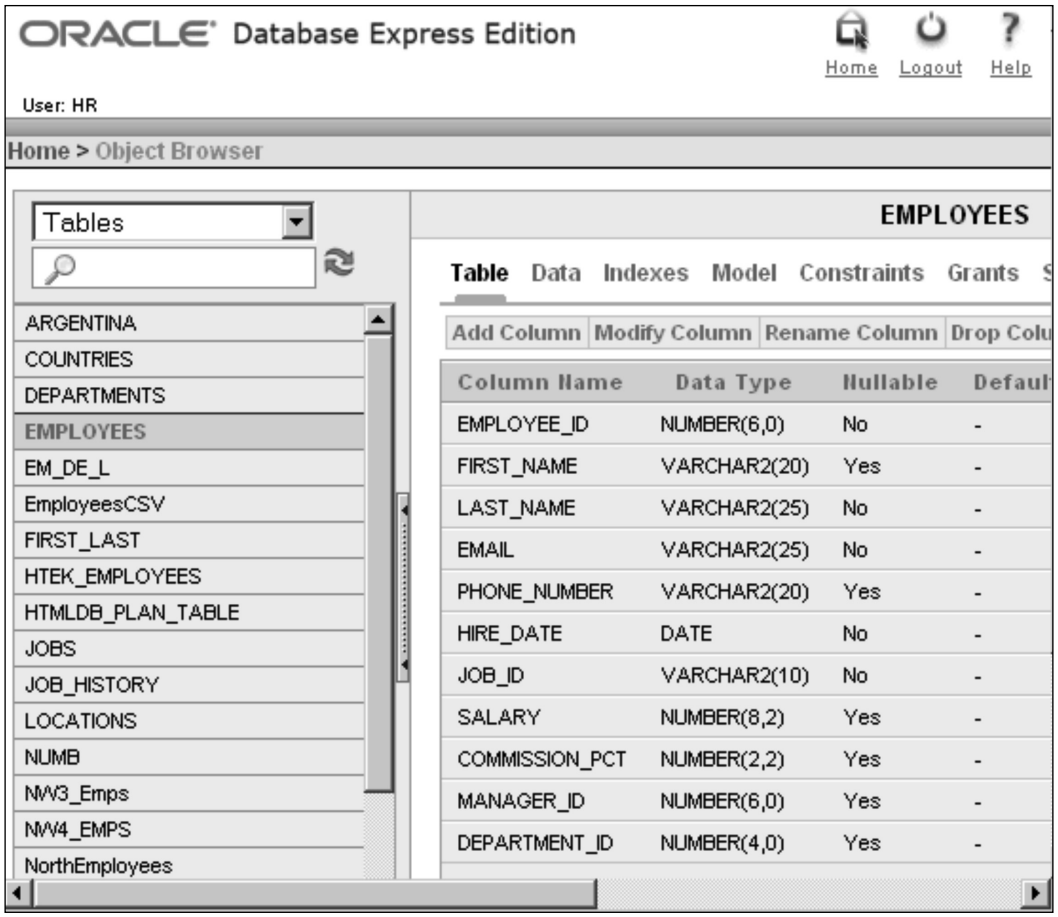
Using the Object Browser

Go To Database Home Page shortcut takes you to the Oracle 10G XE database. Using this HTML page, you will be able to administer, as well as use, its various tools discussed in the link provided at the beginning of this section. You can find links to a number of tutorials all dealing with this database at the author's blog (`http://hodentek.blogspot.com/2006/11/links-to-my-oracle-10g-xe-articles.html`). When the browser opens up, as shown in the next screenshot, you need to provide the username and password, which are **hr** and **hr**.

When you click on the button **Login**, you will open the **Home** page as shown in the next screenshot. You may click on the **Object Browser** component in the **Home** page.



The **Object Browser** is the user interface to do everything with the database objects. Here, you can review tables, views, stored procedures, etc. In the drop-down menu with the **Tables** chosen, you will be able to see the details of the Table, **EMPLOYEES,** as shown in the next screenshot.



Step 1: Creating a BI Project and Adding a Data Flow Task

This process has been described a number of times in the previous chapters.

1. Create a BI project **Ch13**. Change the name of the default package name to `OraTo2k5.dtsx`. Drag and drop a **Data Flow Task** from the **Control Flow Items** group in the **Toolbox** to the **Control Flow** page on the Canvas.

   An instance of the **Data Flow Task** will be added to the Canvas to the **Control Flow page**.

Step 2: Adding an OLE DB Source and Configuring it to Connect to a Local Oracle 10G XE Server

1. Drag and drop a **OLE DB Source** from the **Data Flow Sources** group in the **Toolbox** to the **Data Flow** page of the Canvas.
2. Right-click an empty area in the **Connection Managers**' page in the Canvas, and from the pop-up menu choose **New OLE DB Connection…**

   (The detailing of what to do next is abbreviated as this has been dealt in an earlier chapter). This opens the **Configure OLE DB Connection Manager**'s window. The left-hand area shows all existing data connections under **Data Connections:** label and the right-hand area shows the details of the data connection you choose on the left under the label **Data connection properties**. On the right side, below you will find the **New…** button to create a new OLE DB Connection.
3. Click on the **New…** button.

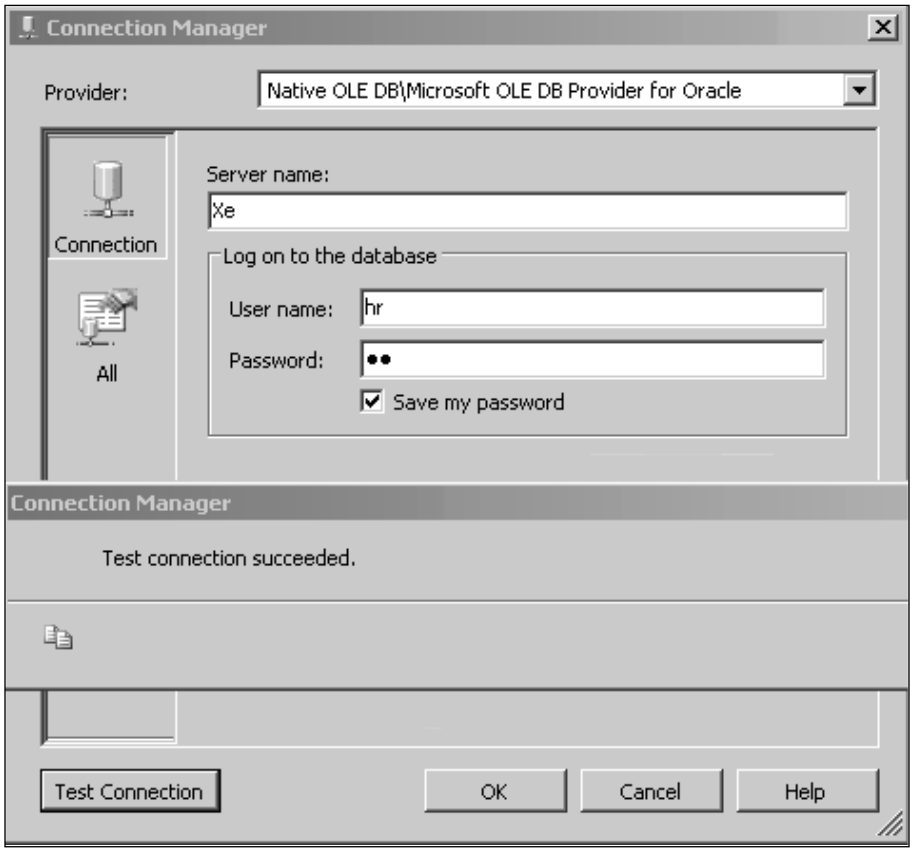
   This opens the **Connection Manager**'s window that opens as a default connection to the SQL Server 2005 using the SQL Native Client provider, and as such this window has controls suitable to connect to an SQL Server. However, to connect to an Oracle database we need to use a **Provider** for Oracle, which is chosen using the drop-down menu item corresponding to the **Provider** label on this page.
4. Click on the drop-down menu and choose the Microsoft OLE DB Provider for Oracle, as shown in the next screenshot.

   The next figure shows the **Connection Manager's** page as well as the result of clicking the **Test Connection** button in the mini-step 5 to follow.
5. Enter **Xe** for the **Server name**, **hr** for **username**, and **hr** for **password. Also** place a check mark for the **Save my password** check box.. Click on the **Test Connection** button.

   As the information supplied is correct, the connection to the Oracle 10G XE was successful.
6. Click on the **OK** button on the **Test Connection** button generated message as well as the **Connection Manager** window.

   This will bring you back to the **Configure OLE DB Connection Manager**'s window. A new OLE DB Connection **xe.hr** gets added to the Data Connections area in the left.
7. Click on the **OK** button on this window.

This completes the connection manager setup for the Oracle 10G XE. A connection manager **xe.hr** appears in the **Connection Managers'** page on the Canvas.



Step 3: Configuring the OLE DB Source

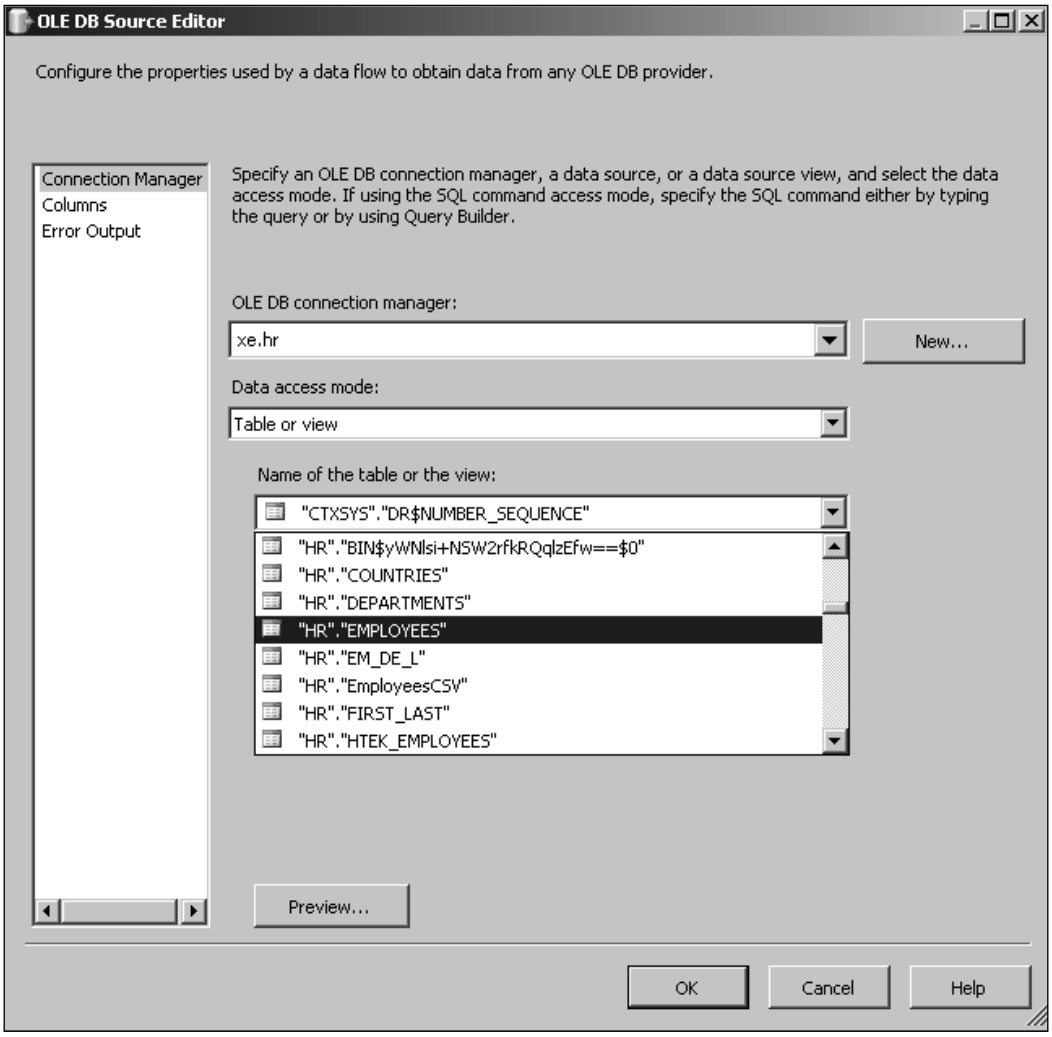
1. Right-click the **OLE DB Source** component on the canvas and bring up the **OLE DB Source Editor**, as shown in the next screenshot.

   The OLE DB Connection Manager is the recently created connection manager **xe.hr**. As we are accessing a *Table* from the database, the default for the **Data access mode**: is acceptable as it is.

2. Click on the drop-down for the **Name of the table or view:**

   This field reveals all the accessible objects on the hr database on the Oracle 10G XE Server.

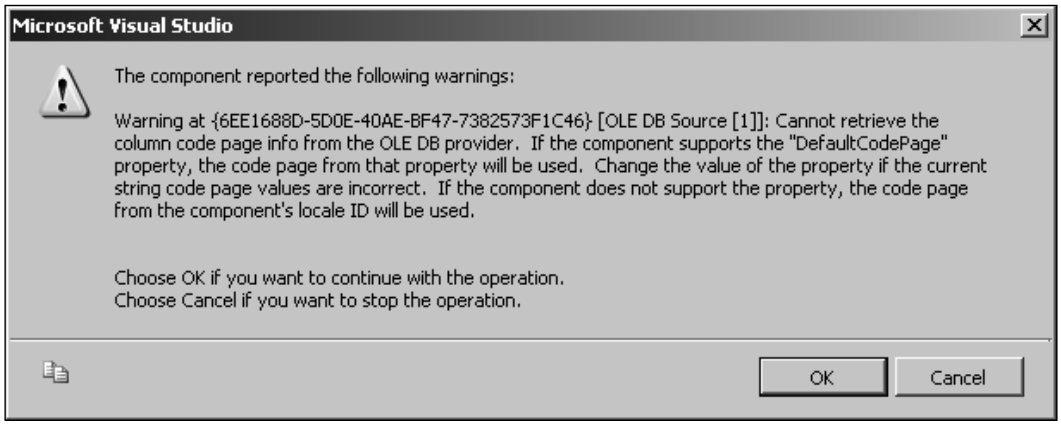
3. Choose the view, **"HR"."EMPLOYEES"**, we saw earlier in the object browser of this database.



4. Click on the **Preview…** button to see the *Table* that is being used from the Oracle 10G XE through this connection.

   This brings up a **Microsoft Visual Studio** warning page as shown in the following screenshot. Ignoring this warning and continuing by clicking on the **OK** button on the window with the warning will show all the columns of the EMPLOYEES in the **Preview Query Results** window.

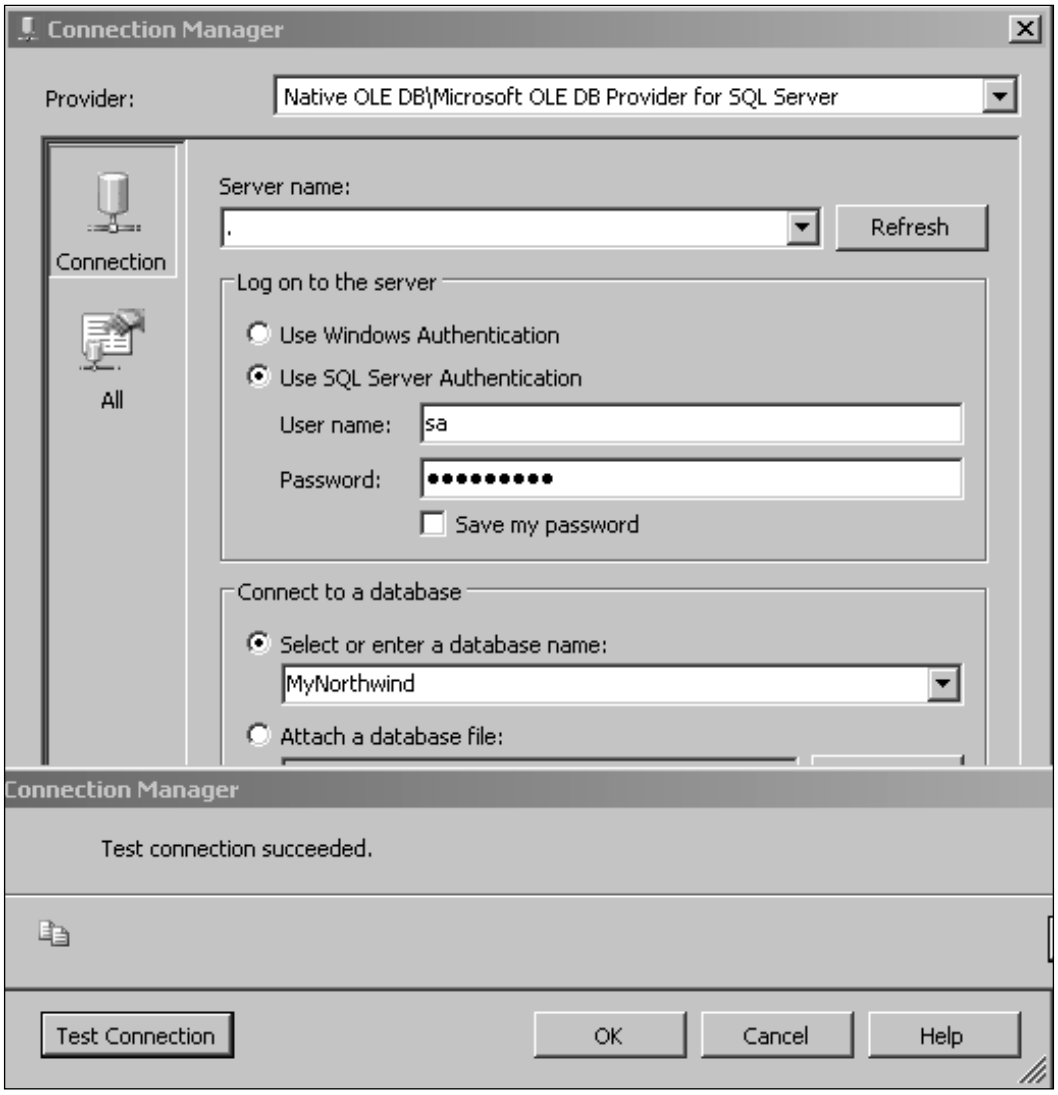
5. Click the **OK** button.



Step 4: Adding a SQL Server Destination and Configuring its Connection Manager

1. Drag and drop an **SQL Server Destination** component from the **Data Flow Destinations** group, from the **Toolbox** onto the **Data Flow** page of the Canvas.
2. Following a procedure similar to the OLE DB Connection Manager, configure a Connection Manager (LocalHost.MyNorthwind) for the **SQL Server Destination**.

The following screenshot shows the final screen of the Connection Manager window, after the connectivity test using the **Test Connection** button. The **Provider** chosen is the Microsoft OLE DB Provider for SQL Server. You may notice that the (**.**) format is used for designating a default SQL Server 2005 installation. This server uses SQL Server Authentication. After choosing the authentication, you will be able to **Select or enter database name** from a drop-down list. In case your server uses Windows authentication, you don't need to provide the username and password.

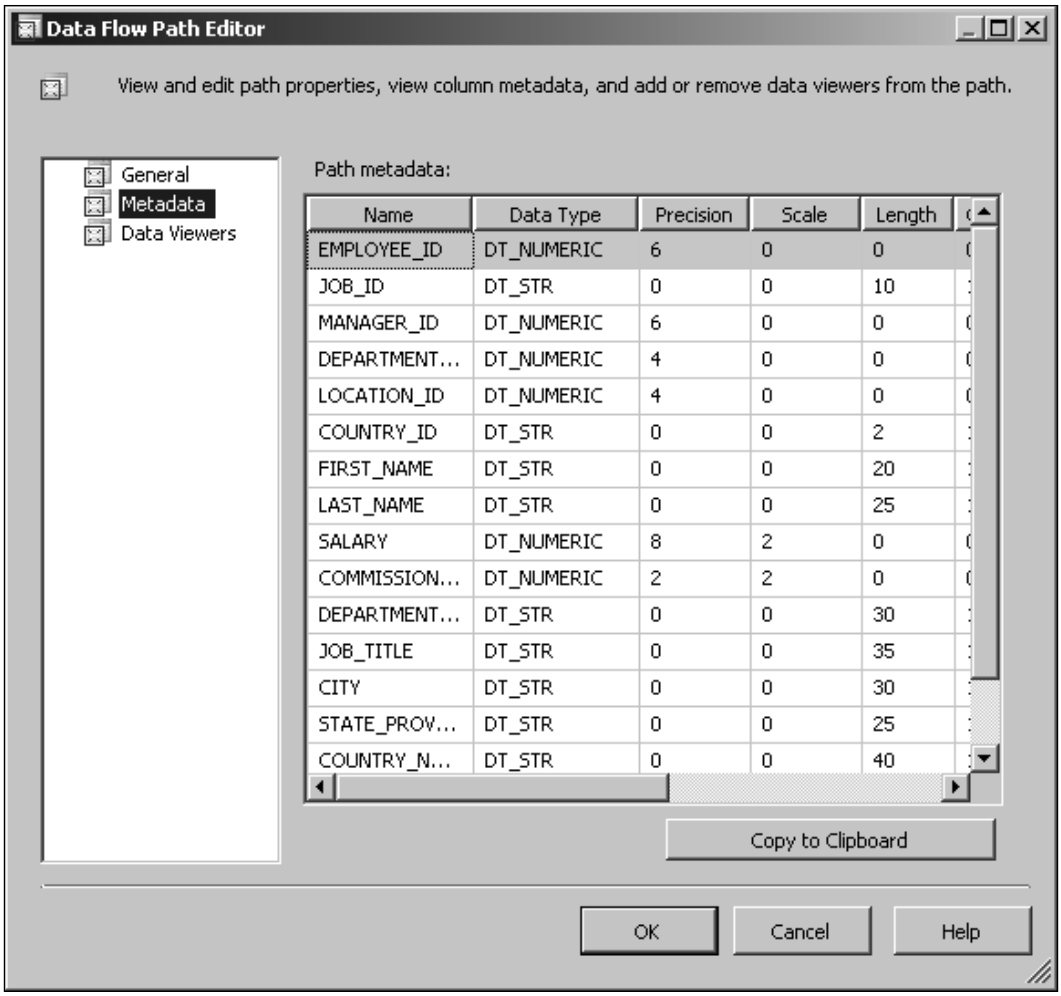


Step 5: Establishing a Path from the OLE DB Source to the SQL Server Destination

This has been described in most of the tutorials , so wont be repeated here.

1. Establish a path from the **OLE DB Source** to the **SQL Server Destination**.

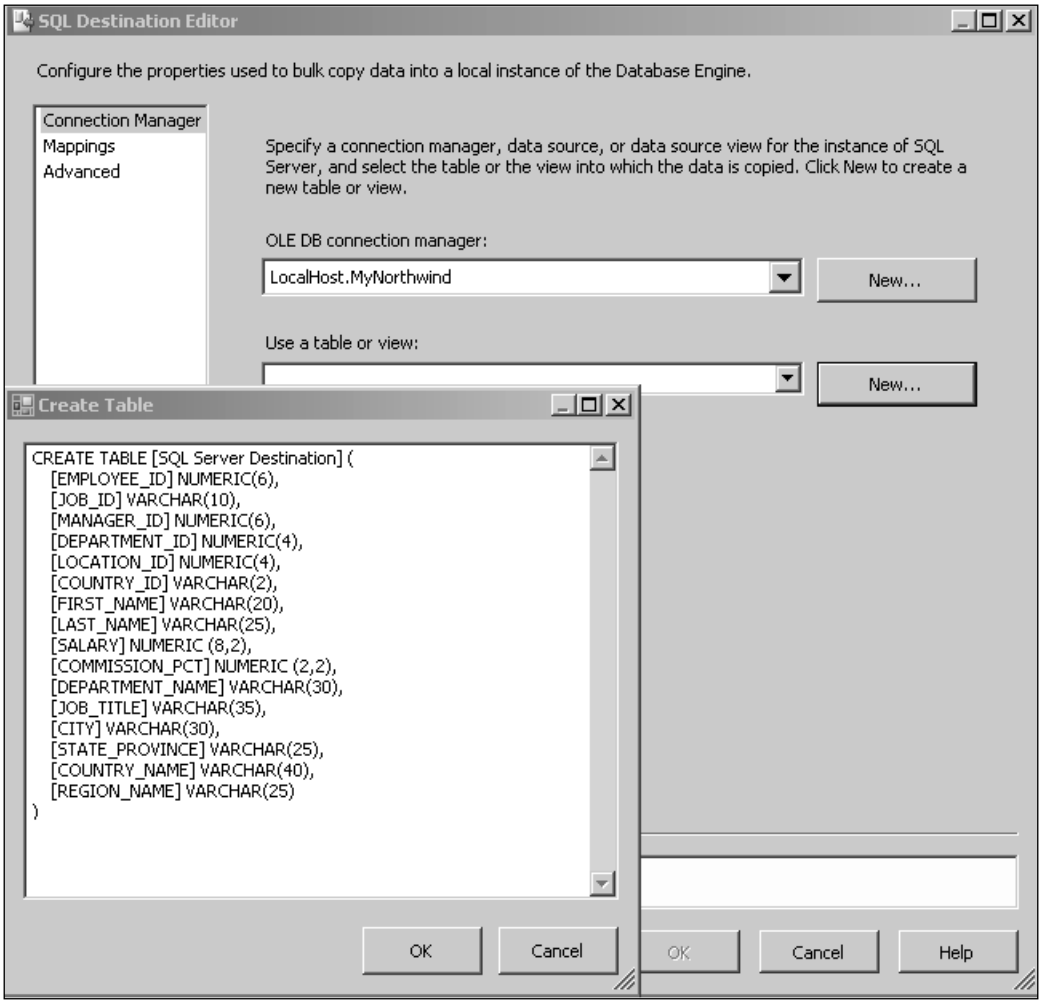
   The **Metadata** of the path connecting the source and the destination will appear as shown in the **Data Flow Path Editor** window below.



Step 6: Configuring the SQL Server Destination Component

1. Right-click the **Sql Server Destination** component and from the drop-down click on **Edit…**.

   This opens up the **SQL Destination Editor** displaying the connection manager configured earlier.

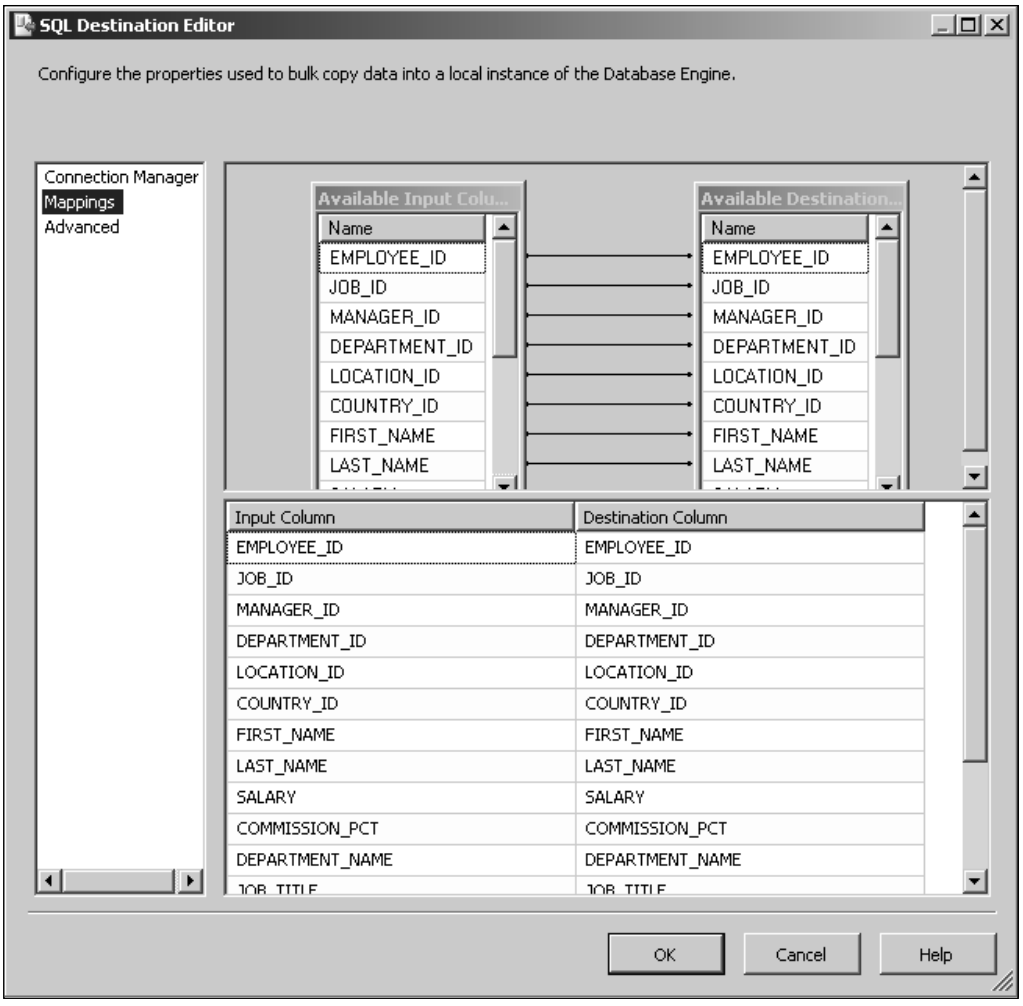


2. Click on the **New…** button. "**Use a table or view:**".

   This pops-up the **Create Table** window shown superposed on the **SQL Destination Editor**.

3. In the **Created Table** window, replace the **SQL Server Destination** by some name of your own. Here, for this exercise, it is called **Oracle Table**. Click on the **OK** button on the **CreateTable** window after changing SQL Server Destination to OracleTable.
4. Now that the connection manager and the table are chosen, click on the **Mappings** list item on the left.

   This opens the Mappings between the **View** on the Oracle 10G XE and the **Available Destination Columns**.



5. Accept this default mapping and click on the button **OK** on the above editor to complete the **SQL Server Destination** configuration.

Step 7: Building and Executing the Package

1. Build and execute the package.

   The program runs and after a while the source and destination components turn green indicating that it was a successful run. Open the **OracleTable** table in the SQL Server to verify that data has been transferred as shown below.

Table - dbo.OracleTable | Summary

EMPLOYEE_ID	FIRST_NAME	LAST_NAME	EMAIL	PHONE_NUMBER	HIRE_DATE	JOB_ID	SALARY
100	Steven	King	SKING	515.123.4567	6/17/1987 ...	AD_PRES	24000.00
101	Neena	Kochhar	NKOCHHAR	515.123.4568	9/21/1989 ...	AD_VP	17000.00
102	Lex	De Haan	LDEHAAN	515.123.4569	1/13/1993 ...	AD_VP	17000.00
103	Alexander	Hunold	AHUNOLD	590.423.4567	1/3/1990 1...	IT_PROG	9000.00
104	Bruce	Ernst	BERNST	590.423.4568	5/21/1991 ...	IT_PROG	6000.00
105	David	Austin	DAUSTIN	590.423.4569	6/25/1997 ...	IT_PROG	4800.00
106	Valli	Pataballa	VPATABAL	590.423.4560	2/5/1998 1...	IT_PROG	4800.00
107	Diana	Lorentz	DLORENTZ	590.423.5567	2/7/1999 1...	IT_PROG	4200.00
108	Nancy	Greenberg	NGREENBE	515.124.4569	8/17/1994 ...	FI_MGR	12000.00
109	Daniel	Faviet	DFAVIET	515.124.4169	8/16/1994 ...	FI_ACCO...	9000.00
110	John	Chen	JCHEN	515.124.4269	9/28/1997 ...	FI_ACCO...	8200.00

It is important to note that the correct provider for the SQL Server destination is the Microsoft OLE DB provider for SQL Server.

Summary

In this chapter the steps involved in transferring the data in a *Table* in the Oracle 10G XE server to a table in the SQL Server 2005 , were described. Installing and reviewing the objects in the Oracle 10G XE's hr database was also looked at.

Where to buy this book

You can buy SQL Server Integration Services Using Visual Studio 2005 from the Packt Publishing website:
`http://www.packtpub.com/sql-server-integration-services-visual-studio-2005/book`.

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