

# New 11g Features in Oracle Developer Tools for Visual Studio

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# New 11g Features in Oracle Developer Tools for Visual Studio

**The Oracle Developer Tools for Visual Studio is a free product that is available for download today from the Oracle Technology Network.**

**The features detailed in this paper are available for Visual Studio 2008, Visual Studio 2005 and Visual Studio .NET 2003.**

**This new release supports Oracle Database version 9.2 or later and is also compatible with any version of the Oracle Data Provider for .NET (ODP.NET) that your application may currently be using.**

## INTRODUCTION

The 11g release of Oracle Developer Tools for Visual Studio (ODT) includes a host of powerful new features that make Oracle and .NET development easier and faster. These features make it convenient for Microsoft Visual Studio developers to stay in Visual Studio for the entire development lifecycle.

The new features in this release include:

- Enhanced integration with Visual Studio 2008 and Visual Studio 2005
- Improved ASP.NET web developer support
- Support for automatic code generation in Microsoft Office projects
- An Oracle Database Project to provide source control of Oracle SQL scripts
- An Oracle SQL script editor
- Built in support for automatically generating and executing SQL\*Plus scripts
- Integration with Microsoft Query Designer
- Oracle User-Defined Types (UDT) support including custom class .NET code generation
- A new designer for granting and revoking database privileges
- An Import Table Wizard for copying tables and their data from external data sources such as Microsoft SQL Server, Microsoft Access and Excel spreadsheets into Oracle Database.
- Additional enhancements

The new features detailed in this paper are available for Visual Studio 2008, Visual Studio 2005 and Visual Studio .NET 2003. This release supports Oracle Database version 9.2 or later and is also compatible with any version of the Oracle Data Provider for .NET (ODP.NET) that your application may currently be standardizing on.

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## INTEGRATION WITH VISUAL STUDIO 2008

ODT is fully integrated with Visual Studio 2008 and Visual Studio 2005. This integration starts in the Microsoft Server Explorer tree control.

The Oracle Developer Tools for Visual Studio is fully integrated with Visual Studio 2008 and Visual Studio 2005. This integration starts in the Microsoft Server Explorer tree control. This tree control makes it easy to browse database schema objects which are represented as nodes in the Server Explorer tree. Each schema object node offers context menus which allow operations on that node. For example, a table node offers a “Retrieve Data” menu item, which opens up the Oracle Data Window. It also offers a “Design” menu item which opens up the Oracle Table Designer for easy creation or modification of an Oracle table. Similarly, the many other various Oracle schema types have item specific menus. The Visual Studio Properties Window shows metadata for any Oracle Database schema node that is currently selected. For example, selecting a table column node will show the Oracle data type of that column in the Properties Window.

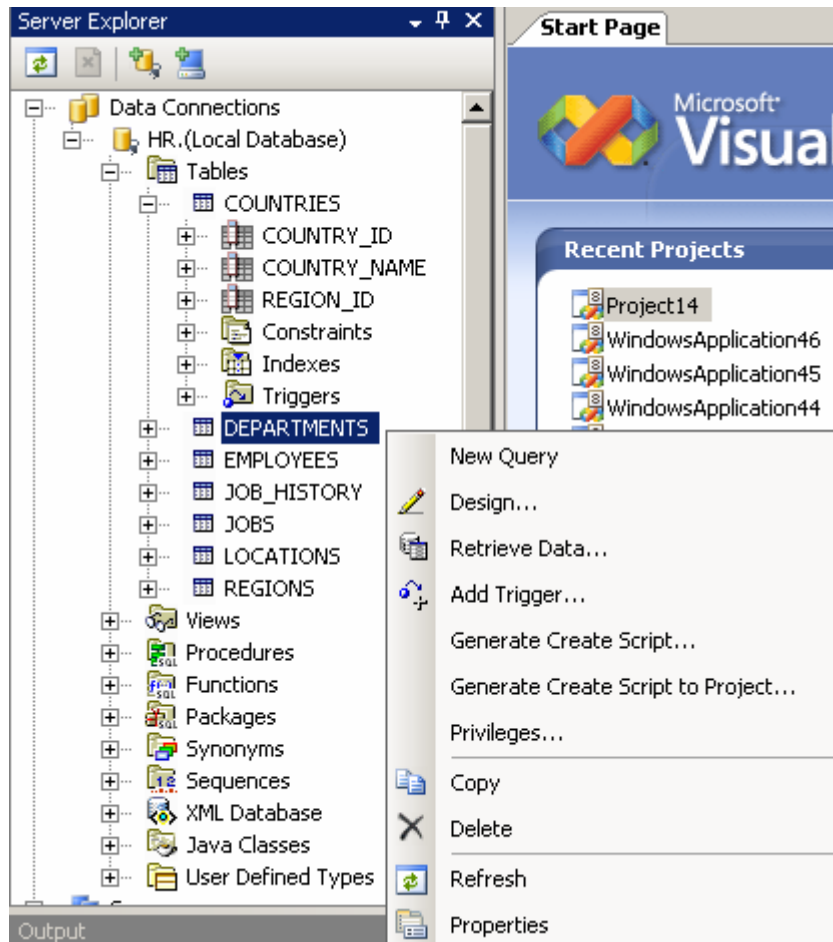


Figure 1: Server Explorer and a Table Node Context Menu

**In Visual Studio, code generation starts with the Data Sources window. These data sources can then be dragged and dropped onto the design surface to immediately create runnable .NET code.**

## **Automatic .NET Code Generation**

For rapid application development, ODT is also fully integrated with Visual Studio's automatic code generation features. In Visual Studio, code generation starts with the Data Sources window, where data sources are created and defined via the Data Source Configuration Wizard. These data sources can then be dragged and dropped onto the design surface to immediately create runnable .NET code which accesses an Oracle Database. This code can be easily and visually wired up to widgets on the design surface (such as a Gridview control) resulting in a runnable application with very little coding required.

To aid in customizing the code that is auto generated, Visual Studio designers and wizards associated with automatic code generation are also fully supported, for example the Table Adapter Configuration Wizard and Dataset Designer. These designers make it easy to customize the application and to create master-detail relationships.

## **Code Generation for Microsoft Office and ASP.NET**

**Developers utilizing Microsoft Visual Studio Tools for Office (VSTO) can rapidly generate Microsoft Office based applications by simply dragging and dropping an Oracle Datasource onto an Excel spreadsheet or Microsoft Word application.**

Developers utilizing Microsoft Visual Studio Tools for Office (VSTO) can rapidly generate Microsoft Office based applications by simply dragging and dropping an Oracle Datasource onto an Excel spreadsheet or Microsoft Word application. For example, an Oracle Data Source for the HR.EMPLOYEES table can be created via the Microsoft Data Source Wizard in Visual Studio. After dragging this data source and dropping it on the Excel design surface, the table data will automatically be displayed in the Excel spreadsheet when it is loaded and it can then interact with other Excel macros.

Automatic code generation for ASP.NET web applications is also supported and is described below.

## **ASP.NET WEB DEVELOPER SUPPORT**

Integration with ASP.NET automatic code generation means that web developers can create working ASP.NET web applications with very little or no .NET or SQL coding required. Dragging a widget (such as the Gridview control) onto the Visual Studio Web Site design surface launches the Microsoft SQL Data Source Wizard. This wizard automatically generates the required code for data access and then wires this code to the GridView control. Building and running the web application launches a built-in web server within Visual Studio. A web browser is also automatically launched to enable the execution and debugging of the running application.

Integration with ASP.NET automatic code generation means that web developers can create working ASP.NET web applications with very little .NET or SQL coding required.

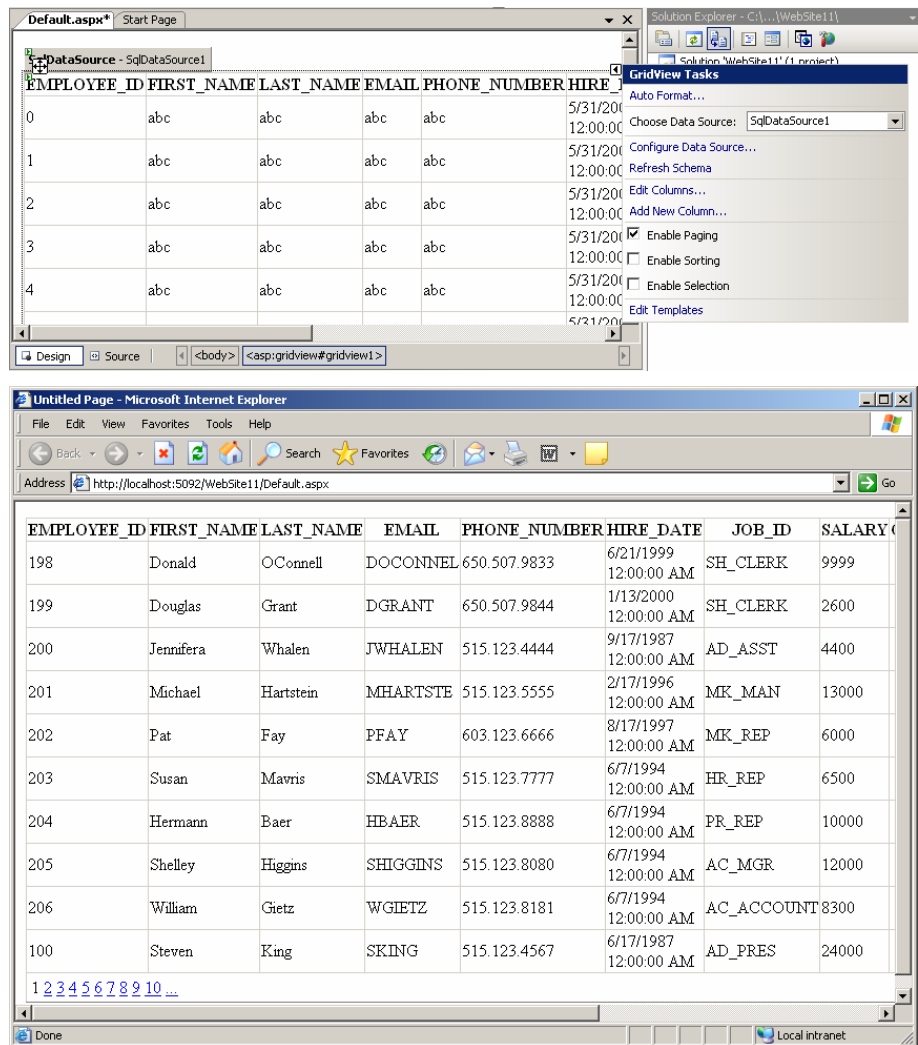


Figure 2: ASP.NET Design Surface (above); A running ASP.NET application in browser (below)

The ASP.NET Providers for Oracle, (a separately installable product included with the ODT download) makes it easy for Oracle web application developers to take advantage of Visual Studio web controls (for example, the Login control or Sitemap control). Developers can use these controls to rapidly generate web applications without writing code and store the corresponding control data in Oracle. Using the Microsoft ASP.NET Website Administration tool, the web server can easily be configured to store the web site data (such as login authentication information or web site data caching) into Oracle Database with just a few clicks of the mouse.

## ORACLE DATABASE PROJECT WITH SOURCE CONTROL SUPPORT

The new Oracle Database Project provides a simple and convenient way to manage the SQL scripts associated with a .NET application. Scripts can be

checked in and out of any MSSCCI compliant source control server (for example, Microsoft Source Safe, Microsoft Team Foundation Server, or Subversion) via simple menu items in the Database Project window. Scripts can also be automatically generated directly from Oracle Database and put into the Oracle Database Project via the “Create Script to Database Project” menu item in the Server Explorer tree control.

Source control support makes it easy to collaborate with other team members and simplifies the deployment of the SQL Scripts associated with a .NET application

ODT provides a simple and convenient way to manage the SQL scripts associated with a .NET application. Scripts can be automatically generated, edited, executed and checked in and out of any source control server (for example, Microsoft Source Safe, Microsoft Team Foundation Server, or Subversion).

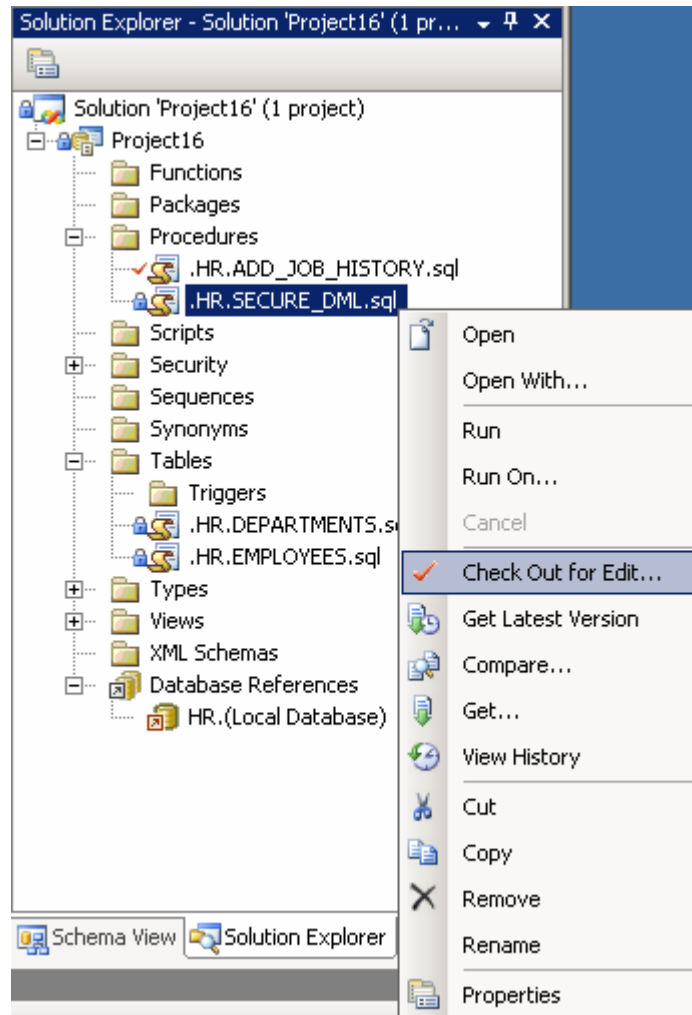


Figure 3: Oracle Database Project with source control support

## ORACLE SQL SCRIPT EDITOR

Double clicking on any script file in the Oracle Database Project opens the script in the Oracle SQL Editor. The editor is file based and features syntax coloring and integration with the Oracle Online Help documentation. The *Oracle Database SQL*

*Reference, PL/SQL User's Guide and Reference* and the *Error Messages*, manual are all indexed and included inside of the Visual Studio help system. The extensive keyword indexing of the online help means that highlighting any keyword and pressing the “F1” help key launches the online help to the topic desired.

The SQL Script can also be easily executed via a context menu item in the editor.

## BUILT IN SUPPORT FOR EXECUTING SQL\*PLUS SCRIPTS

Oracle Developer Tools for Visual Studio adds a SQL\*Plus compliant SQL Script execution engine to Visual Studio. This means that scripts can be run either directly from the Visual Studio menu (“Run SQL\*Plus Script” menu item), from a context menu (“Run”) from the Oracle SQL Script editor, or directly from the Oracle Database Project. The SQL script will execute in precisely the same way as it would if run from the SQL\*Plus command line, with any output going to the built-in Oracle Output window.

SQL scripts can be run either directly from the Visual Studio menu (“Run SQL\*Plus Script” menu item), from a context menu (“Run”) from the Oracle SQL Script editor, or directly from the Oracle Database Project.

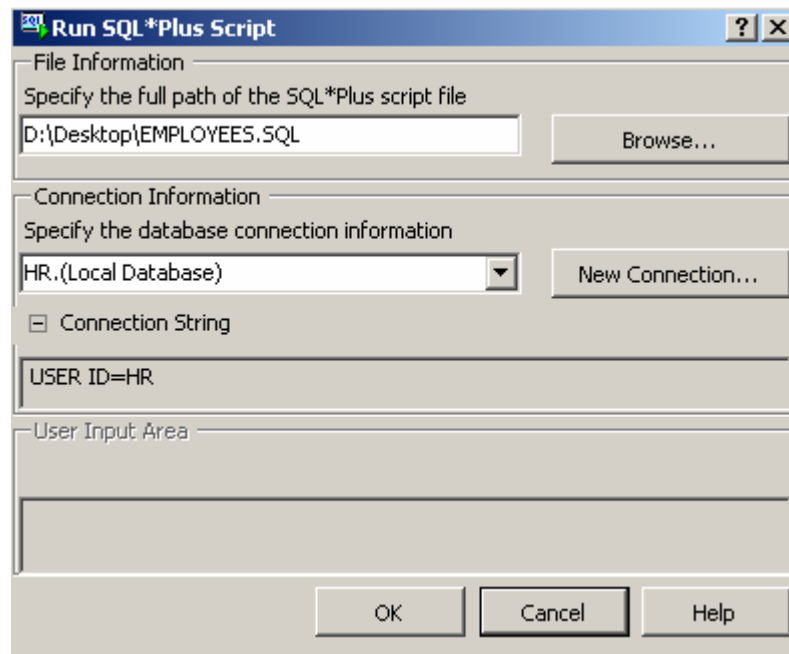


Figure 4: Run SQL\*Plus Script dialog

## INTEGRATION WITH MICROSOFT QUERY DESIGNER

Microsoft Query Designer makes it simple to design SQL Queries using a sophisticated GUI design surface. Table relationships can be set up by dragging and dropping, queries can be tested, and the final SQL statement representing the design is generated. These designers are integrated throughout Visual Studio such as in the Dataset Designer. Wherever a SQL statement is required, the Query Designer can be easily launched.

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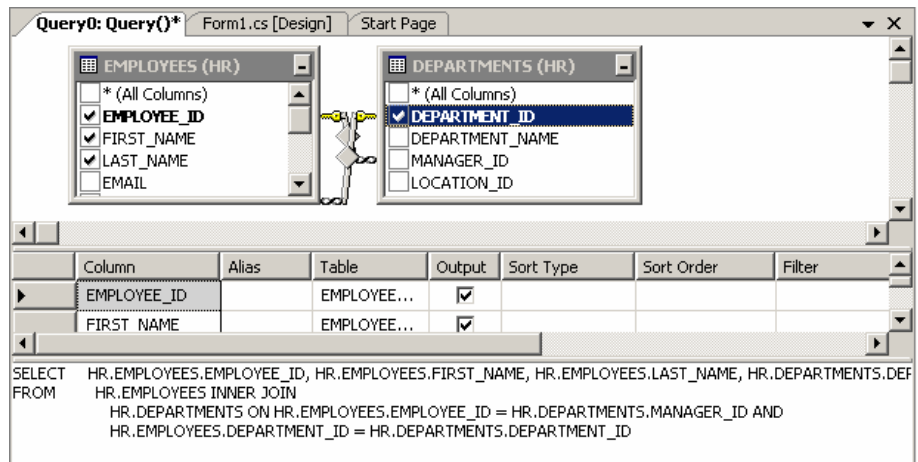


Figure 5: Oracle integration with Microsoft Query Designer

### NEW DESIGNER FOR GRANTING/REVOKING SCHEMA PRIVILEGES

The Oracle Developer Tools for Visual Studio includes a new designer that makes it easy to grant and revoke privileges on schema objects to other users or roles.

Simply launch the designer from the “Privileges” context menu item in Server Explorer and then choose which privileges to grant and to which user or role to grant them to. Of course, the user can only grant privileges to the degree permitted by the Oracle DBA.

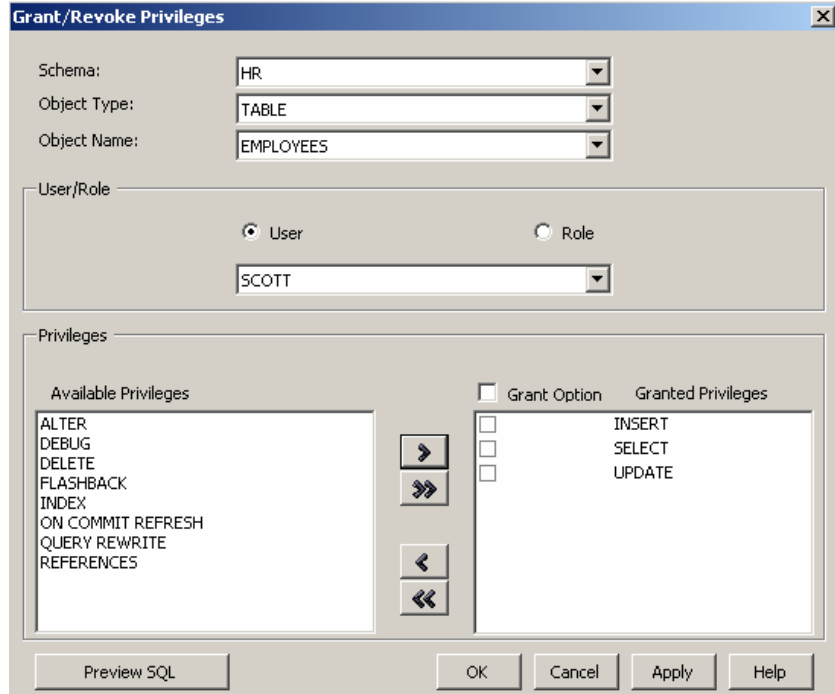


Figure 6: Grant/Revoke Privileges Wizard

## NEW USER-DEFINED TYPE SUPPORT

Server Explorer can now be used to explore all aspects of UDT's in Oracle. A "User Defined Types" node is included to allow users to view, create or edit type definitions.

Oracle user-defined types (UDTs) are fully supported and integrated throughout Visual Studio. This feature is highly sought after by developers who use UDTs extensively, including Oracle Spatial users and developers who use VARRAY and Nested Table types in stored procedures and functions.

Server Explorer can now be used to explore all aspects of UDT's in Oracle. A "User Defined Types" node is included to allow users to view, create or edit type definitions using new graphical UDT designers. Oracle table columns and stored procedure parameters which use UDT types can also be explored.

When creating new tables or procedures, the Oracle Table Designer and the Oracle Stored Procedure/Stored Function Wizard include all UDT's in a drop down list of potential data types. The Oracle Data Window now displays table data that includes UDTs as output. The data is displayed in an XML format.

## UDT Custom Class Code Generation Wizard

A powerful UDT Custom Class wizard is provided to make access to UDT data from .NET code (with the Oracle Data Provider for .NET) easy and fast. A single click from a menu item in the User-Defined Types Server Explorer node launches the wizard. When the wizard completes, the generated code is added to the user's .NET project. This .NET code defines the UDT in C# or VB.NET code and makes accessing the UDT data as easy as accessing any other data type.

In conjunction with the other automatic code generation features discussed in the first section of this paper, an application can then be rapidly created that utilizes UDTs with almost no coding required.

A powerful UDT Custom Class wizard is provided to make access to UDT data from C# or VB.NET code easy and fast and an application can be rapidly created that utilizes UDTs with almost no coding required.

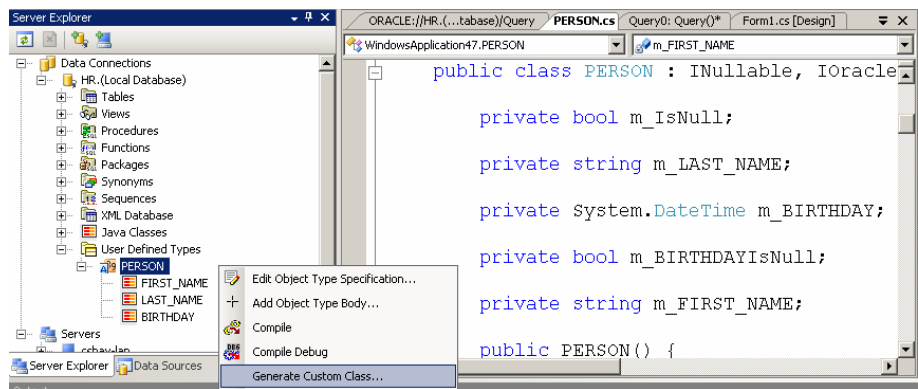


Figure 7: Server Explorer User-Defined Types node (left); Generate Custom Class context menu item (middle); Generated Custom Class code (right)

## IMPORT TABLE WIZARD

Developers often need to import tables and data into their test database. These tables may need to be imported from another Oracle Database or from other

heterogeneous data sources such as Microsoft SQL Server, Microsoft Access or Excel spreadsheets. The Import Table Wizard makes this easy and requires only a few clicks. The imported table structure can be easily customizable via the wizard. Any third party database or file format for which there is installed an ADO.NET 2.0 compliant data provider can act as a data source.

The Import Table Wizard makes it easy to import tables and table data from another Oracle Database or from other data sources such as Microsoft SQL Server, Microsoft Access and Excel spreadsheets.

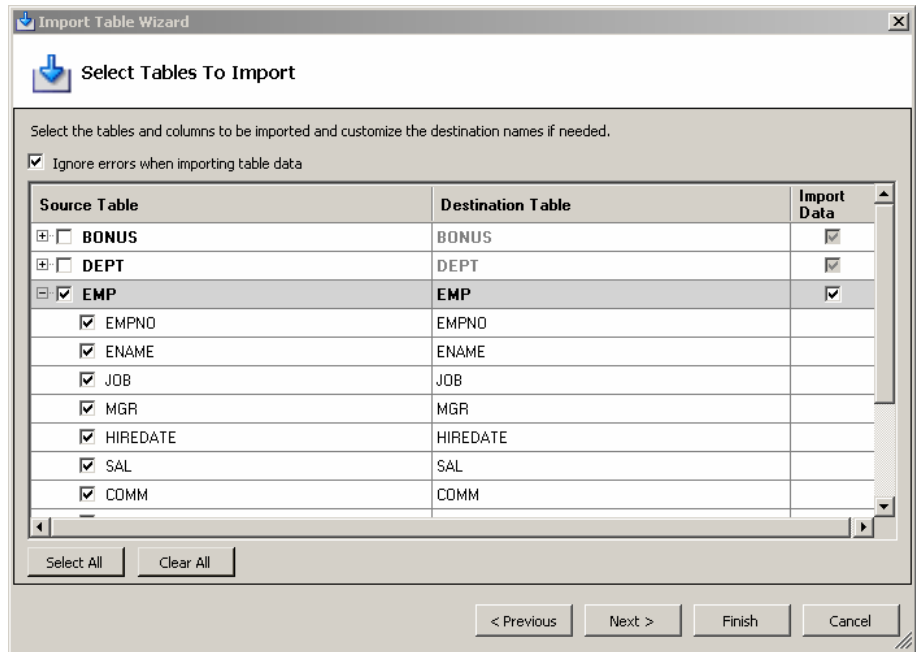


Figure 8: Import Table Wizard

## ADDITIONAL ENHANCEMENTS

This release includes new features to enhance the user experience of ODT users.

### Query Window Enhancements – Explain Plan, Auto-Commit

The Oracle Query Window makes it easy to execute single or multiple SQL statements and view the output in a grid or in text format. The SQL text can be typed in by hand, or can be created automatically by dragging and dropping from tables listed in Server Explorer.

The Query Window is now enhanced to include the ability to execute an “Explain Plan” to determine the Oracle Database execution plan of a particular query. This plan can then be cut and pasted into an email, instant messenger session, or text document and provided to interested parties such as the Oracle DBA.

Additionally, an auto-commit toggle button makes it easy to enable or disable auto-commit if so desired.

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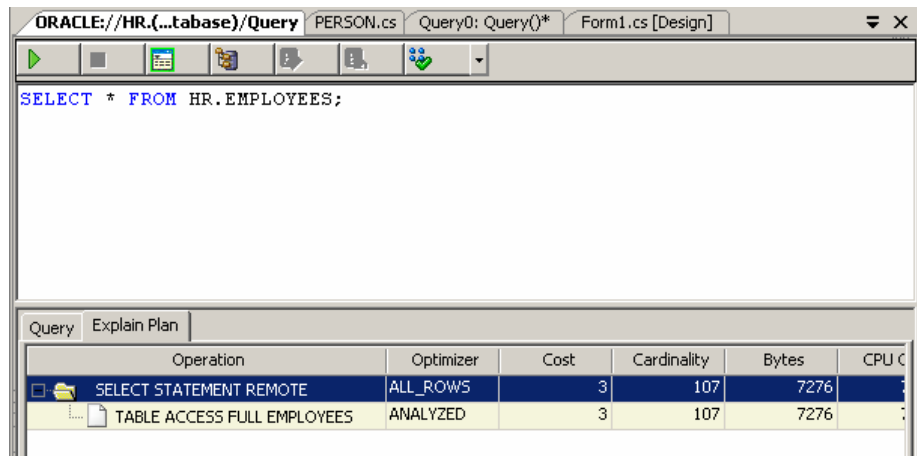


Figure 9: Oracle Query Window with Explain Plan output

### Customizations via the ODT Options Page

Various options pages have been added to allow the user to customize their user experience. This includes options to control the displayed schema objects in Server Explorer, the maximum number of rows to be fetched by the Oracle Data Window, as well as controlling the metadata to returned by the Explain Plan feature of Query Window.

### CONCLUSION

The Oracle Developer Tools for Visual Studio is a free product that is available for download today from the Oracle Technology Network.

It includes a host of powerful features that make Oracle and .NET development easier and faster. These features also make it convenient for Visual Studio developers to stay in Visual Studio for the entire development lifecycle.



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