EMBARCADERO
TECHNOLOGIES®

Product Documentation

Rapid SQL® XE and Rapid SQL® 7.7.2

Evaluation Guide

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Embarcadero Technologies, Inc. is a leading provider of award-winning tools for application developers and database professionals so they can design systems right, build them faster and run them better, regardless of their platform or programming language. Ninety of the Fortune 100 and an active community of more than three million users worldwide rely on Embarcadero products to increase productivity, reduce costs, simplify change management and compliance and accelerate innovation. The company's flagship tools include: Embarcadero® Change Manager™, CodeGear™ RAD Studio, DBArtisan®, Delphi®, ER/Studio®, JBuilder® and Rapid SQL®. Founded in 1993, Embarcadero is headquartered in San Francisco, with offices located around the world. Embarcadero is online at www.embarcadero.com.

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INTRODUCTION TO EMBARCADERO'S RAPID SQL

Rapid SQL® is an integrated development environment that enables developers to create, edit, version, tune, and deploy server-side objects residing on Microsoft SQL Server, Oracle, Sybase Adaptive Server, InterBase/Firebird, IBM DB2 for Linux, Unix, and Windows, and IBM DB2 for z/OS databases. Its unified database development environment provides extensive graphical facilities that simplify SQL scripting, object management, reverse engineering, database project management, version control and schema deployment. With Rapid SQL, programmers can develop and maintain high-quality, high-performance client/server and web-based applications in less time, and with greater accuracy.

PRODUCT BENEFITS BY AUDIENCE

DATABASE DEVELOPERS/ADMINISTRATORS

Rapid SQL **provides an easy-to-use graphical user interface** (GUI), which allows Database Developers to be immediately productive in a cross-platform environment without having platform specific knowledge. Along this line, Rapid SQL provides **standard object creation wizards and graphical object editors for all supported platforms**, which greatly reduce the time and effort to build an application database from the ground up.
Rapid SQL also offers several **cross-platform code-generation options**, which help Developers build SQL code that is syntactically and functionally correct the first time. In addition, Rapid SQL can be used for the **immediate or scheduled execution of SQL scripts and files**, both with output and notification options. Rapid SQL makes short order of working with data by providing Developers with several **easy-to-use browsing, visual query building and data editing options.** All operations can be completed with drag-and-drop, point-and-click ease, with little or no SQL coding required.

DATABASE PROJECT MANAGEMENT

Rapid SQL **provides seamless, out-of-the-box integration with all major Version Control Systems (VCS).** Rapid SQL offers **complete database project management** capabilities, which allows for the **reverse-engineering of live database objects** into corresponding off-line SQL source code files, which may be checked into and out of any of the supported VCSs. Rapid SQL also provides **detailed HTML reports at the database object level** that can be viewed immediately within the application or published to a defined web directory.

ABOUT THIS EVALUATION GUIDE

This guide helps you get started using Rapid SQL. On completion, you'll have the foundation to explore the many features of Rapid SQL. You'll have learned how to register and connect cross-platform datasources, navigate the database explorer, work with the individual Object Editors and Wizards, build and manage projects, and work with the productivity-focused features. You will also know that Rapid SQL allows you to concentrate more on what needs to be done and less on how it should be done.

This guide is divided into separate sessions. Do them all at once, or complete them individually as you have time:

- Session 1: Getting Started with Rapid SQL
- Session 2: Productivity Enhancers
- Session 3: Scripting
- Session 4: Working with Code Workbench
- Session 5: Building a Database Project
- Session 6: Visual Query Builder and Data Editor
- Session 7: Code Analyst
- Session 8: SQL Debugging

You can use this basic tutorial as a roadmap of product highlights; but also to help you find your own path to explore Rapid SQL. Once you've started, you can select **Help Topics** from the **Help** menu to find many additional resources including Tutorials that complement and build on many of the activities shown in this brief guide.

SESSION 1: GETTING STARTED

DOWNLOAD AND INSTALL

You can obtain the latest version of the Rapid SQL software from the Embarcadero website at http://www.embarcadero.com/downloads.

NOTE: Trial versions of Embarcadero products can be either fully installed versions or InstantOn versions. InstantOn is an application virtualization technology that lets you run an application using a single file, without running a full installation. When downloading an InstantOn trial version, always use the **Save** option (as opposed to the **Run** option), since the downloaded file is used to start the application during the course of the trial period.

Provide the requested information and follow the steps indicated to download the software and register the trial license. When you first install a free trial of Rapid SQL, you can use the tool for 14 days. After that time, a regular product license is needed.

Overview
The graphic below illustrates common elements of the Rapid SQL application window.
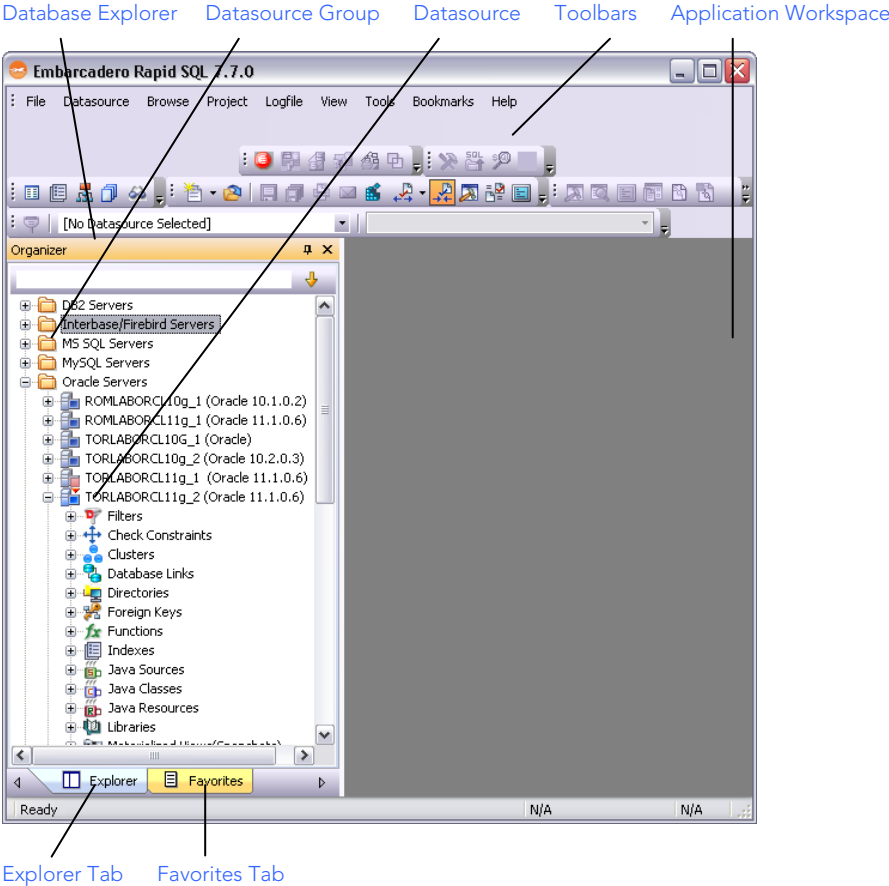
Rapid SQL allows you to view and manage all of your databases at the same time from the Database Explorer. You can easily move from DB2 to InterBase/Firebird to Oracle to SQL Server to Sybase all within the same window. Rapid SQL's multi-threaded, productivity-enhancing environment allows you to have several workspaces open at the same time so you can continue to work, even while the application processes in the background.

Start Rapid SQL

How you start Rapid SQL depends on the type of application you are evaluating:
- **InstantOn version** – start the application by double-clicking the file you downloaded.
- **Fully-installed version** - The Start menu sequence for Rapid SQL is always in the form **Programs > Embarcadero Rapid SQL** *version identifier* **> Embarcadero Rapid SQL** *version identifier*, where *version identifier* reflects the version you are running.

To get started:
1. Run Rapid SQL.

   The first time Rapid SQL starts, if offers to automatically discover and register any datasources on your network. The Discover Datasources feature automatically searches the DBMS configuration files and discovers datasources residing on your system that are not currently registered. When you use this feature, a dialog box lists the name of the server or instance and the type of DBMS of all unregistered datasources found on your network or local machine and gives you the option to register the discovered datasources.

2. Choose "No" for the purpose of this guide.

Registering Cross-Platform Datasources

For now, you will register a datasource manually.
1. On the **Datasource** menu, select **Register Datasource**. A **Datasource Registration** Wizard opens.
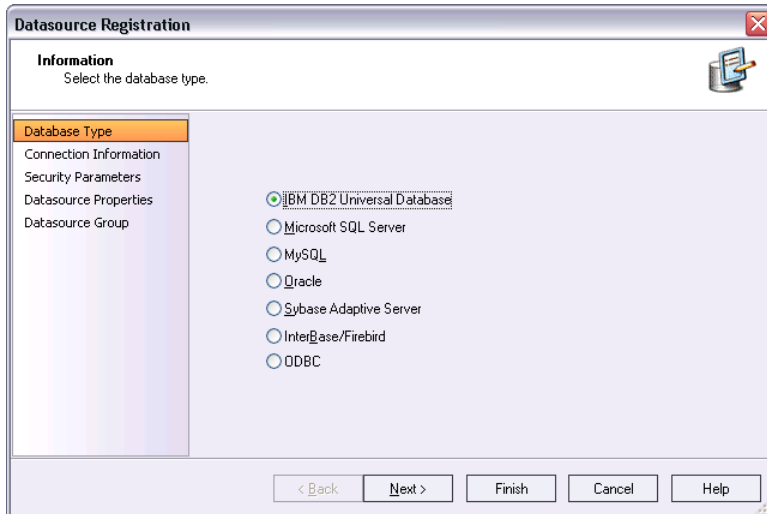
2. Choose **Microsoft SQL Server** as the DBMS type and then click **Next**.

3. Specify the **Host** name of a SQL Server datasource on your network, override the **Datasource** name with "SAMPLE_DATASOURCE" and then click **Next**.

4. Provide valid credentials in the **User ID** and **Password** boxes, and then select the **Auto-Connect?** checkbox to eliminate having to provide credentials each time you connect to this datasource.

5. In the left-hand pane, select **Datasource Group**, select the **MS SQL Server** folder, and then click **Finish**.

   Note: The **Datasource Group** panel also lets you assign a category to a datasource. This provides a means to visually distinguish between different server purposes, development vs. production, for example, in your enterprise. Categorization is a customizable feature.

6. Select **Yes** when prompted to connect to the new datasource.

Rapid SQL offers the same easy-to-use Datasource Registration Wizard for all supported DBMS platform connections. The connection information only needs to be set up one time for each platform and can be saved locally or in a common datasource catalog for use by other Embarcadero products.

By default, Rapid SQL stores datasource definitions in the Windows Registry. There is also a local, file-based option. Embarcadero products supporting these methods can share datasource catalogs on the same machine.

There is also a network-shared storage option.

Rapid SQL also offers the ability to import and export datasource definitions. This lets you share definitions among users and across datasource storage methods.


SESSION 2: PRODUCTIVITY ENHANCERS

## Database Object Management Made Easy

Rapid SQL makes it easy and intuitive to navigate between datasources and to drill-down into atomic database objects within the Database Explorer Tree. The Database Explorer Tree displays all registered datasources and serves as the entry-point for much of Rapid SQL's advanced functionality.

The Database Explorer Tree

1. Click on the Explorer title bar and select **By Object Type**.
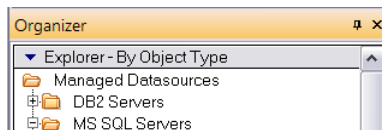
2. Select and expand the **SAMPLE_DATASOURCE > Databases > pubs** node to display the database object sub-nodes.
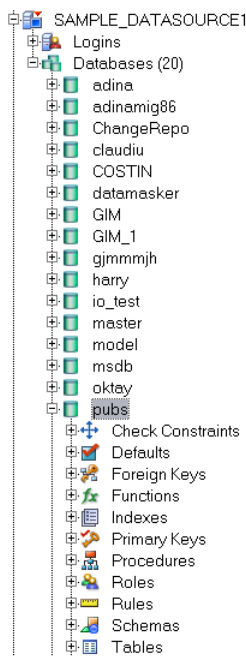
Creating an Object Using the Object Creation Wizard

From within the Database Explorer Tree you can create any database object using simple Object Creation Wizards. The following is an example of how to use the Table Object Creation Wizard. It is similar to the Object Creation Wizards available within Rapid SQL for all database objects.

1. Right-click on the **Tables** node and select **Create**. A **Create Table Wizard** opens.

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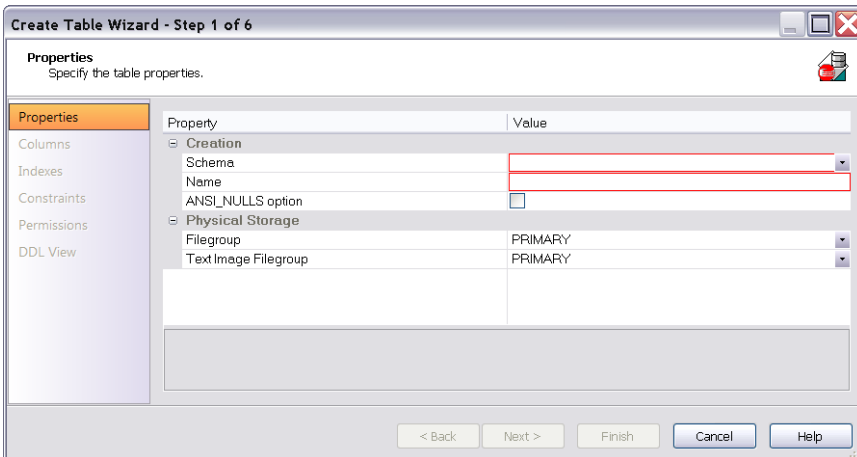
2. Select a **Schema**, provide a **Name** of SAMPLE_TABLE. Leave the remaining default settings and click **Next**.

3. Add a column, using a **Name** of Sample_Column1 and select a **Type** of char. Experiment with the **Add Column** and **Delete** buttons, and with selecting a column and modifying its attributes.

4. Click **Finish**. The **DDL View** panel opens showing the DDL that will be used to create the new table.
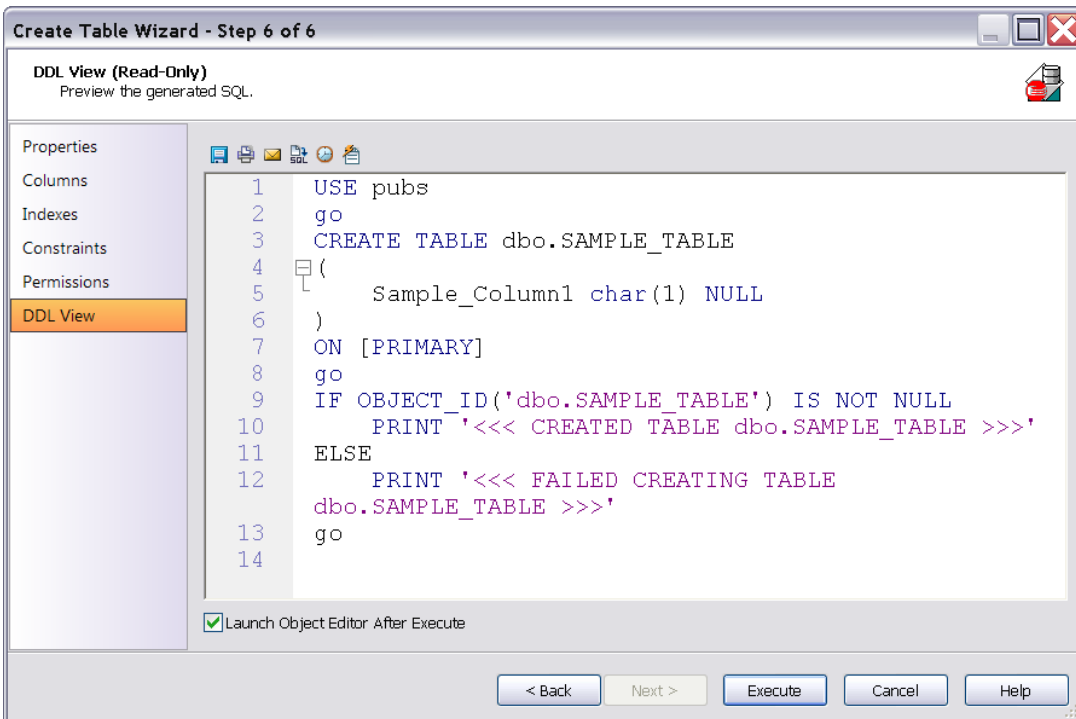

5. Deselect **Launch Object Editor After Execute** and then click **Execute**.

Rapid SQL builds the platform-specific SQL code, syntactically-correct and ready to run the first time. There is no SQL coding required in any of the Rapid SQL Object Creation Wizards.

Working With an Existing Object Using the Object Editor

While the wizard offered you the option to automatically open an editor on creating the table, you can also manually open an editor.
1. In the Database Explorer, right-click on your new table and select **Open**.
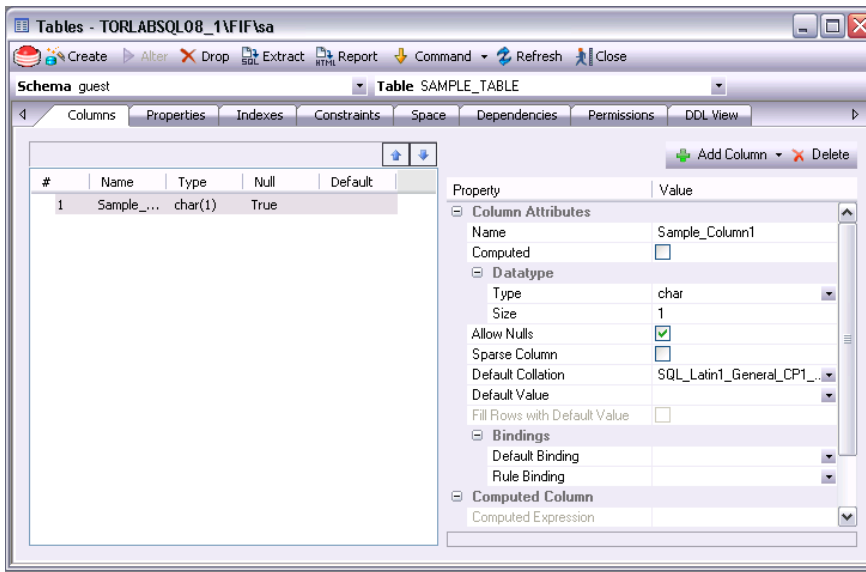
Object Editor features are as follows:
- All Object Editors provide standardized, multi-tabbed windows for each database object type.

- All Object Editors provide fully-functional toolbars for easy object management.

- Rapid SQL has full knowledge of the underlying DBMS system catalog, syntax and alteration rules, so the user can concentrate on what needs to be done, not on how to do it.

- Drop-down boxes allow you to easily move between owners and objects.

The Rapid SQL Object Editors easily perform operations that would normally require painstaking and error-prone scripting, such as deleting or inserting columns in a table while preserving data, dependencies and permissions. Rapid SQL analyzes the database catalog to determine its structure, and then automatically generates the SQL script required for the extended alteration. For instance, when a full table alteration is required, Rapid SQL automatically unloads and reloads the data, eliminating tedious work.
2. Close the **Object Editor** window.

Object Documentation and Reporting

Rapid SQL provides rich, detailed HTML Reporting for all database objects. Building a browser-ready report for any object is only a few mouse-clicks away.

1. Expand the **Tables node**, right-click on any table and select **Report** from the menu. A **Report** dialog opens.
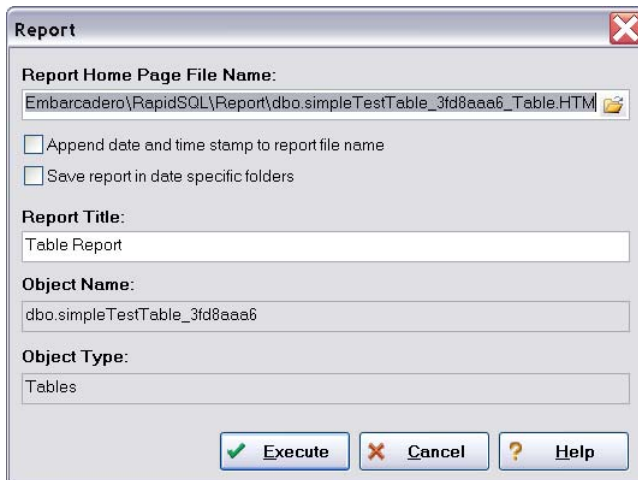
2. Enter a destination **Report Home Page File Name**. This can be a network web server directory\file.

3. Enter a **Report Title** and click **Execute**.

The HTML report will automatically be displayed in the Rapid SQL application workspace. For example:

The HTML report can be saved to a new file or referenced in the file named above.

NOTE: All HTML reports are browser-ready and suitable for posting directly to the web.


Working With Code, Files and Data

Rapid SQL provides many features and powerful development tools for creating and executing SQL code and working with data.

Note: For purposes of this Evaluation Guide, we are only covering high-level functionality of the major features and tools within Rapid SQL.

Setting Environment Options

The Options Editor allows you to set the Rapid SQL development environment to meet your needs.
1. Select <u>F</u>ile > **Options** from the menu. The **Options** dialog opens.
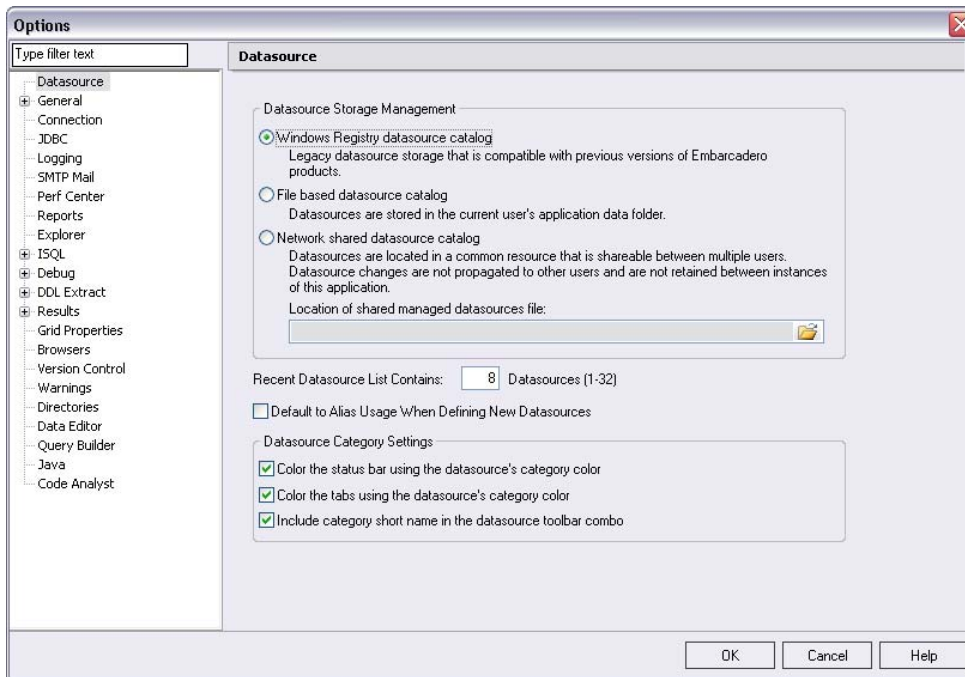
The **Options** dialog has one page per option category. You select an option category in the left-hand pane and can subsequently set options on that page. Options are applied when you click **OK.**

Favorites Tab

The **Favorites Tab** provides a drag-and-drop library interface of all supported DBMS syntax, SQL syntax, built-in functions, optimizer hints, and SQL-conditional syntax. Additionally, it provides the ability to create custom folders to store commonly-used code for quick and efficient access, as needed.

To open the Favorites Explorer:
1. At the bottom of the **Explorer** pane, click **Favorites**. The **Favorites Explorer** appears.

2. Expand the **Microsoft** node and then expand the **Schema** sub-node.

3. Right-click the **Procedures** node and select **Open**. The selected code opens in the SQL Editor window and is ready for execution.

4. Right-click in the editor window and select **Close** from the context menu.

## To add a custom folder to the Favorites Explorer

1. Open the **Favorites Explorer** and right-click the **Favorites** folder.

2. Select **New Folder** from the menu. A new folder is added to the bottom of the tree view.

Working with Scripts and Files

Rapid SQL extends the auto-generation of SQL code by allowing you to run your scripts across multiple databases at the same time. In addition, there is the option to execute the code immediately or schedule it to run later.

Script Execution Facility

1. On the **Favorites Explorer**, navigate to the **Microsoft SQL Server** node and select the **Schema** sub-node.

2. Right-click the **Procedures** node and select **Script Execution Facility**. The **Script Execution Facility** dialog box appears.
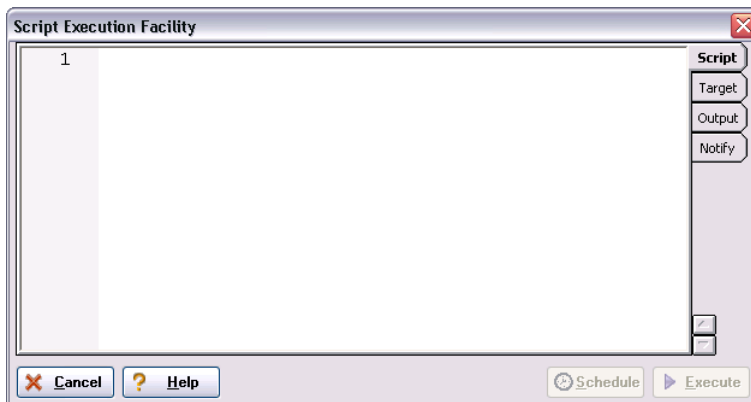
3. Click the **Target** tab and select the datasources to run the script against.

4. Click the **Output** tab and select a type of output format. For the purposes of this example, select **Graphical Output**.

5. If you want to send a notification message indicating that the script has executed, click the **Notify** tab and enter the appropriate information in the fields provided.

6. Click **Execute** if you want Rapid SQL to run the script against the datasources specified on the **Target** tab. If not, simply close the dialog.

NOTE: Separate script output windows are created for each selected datasource.

File Execution Facility

Similar to the Script Execution Facility, files containing SQL scripts can be added to the File Execution Facility and executed immediately or scheduled to run later. Other than the origin of the code, all supporting functionality is the same.

1. On the **Tools** toolbar, click **File Execution Facility**. Rapid SQL opens the File Execution Facility dialog box.

2. To locate the file you want to execute, click **Add**. Use the **Add Files** dialog box to locate and select a file.

3. On the **Target** tab, select the datasources to run the script against.

4. On the **Output** tab, select the desired output option. For the purposes of this example, select **Graphical Output**.

   NOTE: To enable the scheduling function for the script, you must select the **File Output** option.

5. If you want to send notification that the script has executed, on the **Notify** tab, complete the target information.

6. Click **Execute** if you want Rapid SQL to run the script against the target datasources. Otherwise, close the dialog without executing.

NOTE: Separate script output windows are created for each selected datasource.

Viewing Data

Rapid SQL provides several options for browsing data. In addition, it gives you the ability to construct even the most complex SQL statements with point-and-click ease.

Select * Browsing
1. On the **Database Explorer** ensure that the **Explorer** tab is displayed and then expand the **MS SQL server** node.

2. Expand any database you know has table data, expand the **Tables** node, right-click a table, and then click **SELECT * FROM**.

All columns and rows from the table are displayed in the active workspace. Close the workspace window.

Retaining Datasource Explorer View Settings

1. Click on expandable settings at the top of the Explorer pane.
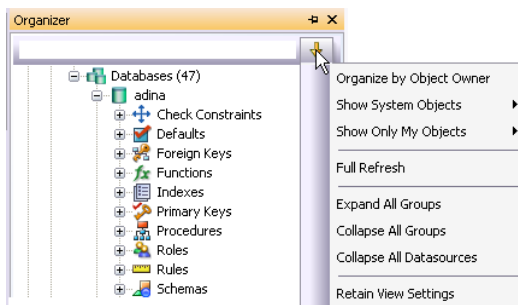
2. Select **Retain View Settings**.

The Explorer will open the next time just as you left it. All connections that were present when you closed Rapid SQL will be re-established.

Datasource Explorer Bookmarks

Rapid SQL allows you to set bookmarks for frequently visited database objects.
1. Right-click on any node in the Datasource Explorer Tree.
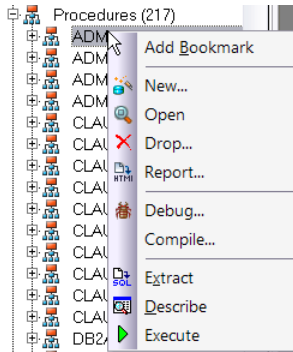
2. Select **Add Bookmark** and use the **Add Friendly Bookmark Name** dialog to optionally provide a new name, and create the bookmark.
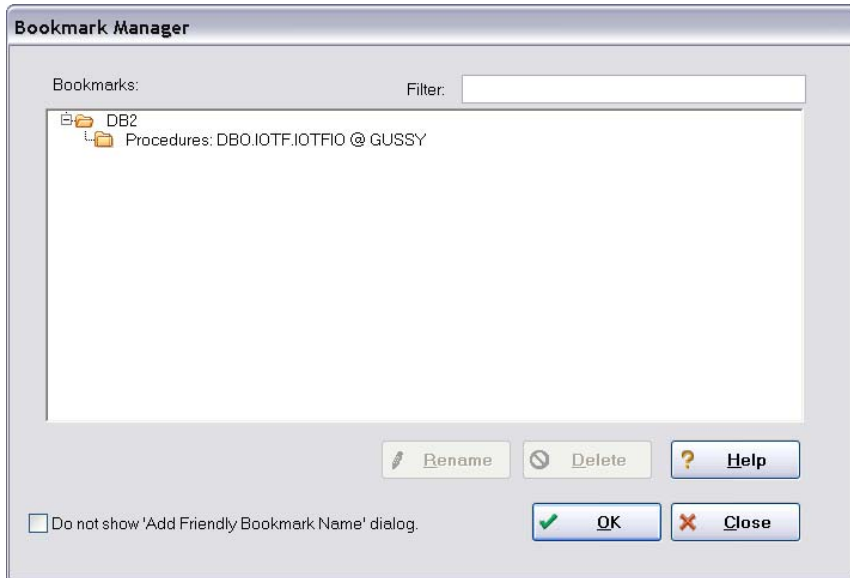
After Bookmarks are defined you can use them to easily navigate to commonly used datasource resources via the main menu "Bookmarks" item.
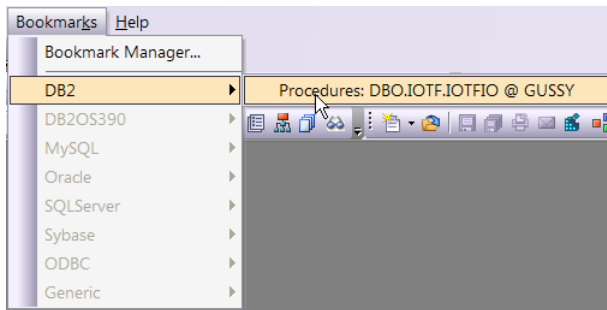
The **Bookmark Manager** handles maintenance of **Bookmarks**.
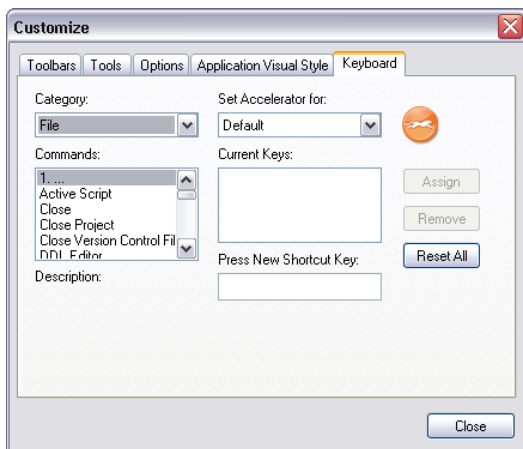1. Select **Bookmarks** from the menu bar.

2. Select **Bookmark Manager**.

3. Close the **Bookmark Manager** dialog.

Setting Keyboard Shortcuts and Hotkeys

1. On the **Tools** menu, select **Customize**.

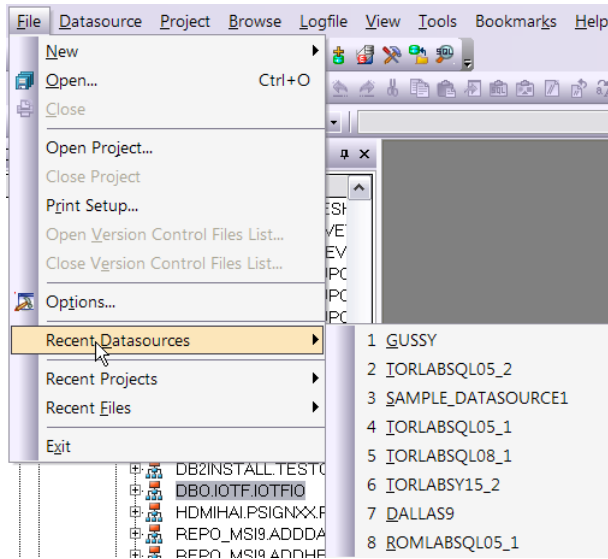2. In the **Customize** dialog go to the **Keyboard** tab.

The **Keyboard** tab can be used to set keyboard shortcut hotkeys for all areas of Rapid SQL functionality.

3. Close the **Customize** dialog.

Referencing Most Recently Used Datasources

1. Select **File > Recent Datasources** and then select a datasource.

This will automatically place you on the datasource within the Explorer, ready to work with active connection.
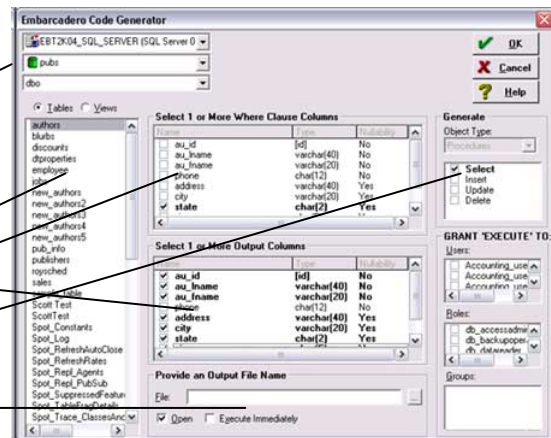
SESSION 3: SCRIPTING

Generating Code

By providing several code generation and assistance options, Rapid SQL makes cross-platform development easy for developers of all experience levels.

> **Note:** The following examples build on the SQL Server 2000 SAMPLE_DATASOURCE registered earlier in this Evaluation Guide. These examples can be applied to any registered datasource for any of the supported platforms.

Code Generation Facility

The **Code Generation Facility** can be used to create complete procedures, functions or packages revolving around views or tables.

1. From the menu, open **Tools > Code Generation Facility**.

2. Select the SAMPLE_DATASOURCE datasource and the "pubs" database from the dropdown list boxes.

3. Select the "authors" table, "state" as the input column and all columns for output.

4. Select "Select" as the code option.

5. Select a file to save the generated script and check "Open".

6. Click "OK" and the DDL to create the procedure will be generated and displayed in an editable window, called the DDL Editor. You can edit the name of the new procedure and any of the generated code at this time. Name the new procedure "sample_select_authors".

> **No SQL statement coding is required to generate complete stored procedures and packages.** If applicable, Rapid SQL allows all generated code to be previewed and edited to fit any development need.

7. Click on the ▷ ▷▷ (execute or step execute) button to submit the DDL and create the procedure.

8. The indicated file will be saved on the selected directory.

Finished!

<u>Right-click feature</u>

Similar to the Code Generation Facility, the "right-click" code generation feature can be used to create complete procedures, functions or packages revolving around views or tables.
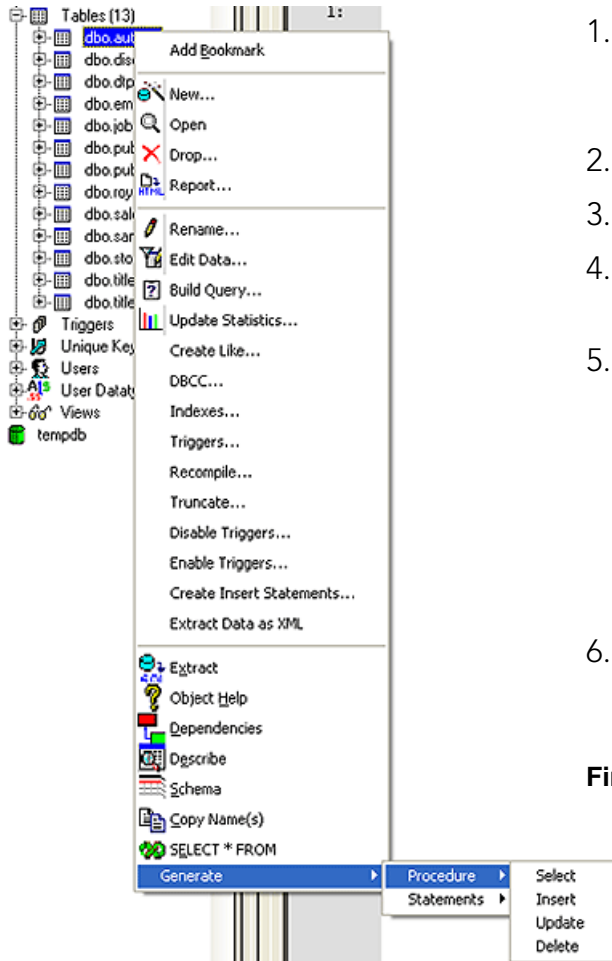
1. From the Database Explorer Tree, expand the **SAMPLE_DATASOURCE > pubs > Tables** sub-node.

2. Right-click on the "authors" table.

3. Select **Generate > Procedure > Select**.

4. Select "state" as the input column, and leave all output columns selected.

5. Click "OK" and the DDL to create the procedure will be generated and displayed in an editable window, called the DDL Editor. You can edit the name of the new procedure and any of the generated code. Name the new procedure "sample_select_authors".

6. Click on the ▶ ▶▶ (execute or step execute) button to submit the DDL and create the procedure.

Finished!

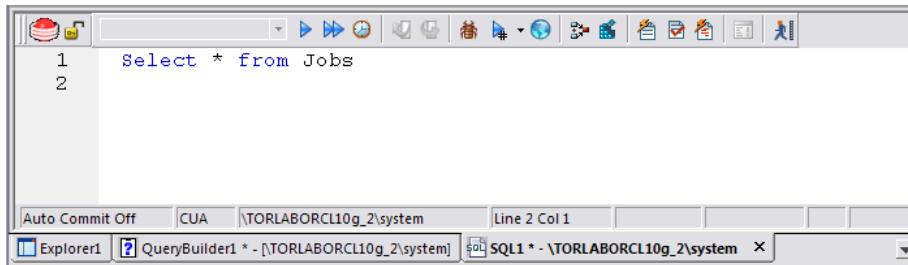## Automated error detection and coding assistance

Rapid SQL provides a range of features that detect or help you avoid errors and save keystrokes in developing your scripts.

To enable these features:

1. On the **File** menu select **Options**. The **Options** dialog opens.
2. In the left-hand pane, expand the **ISQL** node and then select **Code Assist**.
3. On the **Code Assist** panel:
   - Ensure that **Enable Code Complete** is selected.
   - Ensure that **Severity levels for semantic validation problems** has **Warning** selected.
   - Ensure that **Enable Real-time syntax checking** is selected.
4. Click **OK.**

To see these features in action:

1. On the **File** menu, click **New**, and then **ISQL**.
   Rapid SQL opens the SQL Editor window. You can add SQL code via your method of choice (free-form typing, retrieve from a file, paste copied code, etc.).

2. Experiment with the automated error detection and coding assistance as follows:
   - Type **SELECT * FROM** and stop typing. Note the error condition.

     Rapid SQL can run a syntax check any time there is an interval of 1.5 seconds between keystrokes. You can also disable automatic syntax checking and only run a check when you manually initiate it. Syntax error annotation persists until you correct the problem.
   - This time type a fragment that includes the name of a nonexistent object, **SELECT * FROM NON.OBJECT**, for example. For now, ignore any popups. The warning condition is a result of on-the-fly semantic validation.

     Rapid SQL notifies you when a script contains a reference to an object that Rapid SQL cannot resolve.

- Type **SELECT * FROM** followed by a space and then stop typing. If no popup appears, press CTRL+SPACE. The Code Complete suggestion box lets you select from objects or object name components such as databases or schema. This feature saves keystrokes and minimizes typing errors. See the online Help for full descriptions of these features.
3. Close the current **SQL Editor** window.

To restore Rapid SQL settings:
1. On the **File** menu select **Options**. The **Options** dialog opens.
2. On the **Code Assist** panel, click the **Restore defaults** button.
3. Click **OK.**

Other coding aids

Rapid SQL provides extensive, easy-to-use coding aids for all of the supported DBMS platforms, throughout the application. Aids are provided in the form of ready-to-use code templates and blocks of syntactically correct code.

Paste SQL
1. From the Database Explorer Tree, expand the **SAMPLE_DATASOURCE > pubs** sub-node.

2. Select **File > New > SQL** to open an SQL Editor window.

3. Select **Edit > Paste SQL Statement** to open the **Paste SQL** window.
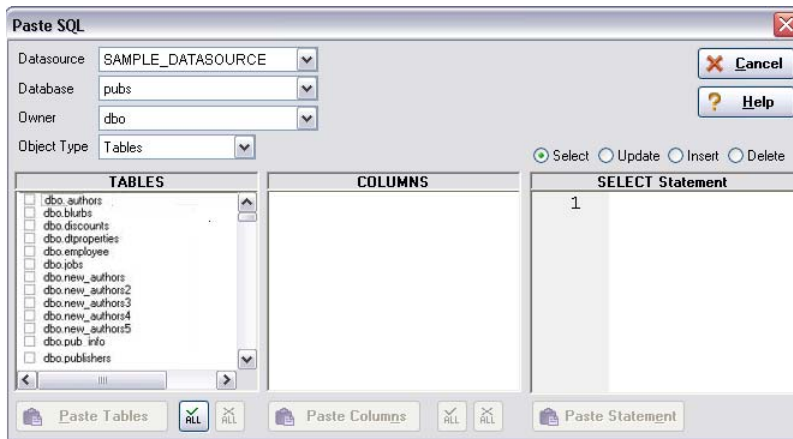

4. In the **Tables** list, select **authors**.

5. Under the **Columns** list, click **ALL**.

6. Click the **Select** radio button.

7. Click **Paste Statement** to copy the generated code to the SQL Editor window.

You can use the statement as is, or modify the code as needed.

Paste SQL Syntax

1. Select **File > New > SQL** to open a fresh SQL Editor window.

2. Select **Edit > Paste SQL Syntax** to open the **SQL Syntax for SQL Server** window.
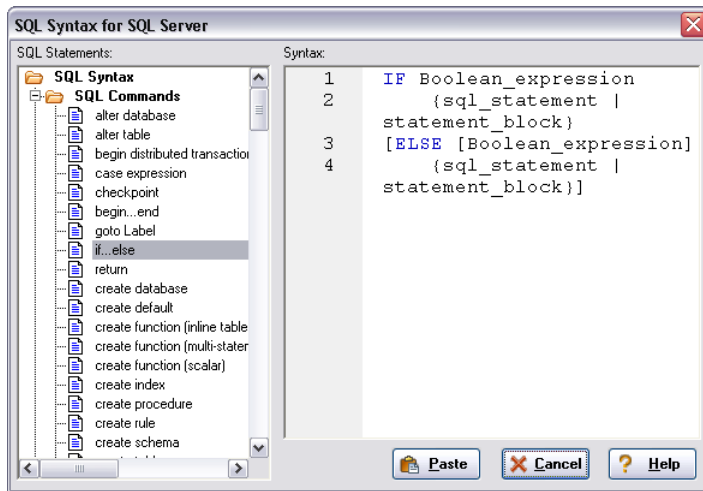

3. Select a template and click **Paste** to copy the code template into the **SQL Editor** window.

4. Add your own code to complete the needed operation.

SESSION 4: WORKING WITH CODE WORKBENCH

The Code Workbench lets you configure resources for two SQL Editor features:
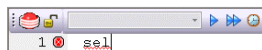- Code Templates
- Auto Replace

Code templates are complete code blocks that can be easily added to open windows or scripts with a few keystrokes. When you type CTRL+SPACE, the Code Assist menu opens, letting you select a code template for insertion in the editor window.
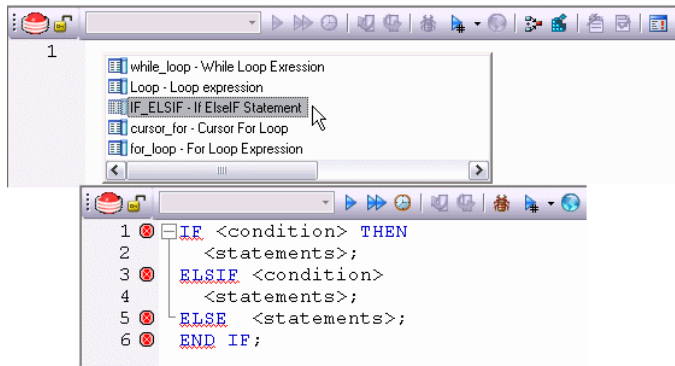
Auto Replace lets you define shortcuts consisting of a few characters that represent longer character strings. Instances of these Auto Replace expressions are automatically replaced by the replacement string on activation events such as typing SPACE, TAB, or RETURN. This feature is useful for creating shortcuts for one-line commands or SQL statement subsets, or even to detect and fix common typographical errors such as **teh** for **the**.

For example, consider an Auto Replace definition with an expression of **sel** to represent **Select * From**:

If the associated activation event includes a SPACE, then on typing **sel** followed by typing SPACE, the following replacement occurs.


Rapid SQL loads a default set of Auto Replace and Code template definitions at startup but you can also add, edit, and delete definitions. In addition, you can save sets of definitions to file and subsequently load specific sets of definitions, allowing you to customize your templates to different platforms or development projects.

To invoke Code Workbench settings:

1. Select **Tools > Code Workbench**.
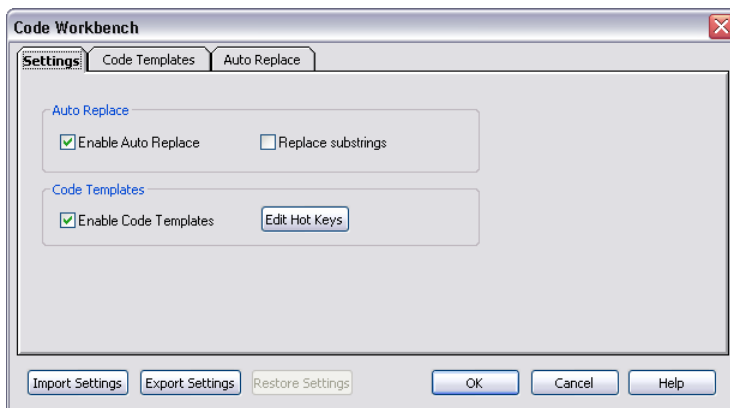
The **Settings** tab lets you enable the Auto Replace and Code Template features.

2. Inspect the **Code Templates** and **Auto Replace** tabs.

3. Click **OK**.

SESSION 5: BUILDING A DATABASE PROJECT

Creating a new Rapid SQL Project

Rapid SQL provides an excellent team development environment by allowing you to Reverse Engineer live database objects into off-line SQL source code files that can then be easily added to a Version Control System (VCS). Rapid SQL's seamless VCS integration offers all version control operations, such as get, check-out, check-in, history and diff. This example will Reverse Engineer the table objects from the Microsoft SQL Server "pubs" database into a Rapid SQL project and then will add the project to version control under Microsoft Visual Source Safe.

1. Select **File > New > Project** to open the wizard.

2. Enter "sample_project" as the name, and browse and select a directory that contains a VSS database. Enter a description (optional). Select **From Database** and click **OK**.

3. Select "SAMPLE_DATASOURCE" and click **Next**.

4. Select "pubs" and click **Next**.

5. Select "dbo" as the owner. Right-click in the object type selection window and unselect all of the options. Select only "Tables". Under **Extract Scope** select **Selected Objects Only**. Click **Next**.

6. Select only the authors, discounts and employees tables.

7. Uncheck all selected **Options for tables**. Click **Next**.

8. Select **Retain**. Click **Next**.

9. Preview the last panel and click **Execute**.
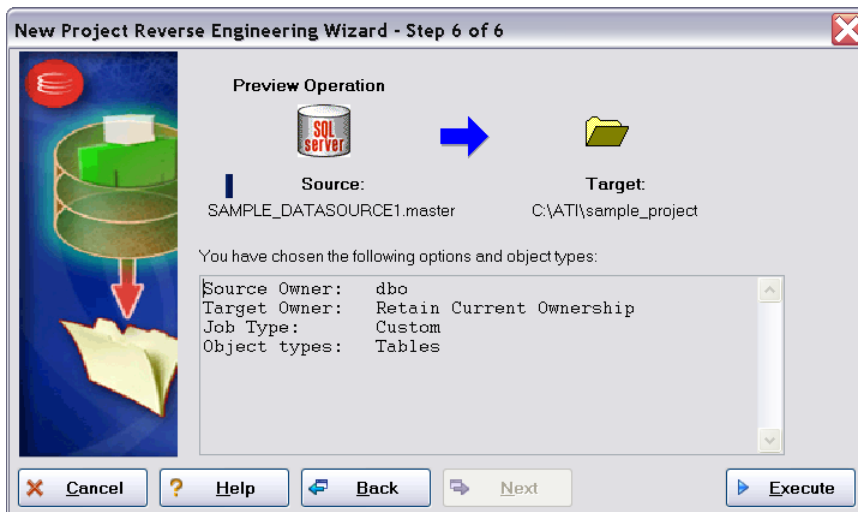
Finished! You have now successfully created a working database project. At this point, the project is available to be added to Version Control. This can be done by clicking


Yes when prompted and following the dialog, or by right-clicking on the project within Project Explorer tree. Select **Yes** for the purpose of this guide.

Adding a Project to Version Control (Sample - Microsoft Visual Source Safe)

When a project is created Rapid SQL will automatically prompt you to add the project files to the selected VCS solution. The following dialog will be displayed:
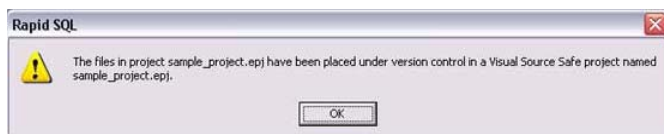

After providing a user name and password, you can browse to locate and select the project database folder.
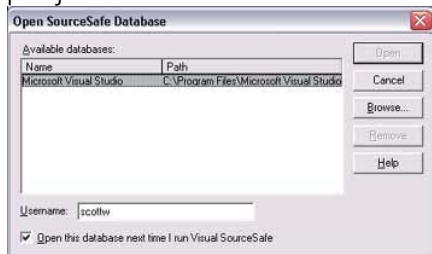
All that remains is to provide a project name.

**Finished!** The following message indicates that the project was successfully placed under version control.


SESSION 6: VISUAL QUERY BUILDER AND DATA EDITOR

Visual Query Builder

Rapid SQL gives you the ability to construct complex SQL statements with point-and-click ease using the Visual Query Builder.

1. From the Database Explorer Tree, right-click on the "authors" table and select **Build Query**. The "authors" table will be automatically added to the Query Builder workspace.

2. On the **Tables/Views** tab, right-click on the "titleauthor" table and select **Add**. Note that the tables are automatically identified as being joined by any columns with the same name and datatype.
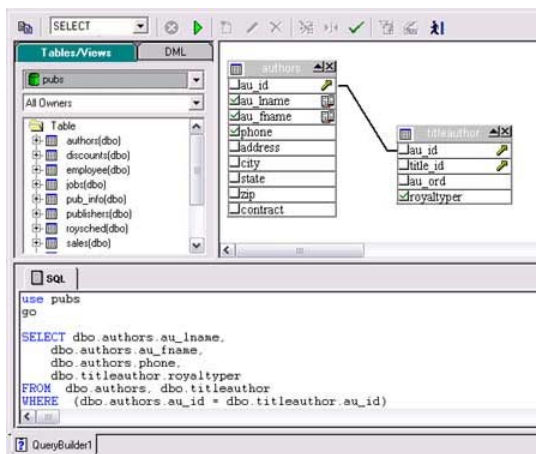
3. Click on the **DML** tab to expose the visual query building clauses and options. You can right-click on any clause to easily add the code to the query.
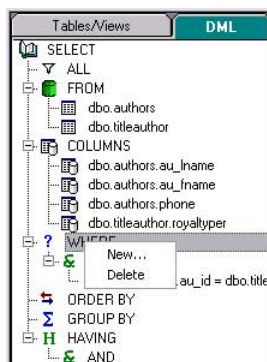
4. Select the **au_lname**, **au_fname**, and **phone** check boxes in the authors table.

   Note that the lower pane shows the query that is being built.

5. Click the **Execute** button to execute the query.

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The results will display in the lower window.

Before closing the Query Builder, experiment with additional options. Try selecting a different statement type, such as Insert or Update, from the dropdown at the top of the Query Builder window. Use the different clauses on the DML tab.

Any visual query builder session can easily be saved to a file for later use.

Live Data Editor

1. From the Database Explorer Tree, right-click on the "authors" table and select **Edit Data**.

2. In the **Data Editor Filter** dialog, click **Add All** to add all columns to the editing session.

   At this point, you can add a WHERE clause that will filter for only the desired data. Note that Rapid SQL builds the SQL to retrieve the data to be edited in the Select Statement area.

3. Click **OK**. A Data Editor opens.
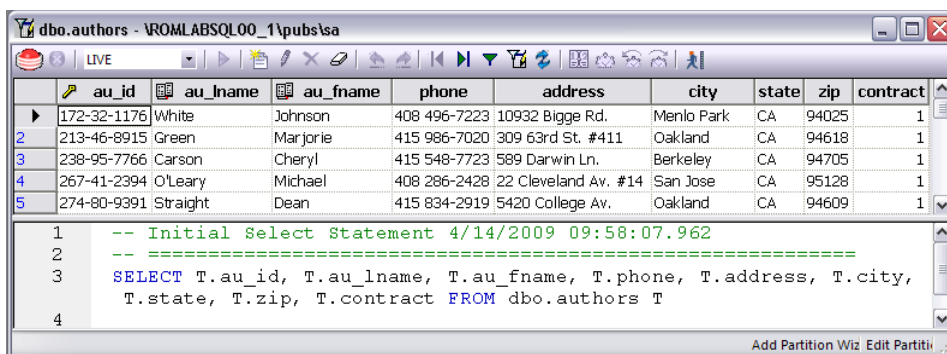
Note the dropdown at the left of the toolbar. The editing window has LIVE and BATCH modes:

- LIVE mode commits your changes each time you move to a new row.

- BATCH mode will allow you to move within the window and commit your changes when ready. Changes made in BATCH mode can be cancelled by selecting the "Reload Data" icon.

At any time during the session, you can change the filter parameters by selecting the "Filter Data" icon.

SESSION 7: CODE ANALYST

The Code Analyst allows you to capture run-time statistics on executable database objects, included stored procedures and functions. Not only can you capture runs for single objects, but you can group more than one object.

To get started, select **Tools > Code Analyst**

Note: In order for Code Analyst to run, 5 repository tables will be created on the database.

Select the database you would like the tables to be installed on and press OK.

Once the tables are installed, you're ready to start defining a session.

1. On the **Code Analyst** toolbar, click the **Create New Collection** button.

2. Define the session by giving it a name, selecting the objects to be executed, and clicking **Next**.
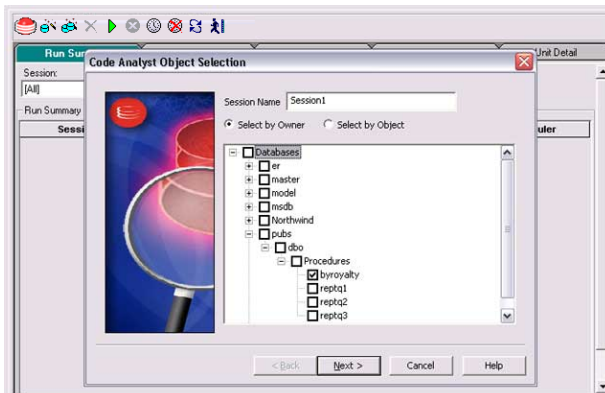

3. If the objects require parameters, **Code Analyst** prompts you to enter the parameters.
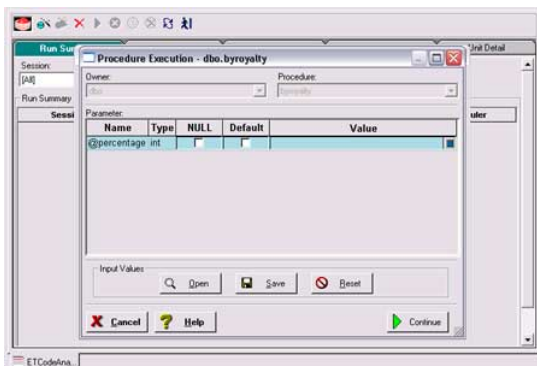

After defining input variables, if you selected multiple objects, the sequence of execution can be set by moving the object up or down in the list.

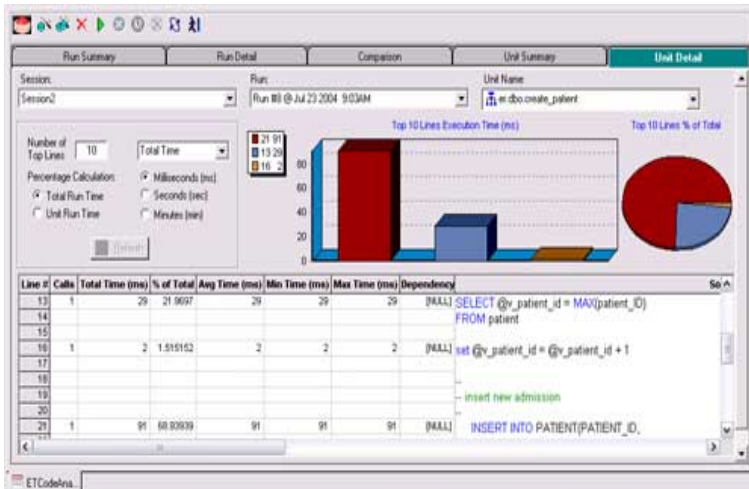Code Analyst lets you schedule the session to run unattended during off-peak hours.
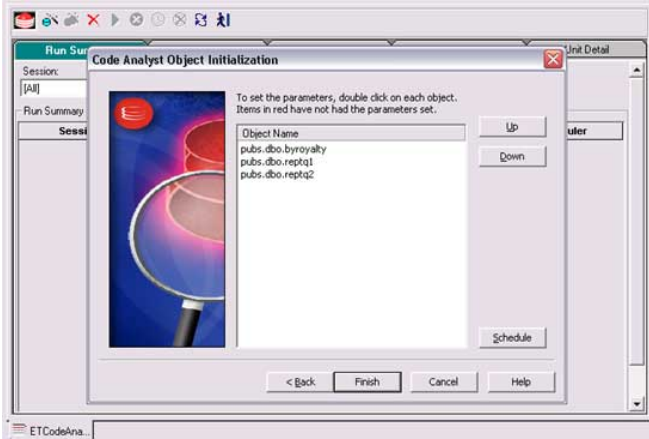
Once the session has been run, the total time for the run is displayed in the **Run Summary** tab.
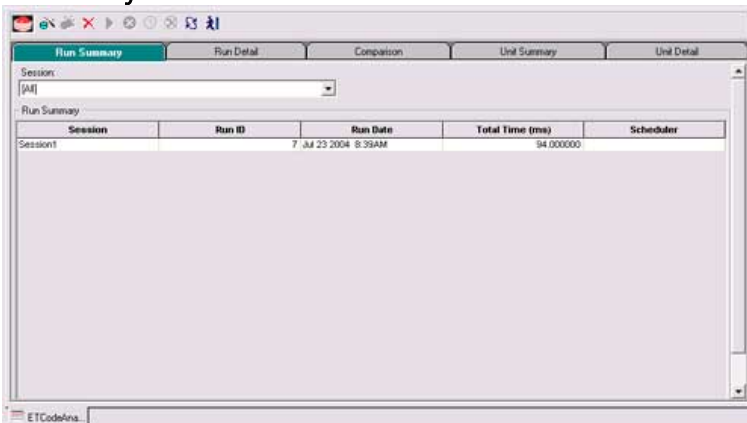
The **Run Detail** tab shows a breakdown of the different objects that make up the session.
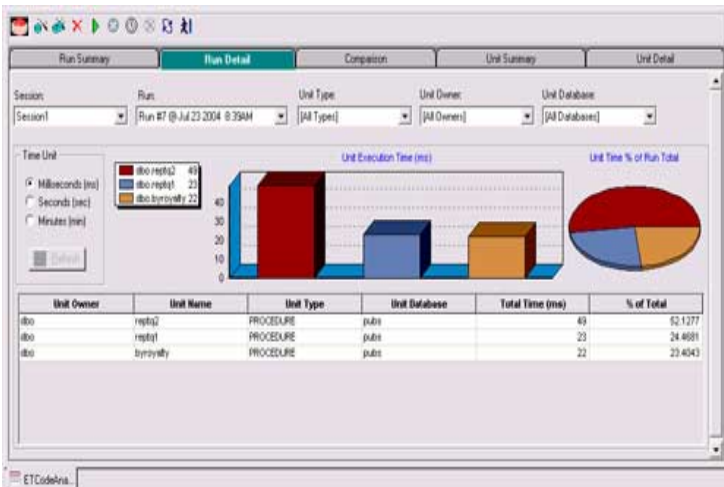
The **Unit Detail** contains the specific time measurements for individual SQL statements.

Session 8: SQL Debugging and Profiling

SQL Debugging

The SQL Debugger is another database productivity tool that lets you debug SQL Server, Oracle, Sybase or DB2 stored procedures as well as Oracle functions. SQL Debugger simplifies the task of finding coding errors.

1. From the **Datasource Explorer** browser, select the procedure/function object group under your database.

2. From the detail window at right, select a procedure/function, which you would like to debug.

3. Right-click the object to open the pull-down menu.

4. Select **Debug** to invoke the **SQL Debugger**.

> **Note:** Pressing the **Debug** button or selecting **Debug** from the **Command** dropdown menu can also invoke the SQL Debugger.

5. If the procedure/function contains input variables, the **Procedure Execution** window prompts for entry of these values.


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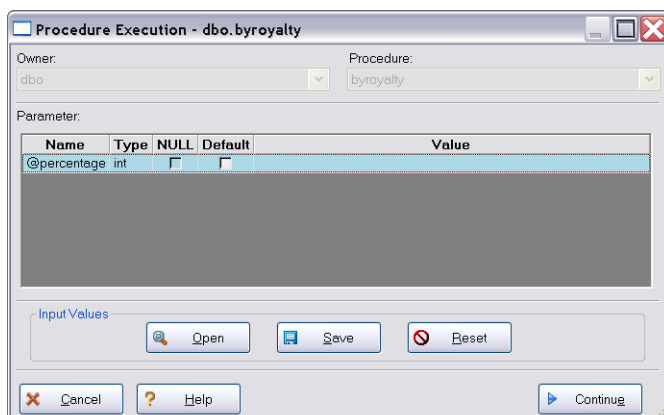
6. Enter the value(s) for the input variable(s) and press **Continue**.

> **Tip:** Rapid SQL allows the user to save the input variable values to a file for later use. This is very helpful for procedures/functions with many input variables that need to be run repeatedly.

The application opens the SQL Debugger Interface.

Watch and Variables Windows

Call Stack and Dependencies Windows
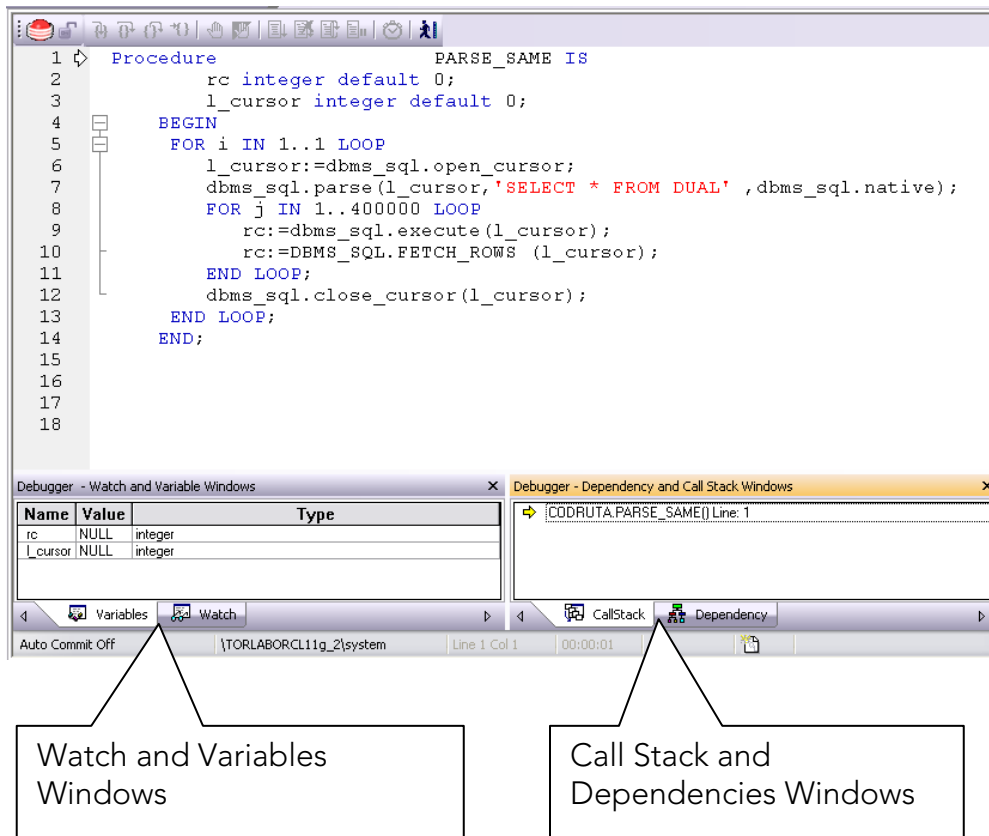
The Debugger features basic execution, line-by-line execution, breakpoint support, and other common debugging features. For details, refer to the online Help.

SQL Profiling- Oracle Only

The SQL Profiler within Rapid SQL provides the ability to capture the metrics of various PL/SQL programmable objects as they are executed in the database. It quickly identifies performance bottlenecks by first calculating the overall runtimes of objects like Oracle packages, and then computing the amount of time each line of PL/SQL code spends executing. Information is presented in an easily viewed, drill-down format.

1. To start a profiling session, use the **Tools** menu option and select **SQL Profiler**, **Start**.

2. Enter a name for the profiling session or select an existing name from the dropdown. Press **OK**. The Profile session is now active.
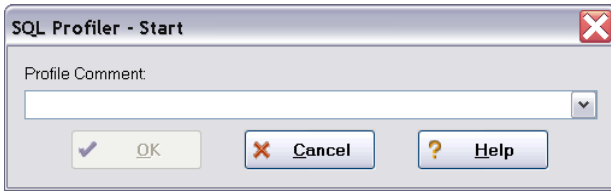
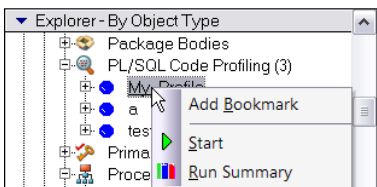3. Execute the programmable object (i.e. Stored Procedure) you wish to capture metrics on.

4. When finished, select **Tools > SQL Profiler > Stop**. The SQL Profiler – Stop dialog window prompts you to select an option.
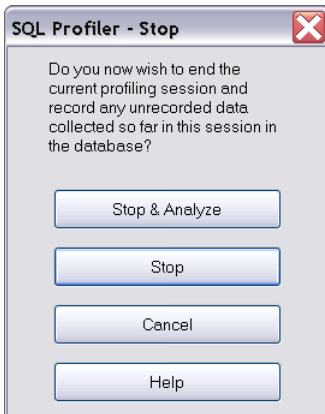
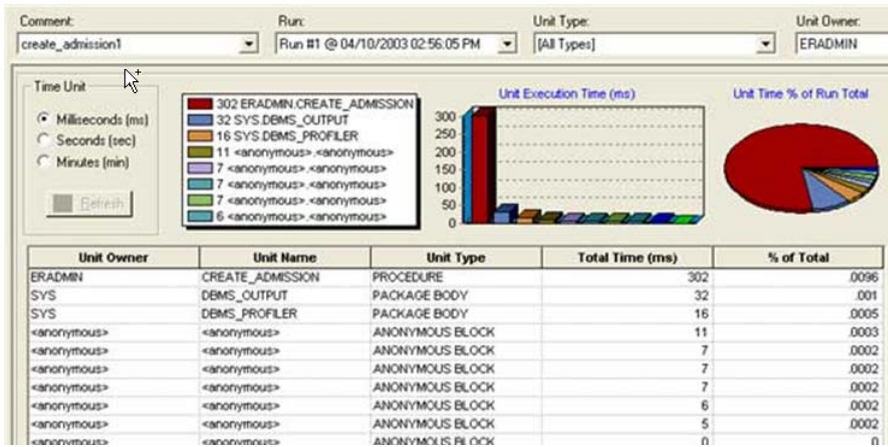

5. Press **Stop**.

6. Under the **Database Explorer**, expand the **PL/SQL Code Profiling** section.

7. Right-click on the profile session and select **Run Summary**. The Run Summary window will appear.

8. Select a session and select **Run Detail** from the right-click menu. The Run Detail screen appears allowing you to view the metrics for this run in both a graphical and text format.

Unit Owner	Unit Name	Unit Type	Total Time (ms)	% of Total
ERADMIN	CREATE_ADMISSION	PROCEDURE	302	.0096
SYS	DBMS_OUTPUT	PACKAGE BODY	32	.001
SYS	DBMS_PROFILER	PACKAGE BODY	16	.0005
<anonymous>	<anonymous>	ANONYMOUS BLOCK	11	.0003
<anonymous>	<anonymous>	ANONYMOUS BLOCK	7	.0002
<anonymous>	<anonymous>	ANONYMOUS BLOCK	7	.0002
<anonymous>	<anonymous>	ANONYMOUS BLOCK	7	.0002
<anonymous>	<anonymous>	ANONYMOUS BLOCK	6	.0002
<anonymous>	<anonymous>	ANONYMOUS BLOCK	5	.0002
<anonymous>	<anonymous>	ANONYMOUS BLOCK	0	0

9. To drill down further into the data, highlight a unit and select **Unit Detail** from the right-click menu. Scroll through the **Source** window to view the times for each statement.

10. To compare 2 cases, select the 2 cases you wish to compare (shift-click to select the second case) from the Run Summary screen and select **Compare** from the right-click menu. The SQL Profiler Run Comparison screen appears.

See the online help for more information on profiling.

ADDITIONAL RESOURCES

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