Rapid SQL 7.5 Evaluation Guide

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Introduction to Rapid SQL 7.5

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®, IBM® UDB DB2®, and IBM® DB2® for OS/390® 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

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.

Additionally, for 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 evaluation guide is intended to help you get started using Rapid SQL.

After completion of this evaluation guide, you'll have the foundation you need 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 browsers, editors and wizards, build and manage projects, and leverage many of the productivity-focused features offered throughout Rapid SQL. 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 5 sessions. Do them all at once, or complete them individually as you have time.

Session 1: Getting Started with Rapid SQL

Session 2: Establishing Cross-Platform Datasources

Session 3: Database Object Management

Session 4: Building a Database Project

Session 5: Working with Code, Files, and Data

Session 6:

Session 7:

Session 8:

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** from the Toolbar to find additional resources including Tutorials that complement and build on many of the activities displayed in this brief guide.

Session 1: Getting Started with Rapid SQL

Download, Install, and Start Rapid SQL

You can obtain a trial version of the latest version of Rapid SQL from the Embarcadero web site at www.embarcadero.com.

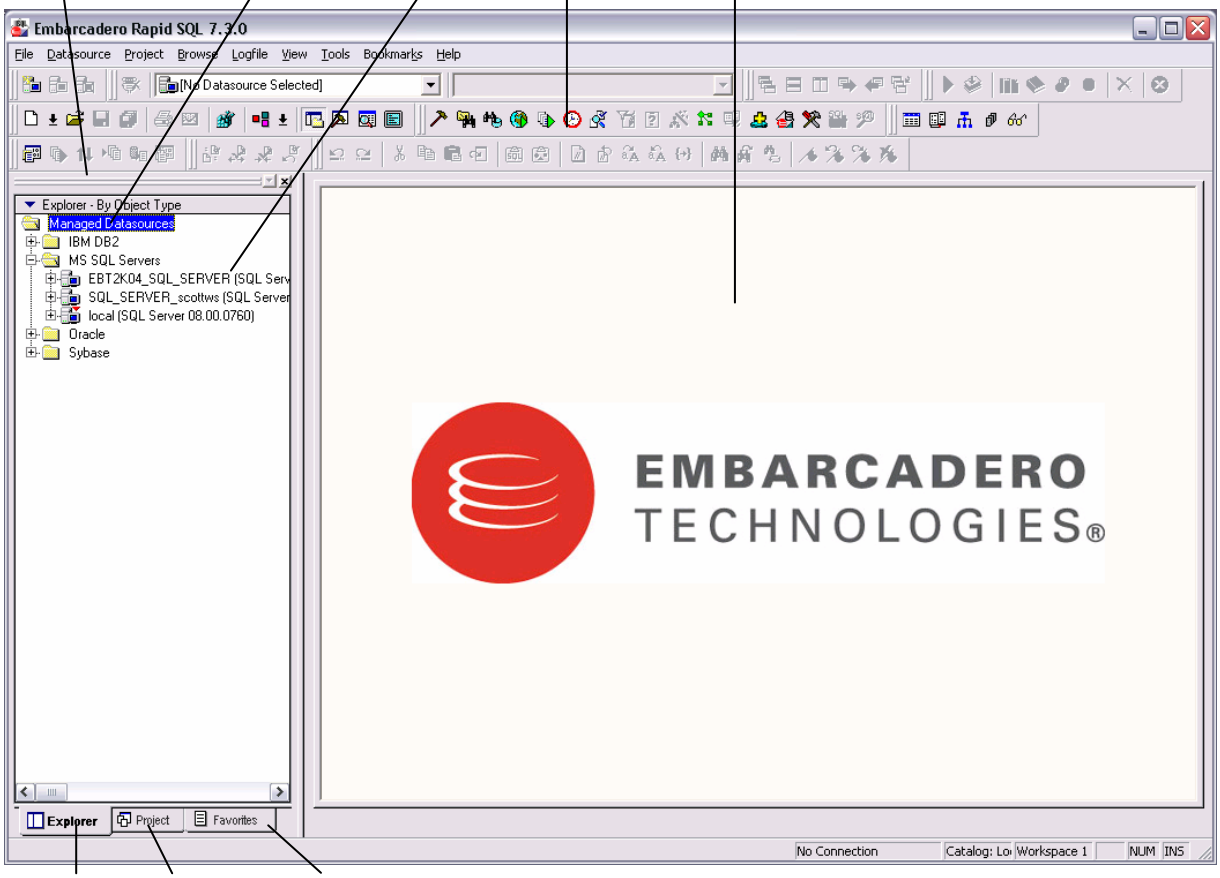
Click **Download** and follow the steps, as indicated. Run the executable to begin the installation process.

When you first install the trial version of Rapid SQL, you can use the application for 14 days, after which a permanent license must be purchased from Embarcadero.

User Interface Overview

The graphic below illustrates all the elements of the Rapid SQL application window.

Database Explorer Datasource Group Datasource Toolbars Application Workspace

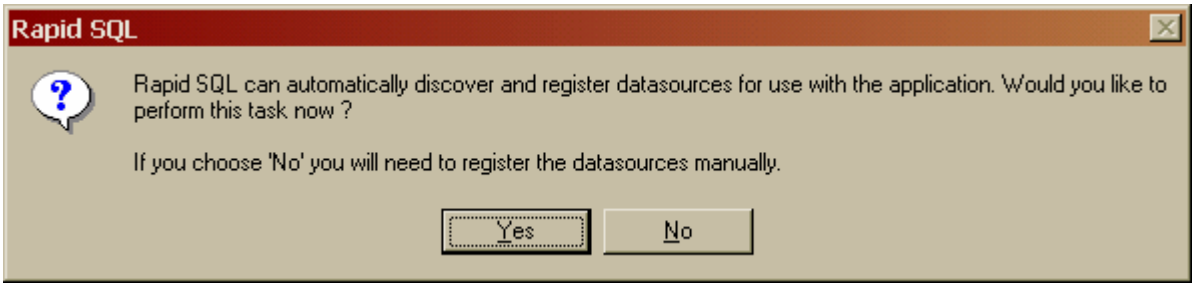


Explorer Tab Project Tab Favorites Tab

*Rapid SQL enables you to view and manage databases via **Database Explorer**. You can move from DB2 to Oracle to SQL Server to Sybase within the same window. Rapid SQL's environment provides the ability to maintain several workspaces simultaneously and enables you to continue working while application processes occur in the background.*

Starting Rapid SQL

1. Choose **Embarcadero Rapid SQL** from the Windows Start menu.
2. The first time Rapid SQL starts, the following message displays:



*Rapid SQL provides a **Discover Datasources** feature that automatically searches the DBMS configuration files and discovers datasources residing on your system that are not currently registered. The **Discover Datasource** feature is a dialog box that contains a list including the name of the server or instance and the type of DBMS of all unregistered datasources found on your network or local machine. This includes the name of the server or instance and the type of DBMS. Once discovered, you will be prompted to register the datasources in Rapid SQL.*

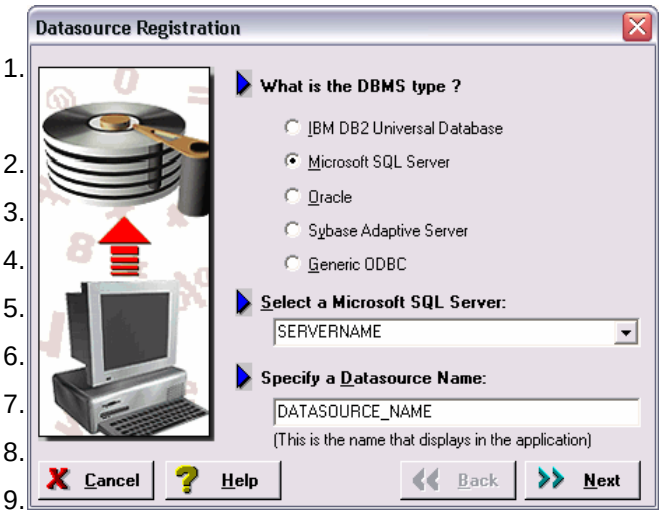
3. Choose **Yes** if you have previously installed and used Embarcadero products. Rapid SQL will find datasources already defined by these products in the datasource catalog stored on the machine, as identified in the **Options>Datasource** setting (See **Setting Environment Options** below). Choose **No**, for the purpose of this task.
4. Select **OK** to continue.

Registering Cross-Platform Datasources

By selecting **OK** in the previous dialog or expanding the **Datasource** menu item and selecting **Register Datasource**, you will be presented with the **Datasource Registration Wizard**.

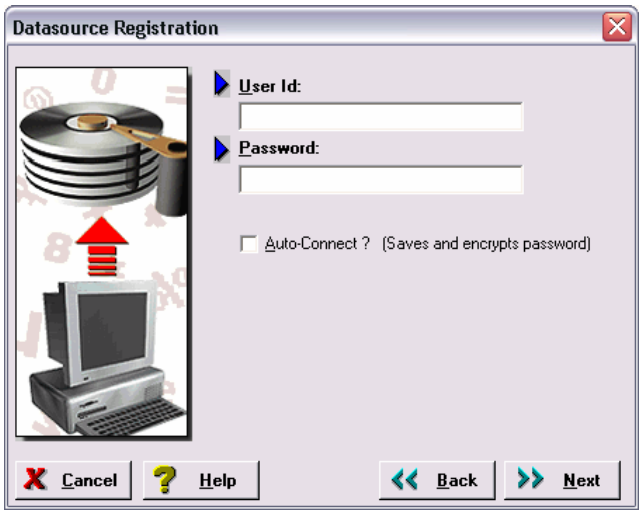
To register a datasource (SQL Server example)

1. Choose **Microsoft SQL Server** as the **DBMS Type**.



Rapid SQL offers the same easy-to-use Datasource Registration Wizard for IBM DB2, Microsoft SQL Server, Oracle, Sybase, and ODBC 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.

2. Specify the database server.
3. Specify SAMPLE_DATASOURCE as the **Datasource Name**.
4. Click **Next** to complete the Datasource Registration dialog.
5. Enter the user ID and password for the database.
6. Select the **Auto-Connect?** Option and click **Register**.

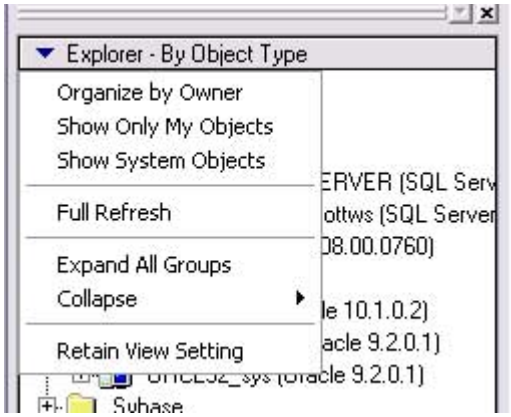


You can configure Embarcadero database applications to use a datasource catalog stored in the system registry of your machine (local) or to use a datasource catalog located in the registry of another computer (remote). This capability makes it easy to share datasource catalogs among multiple users so that maintenance can occur in one location. All Embarcadero database management products share the datasource catalog, which means that when you set up your datasource catalog using one product such as Rapid SQL, the same list of datasources is available in other Embarcadero Technologies products. Any changes you make to the datasource catalog are reflected in all Embarcadero database management products.

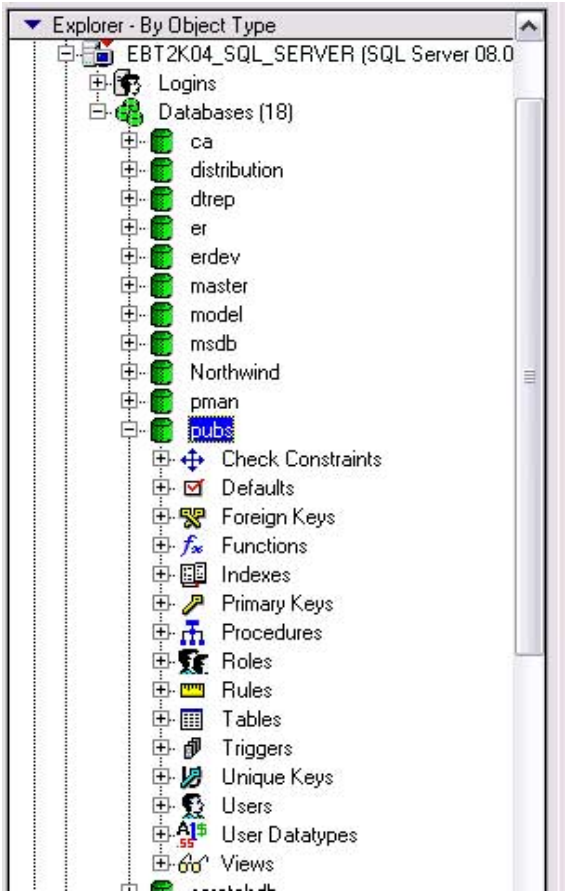
Session 2: Productivity Enhancers

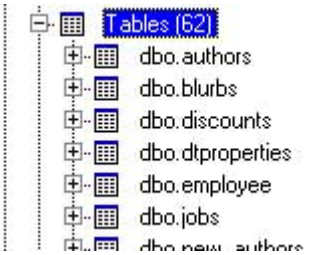
Database Object Management Made Easy

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.



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.
3. Expand these sub-nodes to the extent of the explorer tree to display all of the associated objects, as shown below.

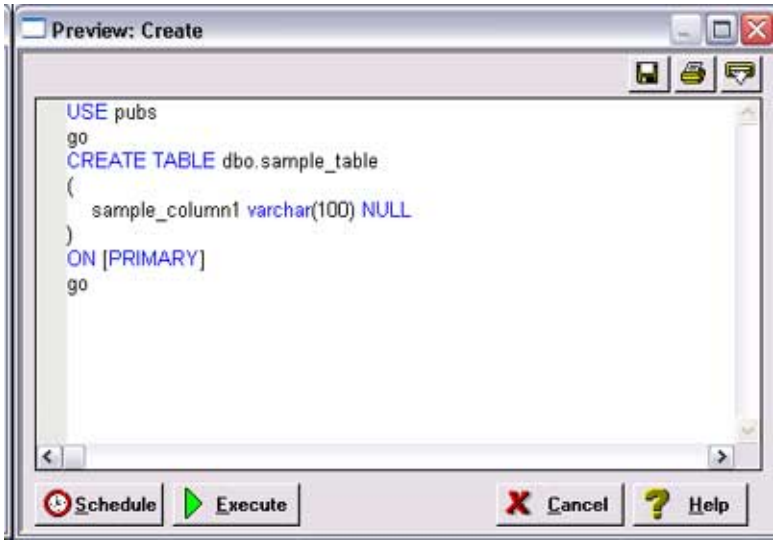




Creating an Object Using the Object Creation Wizard

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

1. Right-click on the **Tables** node to open the wizard and select **New**. Select the owner, type "SAMPLE_TABLE" as the table name. Select the tablespace and table organization option and click **Next**.



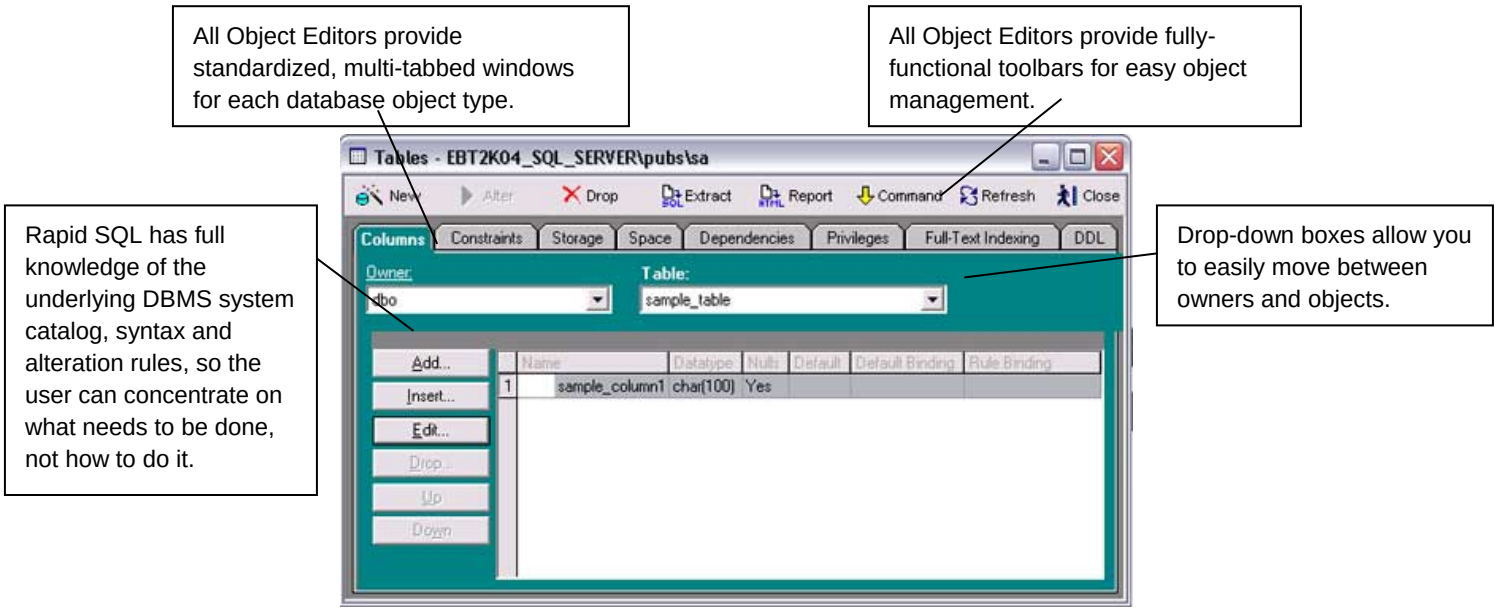
Rapid SQL builds platform-specific SQL code, syntactically-correct and ready to run the first time. There is no SQL coding required in any of the Rapid SQL creation wizards.

2. Add 1 column, "sample_column1, varchar(100), and take the remaining defaults. Click **Next**.
3. Click **Finish**.
4. The last panel (at right) is populated and displayed with the required SQL code. Preview and **Execute**.

Note: Depending on the platform, the fields within the wizard will be different.

Working with an Existing Object Using the Object Editor

When the Object Creation process is complete, Rapid SQL automatically opens an individual Object Editor for the new database object. An Object Editor can be opened by right-clicking on an object in the Database Explorer tree and selecting **Open** from the pop-up menu. The sample below is the Object Editor displayed for the “sample_table” created in the previous example.

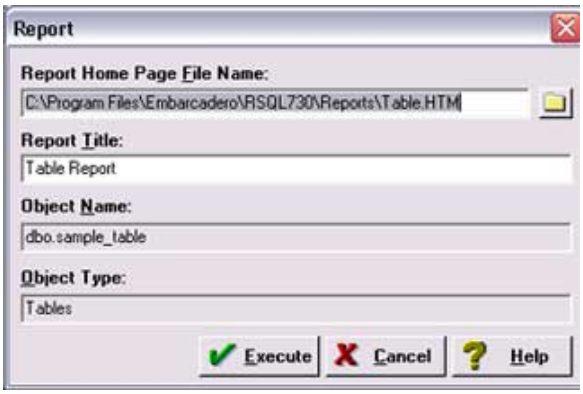


The Rapid SQL Object Editor easily performs operations that would normally require painstaking and error-prone scripting such as deleting or inserting columns in a table while preserving data, dependencies and permissions. Rapid SQL analyzes the database catalog to determine its structure, and then automatically 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, eliminated tedious work.

Object Documentation and Reporting

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

1. Expand the “Tables’ and right-click on the “authors” table.
2. Select **Report** from the menu.
3. Enter a destination Home Page File Name. This can be a network web server directory/file. Enter a Report Title.
4. Click **Execute**.
5. The HTML report is automatically displayed in the Rapid SQL application workspace. The HTML report can be saved to a new file or referenced in the file named above.



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

Object Type	Table
Datasource	EBT2K08 (SQL Server 08.00.0760)
Login	sa
Database	pubs
Report Date	4/14/2003 16:54:45.847

Columns

Name	Datatype	Null	Default	Default Binding	Rule Binding
au_id	id	No			
au_lname	varchar(40)	No			
au_fname	varchar(20)	No			
phone	char(12)	No	'UNKNOWN'		

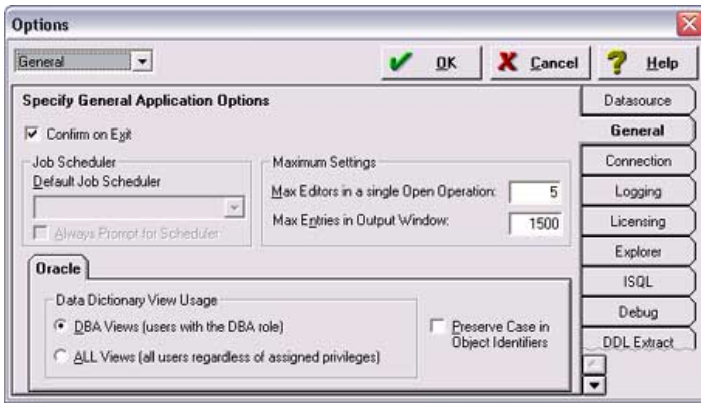
Working with Code, Files, and Data

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

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

Setting Environment Options

The **Options Editor** enables you to modify Rapid SQL development environment settings to meet your specific development needs.

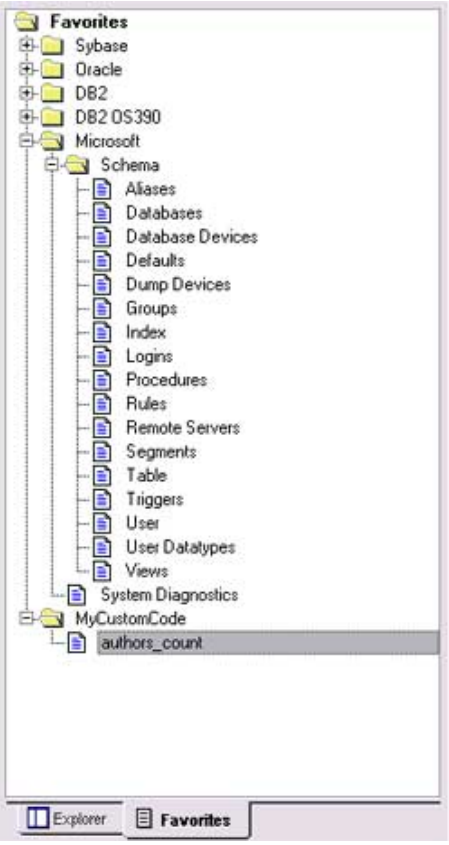


1. Select **File>Options** from the menu.
2. Settings are displayed and modified by selecting from the drop down list box or from the tabbed window.
3. Click **OK** once you have finished modifying the settings to have them automatically applied to all datasources.

Favorites Tab

Rapid SQL's **Favorites** tab provides a rich drag-and-drop library of all supported DBMS syntax, SQL syntax, built-in functions, optimizer hints, and SQL conditional syntax. It also allows you to store your most commonly used code in custom folders for easy access.

1. Click on the **Favorites** tab to open the Favorites Explorer Tree.
2. Expand the **Microsoft SQL Server Node>Schema** sub node.
3. Click on the **Procedures** tree item. Note that it opens in the SQL Editor window and is ready for execution.
4. To add a custom folder highlight, right-click on the Favorites node. Select **New Folder**.
5. To add an existing script to the Favorites tab, open the script in a SQL Editor window, right-click the workspace and select **Add to Favorites**, then follow the prompts.



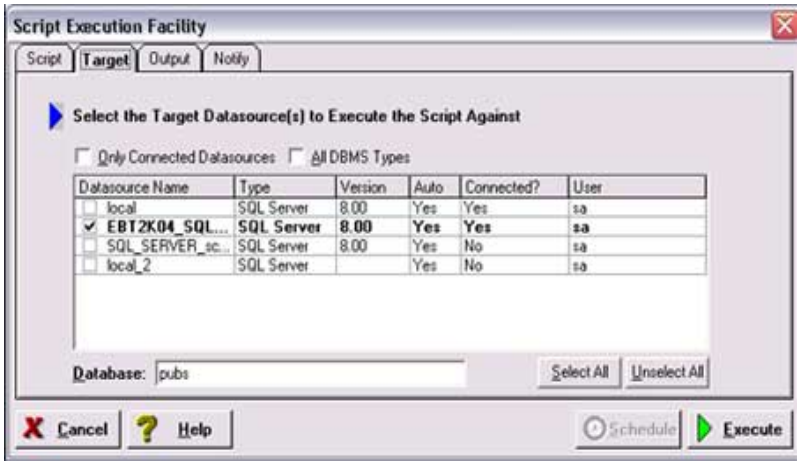
Code from the Paste SQL, Paste SQL Syntax, and Favorites Tab features is available from any SQL or DDL Editing window.

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 via the Windows NT Event Scheduler or the Embarcadero Job Scheduler.

Script Execution Facility

1. On the **Favorites** tab, select **Microsoft SQL Server>Schema>Procedures**.
2. Click on the icon to display the Script Execution Facility window.
3. Select the data source to run the script against.
4. Select the **Output** tab and set the output options. File output must be selected to enable the scheduling of the selected script. Choose **Graphical** output for the purpose of this task.
5. Select **Notify** to set route the script output to a specific email address or file.
6. Click **Execute**. The script runs against the selected data sources and separate script output windows are created for each selected datasource.



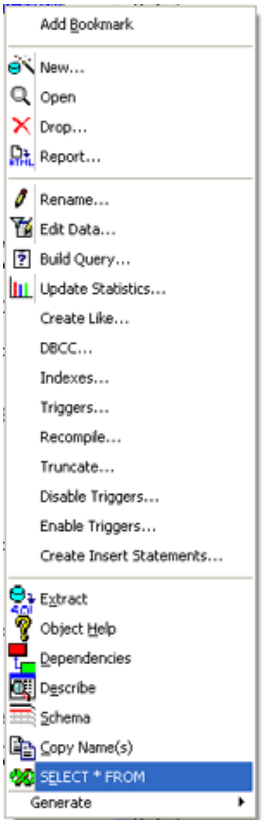
File Execution Facility
The File Execution Facility is similar to the Script Execution Facility, in that files containing SQL scripts can be added and then executed immediately, or run later. Other then the origin of the code, all supporting functionality is the same.

1. Click the icon to display the File Execution Facility window.
2. Select **Add** to browse for the file you want to execute.
3. On the **Target** tab, select the data sources to run the script against.
4. Select the **Output** tab and set the output options. File output must be selected to enable scheduling of the selected script. Choose **Graphical** output for the purposes of this guide.
5. Select **Notify** to set route the script output to a specific email account or file.
6. Click **Execute** to run the script against the selected data sources. Separate script output windows are created for each selected data source.

Viewing Data

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

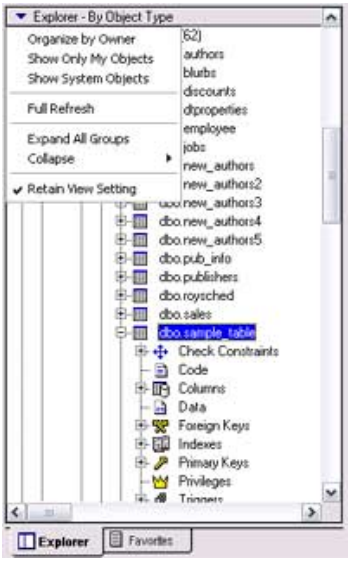
1. In the **Database Explorer Tree**, expand the **SAMPLE_DATASOURCE>Pubs>Tables** sub-node.
2. Right-click on the **Authors** table.
3. Choose 'SELECT * FROM'.



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

Retaining Datasource Explorer View Settings

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

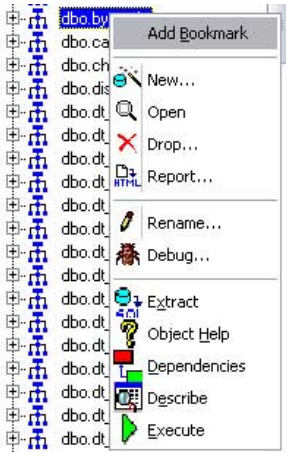


3. Explorer opens the next time as it was when you closed it. All connections that were present when you closed Rapid SQL are re-established.

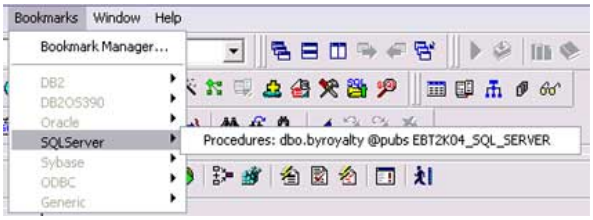
Datasource Explorer Bookmarks

Rapid SQL enables you to set bookmarks for frequently visited database objects.

1. Right-click on any node in the Datasource Explorer tree.
2. Select **Add Bookmark**.



3. You can modify the bookmark's name to suit your needs, or leave the default name provided by the feature.



*Once Bookmarks have been defined, you can use them to navigate commonly used datasource resources via the **Bookmarks** menu item.*

*The **Bookmark Manager** handles the maintenance of Bookmarks. Select the Bookmarks from the menu and then select the Bookmark Manager item.*

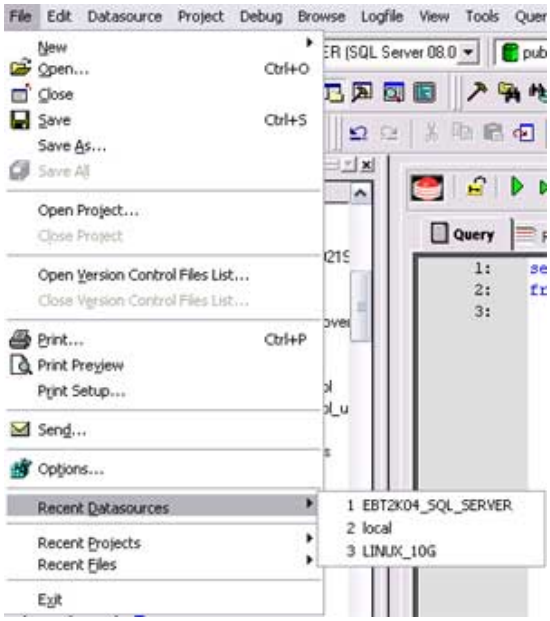
Setting Keyboard Shortcuts and Hotkeys

1. Right-click in any open space above the Explorer and select **Customize** from the menu.
2. In the **Customize** dialog, select the **Keyboard** tab.

3. The tab can be used to set keyboard shortcuts and hotkeys for all Rapid SQL commands and functionality.

Referencing Most Recently Used Databases

1. Select **File>Recent Datasources** from the menu and select a data source. The interface automatically highlights the selected data source so you can begin work with an active connection.



Session 3: Scripting

Generating Code

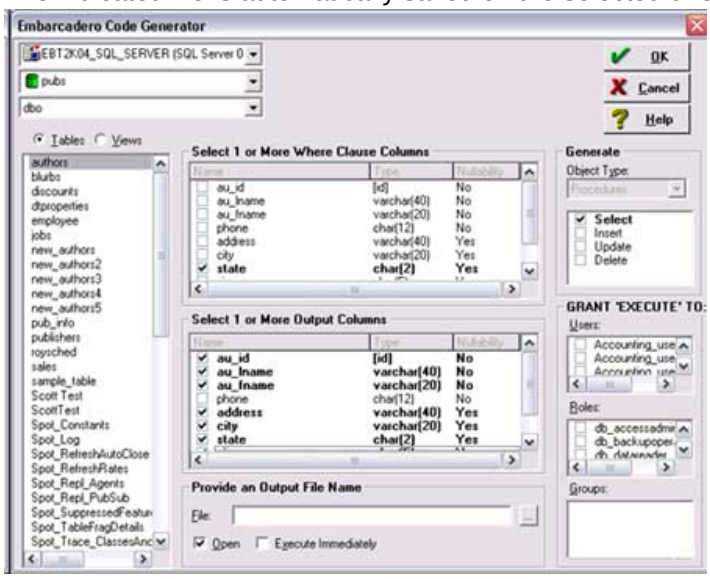
By providing several code generation and assistance options, Rapid SQL makes cross-platform development easy for developers of all experience levels.

The following examples build on the SQL Server 2000 SAMPLE_DATASOURCE registered earlier in this guide. However, 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, select **Tools>Code>Generation Facility**.
2. Select the SAMPLE_DATASOURCE data source and the 'pubs' database from the drop down selection menus.
3. Select the 'authors' table, 'state' as the input column, and all columns as the output.
4. Select 'select' as the code option.
5. Select a file to save the generated script as and choose **Open**.
6. Click **OK**. The DDL to create the procedure is generated and displayed in the DDL Editor window. You can edit the name of the new procedure and any of the generated code at this time.
7. Name the new procedure 'sample_select_authors' and click on the (execute or step execute) button to submit the DDL and create the procedure.
8. The indicated file is automatically saved on the selected directory.

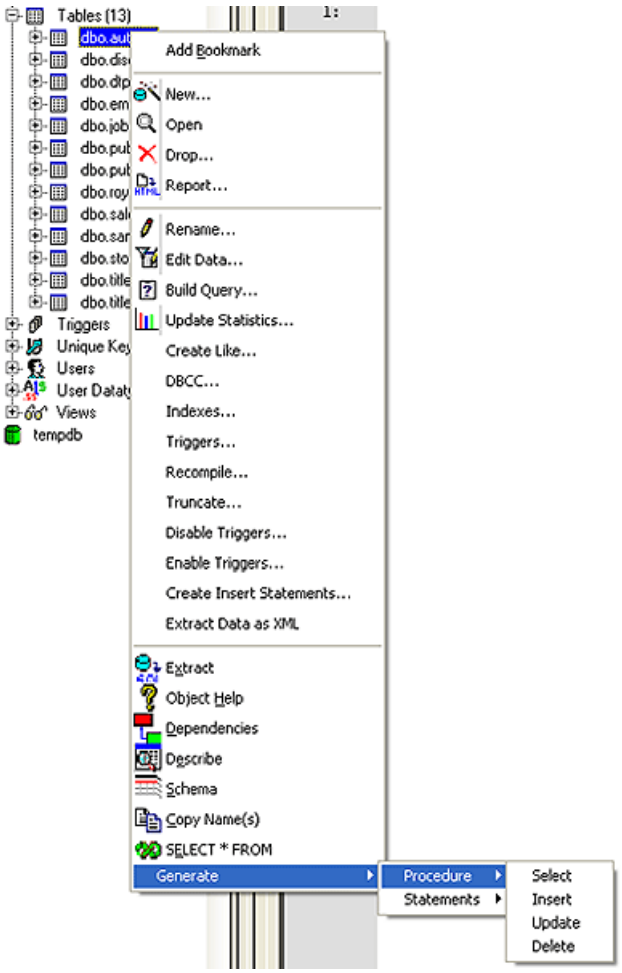


No SQL statement coding is required to generate complete stored procedures and packages. If applicable, Rapid SQL enables all generated code to be previewed and edited to fit any development requirement.

Right-Click Feature

Similar to the Code Generation Facility, the **right-click** code generation feature is used to create complete procedures, functions, or packages revolving around views or tables.

1. On 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. Choose 'state' as the input column and leave all of the output columns selected.
5. Click **OK**. The DDL to create the procedure is generated and displayed in the DDL Editor. You can edit the name of the new procedure and any of the generated code.
6. Name the new procedure 'sample_select_authors' and click the (execute or step execute) button to submit the DDL and create the procedure.



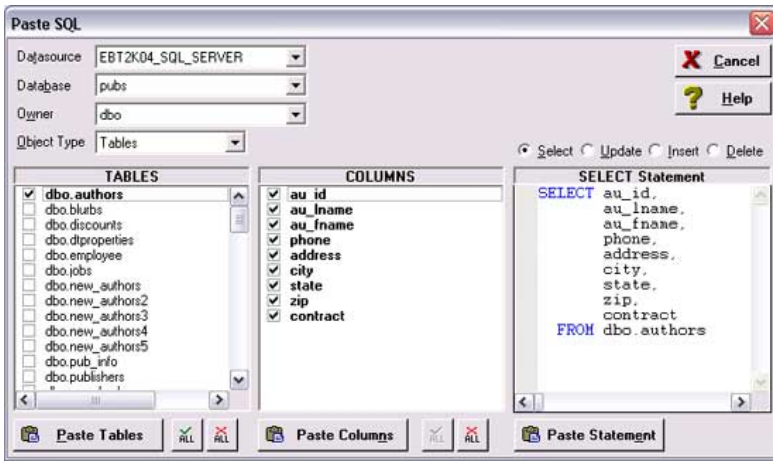
No SQL statement coding is required to generate complete stored procedures and packages. If applicable, Rapid SQL allows all generated code to be previewed and edited to fit any development need.

Code Assistance

Rapid SQL provides extensive, easy-to-use code assistance features for all of the supported DBMS platforms throughout the application. Assistance is provided in the form of ready-to-use code templates and blocks of syntactically correct code.

Paste SQL

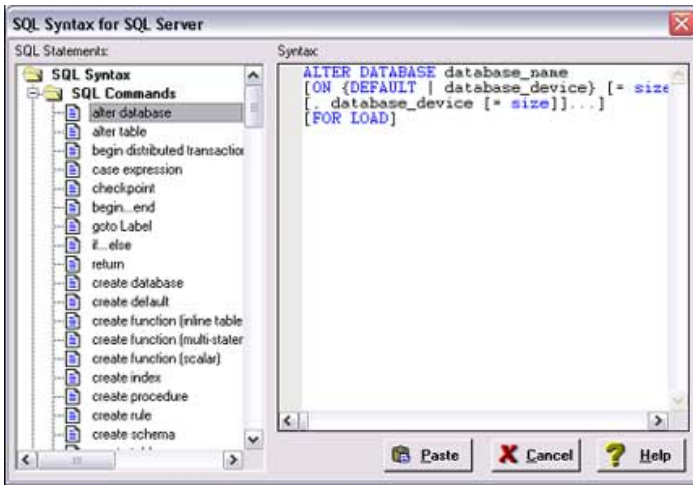
1. On the Database Explorer Tree, expand the **SAMPLE_DATASOURCE>pubs** sub-node.
2. Select **File>New>SQL**. The SQL Editor window appears.
3. Select the toolbar menu item to open the Paste SQL window.



4. Select the ‘authors’ table, all columns, and ‘select’ for the generation options.
5. 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

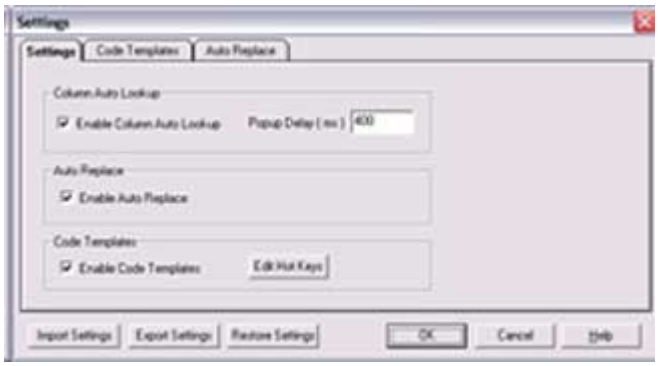
1. On the Database Explorer Tree, expand the **SAMPLE_DATASOURCE>pubs** sub-node.
2. Select **File>New>SQL**. The SQL Editor window appears.
3. Select the toolbar menu item to open the Paste SQL Syntax window.



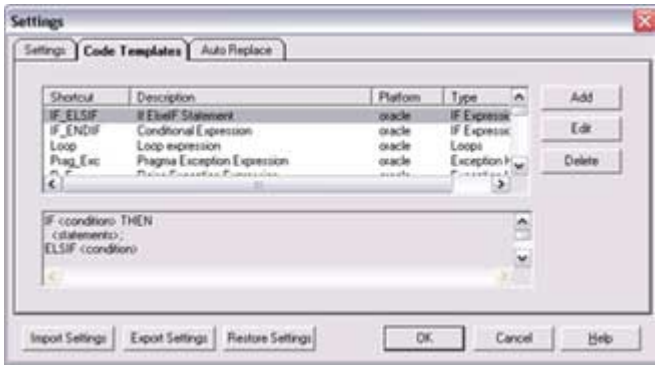
4. Select a template and click **Paste** to copy the code template into SQL Editor.
5. Add your own code manually to complete the operation, as needed.

Session 4: Working with the Code Workbench

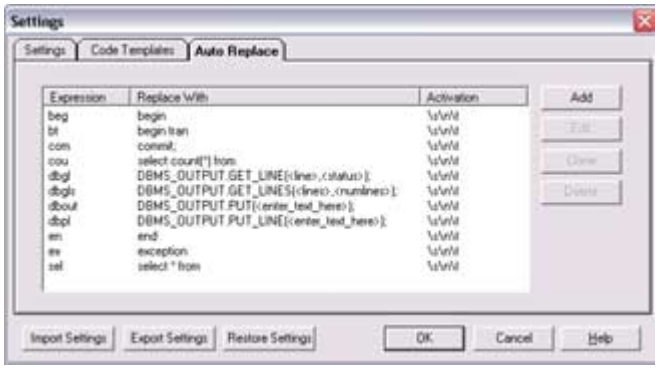
Rapid SQL provides developers with the ability to create their own personal toolbox of coding accessories. The Code Workbench is composed of Auto Column Lookup and Auto Replace features, and Code Templates. To invoke the Code Workbench settings, select **Tools>Code Workbench**. From this panel, you can configure the Code Workbench to fit your needs.



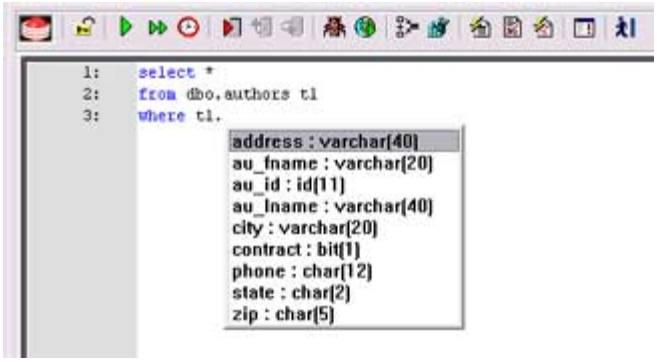
Select the specific options within the Code Workbench that you want to enable.



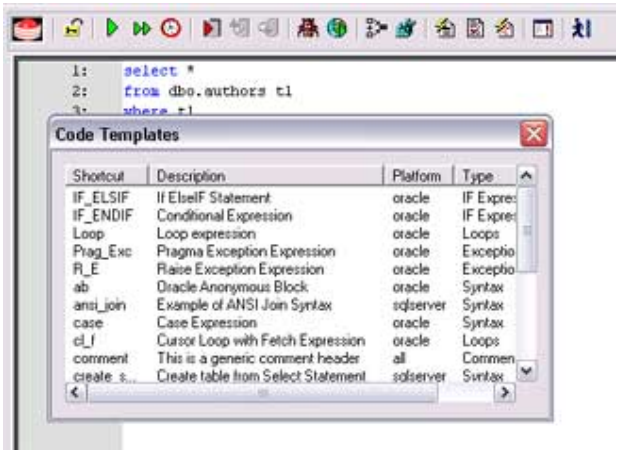
Work with the Code Template facility by modifying the code templates that are shipped with Rapid SQL, or add your own.



Rapid SQL ships with a set of Auto Replace entries.



When Column Auto Lookup is enabled, the list of columns for the specific table is listed. You can use the arrow keys or the mouse to select the column. The table must be aliased or fully qualified for this function to work.



Invoke the Code Templates by pressing the defined hot key. Then select the desired code template to insert into the ISQL window.

Session 5: Building a Database Project

Creating a new Rapid SQL Project

Rapid SQL provides an excellent team development environment that enables you to reverse engineer live database objects into off-line SQL code files that can then be added to a Version Control System (VCS). Rapid SQL's VCS integration offers all version control operations such as get, check-out, check-in, history, and diff. The following example reverse engineers the table objects from the Microsoft SQL Server 'pubs' database into a Rapid SQL project, and then adds the project to version control under Microsoft Visual Source Safe.

1. Select **File>New>Project** to open the **New Project Reverse Engineering 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_DATABASE and click **Next**.
4. Select 'pubs' and click **Next**.
5. Select 'dbo' as the owner. Right-click in the object type selection window and de-select all options. Select only 'Tables'. Under **Extract Scope**, choose '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**.

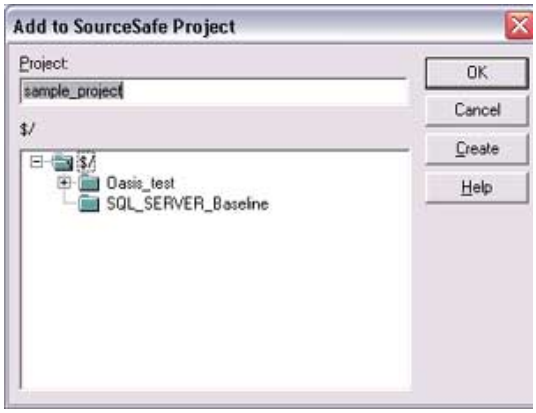
10. The project is created and can now be added to Version Control. Click **Yes** when prompted and follow the dialog, or right-click on the project within the Project Explorer tree. For the purpose of this exercise, ensure that you add the new project to Version Control.

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

When a project is created, Rapid SQL automatically prompts you to add the project files to the selected VCS solution (see *Setting Environment Options* in this section). The following dialog is displayed:

1. Enter a user name and password (if applicable).
2. Enter or Browse to the project database folder and select **Open**.

3. Click **OK** and enter 'sample_project' as the Project name.

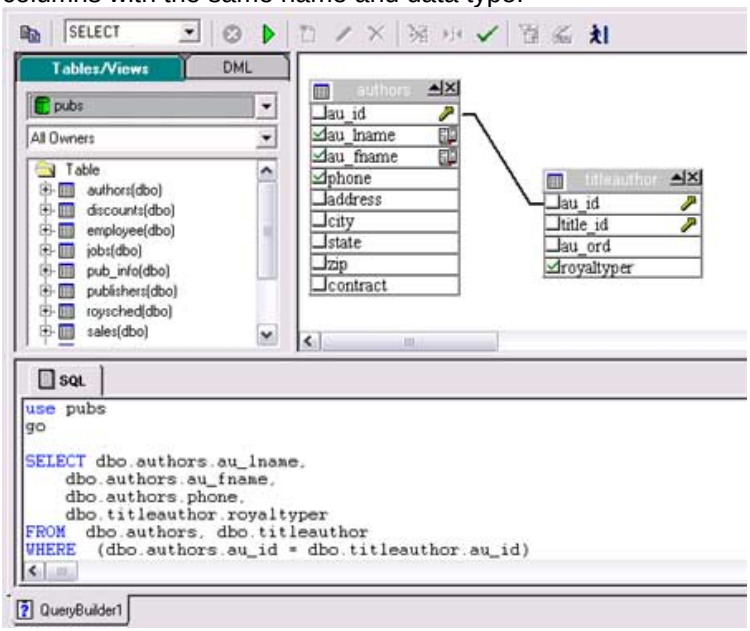


The following message appears, indicating that the project was successfully placed under version control:

Session 6: Visual Query Builder and Data Editor

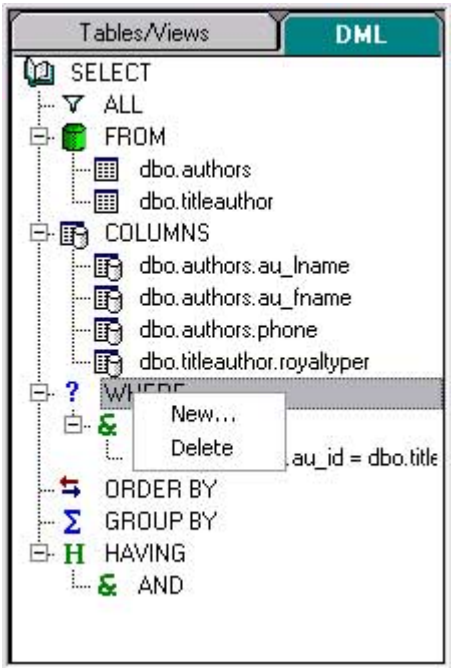
Rapid SQL provides the ability to construct complex SQL statements with point-and-click functionality via the Visual Query Builder.

1. From the Database Explorer Tree, right-click the ‘authors’ table and select **Build Query**.
2. The ‘authors’ table is added to the Query Builder workspace. 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 data type.



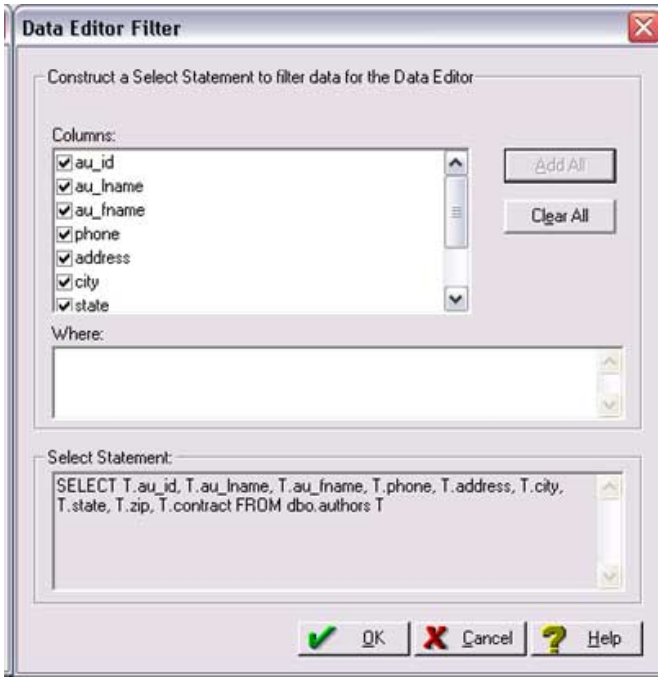
3. Click the DML tag to view the visual query building clauses and options. Right-click on any clause to add the code to the query.
4. Click the icon to execute the query. The results will display in the lower window

.

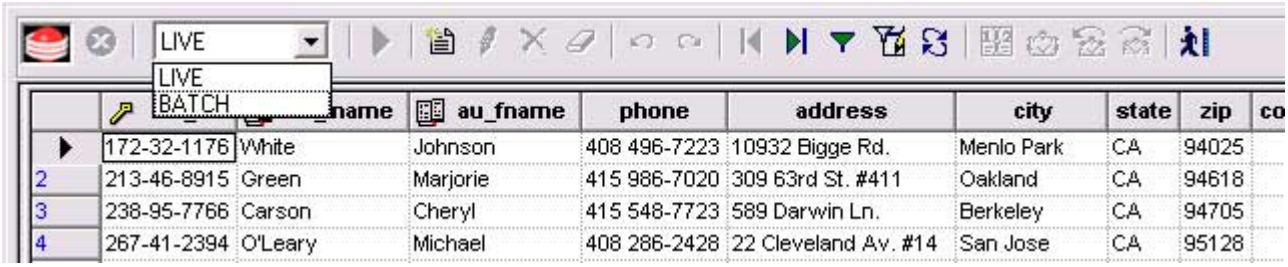


Live Data Editor

1. In the Database Explorer Tree, right-click ‘authors’ and select **Edit Data**.



2. Add all columns to the editing session. You can add a WHERE clause that will filter the desired data. Rapid SQL builds the code to retrieve the data to be edited in the bottom pane on the dialog.
3. The editing window has two modes: LIVE and BATCH. LIVE mode commits your changes each time you select a new row. BATCH mode enables you to move within the window and commit your changes when needed.



4. Changes made in BATCH mode are cancelled by clicking the Reload Data icon.
5. At any time during the session, you can change the filter parameters by clicking the Filter Data Dialog icon.

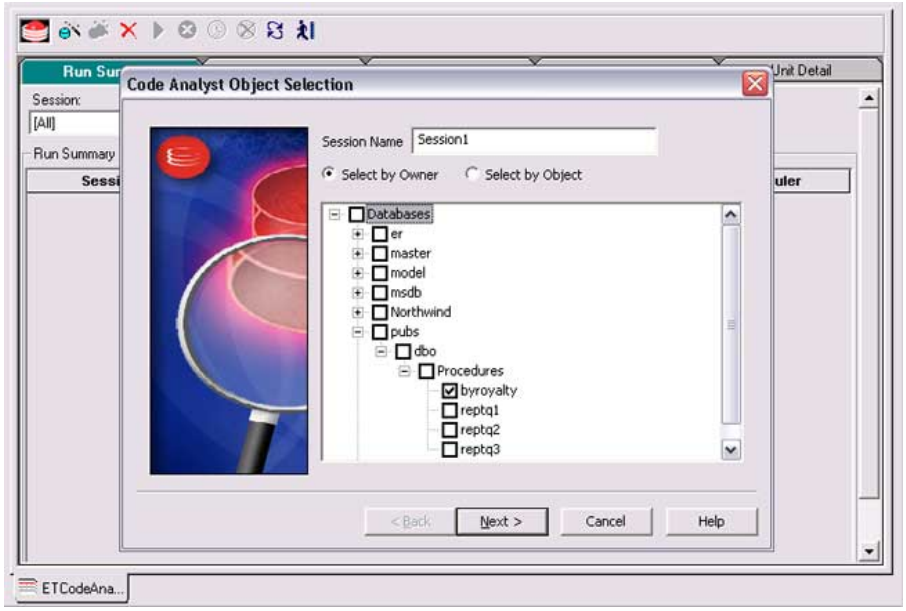
Session 7: Code Analyst

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

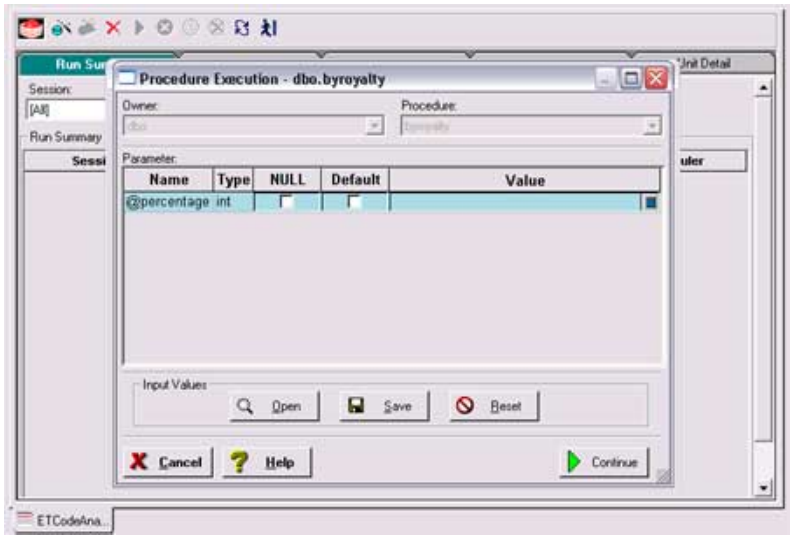
To get started, select **Tools>Code Analyst**.

In order for Code Analyst to run, you need to create 5 repository tables on the database:

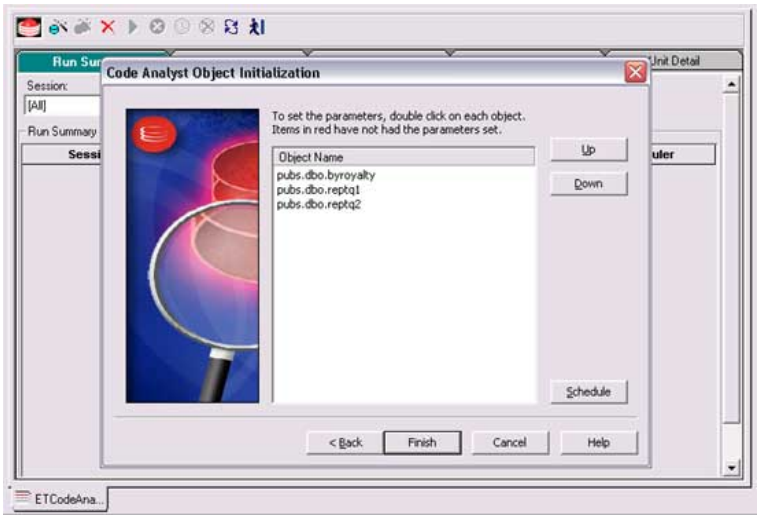
1. Select the database you want the tables to be installed on and click **OK**.
2. When the tables are installed, you can begin defining a session.



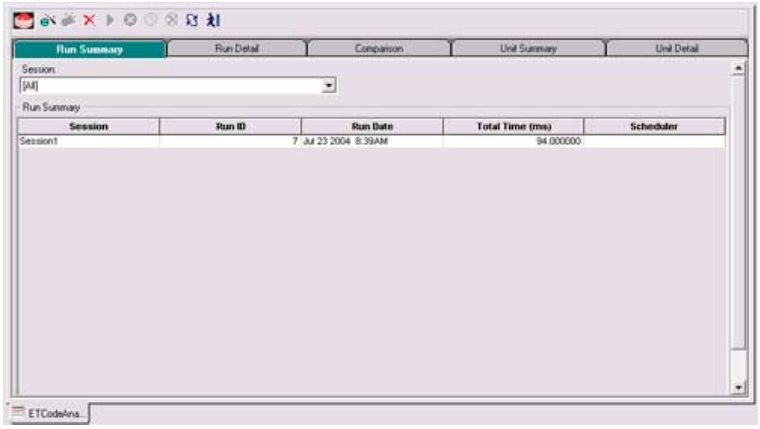
Define the session by giving it a name and selecting the objects to be executed.



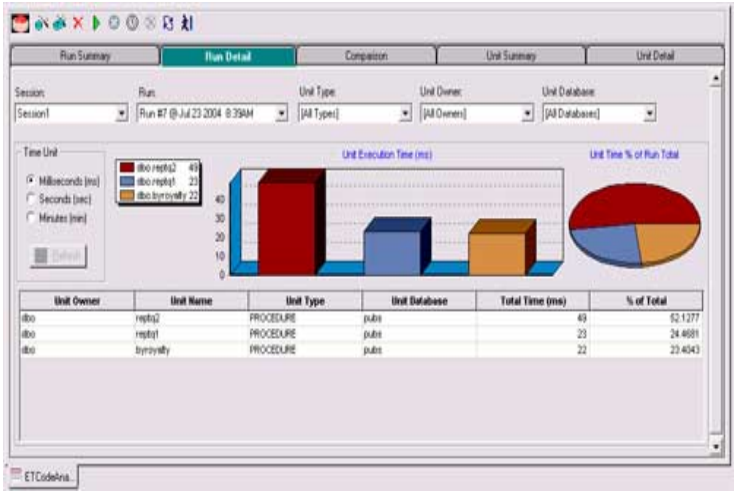
*If the objects require parameters, Code Analyst prompts you to enter them in the **Value** column.*



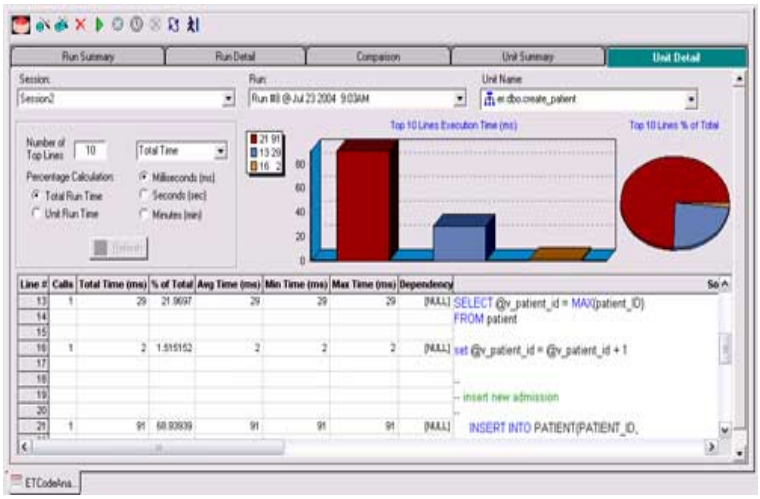
After defining input variables, the sequence of execution can be set by moving the object up or down in the list. Code Analyst provides the user the ability to schedule the session, enabling the job to run unattended during off-peak hours.



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.



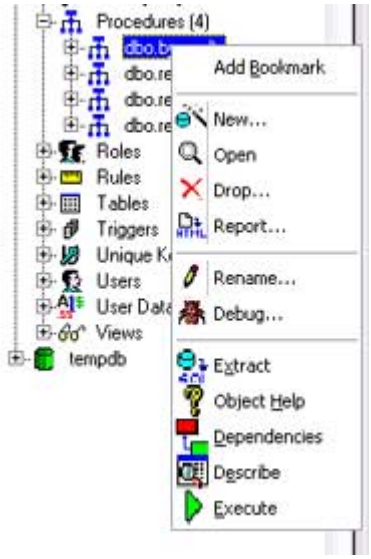
The Unit Detail contains the specific time measurements for individual SQL statements.

Session 8: SQL Debugging and Profiling

SQL Debugging

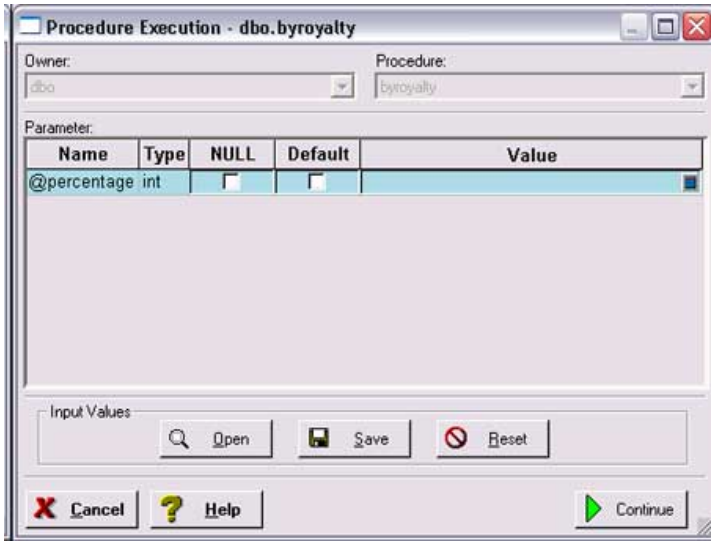
The SQL Debugger is a database productivity tool that enables you to debug SQL Server, Oracle, Sybase, or DB2 stored procedures as well as Oracle functions. SQL Debugger simplifies the task of finding coding errors.

1. From Datasource Explorer, select the procedure/function object group under your database.
2. From the detail window, select a procedure/function that you want to debug.
3. Right-click the object and select **Debug** from the menu to start the SQL Debugger.

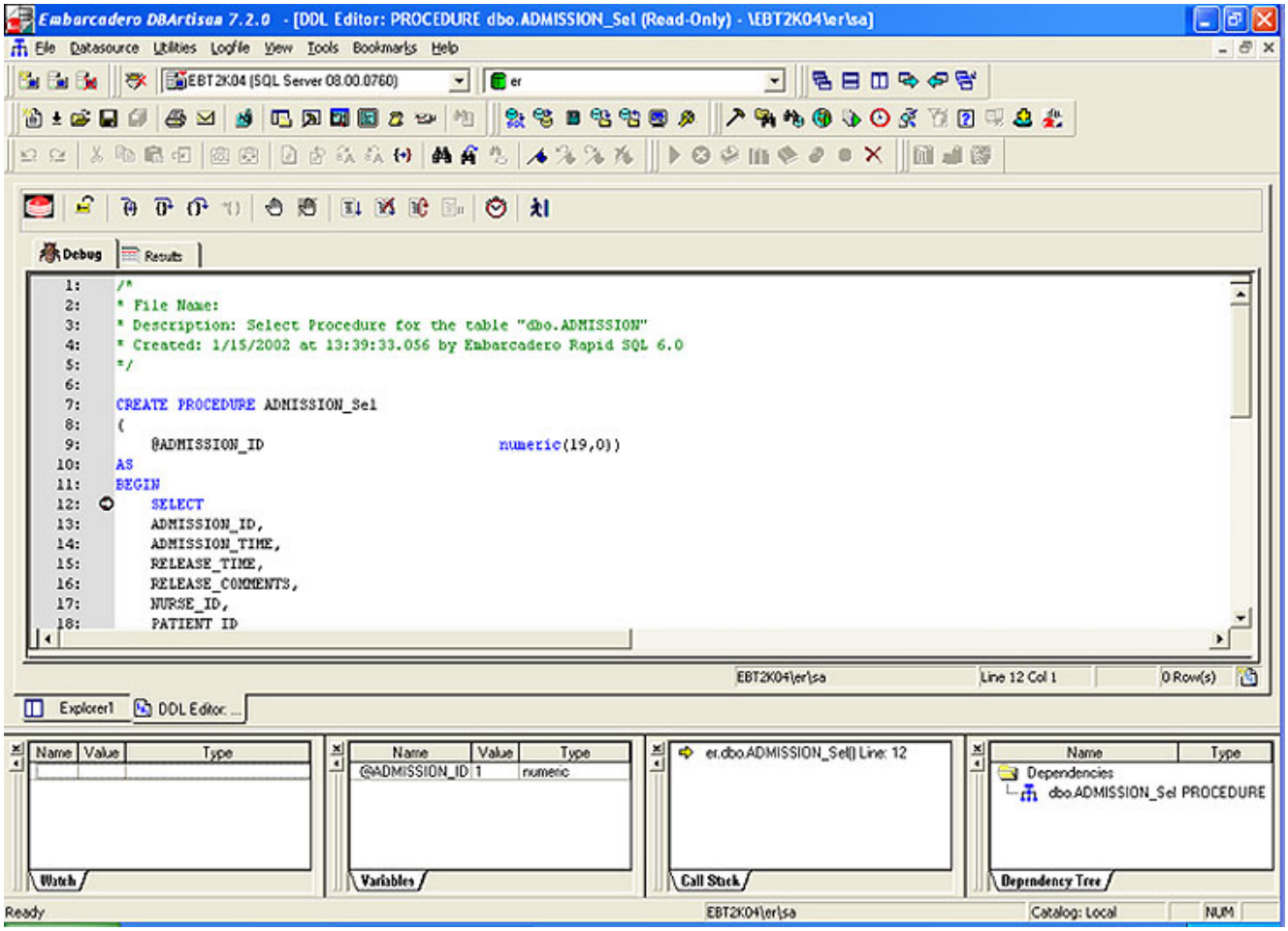


Note: Clicking the Debug button or selecting Debug from the Command menu also opens the SQL Debugger.

4. Click **Debug** to run the SQL Debugger.
5. If the procedure/function contains input variables, the **Procedure Execution** window will prompt you to enter these values. Enter the value(s) of the input variable(s) and click **Continue**.



The **SQL Debugger Interface** appears:

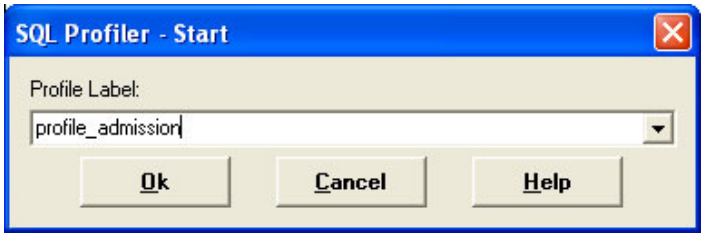


SQL Profiling (Oracle Only)

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

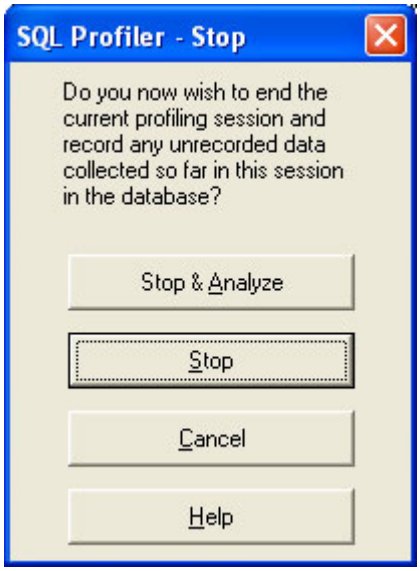
1. To begin a profiling session, use the Tools menu option and select **SQL Profiler>Start** or click the **Start Profiling** icon on the SQL Profiler Toolbar.

2. Enter a name for the profiling session or select an existing name from the drop down menu. Click **OK**. The Profile session becomes active.

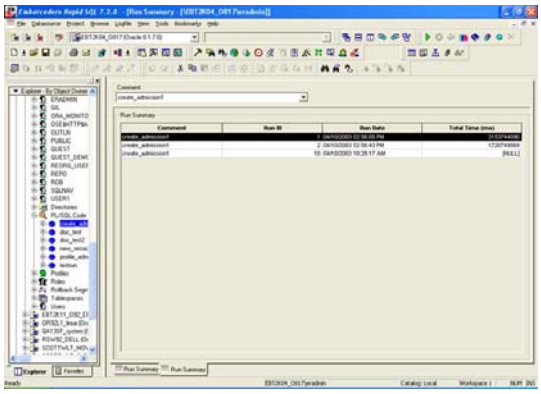


3. Execute the programmable object (i.e. Stored Procedure) you want to capture metrics on.
4. When you are finished, click the **Stop Profiling** icon on the Toolbar.

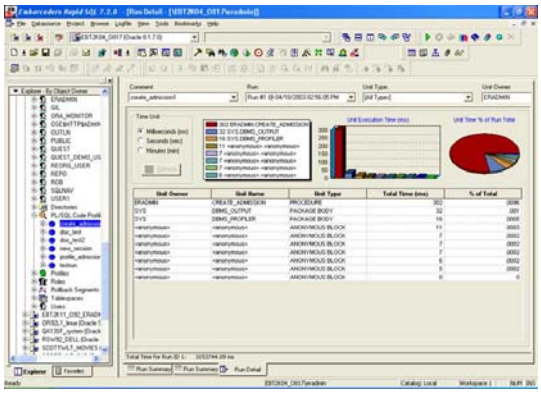
5. The **SQL Profiler – Stop** dialog appears. Click **Stop**.



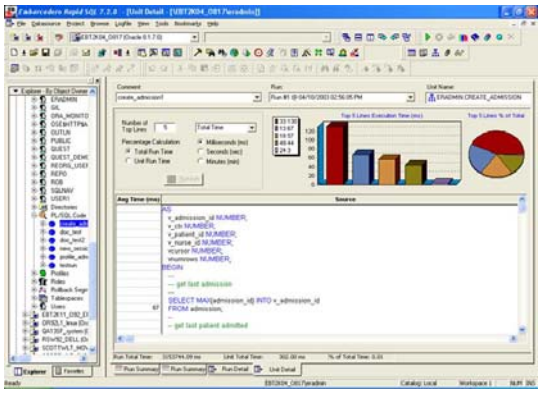
6. Expand the PL/SQL Code Profiling section and right-click on the profile session. Select **Run Summary**. The **Run Summary** window appears.



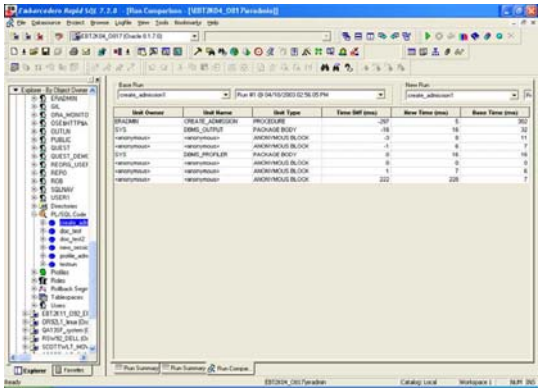
7. Select a session and choose **Run Detail** from the right-click menu. The **Run Detail** screen appears and displays the metrics for this session in both graphical and text formats.



8. 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.



9. To compare 2 cases, select them both (pressing shift and selecting the second case with your mouse button) from the **Run Summary** screen and choose **Compare** from the right-click menu. The **SQL Profiler Run Comparison** window appears.



Session 9: Embarcadero SQL Tuner Integration

SQL Tuning (Oracle Only)

When working with poorly running SQL in Rapid SQL's ISQL window, you can immediately transfer it into Embarcadero SQL Tuner for an automated rewrite session.

To open the Tuner, click the **Tune Current SQL** icon on the ISQL window Toolbar to send the contents of the ISQL window to the Embarcadero SQL Tuner.

Additional Evaluation Resources

Embarcadero Technologies Product Support

The Embarcadero Web site is an excellent source of additional product information, including white papers, articles, FAQs, discussion groups and the Embarcadero Knowledge Base.

Go to www.embarcadero.com/support or click any of the links below to find:

- Documentation
- Online Demos
- Technical Papers
- Discussion Forums
- Knowledge Base

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Embarcadero Technologies Technical Support

If you have a valid maintenance contract with Embarcadero Technologies, the Embarcadero Technical Support team is available to assist you with any problems you have with the application. Our maintenance contract also entitles registered users of Embarcadero Technologies' products to download free software upgrades during the active contract period.

To save you time, Embarcadero Technologies maintains a Knowledge Base of commonly encountered issues and hosts Discussion Forums that allow users to discuss their experiences using our products and any quirks they may have discovered.

For additional information regarding Embarcadero Technologies Technical Support, go to the Support page on our Web site.

Embarcadero Technologies on the Web

To download evaluations of other Embarcadero Technologies products or to learn more about our company and our products visit us at www.embarcadero.com.