Product Documentation

Embarcadero® Rapid SQL™

Quick Start Guide

Version 2016
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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™, Embarcadero® 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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Introducing 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.

About Rapid SQL

Your new application provides tools that can be used by a number of functions within an organization using DBMS from multiple vendors, in testing, development, or production environments.

Datasource management tools: Datasources must be registered. Datasources can be registered manually or semi-automatically. Storage can be registry-based or file-based, and a network storage option facilitates shared use of datasource catalogs.

Object management tools: Your application supports a wide range of database objects and related elements for each DBMS. You can create new objects, edit existing objects, and use a range of object operations that support common, general or DBMS-specific actions.

Coding Environments/Editors: Fully-featured environments dedicated to SQL, DDL and Active Script development are provided. Execution options are available as appropriate, and environment-specific related features, such as rollback/commit and query plan options, are provided. Related coding aids include on-the-fly semantic and syntactic validation, text substitution shortcuts, and visual query building tools. Related execution tools include script and file execution facilities.

Project Management, Version Control, and Script Library: Rapid SQL database project management facilities help you organize, alter, and keep track of changes to database objects or SQL scripts. The project management facilities act as a repository to maintain all source code for a database project. Rapid SQL also incorporates version control functions and build management facilities to help you manage and build projects.

Other Time-savers and Productivity Tools: Working within the Rapid SQL environment, you have access to database and file search facilities, use visual difference to compare files or database objects, and access the Microsoft Windows task scheduler.

License-specific Add-ons: Depending on the licenses you purchased, you have access to the following tools:

o   The Rapid SQL Code Analyst helps you identify time-consuming lines of code. It lets you perform detailed response time analysis, benchmark the execution of one or more procedures or functions, save response time metrics, and perform intelligent comparisons against current execution times.

o   Debuggers, available for IBM DB2 for Linux, Unix, and Windows, Oracle, Sybase, and SQL Server, let you test functions and procedures. A Profiler is available for Oracle datasources.

Technical Requirements

Before using Rapid SQL, please verify that your environment meets the requirements listed below:

> **Note:** Users need full registry privileges during the installation and access to the keys under HKEY_CURRENT_USER in the registry after installation.

Browser Requirements

Rapid SQL requires Microsoft Internet Explorer 11 or later.

Hardware Requirements

Embarcadero Technologies recommends the following minimum hardware requirements:

- o   Pentium 4-level processor
- o   1 GB of memory
- o   1 GB of disk space
- o   1024 x 768 display

Operating System Requirements

Rapid SQL supports the following operating systems:

- o   Windows XP SP" (32-bit and 64-bit)
- o   Windows Vista (32-bit and 64-bit)
- o   Windows 7 (32-bit and 64-bit)
- o   Windows 8 (32-bit and 64-bit)

XP Support Notes

Windows XP has two user security groups: Users and Power Users. Microsoft intentionally does not grant members of the Users Group the authority to install applications or make global changes to the system. Restricted Users are members of the Users Group. Standard users belong to the Power Users Group. Microsoft grants members of the Power Users Group the authority to install programs. You must be a member of the Administrators Group to install and use Embarcadero Technologies applications. Because Restricted Users are members of the Users Group, they cannot install and run Embarcadero Technologies applications.

Use the **Group Membership** tab to determine your group and review the Microsoft security guidelines. On the **Control Panel**, open **User Accounts**. On the **Users** tab, select a user and then click the **Properties** button. Click the **Group Membership** tab.

Vista and Windows 7 Support Notes

Windows Vista UAC and Windows 7 provide two user types: Standard users and Administrators. Rapid SQL can be installed or uninstalled by an administrator or by a standard user using an administrator token. Standard users can run Rapid SQL. For the purpose of running Rapid SQL, default standard user token privileges should not be modified. Modifying standard user token privileges can result in licensing issues that will prevent Rapid SQL from operating correctly.

32-bit versus 64-bit Application Considerations and Restrictions

If you install the 64-bit version of Rapid SQL, and you are using custom drivers, you must be using 64-bit versions of those drivers when using the 64-bit version of Rapid SQL. Similarly, 32-bit versions of custom drivers must be used with the 32-bit Rapid SQL installation.

For version control integration, if you install the 64-bit version of Rapid SQL, you can work with either a 32-bit or 64-bit MSSCCI provider. The feature is controlled from the Options Editor's **Version Control** tab (File > Options > General > Version Control).

DBMS Support and Connectivity Options

Dedicated Support Connectivity Options

Rapid SQL provides dedicated connectivity to a specific version range of IBM DB2 for Linux, Unix, and Windows, IBM DB2 for z/OS,
InterBase/Firebird,
Microsoft SQL Server, MySQL, PostgreSQL, Oracle, Sybase, and Teradata databases.
The following connectivity options are provided:

- o **Native Embarcadero drivers:** Rapid SQL is packaged with a set of native drivers, each requiring a DBMS-specific client to be installed.

- o **InterBase/Firebird:** InterBase requires both client and driver software to be installed. Firebird requires driver software.

- o **JDBC drivers:** Rapid SQL can connect to a datasource more directly using one of the packaged, third-party JDBC drivers. No additional connectivity components need to be installed. One or more third-party drivers, tested against Rapid SQL, are installed with Rapid SQL.

The following table provides a summary of resources/requirements for connectivity to dedicated DBMS platforms. For each platform, it lists supported versions, the client software that must be installed if using native Embarcadero clients, and the third-party, Type 4 JDBC drivers packaged with Rapid SQL.

DBMS Platform	Supported Versions	Client Required for use with native Embarcadero drivers	Packaged JDBC Driver	Source & License
Apache Hive (Technical Preview)*	0.13.1	Simba Hive ODBC Driver (v1.4.13.1013) Hortonworks Hive ODBC Driver (v1.4.08.1008) Cloudera ODBC Driver for Apache Hive (v2.05.10.1003)	Apache Software Foundation - Apache Hive JDBC v0.13.1	license
Firebird	Firebird 2.0	Firebird ODBC Driver	Jaybird JDBC Driver	LGPL, source & license
IBM DB2 for z/OS	v8, v9, and v10	DB2 UDB Client for Windows 8.0 or later	IBM Data Server Driver for JDBC	-
IBM DB2 for LUW	Versions 9.0 - 10.0	IBM DB2 LUW Client for Windows 8.0 or later	IBM Data Server Driver for JDBC	-
InterBase	InterBase 2007 InterBase 2009 InterBase XE3	InterBase ODBC Driver	InterBase JDBC Driver	-
Microsoft SQL Server	2005 (All editions including 2005 Express Edition for 32-bit x86 and 64-bit Itanium & x86-64) 2008 2012 2014	Microsoft SQL Server Client Library	jTDS Type 4 JDBC Driver for Microsoft SQL Server Microsoft SQL Server JDBC Driver	LGPL source, license
MySQL	4.x	MySQL Connector/ODBC Driver 5.2.x Driver - MySQL Connector/ODBC driver 3.51.x Driver	MySQL Connector/J JDBC Driver	GPL, source & license
Oracle	Oracle 9i, 10g, 11g, and 12c	Oracle SQL*Net Client	Oracle JDBC Thin Driver	-
PostgreSQL	9.3 minimum Specifically-supported PostgreSQL-based database products include Greenplum, Pivotal HAWQ, and BigSQL.	PostgreSQL ODBC Driver (latest version recommended)	PostgreSQL JDBC Driver	BSD, license

Sybase ASE	Sybase **15.7** - Sybase 16	**Sybase Open Client**	**jTDS Type 4 JDBC Driver for Microsoft SQL Server** Sybase jConnect JDBC Driver	LGPL, [source](#), [license](#)
Sybase IQ	**12.7, 15.4, 16**	SQL Anywhere ODBC drivers for Sybase IQ 12.7 Sybase IQ 32-bit ODBC drivers	Sybase jConnect JDBC Driver for Sybase IQ	-
Teradata (Technical Preview)*	**13.10, 14.0, 14.10,** and **15.0**	**Teradata ODBC driver for Windows** (version 15 recommended)	**Teradata JDBC Driver**	-

* About Technical Previews - Technical previews are intended to introduce a new DBMS platform only. The available functionality is typically minimal. For example, command Line startup, standard datasource registration and connection features, limited Datasource Navigator tree functionality, a minimal set of object actions, as well as SQL Editor execution and related, common SQL Editor functionality such as Query Options, Paste SQL Syntax, and Paste SQL Statement. Access may not be covered under SE or trial licenses. Contact Oz.Basarir@embarcadero.com to obtain a separate license for a platform designated as a Technical Preview.

Embarcadero Team Server 2016 Support

Rapid SQL can make use of datasource definitions stored on an Embarcadero Team Server 2016.

Generic JDBC/ODBC Connectivity

Generic JDBC/ODBC connectivity to non-dedicated DBMS systems or non-database datasources is also provided. Rapid SQL can connect to a datasource using a customer-provided, third-party JDBC version 4.0 or ODBC version 3.0 driver. Minimal Rapid SQL functionality is provided, including a basic Explorer tree and SQL querying.

IBM DB2 for Z/OS Stored Procedure Requirements

When working against an IBM DB2 for z/OS data source, Rapid SQL relies on the following stored procedures, provided as an optional installation step in setting up the DB2 subsystem:

- o   `DSNWZP`

- o   `DSNUTILS`

- o   `ADMIN_COMMAND_DSN`

o   `ADMIN_COMMAND_DB2`

Prior to using Rapid SQL against an IBM DB2 for z/OS data source, ensure that these components are installed on the server. See [IBM DB2 for z/OS documentation](#) for more information.

Specifically-tested JDBC/ODBC Connectivity Products: Apache Hive/Hadoop

Rapid SQL has been successfully tested against Apache Hive/Hadoop datasources using the Hortonworks ODBC driver. Similarly, Cloudera Impala datasources have been tested using the Cloudera JDBC driver. In both cases, SQL querying and a [Datasource Navigator](#) tree are available.

DBMS Versions no Longer Supported

As of this release, Rapid SQL is no longer being tested against Sybase ASE versions before 15.7.

Installing and Licensing Rapid SQL

Before you can register any Embarcadero Technologies application, you must meet the minimum technical requirements. If you meet all the minimum technical requirements, you can install Rapid SQL. After installation, you must license the application.

The following topics walk you through this process:

- o [Technical Requirements](#)
- o [DBMS Support and Connectivity Options](#)
- o [Installing Rapid SQL](#)
- o [Licensing Your Product](#)

Installing Rapid SQL

To install the application successfully, you must complete each panel of the installation wizard. 64-bit and 32-bit versions of Rapid SQL are available with the trial version, which can be downloaded from http://www.embarcadero.com/products.

The Rapid SQL installation wizard installs all corresponding files on your machine. The installer offers common options such as license agreement, file and folder selections, and shortcut options. An application-specific option lets you associate file suffixes of elements such as SQL scripts with Rapid SQL.

> **NOTE:** Before installing Rapid SQL from Embarcadero ToolCloud, see http://docs.embarcadero.com/products/xe/ for additional requirements or revised instructions.

The panels presented by the wizard vary depending on whether you are upgrading or performing an initial installation.

> **Caution:** If you have not registered a license when you start a Rapid SQL installation, you will be prompted to register a license. For more information, see Licensing Your Product.

After the installation is complete, we recommend that you reboot your machine before using Rapid SQL.

Licensing Your Product

Each Embarcadero client application requires one or more licenses to run. An Embarcadero product, such as Rapid SQL, has a baseline license that provides basic feature support for that product. Also, incremental licenses may be required to support specific DBMS platforms, product add-ons, or other functions.

For more information, see the following topics:

- o [Licensing Overview](#)
- o [Licensing Your Application](#)
- o [Selecting a License Category During Startup](#)
- o [Online/Offline Mode and Concurrent License Checkout](#)

Licensing Overview

The following topics provide a high-level discussion of key licensing topics and directs you to sources of more detailed information.

- o   [Viewing Your License Type and Modules](#)

- o   [Understanding Trial, Workstation, and Networked Licenses](#)

- o   [Rapid SQL License Modules, DBMS Support, and Feature Availability](#)

- o   [Rapid SQL XE License Modules, DBMS Support, and Feature Availability](#)

- o   [Directing Queries Regarding Licenses](#)

Viewing Your License Type and Modules

The **About...** dialog, available from the **Help** menu, displays your license type and each license module currently registered.

Understanding Trial, Workstation, and Networked Licenses

Three kinds of licenses are available: Trial, Workstation, and Networked.

Trial licenses	A license for a 14-day, full-featured trial version of the product. The trial license must be registered before you can use the product.
Workstation licensing	A license or set of licenses is tied to a particular workstation. The product can only be used on that workstation.
Networked licensing	Networked licenses are administered and distributed by a central License Server (Embarcadero License Center or Acresso FLEXnet Publisher). There are two types of networked licenses: *Concurrent* and *Networked Named User*. With Concurrent licensing, users on different machines take turns using licenses from a shared pool. With Networked Named User licensing, licenses are pre-assigned to specific users setup on the license server's user list. Those users are guaranteed to have licenses available any time. **NOTE:** Concurrent licenses can be borrowed for use without a network connection. For details, see [Online/Offline Mode and Concurrent License Checkout](#).

For a detailed description of licensing options, see http://www.embarcadero.com/software-licensing-solutions.

Rapid SQL License Modules, DBMS Support, and Feature Availability

Individual license modules correspond to the DBMS platforms you are licensed to use. Also, each DBMS license module corresponds to a product edition. Feature availability for each license module edition is as follows:

- o **Standard**: Provides baseline support including datasource management, object management, SQL editing and execution, and standard tools and utilities.

- o **Professional** (Rapid SQL): Standard Edition features plus SQL Debugger, SQL Profiler, and Code Analyst.

Rapid SQL XE License Modules, DBMS Support, and Feature Availability

An XE license provides access to all supported DBMS platforms. XE module and feature availability are as follows:

- o **XE Pro** (Rapid SQL): Provides baseline support including datasource management, object management, SQL editing and execution, and standard tools and utilities, SQL Debugger, SQL Profiler, and Code Analyst.

Directing Queries Regarding Licenses

Questions regarding license availability, feature availability, and client or server licensing, should be directed as follows:

- o If you work in an organization that uses networked licensing, direct any questions to your site's Rapid SQL administrator.

- o If you are using workstation licensing, direct licensing questions to your Embarcadero Technologies representative.

Licensing Your Application

See the following topics for details on registering your product:

- o [Registering a Trial or Workstation License during Installation](#)

- o [Registering a Workstation License After Application Startup](#)

- o [Registering By Phone](#)

- o [Registering a Networked License](#)

Registering a Trial or Workstation License during Installation

Shortly after initiating the download of a trial version of an Embarcadero product, you should receive an email with a serial number you must register during installation. Similarly, if you purchase an Embarcadero product while no trial version is active, you will receive a serial number that must be registered during installation.

1. Start the installation. An **Embarcadero License Registration** dialog appears.

2. Copy the serial number from the email and paste it in the **Serial Number** field.

3. Enter your Embarcadero Developer Network account credentials in the **Login or Email** and **Password** fields. If you have not previously created an EDN account or have forgotten your password, click **I need to create ...** or **I've lost my password**.

4. Click **Register**.

Your activation file should be downloaded and installed automatically. If this does not happen, click the **Trouble Connecting? Try Web Registration** link and follow the prompts. If you still have problems, see [Registering By Phone](#).

Registering a Workstation License After Application Startup

The following instructions assume that you have received a workstation license by email and that you currently have a valid trial license. If you did not install a trial version or the trial period has expired, follow the instructions in [Registering a Trial or Workstation License during Installation](#) instead.

1. On the **Help** menu, select **About**, and then on the dialog that opens, click **Manage** to open a license manager dialog.

2. On the **Serial** menu, select **Add**.

3. Copy the serial number from the email and paste it in the **Add Serial Number** dialog, and then click **OK**.

4. Right-click on the serial number you added, and then select **Register** from the context menu. A registration dialog opens.

Note: The **Registration Code** box shows a machine-specific identifier required with other registration methods.

5. Ensure that the **Register using Online Registration** radio box is selected.

6. Provide Developer Network credentials in the **DN Login name or Email** and **DN Password** boxes. If you have not previously created an EDN account or have forgotten your password, click **I need to create ...** or **I've lost my password**.

7. Click **Register**.

8. If prompted to restart the application, click **Yes**.

Your activation file should be downloaded and installed automatically. If this does not happen, click the **Trouble Connecting? Try Web Registration** link and follow the prompts. If you still have problems, <u>Registering By Phone</u>.

Registering By Phone

If you have problems with either of the above procedures, you can register licenses by phone. You will have to provide:

o   Developer Network credentials

o   The registration code displayed in the Embarcadero License Registration dialog that appears when you start an unlicensed application

o   The product base license serial number

o   The license serial numbers for any additional features you have purchased.

For North America, Latin America, and Asia Pacific, call (415) 834-3131 option 2 and then follow the prompts. The hours are Monday through Friday, 6:00 A.M. to 6:00 P.M. Pacific time.

For Europe, Africa, and the Middle East, call +44 (0)1628-684 494. The hours are Monday through Friday, 9 A.M. to 5:30 P.M. U.K. time.

Shortly after phoning in, you will receive an email containing an activation file. Then do the following:

1. Save the file to the desktop or a scratch directory such as `c:\temp`.

2. On the **Help** menu select **About** and then on the dialog that opens, click **Register**. A registration dialog opens.

3. Select the **I have received an activation file (*.slip or reg*.txt)** radio box.

4. Click the **Browse** button and use the **Select License Activation File** dialog to locate and select the activation file you installed.

5. Click the **Import** button to import the activation file and when complete, click the **Finish** button.

6. If prompted to restart the application, click **Yes**.

Registering a Networked License

If you work in an organization using Networked licensing, an administrator, department head, or someone performing a similar function will provide you with an activation file.

Once you receive the file, save it to the license subfolder of your product's main installation folder (typically `C:\Program Files\Embarcadero\`*<product><version>*`\license\`), then restart the application.

No additional steps are necessary.

Selecting a License Category During Startup

During startup, if multiple concurrent license categories are available, you are prompted to select a category to use for this Rapid SQL session. Multiple license categories can be set up to provide differing feature access or access to different DBMS versions. Feature and DBMS version access are typically distributed across multiple license categories to optimize the use of a site's purchased licenses.

Note: This dialog also includes the option to remember your selection on subsequent startups. If you select that option, you can subsequently use the **Select Licenses** button on the **About**... dialog (Help > About) to select a different license.

Contact your License Administrator for details on individual license categories or requests for additional feature or DBMS support.

Online/Offline Mode and Concurrent License Checkout

Concurrent licenses can be used in both online and offline modes. In online mode, you must have a continuous network connection to your License Center. Licenses are checked out on startup and checked back in on shutdown.

You can also use a license in offline mode. When you explicitly check out a license for offline use, you can use the license without a connection to your License Center for a specified duration. This lets you work while travelling or commuting, work away from your primary work area, or use the license when a network connection is unavailable or not required.

Note: Contact your site administrator for information on offline license availability, the maximum duration, offline license policy at your site, or any other issues arising from online license usage.

To check out a license for offline use:

1. On the **Help** menu, select **Checkout License**. The **Check Out Licenses For Offline Use** dialog opens.

2. Select the check box associated with each individual license you want to check out.

3. In the **Checkout Duration** box, type the number of hours that you can use the offline license without a network connection to the License Center.

4. Click **OK**.

You can work offline for the specified duration. The duration period begins immediately.

If you subsequently establish a network connection to the License Center before the license duration expires, you can indicate to the License Center that the offline license is no longer required.

To indicate that an offline license is no longer required:

1. On the **Help** menu, select **Checkin License**.

There is no interruption in Rapid SQL usage. The license is not actually checked in until you shut down Rapid SQL.

Rapid SQL Tutorial exercises

The exercises that follow walk you through the Rapid SQL's major functional areas. After completing these exercises, you will have the foundation you need to explore the many features and benefits of Rapid SQL. You'll have learned how to competently manage the major database administration and development tools provided.

This guide is divided into a set of sessions:

- o [Session 1: Getting Started](#)

- o [Session 2: Productivity Enhancers](#)

- o [Session 3: Scripting](#)

- o [Session 4: Working with Code Workbench](#)

- o [Session 5: Building a Database Project](#)

- o [Session 6: Visual Query Builder](#)

- o [Session 7: Live Data Editor](#)

- o [Session 8: Code Analyst](#)

- o [Session 9: SQL Debugging and Profiling](#)

You can use this basic tutorial as a roadmap of product highlights, but also to help you find your path to explore Rapid SQL.

Once you've started, you can select **Help Topics** from the **Help** menu to find many additional resources that complement and build on many of the activities shown in this tutorial.

Note: The tutorial exercises make use of the sample SQL Server database, **AdventureWorks**. Since this is not part of a typical install, you can obtain the files from installation CDs or online sources to install and attach that database. Alternatively, you can perform the tasks targeted for the **AdventureWorks** database against another available database. No destructive actions are initiated in the exercises.

Session 1: Getting Started

Before anything else, you must perform the following tasks:

- o [Starting the Rapid SQL Application](#)
- o [Registering Cross-Platform Datasources to Rapid SQL](#)

Starting the Rapid SQL Application

How you start Rapid SQL depends on the type of application you are evaluating:

- o **InstantOn version**: start the application by double-clicking the file you downloaded.

- o **Fully-installed version**: The **Start** menu sequence for Rapid SQL is always in the form Programs > Embarcadero Rapid SQL *version identifier*> 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, a dialog opens, prompting you to set up datasources. In addition to letting you manually set up individual datasources, a number of more automated methods are available. If you have installed and used other Embarcadero tools, Rapid SQL can find any active datasources being used by those tools. Also, Rapid SQL provides a Discover Datasources feature that automatically searches the DBMS configuration files on your system for datasources that are not currently registered. Since other Embarcadero tools let you export datasource definitions to file, you also have the option of importing these definitions.

2. For the purpose of this tutorial, click **Cancel**. You will be registering a datasource manually.

The main Rapid SQL window opens.
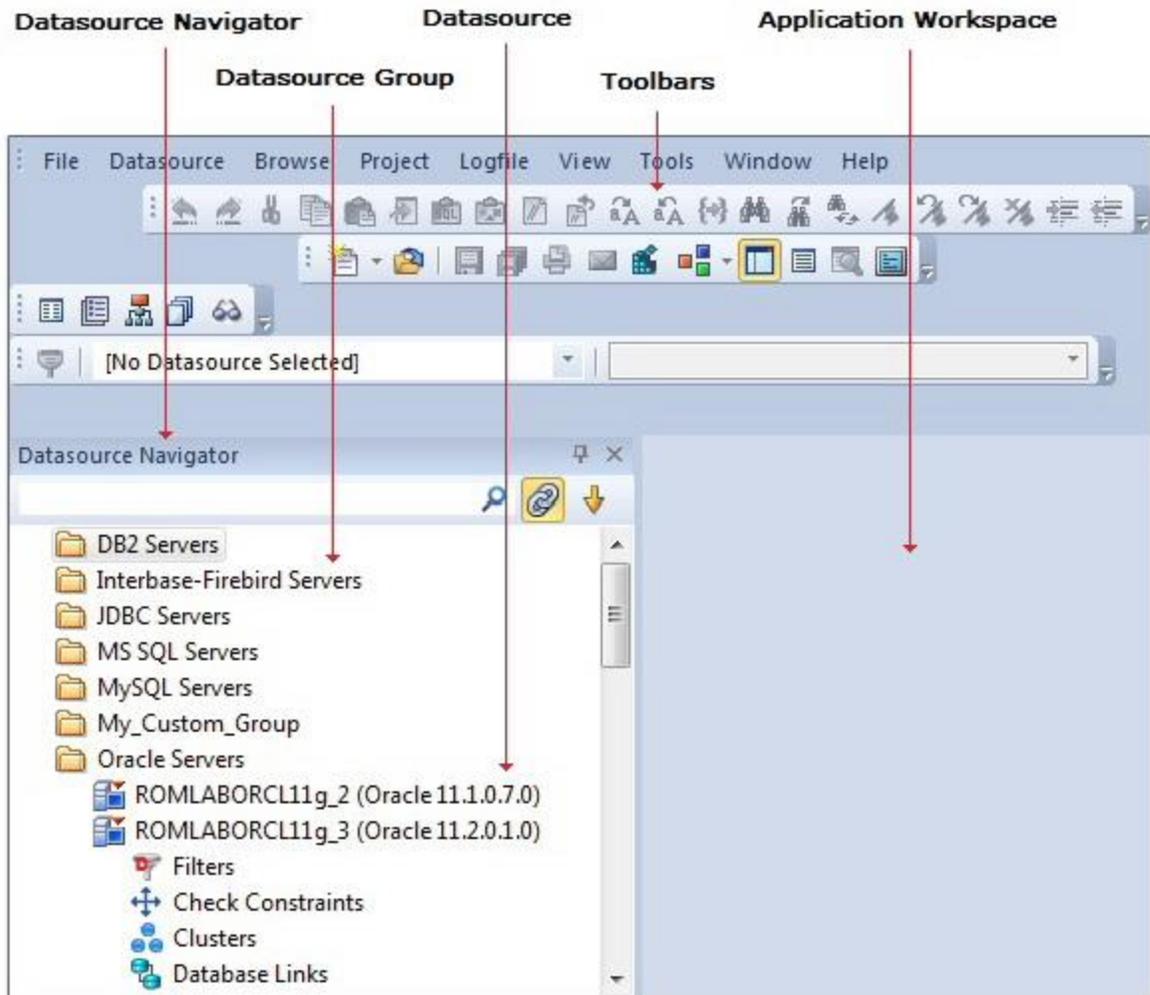
Proceed to [Registering Cross-Platform Datasources to Rapid SQL](#).

Registering Cross-Platform Datasources to Rapid SQL

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**. The next panel opens.
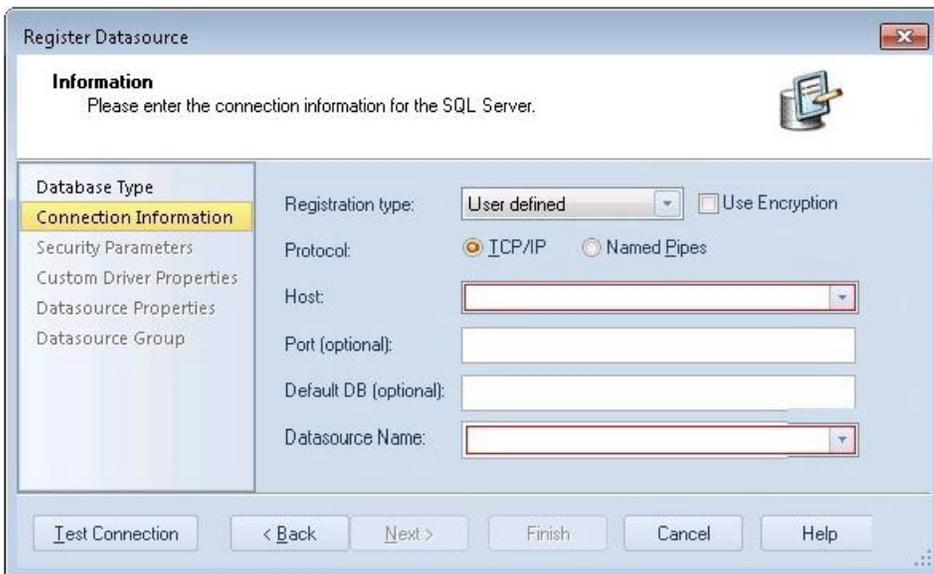
3. Ensure that a **Registration type** of **User defined** is selected, specify the **Host** name of an SQL Server datasource on your network, override the **Datasource Name** with SAMPLE_DATASOURCE and then click **Next**.

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. Lastly, datasource definitions can be stored centrally on an Embarcadero Team Server 2016 for use by Rapid SQL users.

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

Proceed to Session 2: Productivity Enhancers.

Session 2: Productivity Enhancers

This session focuses on some commonly used time-saving features:

- o [The Datasource Navigator Tree](#)
- o [Creating an Object Using the Object Creation Wizard](#)
- o [Working With an Existing Object Using the Object Editor](#)
- o [Object Documentation and Reporting](#)
- o [Working With Code, Files and Data](#)
- o [Setting Environment Options](#)
- o [Script Library](#)
- o [Working with Scripts and Files](#)
- o [Viewing Data](#)
- o [Retaining Datasource Navigator View Settings](#)
- o [Datasource Navigator Bookmarks](#)
- o [Setting Keyboard Shortcuts and Hotkeys](#)
- o [Referencing Most Recently Used Datasources](#)

The Datasource Navigator Tree

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

1. Click on the Navigator's dropdown and ensure that **Organize By Object Type** is selected.
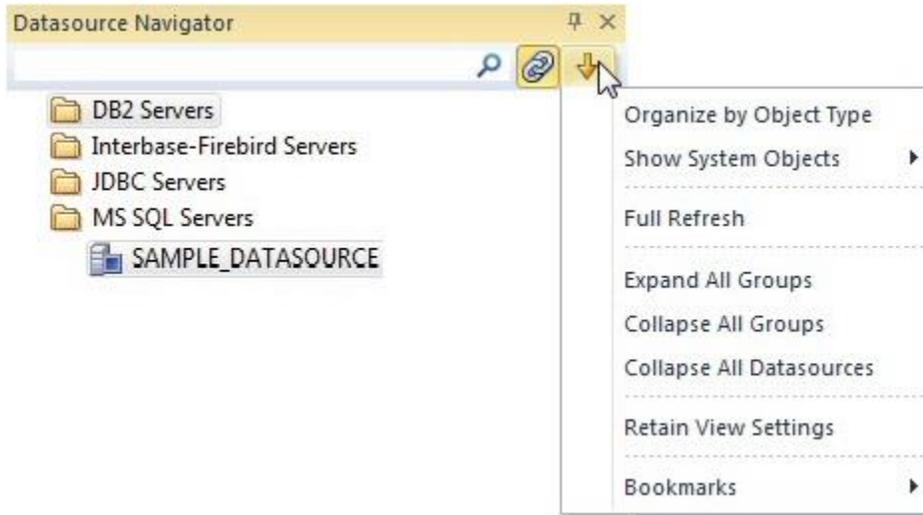
2. Select and expand the SAMPLE_DATASOURCE > Databases > AdventureWorks node to display the database object sub-nodes.
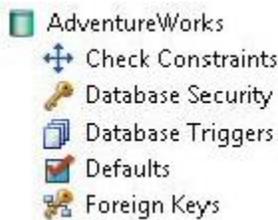
Proceed to Creating an Object Using the Object Creation Wizard.

Creating an Object Using the Object Creation Wizard

From within the Navigator 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 and other supported elements.

1. Right-click on the **Tables** node and select **Create**. A **Create Table Wizard** opens.
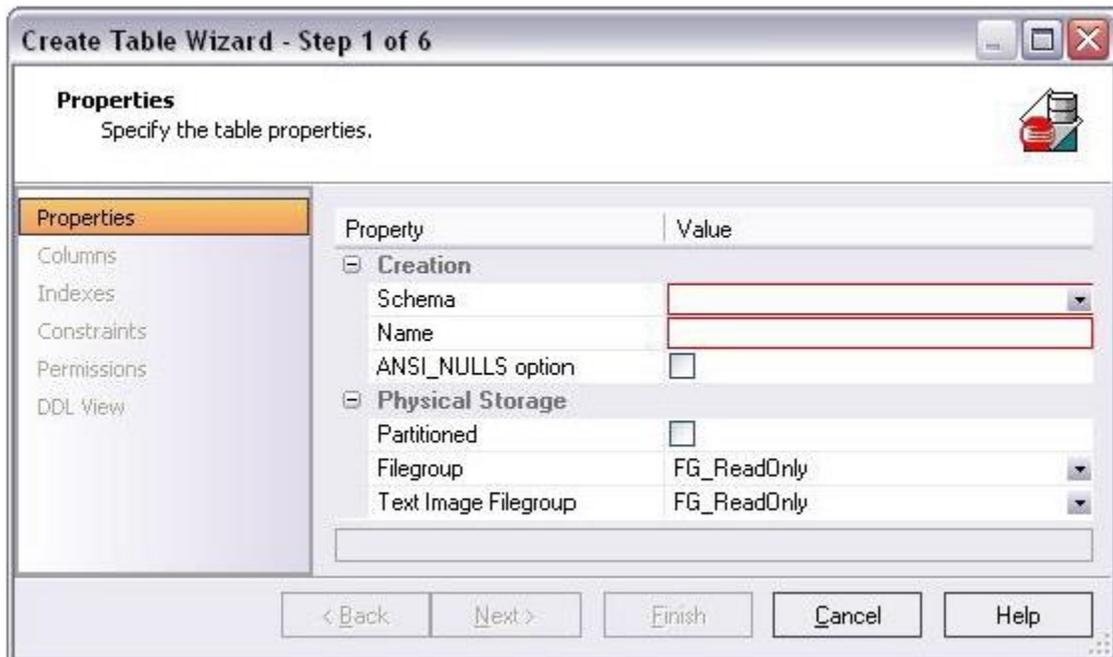
2. Select a **Schema** and provide a **Name** of SAMPLE_TABLE. Leave the remaining default settings and click **Next**.

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 the **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.

Proceed to <u>Working With an Existing Object Using the Object Editor</u>.

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 Navigator, ensure that the **Tables** node is expanded and then right-click on your new table and select **Open**.
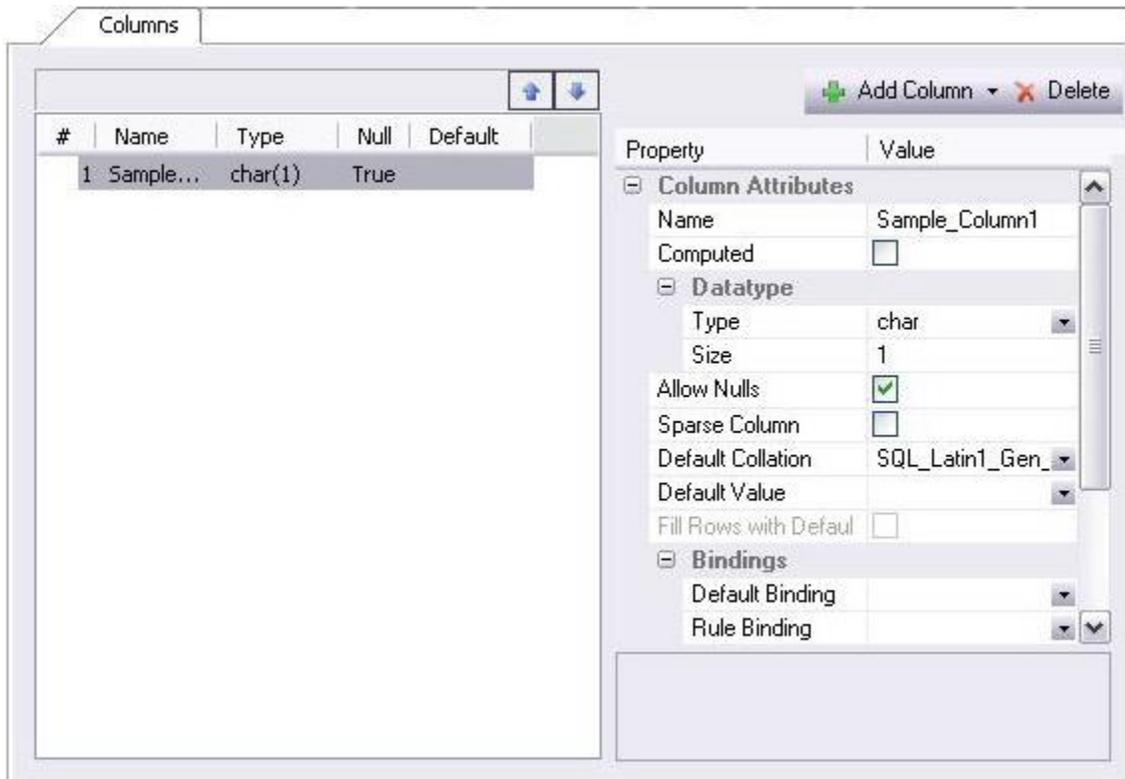
Object Editor features are as follows:

- 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.

Proceed to [Object Documentation and Reporting](#).

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.

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

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

dbo.SAMPLE_TABLE

Object Type	Table
Datasource	ROMLABSQL05_1 (SQL Server 09.00.3073)
Login	sa
Database	AdventureWorks
Report Date	7/23/2012 17:28:27.894

Columns

Name	Datatype	Null	Default	Default Binding
Sample_Column1	char(1)	Yes		

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.

Proceed to Working With Code, Files and Data.

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 exercise, we are only covering the high-level functionality of the major features and tools within Rapid SQL.

Proceed to [Setting Environment Options](#).

Setting Environment Options

The **Options** dialog allows you to set the Rapid SQL development environment to meet your needs.

1. Select **File > Options** from the menu. The **Options** dialog opens.
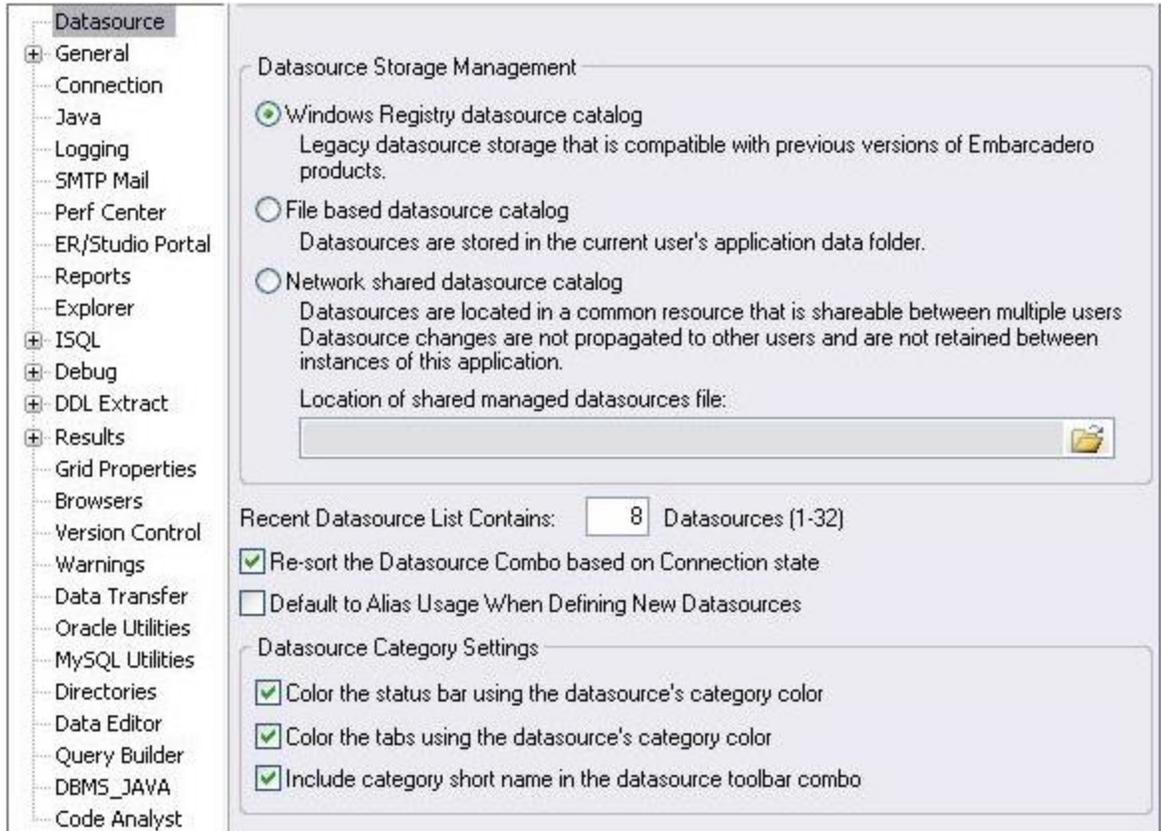
The **Options** dialog has one page per option category. Select an option category in the left-hand pane and you can subsequently set options on that page. Options are applied when you click **OK**.

2. Close the **Options** dialog.

Proceed to Script Library.

Script Library

The Script Library 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 Script Library:

1. Select **View > Script Library**. The **Script Library** window opens.

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 Script Library

1. Right-click the **Script Library** folder.

2. Select **New Folder** from the context menu. A new folder is added to the **Script Library** folder.

To close the Script Library window:

Select **View > Script Library**.

Proceed to [Working with Scripts and Files](#).

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.

File Execution Facility

Files containing SQL scripts can be added to the File Execution Facility and executed immediately or scheduled to run later.

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

Script Execution Facility

The **Tools** menu also offers a Script Execution Facility. Similar to the File Execution facility, it lets you type or paste the script to be executed.

Proceed to [Viewing Data](#).

Viewing Data

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

Select * Browsing

1. On the Datasource Navigator, expand the **MS SQL Servers** 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.

3. Close the workspace window.

Proceed to [Retaining Datasource Navigator View Settings](#).

Retaining Datasource Navigator View Settings

1. Click on the dropdown at the top of the Datasource Navigator.
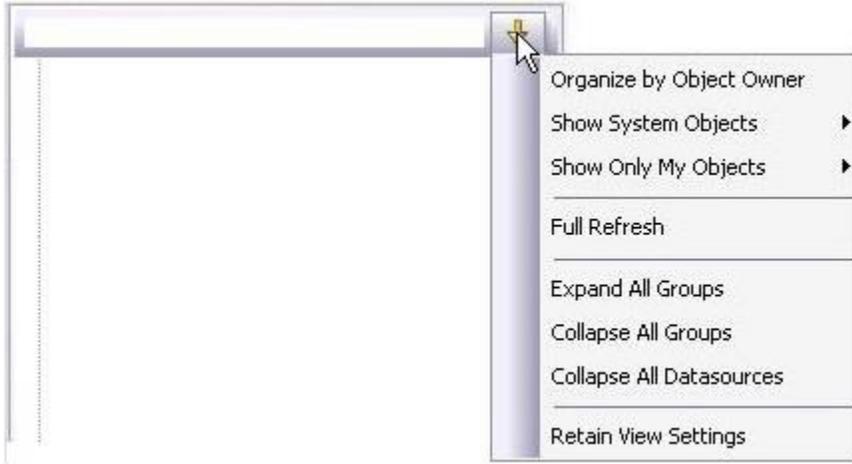
2. Select **Retain View Settings**.

Next time, the Navigator will open just as you left it. All connections that were present when you closed Rapid SQL will be re-established.

Proceed to Datasource Navigator Bookmarks.

Datasource Navigator Bookmarks

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

1. Right-click on any node in the Datasource Navigator.
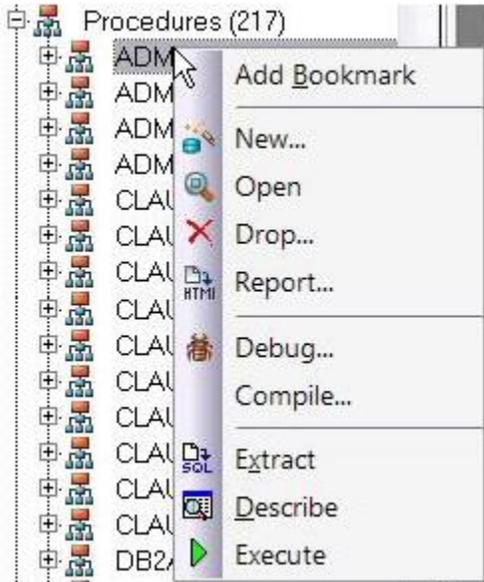
2. Select **Add Bookmark** and use the **Add Friendly Bookmark Name** dialog to optionally provide a new name, and create the bookmark.

After Bookmarks are defined, you can use them to easily navigate to commonly used datasource resources. In this case, you would select the dropdown at the top of the Datasource Navigator, selecting **Bookmarks > SQLServer** and then selecting the bookmark you just created.

The **Bookmark Manage**r handles maintenance of Bookmarks.

3. Select the dropdown at the top of the Datasource Navigator and then select **Bookmarks>Bookmark Manager**.

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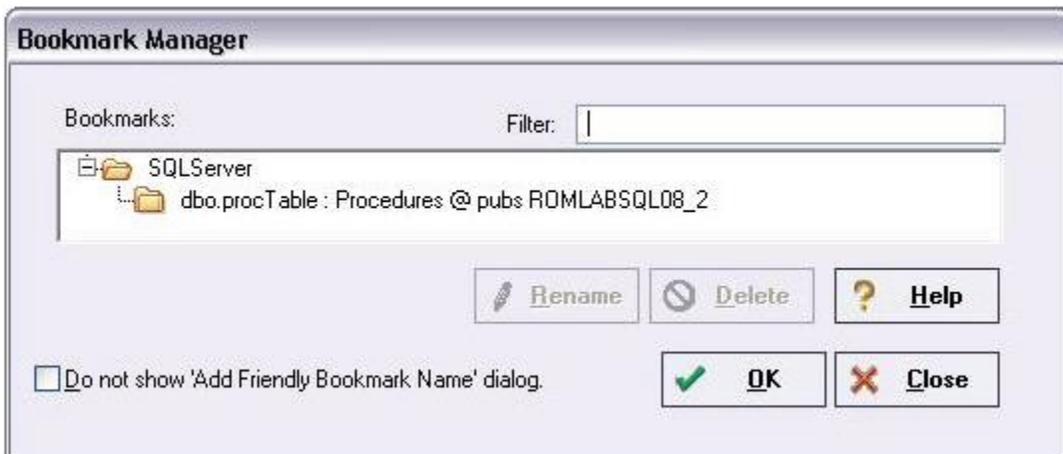
4. Close the **Bookmark Manager** dialog.

Proceed to <u>Setting Keyboard Shortcuts and Hotkeys</u>.

Setting Keyboard Shortcuts and Hotkeys

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

2. In the **Customize** dialog, go to the **Keyboard** tab.
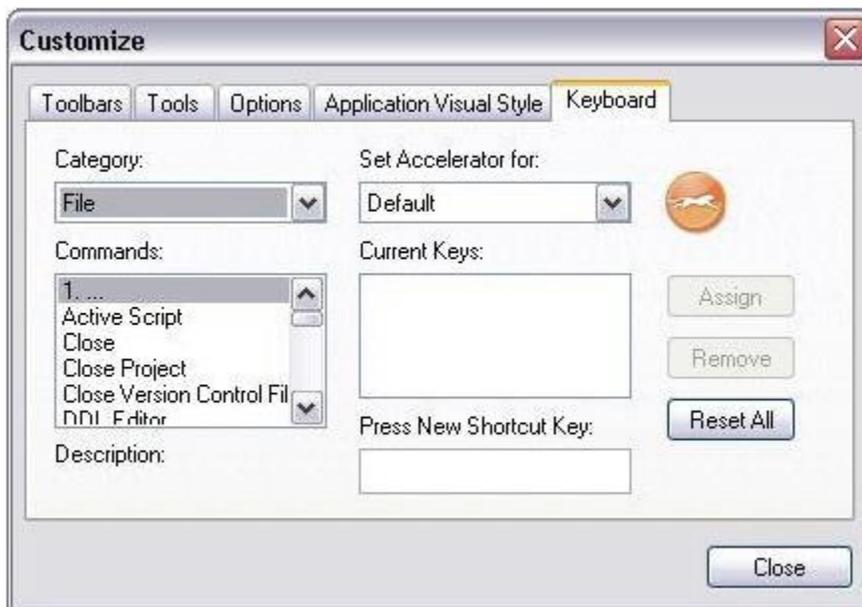
The **Keyboard** tab can be used to set keyboard shortcut hotkeys for all areas of Rapid SQL functionality.

3. Close the **Customize** dialog.

Proceed to <u>Referencing Most Recently Used Datasources</u>.

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 Navigator, ready to work with active connection.

Proceed to .

Session 3: Scripting

This session looks at Rapid SQL's development environment:

- o [Generating Code](#)
- o [Right-click feature](#)
- o [Automated error detection and coding assistance](#)
- o [Other coding aids](#)

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 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, the **AdventureWorks** database, and the **Purchasing** schema from the dropdown list boxes.
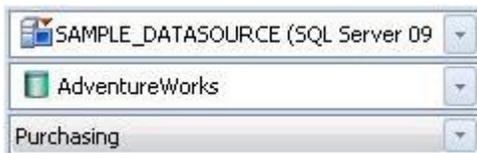
3. Select the **Vendor** table, **Name** as the input column and all columns for output.
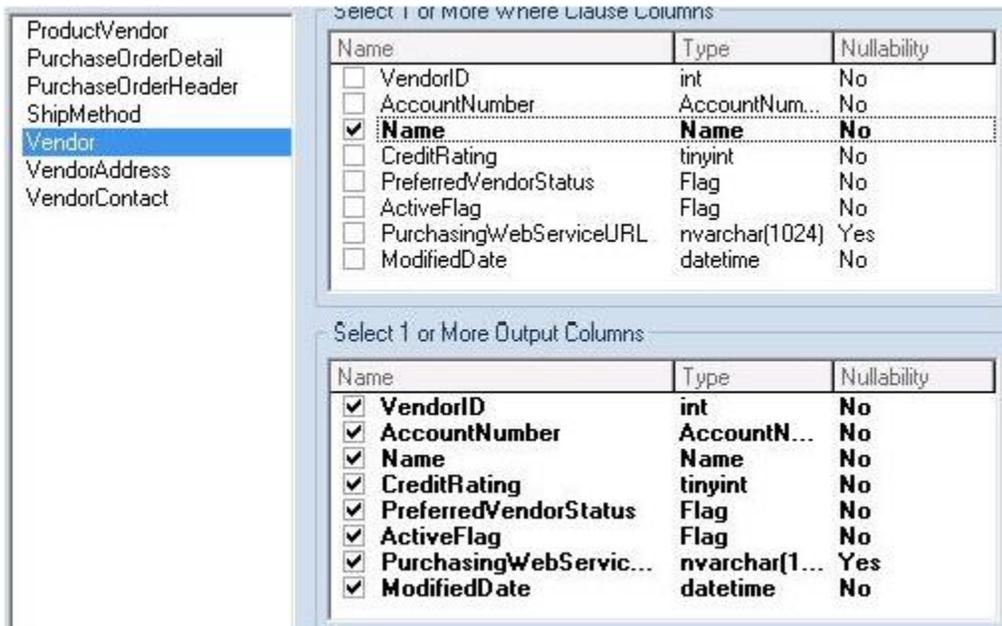
4. Select **Select** as the code option.

5. Select a file to save the generated script and check **Open**.
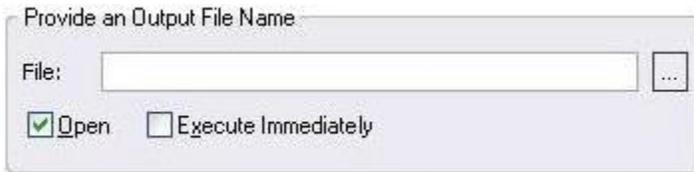
6. Click **OK** and the DDL to create the procedure will be generated and displayed in an editable window, called the DDL Editor. You can edit the name of the new procedure and any of the generated code at this time. Name the new procedure **sample_select_vendors**.

7. Click on the Execute button to submit the DDL and create the procedure.


The indicated file will be saved on the selected directory.

Note: 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.

Proceed to Right-click feature.

Right-click feature

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 Datasource Navigator tree, expand the SAMPLE_DATASOURCE > AdventureWorks > Tables sub-node.

2. Right-click on the **Vendors** table.
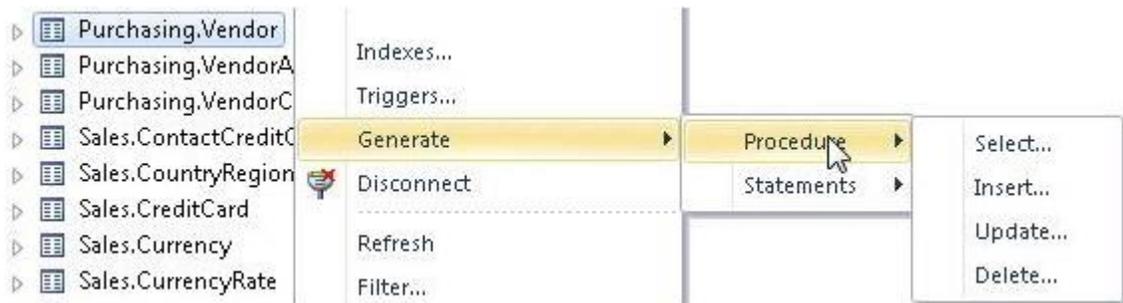
3. Select **Generate > Procedure > Select**.

4. Select **Name** 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 the DDL Editor. You can edit the name of the new procedure and any of the generated code. Name the new procedure **sample_select_vendors2**.

6. Click on the **Execute** or **Step Execute** button to submit the DDL and create the procedure.

Proceed to [Automated error detection and coding assistance](#).

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 **SQL**.

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.).
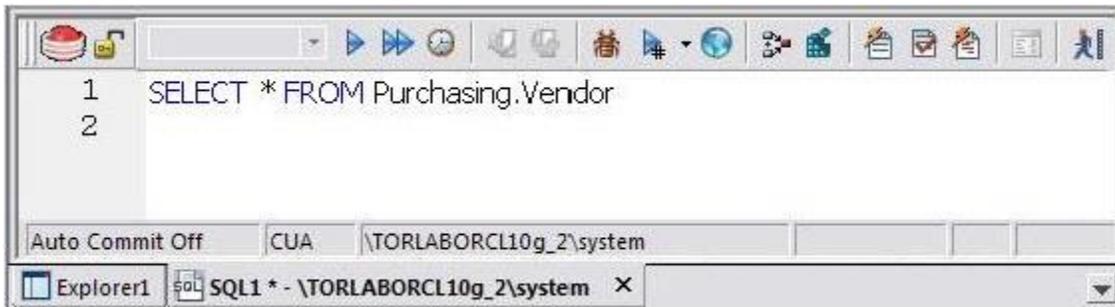
2. Type **SELECT * FROM** and stop typing.

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.

3. 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.

```
1 ⚠  SELECT * FROM NON.OBJECT|
```

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

4. 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.

5. 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**.

Proceed to [Other coding aids](#).

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 Datasource Navigator tree, expand the SAMPLE_DATASOURCE > AdventureWorks 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. On the Paste SQL dialog, select Sample_Datasource from the Datasource dropdown, AdventureWorks from Database, All Owners from Owner, and an Object Type of Tables.
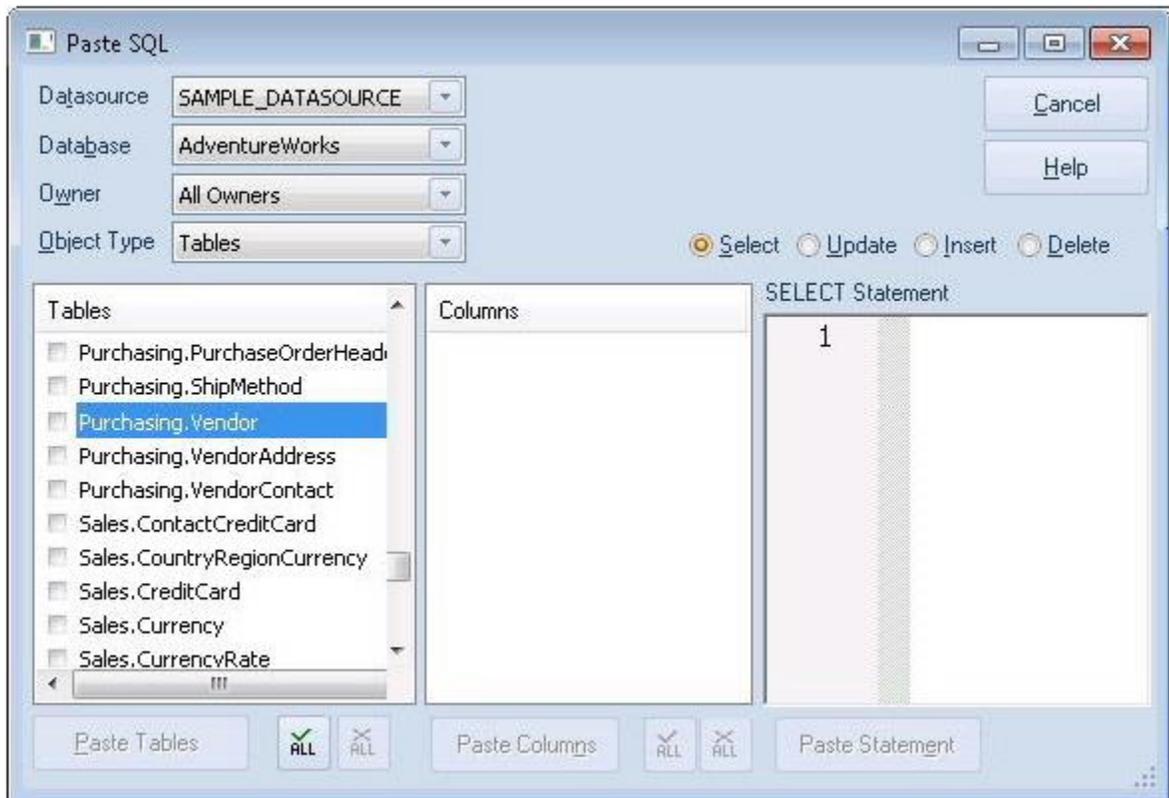


5. In the Tables list, select Purchasing.Vendor.

6. Under the Columns list, click ALL.

7. Click the Select radio button.

8. 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.
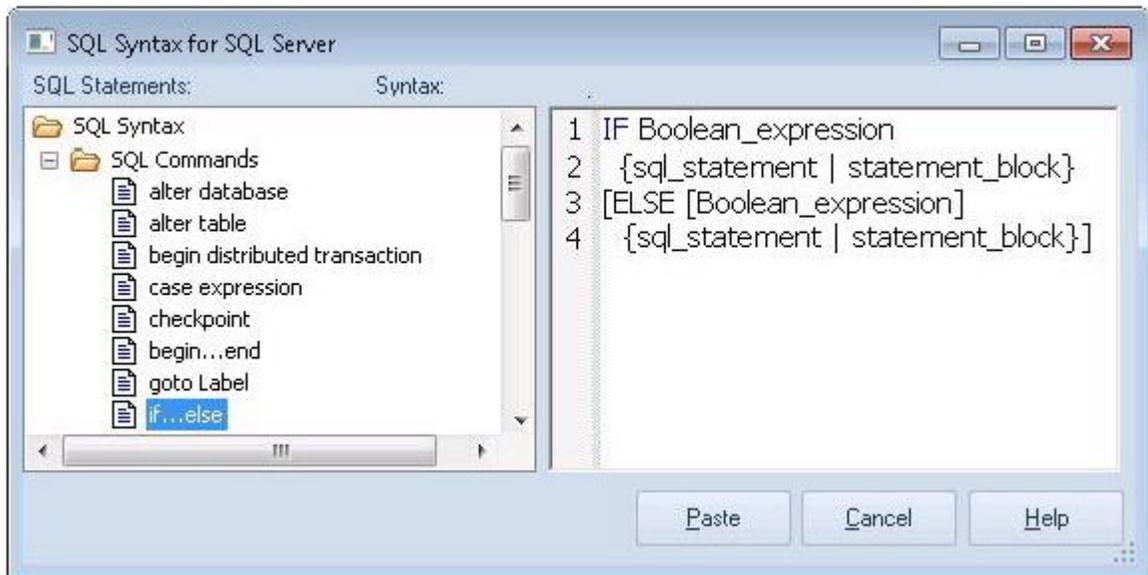
3. Select a template and click **Paste** to copy the code template into the SQL Editor window.

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

Proceed to Session 4: Working with Code Workbench.

Session 4: Working with Code Workbench

The Code Workbench lets you configure resources for two SQL Editor features:

- o   Code Templates

- o   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.
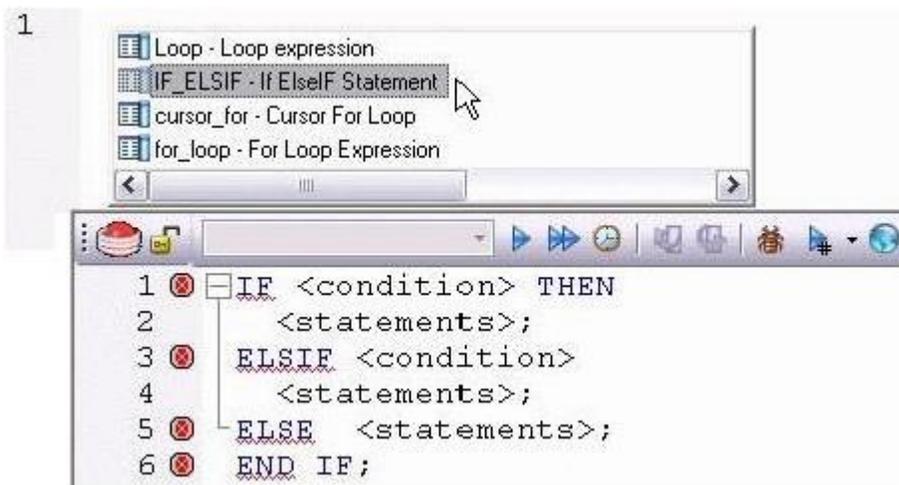
Auto Replace lets you define shortcuts consisting of a few characters that represent longer character strings. Instances of these Auto Replace expressions are automatically replaced by the replacement string on activation events such as typing SPACE, TAB, or RETURN. This feature is useful for creating 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 pressing 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. Also, 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.
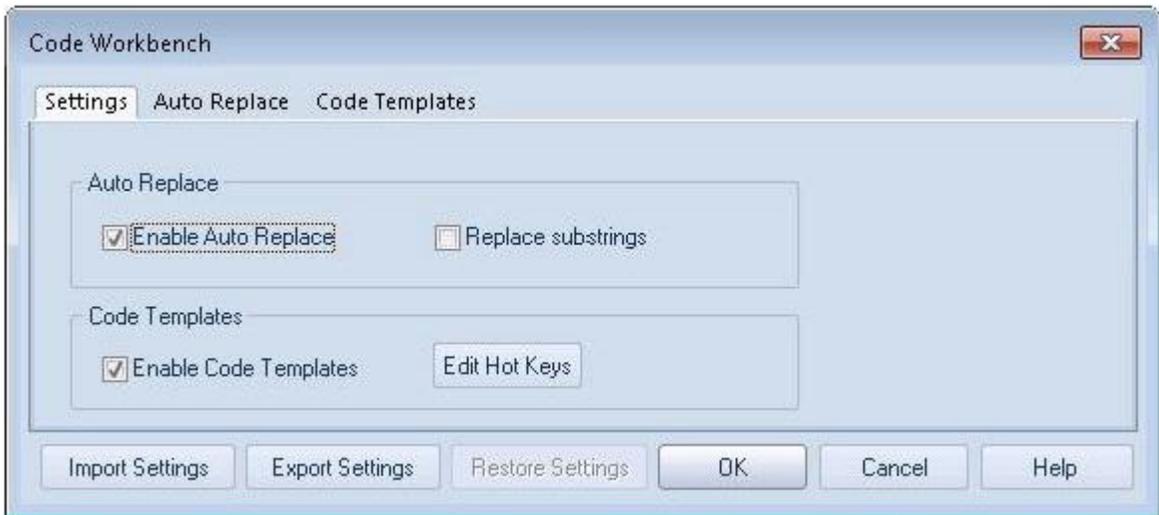
The **Settings** tab lets you enable the Auto Replace and Code Template features.

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

3. Click **OK**.

Proceed to Session 5: Building a Database Project.

Session 5: Building a Database 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. You can subsequently perform tasks such as distribute the files or add them to a Version Control System (VCS). This example will reverse engineer the table objects from the Microsoft SQL Server **AdventureWorks** database into a Rapid SQL project

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

2. Enter **sample_project** as the name, and accept the default target directory. Select **From Database** and click **OK**.

3. On the **Connection** page, select **SAMPLE_DATASOURCE** and click **Next**.

4. On the **Catalogs** page, select **AdventureWorks** and click **Next**.

5. Click **Schemas** to open the **Schema Selection** dialog. Select **Human Resources**, **Purchasing**, and **Sales**, and then click **OK**. The **Object Selection** page opens.

6. Under **Object Types**, select **Tables**. Then, under **Objects**, expand the **Tables** node and select the **Purchasing.Vendor**, **Sales.SpecialOffer**, and **HumanResources.Employee** tables. Click **Next**.

7. On the **Options** page, leave the default selections and click **Finish**.

8. When the **Execute** page shows that reverse engineering is complete, click **Continue**.

The **Project** tab displays the results of the reverse engineering.
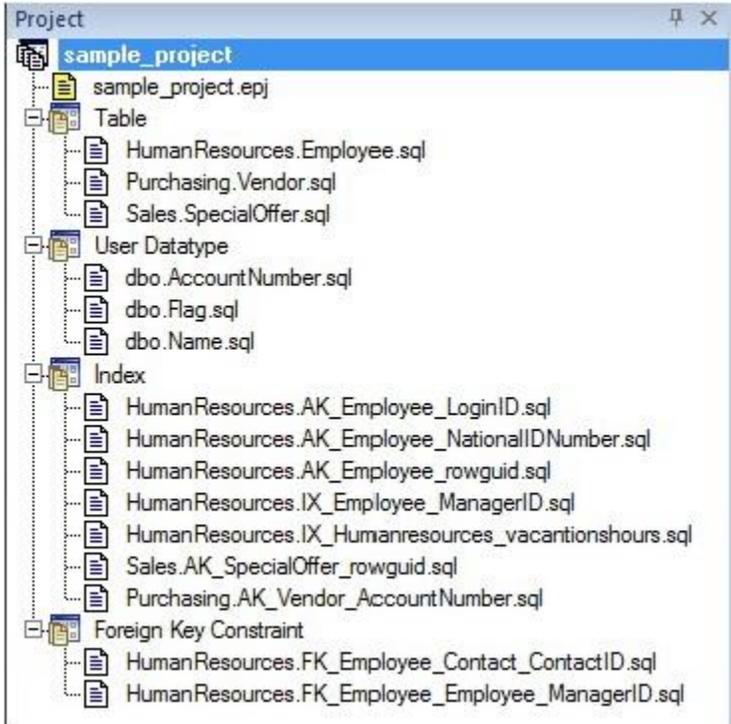
Before closing the **Project** tab, investigate the individual project elements. Also, check the **File** and **Project** menus for project and version control options.

Proceed to .

Session 6: 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 Navigator tree, right-click on the **HumanResources.Employee** table and select **Build Query**.

The table is automatically added to the Query Builder workspace.

2. On the **Tables/Views** tab, right-click on the **Department** table and select **Add**.

3. Similarly, on the **Tables/Views** tab, right-click on the **EmployeeDepartmentHistory** table and select **Add**.

4. Rearrange the contents of the window to look like the following graphic.

5. Select the columns indicated in the graphic.
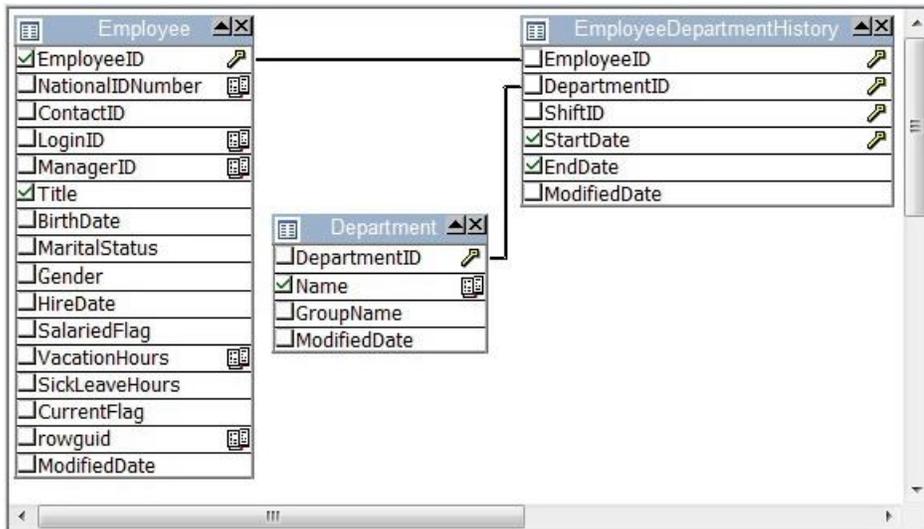
Note that the tables are automatically identified as being joined by any columns with the same name and datatype. Also, note that the query is being built in the lower pane.

6. 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.
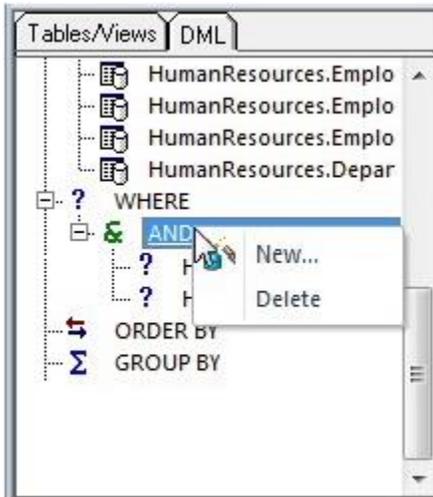
7. Experiment with adding, deleting, and modifying clauses.

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

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.

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

Proceed to <u>Session 7: Live Data Editor</u>.

Session 7: Live Data Editor

1. From the Navigator, right-click on the **Purchasing.Vendor** 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.
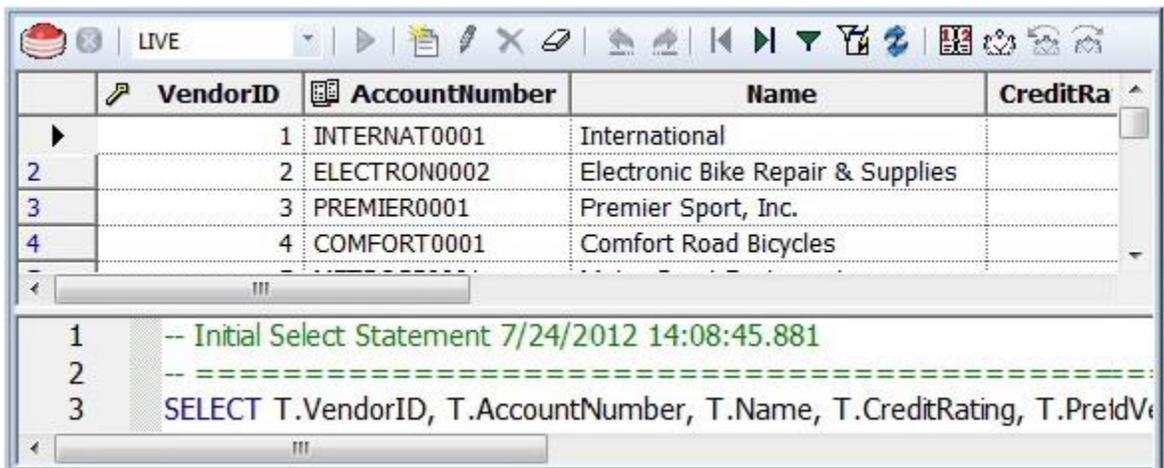
Note the dropdown at the left of the toolbar. The editing window has **LIVE** and **BATCH** modes:

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

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

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

Proceed to .

Session 8: Code Analyst

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

To get started

1. Select Tools > Code Analyst.

Note: For Code Analyst to run, 5 repository tables will be created in the database. Select the database you would like the tables to be installed on and press **OK**. Once the tables are installed, you are ready to start defining a session.

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

2. On the **Code Analyst Object Selection** dialog, provide a **Session Name**, locate and select the objects to be executed, and click **Next**.
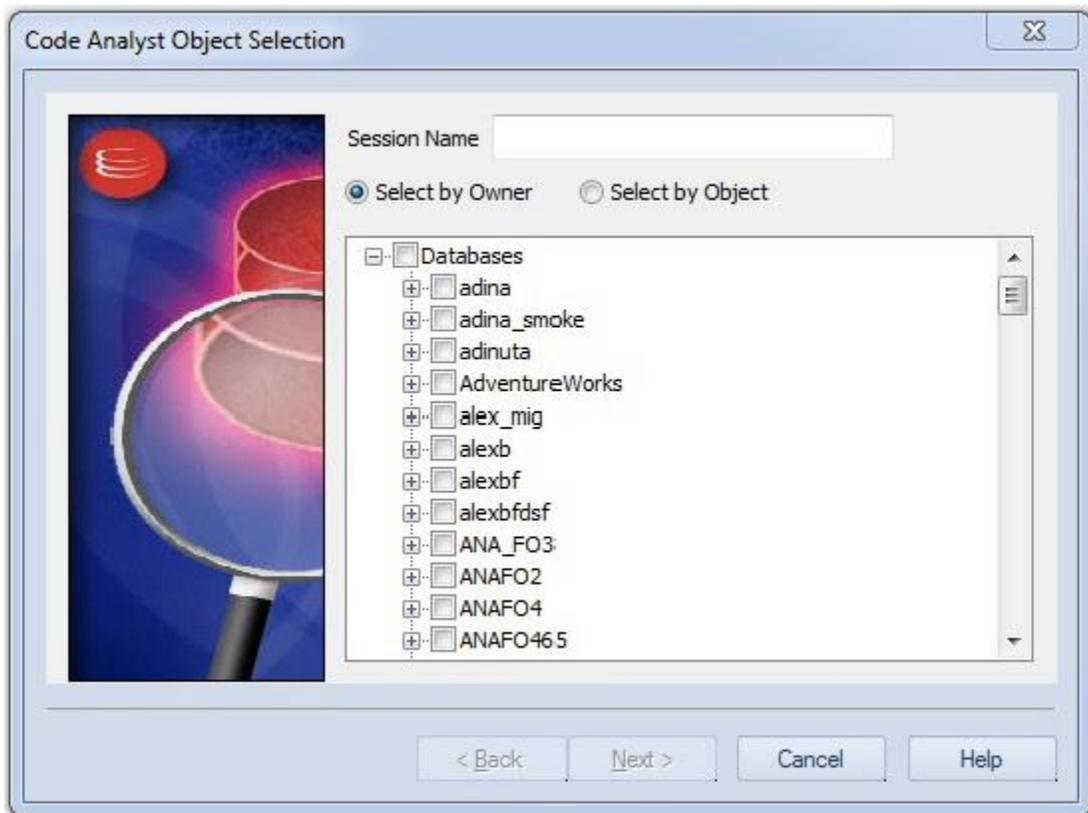
3. Use the **Code Analyst Object Initialization** dialog to initiate providing input parameters as required, change the order of execution, and when ready, click **Finish**.

Once the session has been run, the total time for the execution is displayed in the **Run Summary** tab.

4. Select the other tabs to view the tabular and graphical representation of the execution details on your selected objects. For example:

- The **Run Detail** tab shows a breakdown of the different objects that make up the session.

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

5. Close the **Code Analyst** window.

Proceed to .

# Session 9: SQL Debugging and Profiling

Rapid SQL offers the following facilities that help you test and optimize code:

- o [SQL Debugging](#)
- o [SQL Profiling- Oracle Only](#)

SQL Debugging

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

1. In the Navigator, expand the **Procedure** or **Function** node.

2. Right-click the object and select **Debug** from the context menu.

3. If the procedure or function takes input parameters, the **Procedure Execution** window prompts you to enter values.
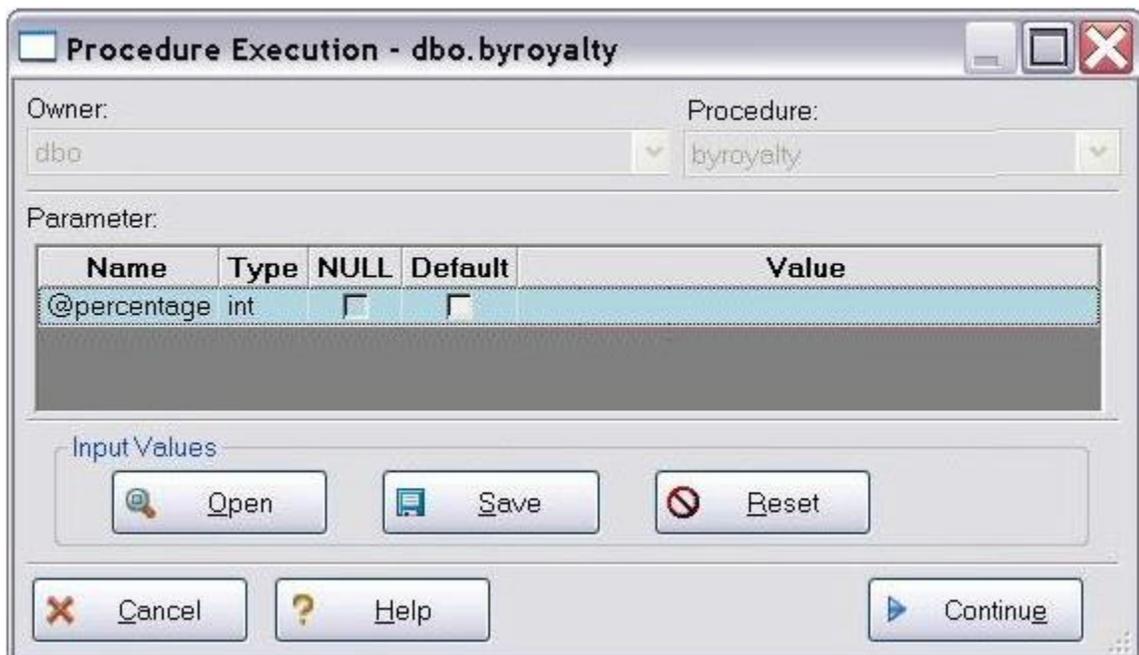
4. Enter input values and press **Continue**.

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.
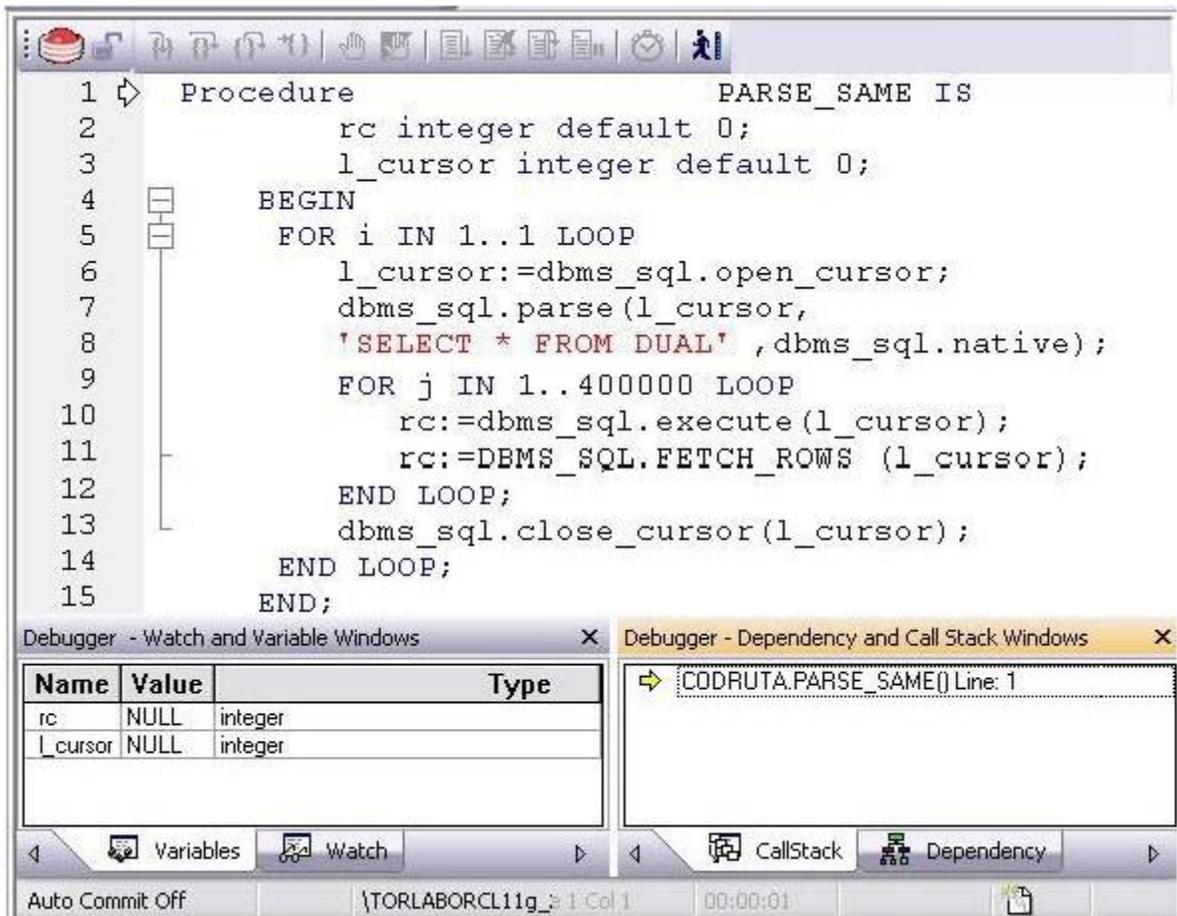
The Debugger features basic execution, line-by-line execution, breakpoint support, and other common debugging features. For details, refer to the relevant online Help topics.

Proceed to [SQL Profiling- Oracle Only](#).

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.
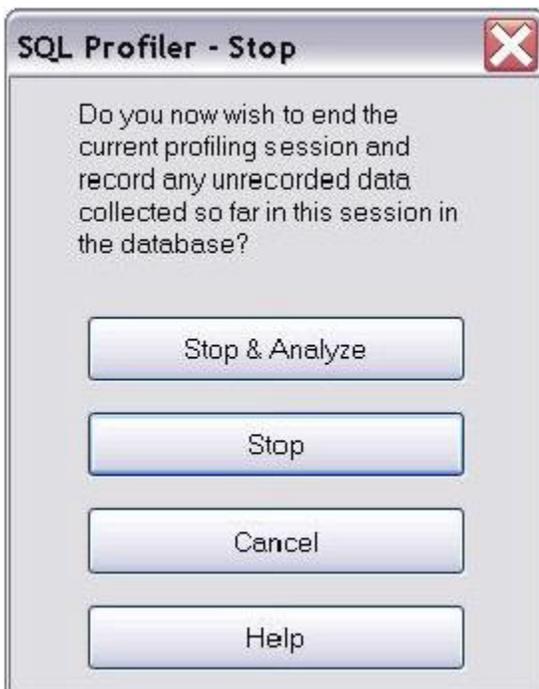
5. Press **Stop**.

6. On the Navigator, expand the **PL/SQL Code Profiling** node.
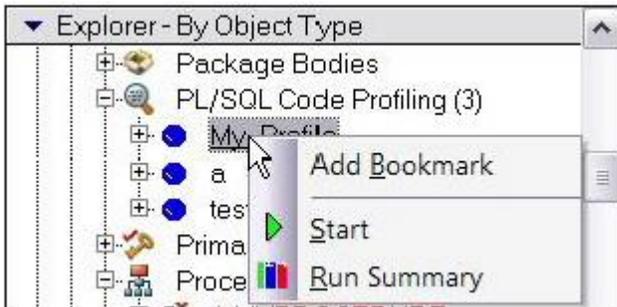
7. Right-click on the profile session and select **Run Summary**. The **Run Summary** window opens.

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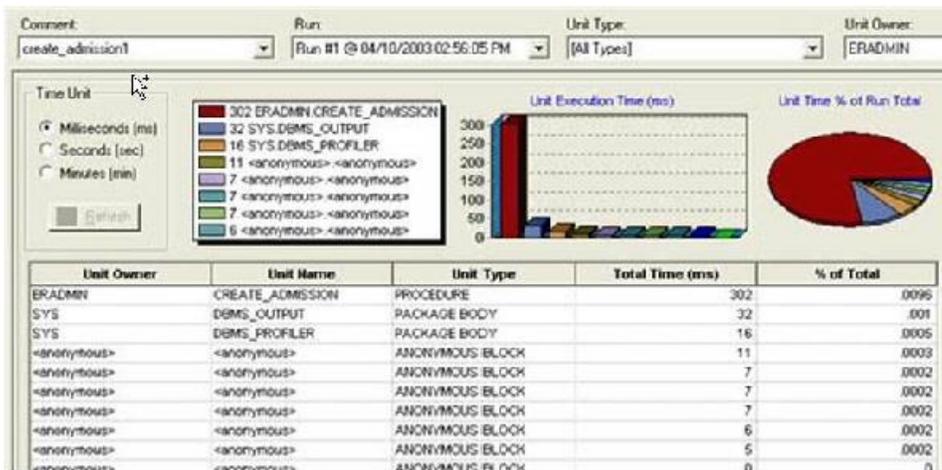
9. To drill down further into the data, highlight a unit and select **Unit Detail** from the right-click menu. Scroll through the Source window to view the times for each statement.

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 relevant online Help topics for more information on profiling.