



Product Documentation

---

# Embarcadero® Rapid SQL™

Quick Start Guide

Version XE 2/8.0.2

1st Edition January, 2012

---

© 2012 Embarcadero Technologies, Inc. Embarcadero, the Embarcadero Technologies logos, and all other Embarcadero Technologies product or service names are trademarks or registered trademarks of Embarcadero Technologies, Inc. All other trademarks are property of their respective owners.

This software/documentation contains proprietary information of Embarcadero Technologies, Inc.; it is provided under a license agreement containing restrictions on use and disclosure and is also protected by copyright law. Reverse engineering of the software is prohibited.

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

**CORPORATE HEADQUARTERS**

100 CALIFORNIA STREET  
12TH FLOOR  
SAN FRANCISCO, CALIFORNIA  
94111 USA

**EMEA HEADQUARTERS**

YORK HOUSE  
18 YORK ROAD  
MAIDENHEAD, BERKSHIRE  
SL6 1SF, UNITED KINGDOM

**ASIA-PACIFIC HEADQUARTERS**

L7. 313 LA TROBE STREET  
MELBOURNE VIC 3000  
AUSTRALIA

# Contents

Introduction . . . . .	5
About Rapid SQL . . . . .	5
Major functional areas . . . . .	5
Benefits to Specific Users . . . . .	6
About This Book . . . . .	6
Installing Rapid SQL . . . . .	7
Technical Requirements . . . . .	7
Hardware Requirements . . . . .	7
Operating System Requirements . . . . .	7
Database Support . . . . .	9
IBM DB2 for Z/OS Stored Procedure Requirements . . . . .	9
Installing Rapid SQL . . . . .	10
Installation Wizard . . . . .	10
Licensing . . . . .	11
Licensing Overview . . . . .	11
Licensing Your Application . . . . .	13
Selecting a License Category During Startup . . . . .	15
Online/Offline Mode and Concurrent License Checkout . . . . .	15
Additional Product Resources . . . . .	16
Tutorial exercises . . . . .	17
Session 1: Getting Started . . . . .	17
Starting Rapid SQL . . . . .	17
Registering Cross-Platform Datasources . . . . .	19
Session 2: Productivity Enhancers . . . . .	20
The Database Explorer Tree . . . . .	21
Creating an Object Using the Object Creation Wizard . . . . .	22
Working With an Existing Object Using the Object Editor . . . . .	23
Object Documentation and Reporting . . . . .	24
Working With Code, Files and Data . . . . .	24
Setting Environment Options . . . . .	25
Favorites Tab . . . . .	25
Working with Scripts and Files . . . . .	26
Viewing Data . . . . .	27
Retaining Datasource Explorer View Settings . . . . .	27
Datasource Explorer Bookmarks . . . . .	28

## CONTENTS

Setting Keyboard Shortcuts and Hotkeys . . . . .	29
Referencing Most Recently Used Datasources. . . . .	30
Session 3: Scripting. . . . .	30
Generating Code . . . . .	30
Right-click feature . . . . .	32
Automated error detection and coding assistance . . . . .	34
Other coding aids . . . . .	35
Session 4: Working with Code Workbench . . . . .	37
Session 5: Building a Database Project . . . . .	39
Creating a new Rapid SQL Project . . . . .	39
Adding a Project to Version Control (Sample - Microsoft Visual Source Safe) . . . . .	40
Session 6: Visual Query Builder . . . . .	41
Session 7: Live Data Editor. . . . .	43
Session 8: Code Analyst. . . . .	44
Session 9: SQL Debugging and Profiling . . . . .	45
SQL Debugging . . . . .	46
SQL Profiling- Oracle Only . . . . .	47
New Features . . . . .	51
Updated DBMS Version Support . . . . .	51
SQL Server Feature Support . . . . .	51
Oracle Feature Support . . . . .	54
Sybase Feature Support. . . . .	57
Datasource/Server Updates. . . . .	60
Unicode updates. . . . .	60
SQL Editor. . . . .	61
User interface changes and related features . . . . .	61

# INTRODUCTION

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

Rapid SQL 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.

## MAJOR FUNCTIONAL AREAS

**Datasource management tools** - Before use with Rapid SQL, 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** - Rapid SQL 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.

**Scripting environments** - Rapid SQL offers fully-featured environments dedicated to SQL, DDL, Java and Active Script development. 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.

**Data Utilities** - A Data Editor lets you edit your tables in real-time, supports all editable datatypes, and provides unicode options. Table data can also be imported from formats such as spreadsheets.

**Project Management** - 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:

- The 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 compares against current execution times.
- Debuggers, available for IBM DB2 for Linux, Unix, and Windows, Oracle, Sybase, and SL Server, let you test functions and procedures. A Profiler is available for Oracle datasources.

## BENEFITS TO SPECIFIC USERS

Rapid SQL provides benefits to the following users:

<b>Database Administrators</b>	<p>Rapid SQL lets database administrators accomplish more with the limited time they have. It eliminates the tedious tasks associated with researching schema dependencies when making object changes. Also included are a host of utilities, which condense DBA tasks taking hours or days down to minutes.</p> <p>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. The GUI in general, and wizards and editors specifically, provide time-savings over traditional hand-coding or other manual methods.</p>
<b>Developers</b>	<p>In addition to a fully-featured scripting environment, Rapid SQL offers several cross-platform code-generation options, which help Developers build SQL code that is syntactically and functionally correct the first time.</p> <p>Complementing coding facilities, the object creation wizards and graphical object editors greatly reduce the time and effort to build an application database from the ground up.</p> <p>Rapid SQL facilitates moving applications and complete database systems between environments.</p>
<b>Project Managers</b>	<p>Project management facilities and Version Control System integration provide fundamental project management.</p>

## ABOUT THIS BOOK

This book has three major components:

- [Installing Rapid SQL](#) lists technical requirements, provides details on DBMS version support, summarizes the installation process, and includes licensing details.
- [Tutorial exercises](#) provide learning curve material on Rapid SQL. It walks you through the major areas of functionality, getting you ready for independent work.
- [New Features](#) describe all feature updates for the current major release.

# INSTALLING 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:

- [Technical Requirements](#)
- [Database Support](#)
- [Installing Rapid SQL](#)
- [Licensing](#)

Lastly, for more information, see [Additional Product Resources](#).

## TECHNICAL REQUIREMENTS

Rapid SQL is a 32-bit application that runs in a Microsoft Windows environment. Before using Rapid SQL, please verify that your environment meets the following requirements:

- [Hardware requirements](#)
- [Operating system requirements](#)

**NOTE:** Users need full registry privileges during the installation and access to the keys under HKEY\_CURRENT\_USER in the registry after installation.

## HARDWARE REQUIREMENTS

Embarcadero Technologies recommends the following minimum hardware requirements:

- 1024 MB of memory
- 512 MB of disk space

## OPERATING SYSTEM REQUIREMENTS

Rapid SQL supports the following operating systems:

- Windows XP (32-bit and 64-bit)
- Windows Vista (32-bit and 64-bit)
- Windows 7 (32-bit and 64-bit)

For more detailed information, see the following topics:

- [XP Support](#)

- [Vista and Windows 7 Support](#)
- [32-bit Versus 64-bit Operating System Support and Restrictions](#)

#### XP SUPPORT

Windows XP has two user security groups:

- Users
- 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 in order to install and use Embarcadero Technologies applications.

Because Restricted Users are members of the Users Group, they cannot install and run Embarcadero Technologies applications.

**CAUTION:** You must be a member of the Administrators Group in order to install and use Embarcadero Technologies applications.

To open the Group Membership tab where you can determine your group and review the Microsoft security guidelines:

- 1 On the **Control Panel**, open **User Accounts**.
- 2 On the **Users** tab, select a user and then click the **Properties** button.
- 3 Click the **Group Membership** tab.

#### VISTA AND WINDOWS 7 SUPPORT

Windows Vista UAC and Windows 7 provide two user types:

- Standard user
- Administrator

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.

**CAUTION:** For the purposes of running Rapid SQL, default standard user token privileges should not be modified. Modifying standard user token privileges can result in licensing issues which will prevent Rapid SQL from operating properly.



### 32-BIT VERSUS 64-BIT OPERATING SYSTEM SUPPORT AND RESTRICTIONS

Rapid SQL is a 32-bit application that runs emulated on 64-bit versions of Windows. The only requirement is that Rapid SQL supports only 32-bit versions of the client software that must be installed for connectivity to each DBMS that Rapid SQL will work against.

## DATABASE SUPPORT

The table below describes the database platforms Rapid SQL supports and the server and client requirements:

Platform	Server	Client
IBM DB2 for z/OS	IBM DB2 for z/OS 8 and 9	When going through a DB2 Connect gateway, DB2 Client for Windows 6.0 or later. When going directly to the mainframe from the client, DB2 Connect Personal Edition v6 or higher on the client machine.
IBM DB2 for Linux, Unix, and Windows	IBM DB2 Universal Database 8.0 - 9.7	IBM DB2 Client for Windows 7.2 or later. <b>NOTE:</b> When using a v8 client, Rapid SQL only supports connecting to a v8 Database on Windows, Linux and Unix.
InterBase/Firebird	InterBase 2007 and InterBase 2009	DataDirect ODBC driver for InterBase and the InterBase Client
	Firebird 2.0	Firebird ODBC Driver
Microsoft SQL Server	Microsoft SQL Server 2000, 2005, and 2008 <b>NOTE:</b> For SQL Server 2005 and 2008, only object types like users, logins, roles, config parameters, etc., are supported. We do NOT support Microsoft .NET extensions at this time.	Microsoft SQL Server Client Library
MySQL	MySQL 4.x. (Rapid SQL is tolerant of 5.x but does not support Stored Procedures, Triggers, Views.)	MySQL ODBC driver 3.5.1 and above
Oracle	Oracle 8i, 9i, 10g, and 11g	Oracle SQL*Net Client
Sybase ASE	Sybase ASE 12.5 - 15.0.3	Sybase Open Client

**NOTE:** Since Rapid SQL is a 32-bit application that runs emulated on 64-bit versions of Windows, only 32-bit versions of the DBMS client software are supported.

### 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:

- DSNWZP
- DSNUTILS

- ADMIN\_COMMAND\_DSN
- 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 <http://publib.boulder.ibm.com/infocenter/dzichelp/v2r2/topic/com.ibm.db2.doc.inst/stpadd.htm#stpadd> for more information.

## INSTALLING RAPID SQL

To install Rapid SQL successfully, you must complete each panel of the installation wizard. For more information, see [Installation Wizard](#).

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

**CAUTION:** To install Rapid SQL from the command line, you should be sure to manually uninstall all prior versions of Rapid SQL.

## INSTALLATION WIZARD

The Rapid SQL Installation Wizard installs all corresponding files on your machine. The panels presented by the wizard vary depending on whether you are upgrading or performing an initial installation. To proceed to the next panel of the wizard, click **Next**. To cancel the installation process at any time, click **Cancel**.

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

**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](#).

Use the following table as a guide to understanding the panels you may encounter when installing Rapid SQL:

Panel	Description
Welcome...	The start of the install process.
License Agreement	This panel of the Installation Wizard displays the license agreement. To continue the installation, click <b>I accept the terms in the license agreement</b> . You cannot proceed to the next step in the installation if the <b>I DO NOT accept the terms in the license agreement</b> option is selected.
Destination Folder	Identify the folder where you want the program files to reside. The default directory is <b>C:\Program Files\Embarcadero\RSQL&lt;version identifier&gt;\</b> .
Start Menu	Lets you provide a Start menu group and optionally have an application icon created on the desktop.

Panel	Description
Associate Files	Specify whether you want files with extensions of .sql or .eqb to be associated with the Rapid SQL application.
Ready to install the program	Review your settings and click <b>Install</b> to continue the installation process.
Installing...	Displays the installation progress.
Setup Complete	Finishes the installation process.

## LICENSING

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

For more information, see the following topics:

- [Licensing Overview](#)
- [Licensing your Application](#)
- [Selecting a License Category During Startup](#)
- [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.

- [Viewing your License Type and Modules](#)
- [Understanding Trial, Workstation, and Networked Licenses](#)
- [Rapid SQL License Modules, DBMS Support, and Feature Availability](#)
- [Rapid SQL XE License Modules, DBMS Support, and Feature Availability](#)
- [Directing Queries Regarding Licenses](#)

### VIEWING YOUR LICENSE TYPE AND MODULES

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

## UNDERSTANDING TRIAL, WORKSTATION, AND NETWORKED LICENSES

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

<b>Trial licenses</b>	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.
<b>Workstation licensing</b>	A license or set of licenses is tied to a particular workstation. The product can only be used on that workstation.
<b>Networked licensing</b>	Networked licenses are administered and distributed by a central License Server (Embarcadero License Center or Acresto FLEXnet Publisher). There are two types of networked licenses: <i>Concurrent</i> and <i>Networked Named User</i> . 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 <a href="#">Online/Offline Mode and Concurrent License Checkout</a> .

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. In addition, each DBMS license module corresponds to a product edition. Feature availability for each license module edition is as follows:

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

- **XE Pro** - 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:

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

- 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:

- [Registering a trial or workstation license during installation](#)
- [Registering a workstation license after application startup](#)
- [Registering by phone](#)
- [Registering a networked license](#)

### REGISTERING A TRIAL OR WORKSTATION LICENSE DURING INSTALLATION

Shortly after initiating 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, 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, see [Registering by phone](#).

#### REGISTERING BY PHONE

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

- Developer Network credentials
- The registration code displayed in the Embarcadero License Registration dialog that appears when you start an unlicensed application
- The product base license serial number
- 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 to 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 to 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 Rapid SQL 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 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 when you start Rapid SQL and checked back in when you shut Rapid SQL down.

You can also use a license in offline mode. When you explicitly check out a license for offline use, you can use Rapid SQL 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 Rapid SQL 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.

## ADDITIONAL PRODUCT RESOURCES

The Embarcadero Web site is an excellent source for product information and access to additional resources:

- Release notes and product documentation
- Information on other Embarcadero application and database development tools
- Embarcadero Development Network
- Product and technical support
- Educational and product expertise material in the form of online demos, white papers, and video presentations
- Access to sales staff and Embarcadero resellers

For access, direct your browser to [www.embarcadero.com](http://www.embarcadero.com).



# 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:

- [Session 1: Getting Started](#)
- [Session 2: Productivity Enhancers](#)
- [Session 3: Scripting](#)
- [Session 4: Working with Code Workbench](#)
- [Session 5: Building a Database Project](#)
- [Session 6: Visual Query Builder](#)
- [Session 7: Live Data Editor](#)
- [Session 8: Code Analyst](#)
- [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 own 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.

## SESSION 1: GETTING STARTED

Before anything else, you must perform the following tasks:

- [Starting Rapid SQL](#)
- [Registering Cross-Platform Datasources](#)

### STARTING RAPID SQL

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

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

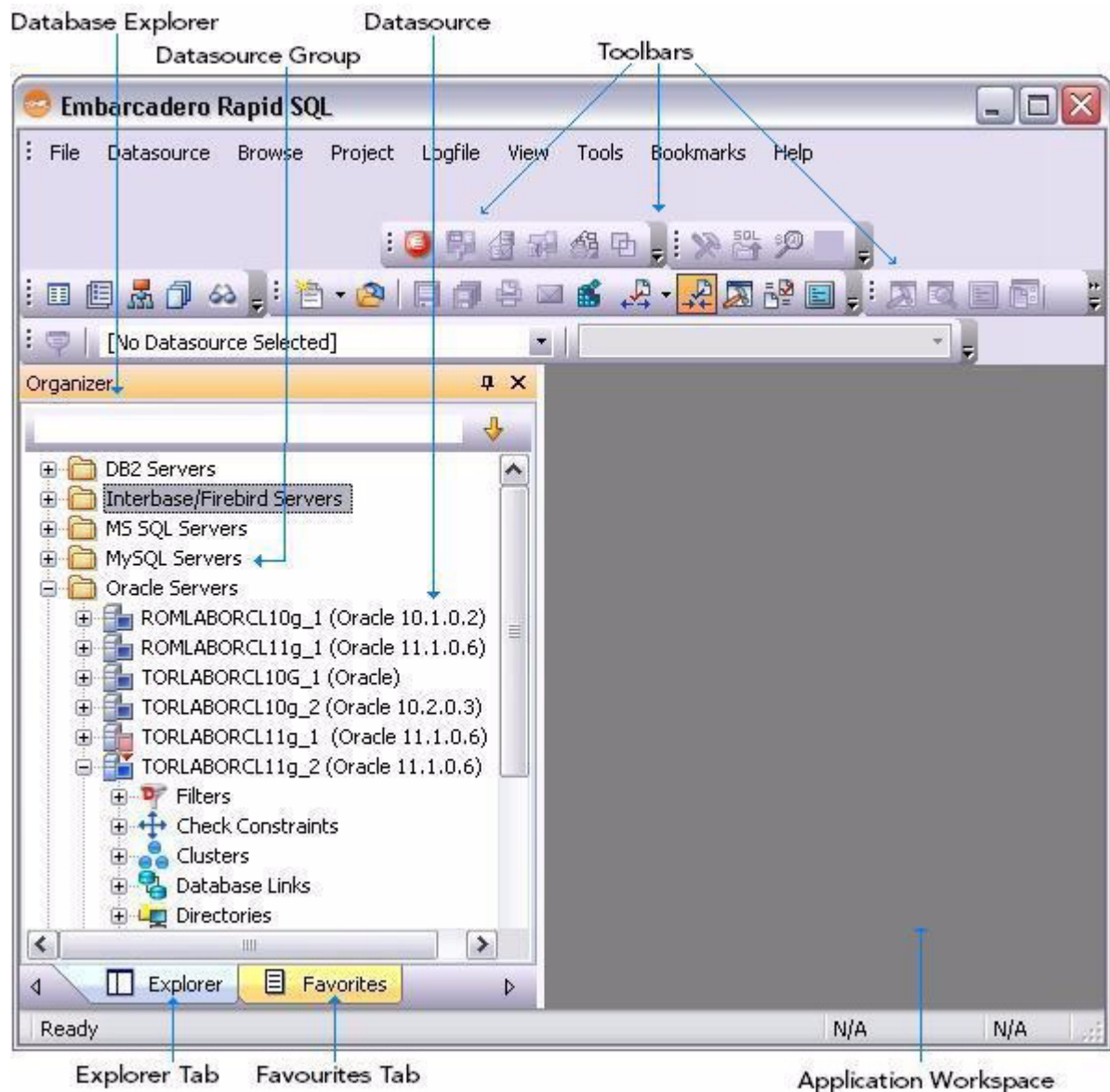
### To get started

- 1 Run Rapid SQL.

The first time Rapid SQL starts, 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. In addition, 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.

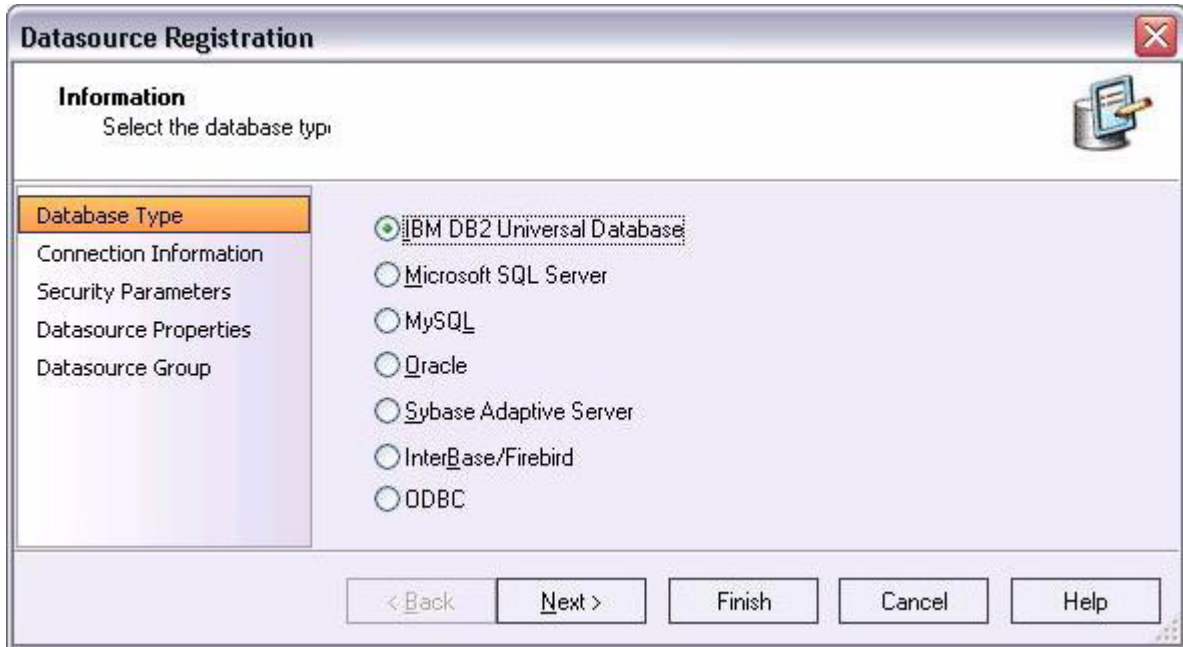
The main Rapid SQL window opens.



## REGISTERING CROSS-PLATFORM DATASOURCES

For now, you will register a datasource manually.

- 1 On the **Datasource** menu, select **Register Datasource**. A **Datasource Registration Wizard** opens.



- 2 Choose **Microsoft SQL Server** as the DBMS type and then click **Next**.
- 3 Specify the **Host name** of 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.

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

## SESSION 2: PRODUCTIVITY ENHANCERS

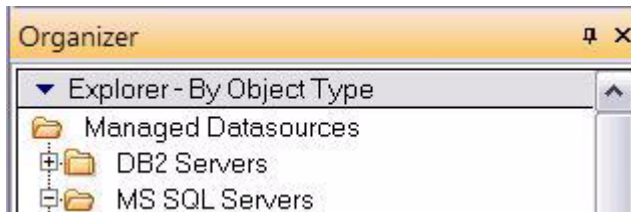
This session focuses on some commonly used time-saving features:

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

## THE DATABASE EXPLORER TREE

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 **Organize By Object Type**.



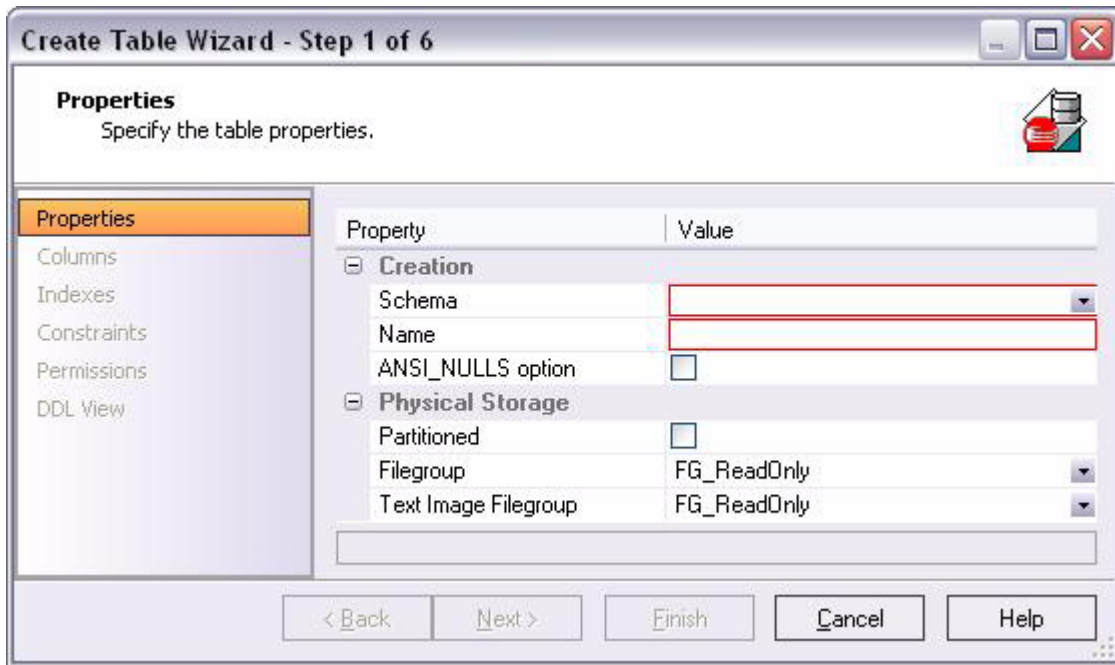
- 2 Select and expand the **SAMPLE\_DATASOURCE > Databases > pubs** node to display the database object sub-nodes.



## CREATING AN OBJECT USING THE OBJECT CREATION WIZARD

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

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



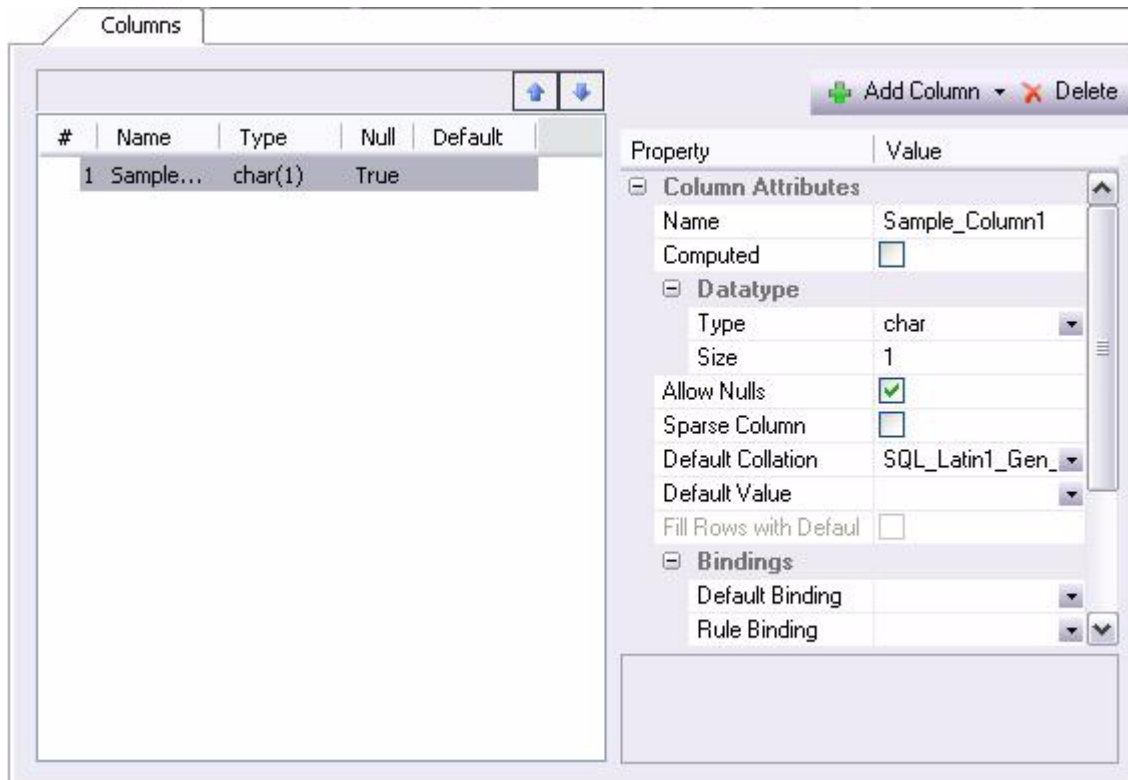
- 2 Select a **Schema**, provide a **Name** of **SAMPLE\_TABLE**. Leave the remaining default settings and click **Next**.
- 3 Add a column, using a **Name** of **Sample\_Column1** and select a **Type** of char. Experiment with the **Add Column** and **Delete** buttons, and with selecting a column and modifying its attributes.
- 4 Click **Finish**. The **DDL View** panel opens showing the DDL that will be used to create the new table.
- 5 Deselect 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.

## WORKING WITH AN EXISTING OBJECT USING THE OBJECT EDITOR

While the wizard offered you the option to automatically open an editor on creating the table, you can also manually open an editor.

- 1 In the Database Explorer, 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.

## 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 **Generate Report** dialog opens.
- 2 Select **Detail Report (Report on each selected item)** and click **OK**. A **Report** dialog opens.
- 3 Enter a destination **Report Home Page File Name**. This can be a network web server directory.
- 4 Enter a **Report Title** and click **Execute**.

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

dbo.authors					
<b>Object Type</b>	Table				
<b>Datasource</b>	EBTRU08 ( SQL Server 08.00.0760 )				
<b>Login</b>	sa				
<b>Database</b>	pubs				
<b>Report Date</b>	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'		

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

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

## WORKING WITH CODE, FILES AND DATA

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

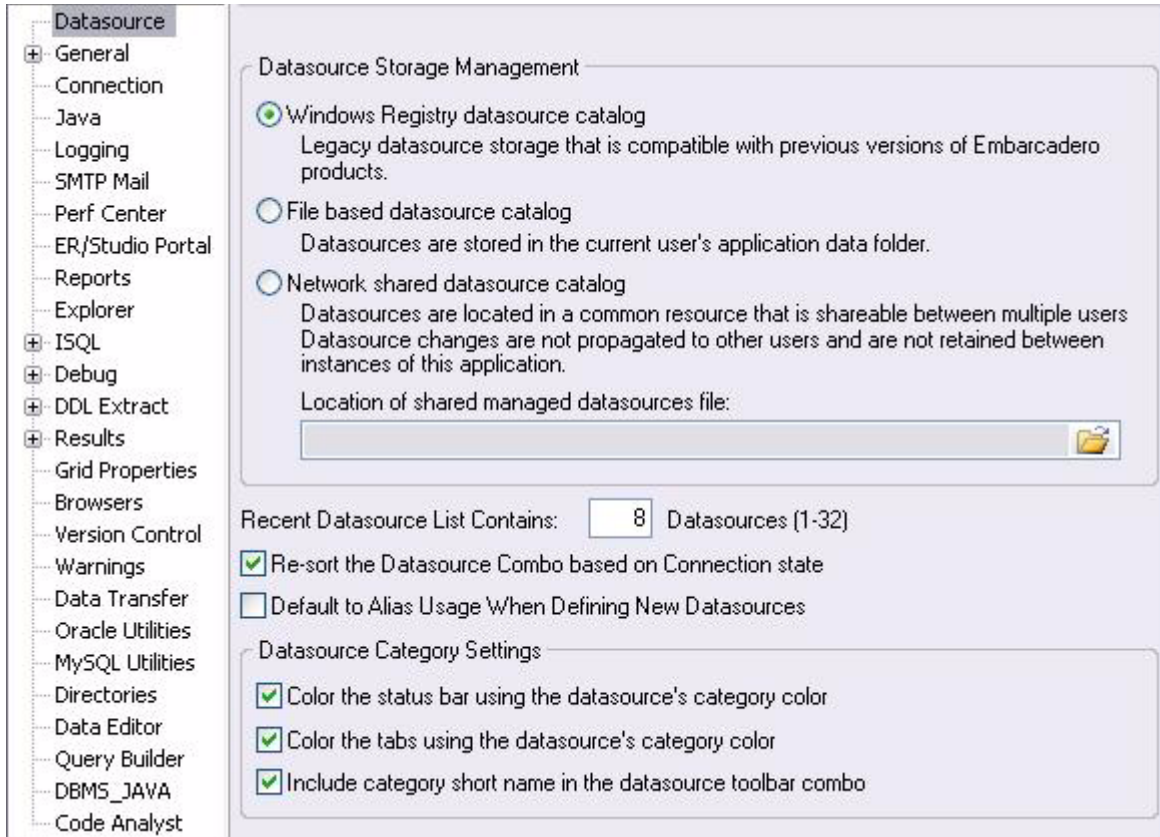
**NOTE:** For purposes of this Evaluation Guide, we are only covering high-level functionality of the major features and tools within Rapid SQL.



## SETTING ENVIRONMENT OPTIONS

The **Options** 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. You select an option category in the left-hand pane and can subsequently set options on that page. Options are applied when you click **OK**.

- 2 Close the **Options** dialog.

## FAVORITES TAB

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

### To open the Favorites Explorer:

- 1 At the bottom of the Explorer pane, click **Favorites**. The Favorites Explorer appears.
- 2 Expand the **Microsoft** node and then expand the **Schema** sub-node.

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

### To add a custom folder to the Favorites Explorer

- 1 Open the Favorites Explorer and right-click the **Favorites** folder.
- 2 Select **New Folder** from the menu. A new folder is added to the bottom of the tree view.

## WORKING WITH SCRIPTS AND FILES

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

### FILE EXECUTION FACILITY

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

- 1 On the **Tools** 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.

## VIEWING DATA

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

### SELECT \* BROWSING

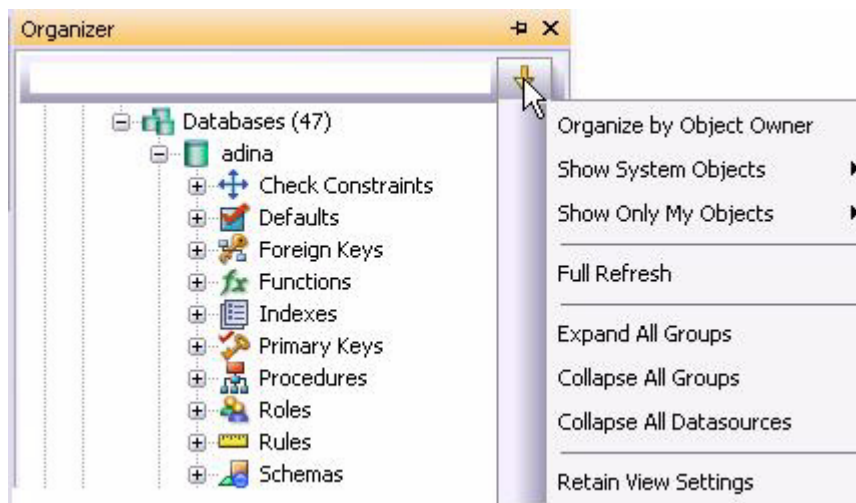
- 1 On the Database Explorer ensure that the **Explorer** tab is displayed and then expand the **MS SQL Server** node.
- 2 Expand any database you know has table data, expand the **Tables** node, right-click a table, and then click **SELECT \* FROM**.

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

- 3 Close the workspace window.

### RETAINING DATASOURCE EXPLORER VIEW SETTINGS

- 1 Click on expandable settings at the top of the Explorer pane.



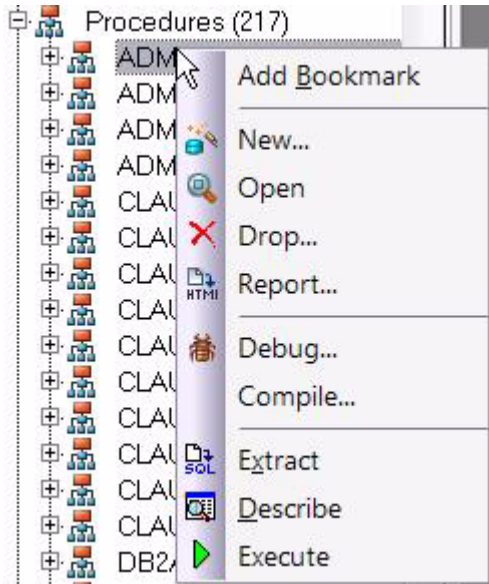
- 2 Select **Retain View Settings**.

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

## DATASOURCE EXPLORER BOOKMARKS

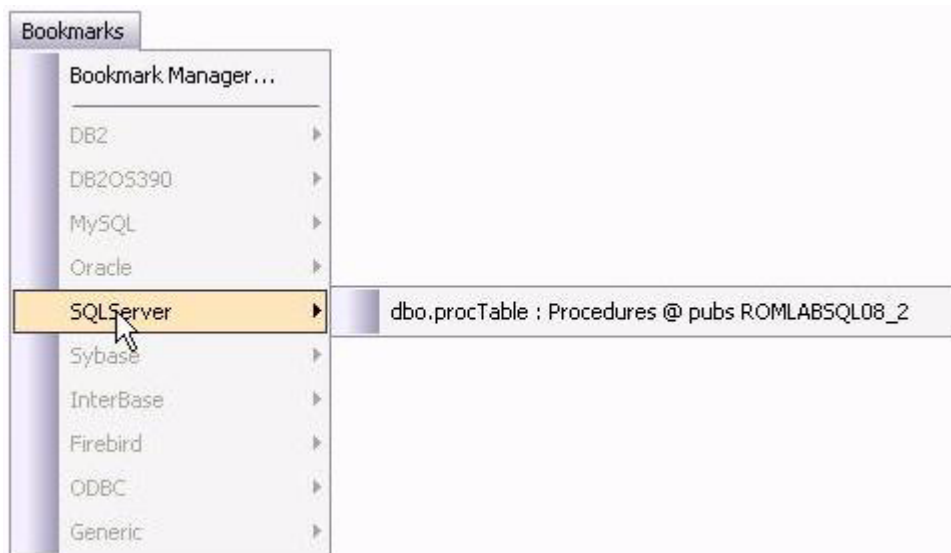
Rapid SQL allows you to set bookmarks for frequently visited database objects.

- 1 Right-click on any node in the Datasource Explorer Tree.



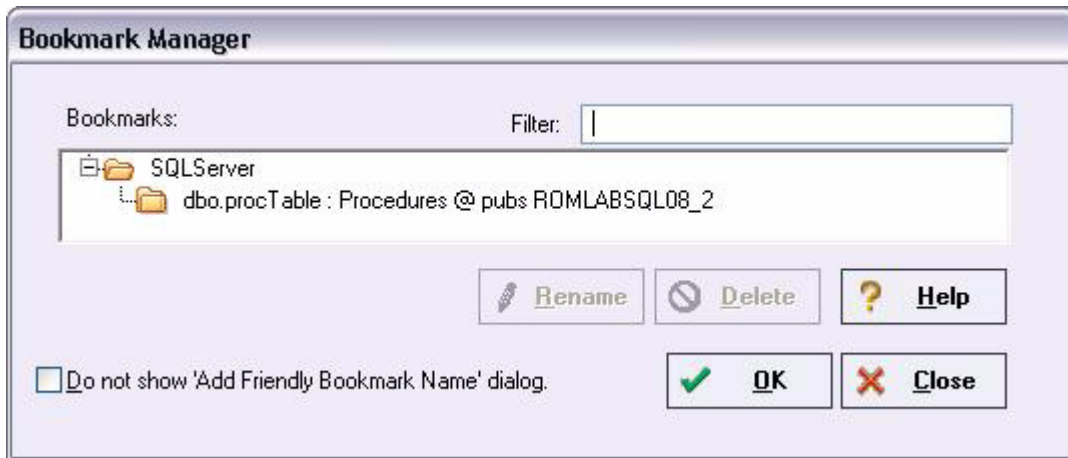
- 2 Select **Add Bookmark** and use the **Add Friendly Bookmark Name** dialog to optionally provide a new name, and create the bookmark.

After Bookmarks are defined you can use them to easily navigate to commonly used datasource resources using the **Bookmarks** menu.



The **Bookmark Manager** handles maintenance of Bookmarks.

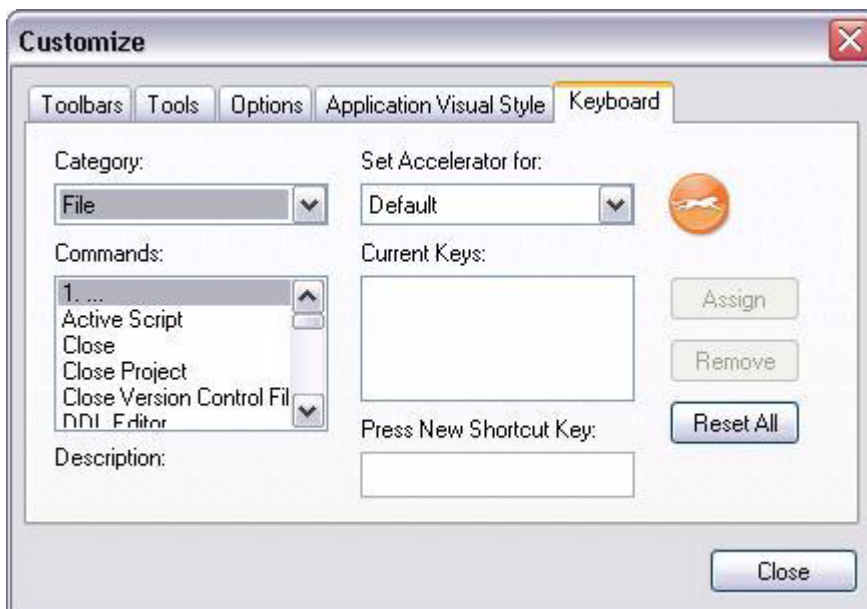
- 1 Select **Bookmarks > Bookmark Manager**.



- 2 Close the **Bookmark Manager** dialog.

## SETTING KEYBOARD SHORTCUTS AND HOTKEYS

- 1 On the **Tools** menu, select **Customize**.
2. In the **Customize** dialog go to the **Keyboard** tab.

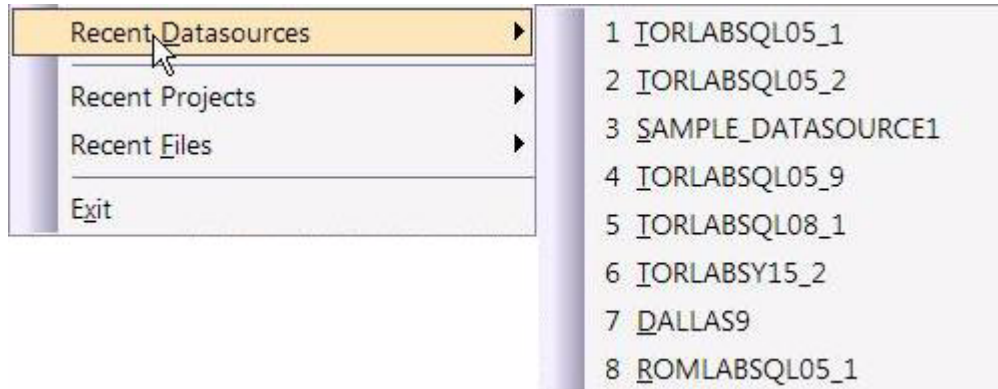


The **Keyboard** tab can be used to set keyboard shortcut hotkeys for all areas of Rapid SQL functionality.

- 3 Close the **Customize** dialog.

## REFERENCING MOST RECENTLY USED DATASOURCES

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



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

## SESSION 3: SCRIPTING

This session looks at Rapid SQL's development environment:

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

## GENERATING CODE

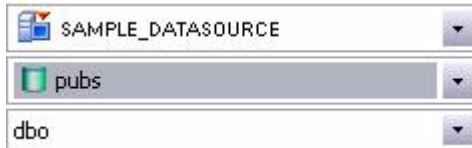
By providing several code generation and assistance options, Rapid SQL makes cross-platform development easy for developers of all experience levels.

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

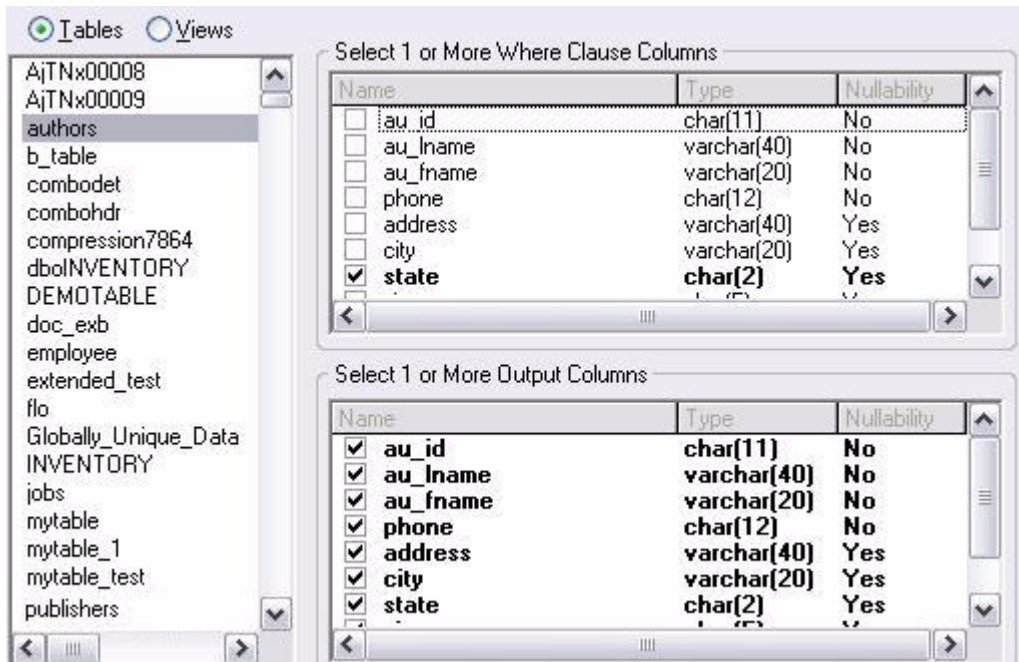
### CODE GENERATION FACILITY

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

- 1 From the menu, open **Tools > Code Generation Facility**.
- 2 Select the **SAMPLE\_DATASOURCE** datasource and the **pubs** database from the dropdown list boxes.



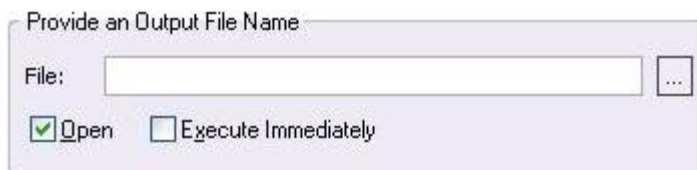
- 3 Select the **authors** table, **state** as the input column and all columns for output.



- 4 Select **Select** as the code option.



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



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



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



The indicated file will be saved on the selected directory.

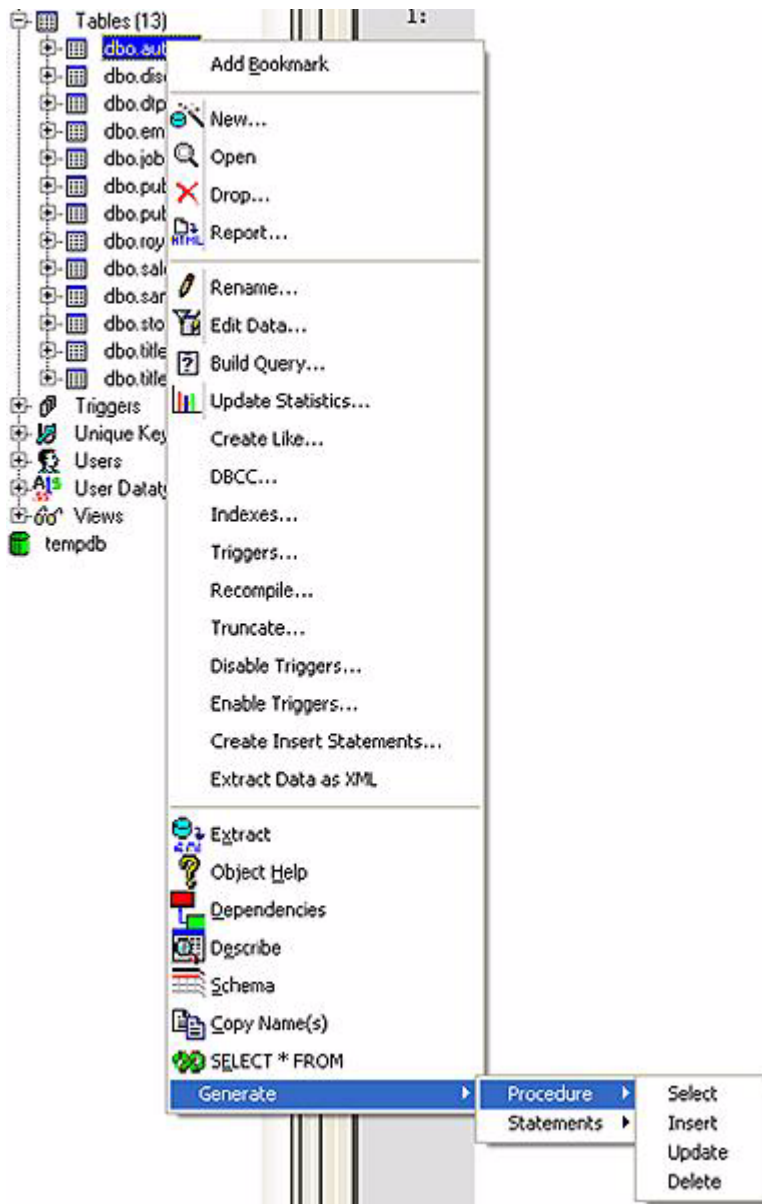
**NOTE:** No SQL statement coding is required to generate complete stored procedures and packages. If applicable, Rapid SQL allows all generated code to be previewed and edited to fit any development need.

## 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 Database Explorer Tree, expand the **SAMPLE\_DATASOURCE > pubs > Tables** sub-node.
- 2 Right-click on the **authors** table.





- 3 Select **Generate > Procedure > Select**.
- 4 Select **state** as the input column, and leave all output columns selected.
- 5 Click **OK** and the DDL to create the procedure will be generated and displayed in the DDL Editor. You can edit the name of the new procedure and any of the generated code. Name the new procedure **sample\_select\_authors2**.
- 6 Click on the **Execute** or **Step Execute** button to submit the DDL and create the procedure.



## AUTOMATED ERROR DETECTION AND CODING ASSISTANCE

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

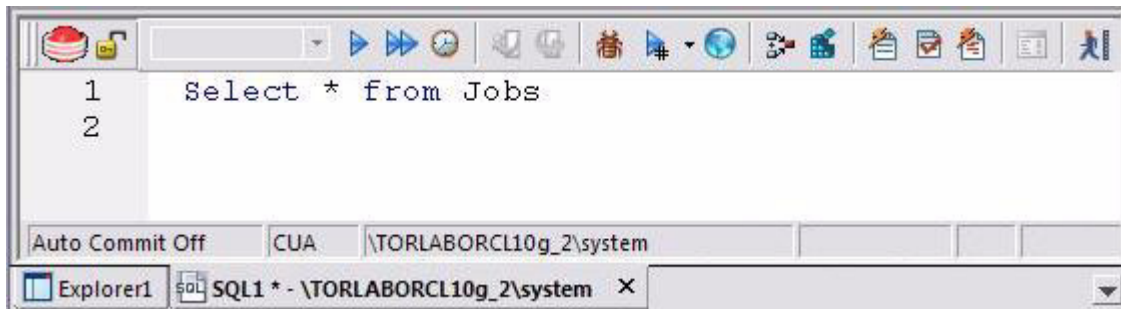
### To enable these features:

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

### To see these features in action:

- 1 On the **File** menu, click **New**, and then **ISQL**.

Rapid SQL opens the SQL Editor window. You can add SQL code via your method of choice (free-form typing, retrieve from a file, paste copied code, etc.).




- 2 Type **SELECT \* FROM** and stop typing.

Note the error condition.

1  **SELECT \* FROM**

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:

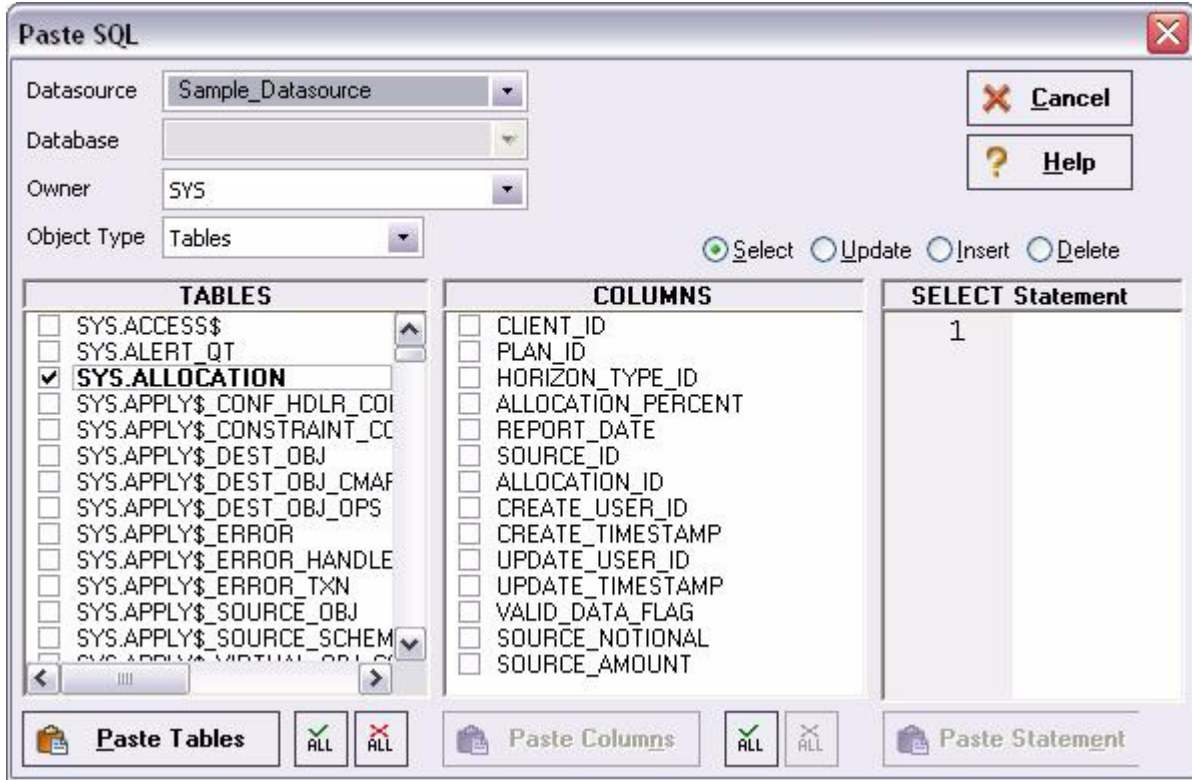
- 1 On the **File** menu select **Options**. The **Options** dialog opens.
- 2 On the **Code Assist** panel, click the **Restore defaults** button.
- 3 Click **OK**.

#### OTHER CODING AIDS

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

#### PASTE SQL

- 1 From the Database Explorer Tree, expand the **SAMPLE\_DATASOURCE > pubs sub-node**.
- 2 Select **File > New > SQL** to open an SQL Editor window.
- 3 Select **Edit > Paste SQL Statement** to open the **Paste SQL** window.

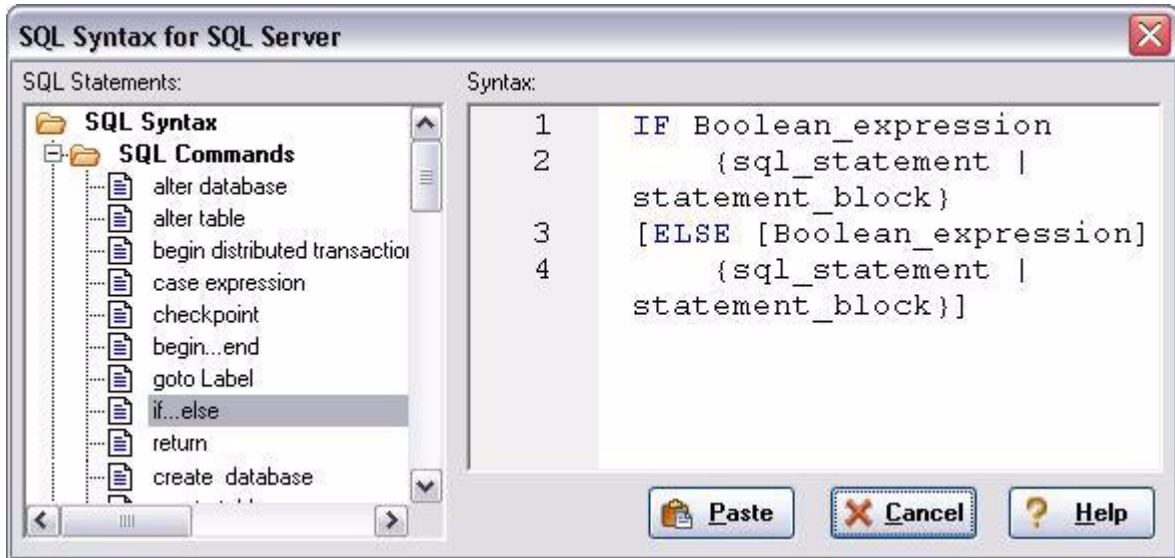


- 4 In the **Tables** list, select **authors**.
- 5 Under the **Columns** list, click **ALL**.
- 6 Click the **Select** radio button.
- 7 Click **Paste Statement** to copy the generated code to the SQL Editor window.

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

#### PASTE SQL SYNTAX

- 1 Select **File > New > SQL** to open a fresh SQL Editor window.
- 2 Select **Edit > Paste SQL Syntax** to open the **SQL Syntax for SQL Server** window.



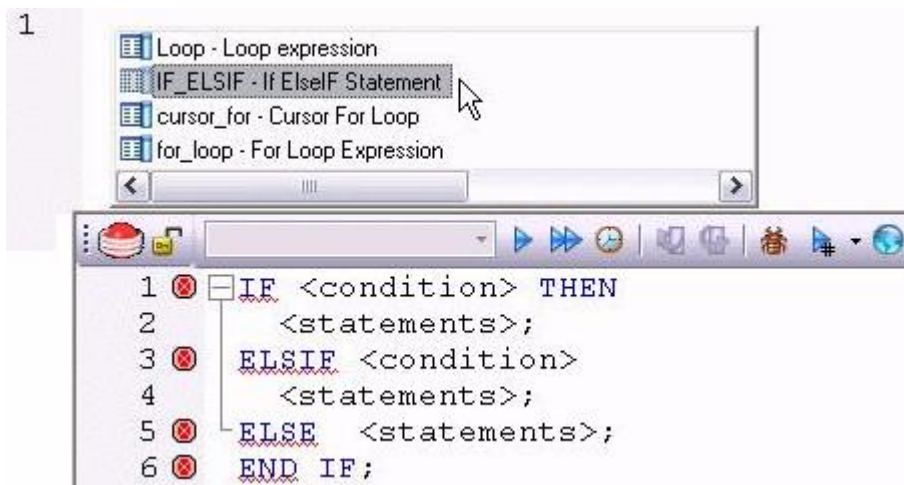
- 3 Select a template and click **Paste** to copy the code template into the SQL Editor window.
- 4 Add your own code to complete the needed operation.

## SESSION 4: WORKING WITH CODE WORKBENCH

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

- Code Templates
- Auto Replace

Code templates are complete code blocks that can be easily added to open windows or scripts with a few keystrokes. When you type CTRL+SPACE, the Code Assist menu opens, letting you select a code template for insertion in the editor window.



Auto Replace lets you define shortcuts consisting of a few characters that represent longer character strings. Instances of these Auto Replace expressions are automatically replaced by the replacement string on activation events such as typing SPACE, TAB, or RETURN. This feature is useful for creating shortcuts for one-line commands or SQL statement subsets, or even to detect and fix common typographical errors such as **teh** for **the**.

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



If the associated activation event includes a SPACE, then on typing **sel** followed by 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. In addition, you can save sets of definitions to file and subsequently load specific sets of definitions, allowing you to customize your templates to different platforms or development projects.

### To invoke Code Workbench settings:

- 1 Select **Tools > Code Workbench**.



The **Settings** tab lets you enable the Auto Replace and Code Template features.

- 2 Inspect the **Code Templates** and **Auto Replace** tabs.
- 3 Click **OK**.

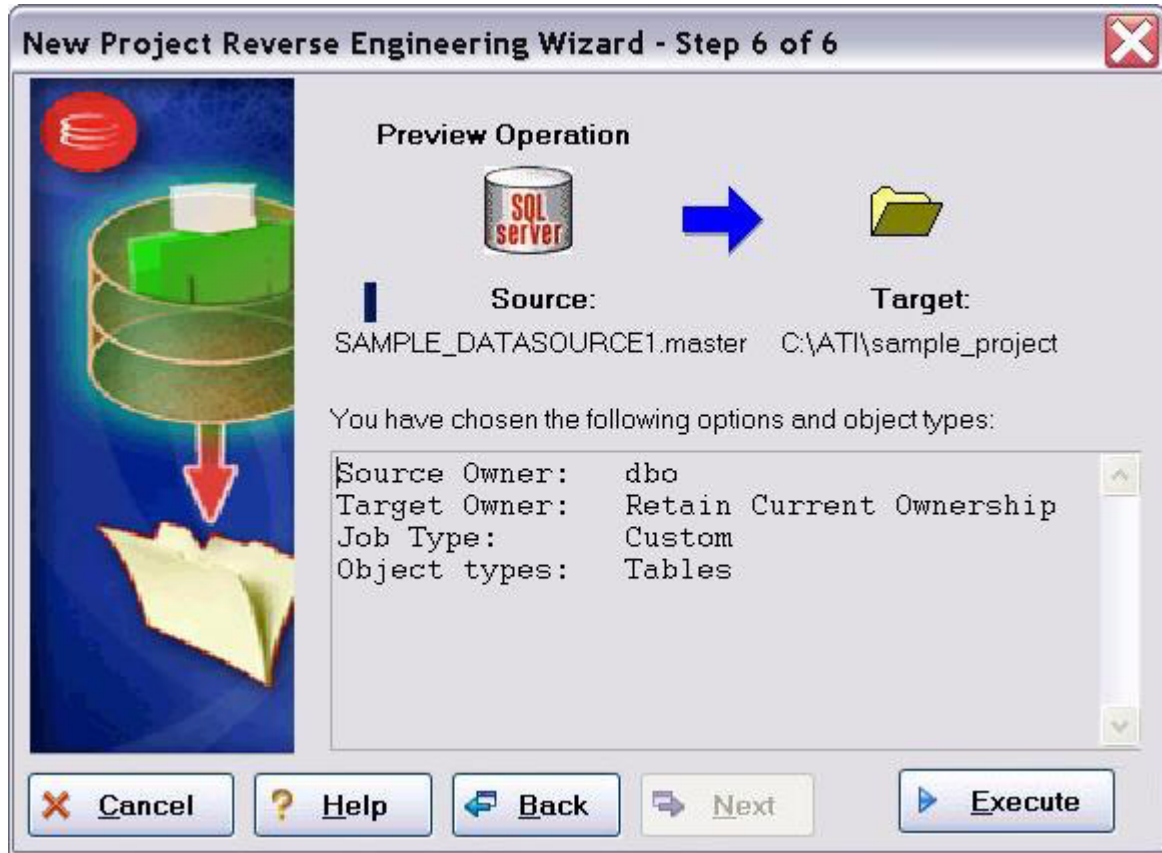
## SESSION 5: BUILDING A DATABASE PROJECT

### CREATING A NEW RAPID SQL PROJECT

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

- 1 Select **File > New > Project** to open the wizard.
- 2 Enter **sample\_project** as the name, and browse and select a directory that contains a VSS database. Enter a description (optional). Select **From Database** and click **OK**.
- 3 Select **SAMPLE\_DATASOURCE** and click **Next**.
- 4 Select **pubs** and click **Next**.
- 5 Select **dbo** as the owner. Right-click in the object type selection window and deselect all of the options. Select only **Tables**. Under **Extract Scope** select **Selected Objects Only**. Click **Next**.
- 6 Select only the **authors**, **discounts**, and **employees** tables.
- 7 Uncheck all selected **Options** for tables. Click **Next**.
- 8 Select **Retain**. Click **Next**.
- 9 Preview the last panel and click **Execute**.





Finished! You have now successfully created a working database project. At this point, the project is available to be added to Version Control. This can be done by clicking **Yes** when prompted and following the dialog, or by right-clicking on the project within Project Explorer tree. Select **Yes** for the purpose of this guide.

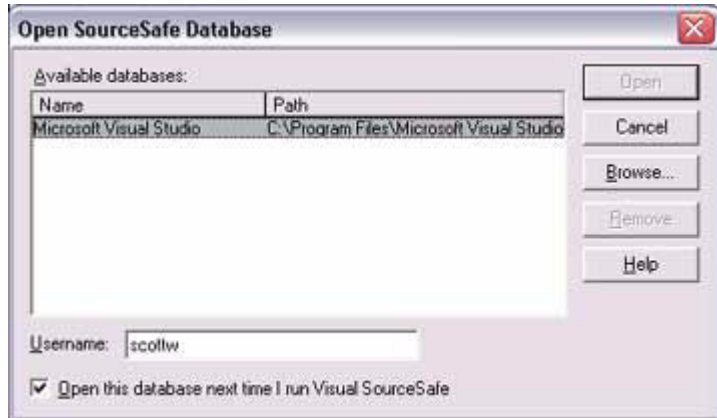
## ADDING A PROJECT TO VERSION CONTROL (SAMPLE - MICROSOFT VISUAL SOURCE SAFE)

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



After providing a user name and password, you can browse to locate and select the project database folder.





All that remains is to provide a project name.



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



## SESSION 6: VISUAL QUERY BUILDER

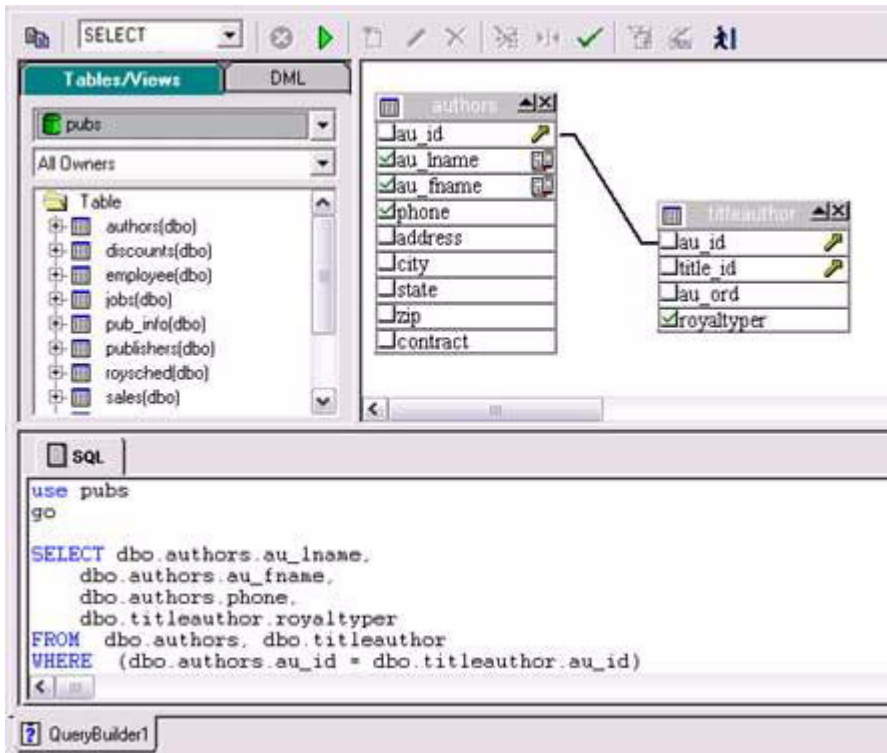
Rapid SQL gives you the ability to construct complex SQL statements with point-and-click ease using the Visual Query Builder.

- 1 From the Database Explorer Tree, right-click on the **authors** table and select **Build Query**.

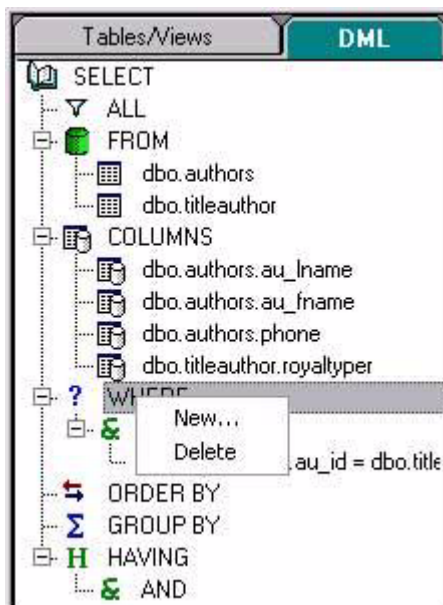
The **authors** table will be automatically added to the Query Builder workspace.

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

Note that the tables are automatically identified as being joined by any columns with the same name and datatype.



- 3 Click on the **DML** tab to expose the visual query building clauses and options. You can right-click on any clause to easily add the code to the query.



- 4 Select the **au\_lname**, **au\_fname**, and **phone** check boxes in the **authors** table.

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

- 5 Click the Execute button to execute the query.



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.

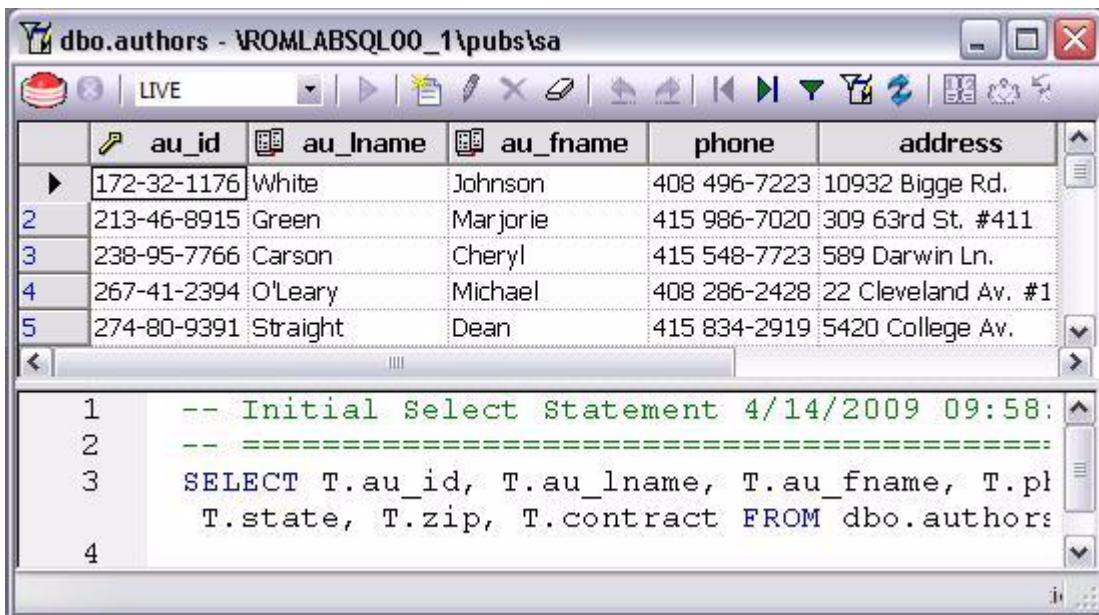
**NOTE:** Any visual query builder session can easily be saved to a file for later use.

## SESSION 7: LIVE DATA EDITOR

- 1 From the Database Explorer Tree, right-click on the **authors** table and select **Edit Data**.
- 2 In the **Data Editor Filter** dialog, click **Add All** to add all columns to the editing session.

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

- 3 Click **OK**. A Data Editor opens.



Note the dropdown at the left of the toolbar. The editing window has **LIVE** and **BATCH** modes:

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

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



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



## SESSION 8: CODE ANALYST

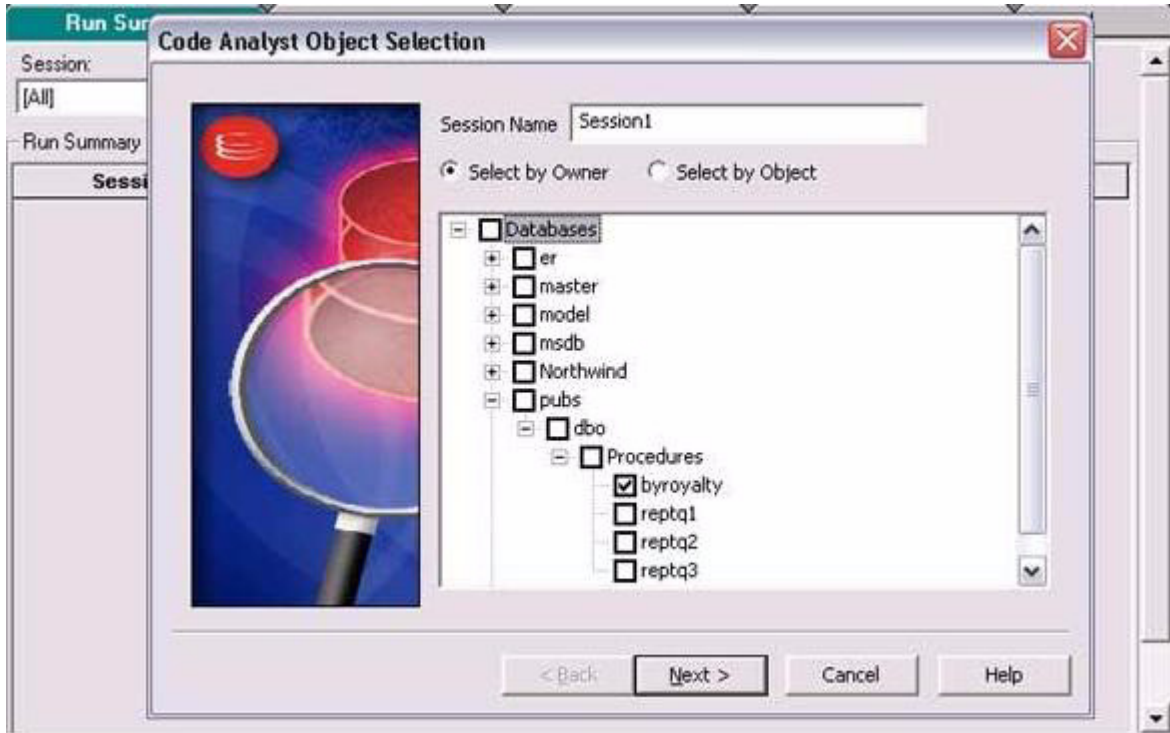
The Code Analyst allows you to capture run-time statistics on executable database objects, including stored procedures and functions. Not only can you capture statistics for single objects, but you can group more than one object.

### To get started

- 1 Select **Tools > Code Analyst**.

**NOTE:** In order for Code Analyst to run, 5 repository tables will be created on the database. Select the database you would like the tables to be installed on and press **OK**. Once the tables are installed, you're ready to start defining a session.

- 2 On the Code Analyst toolbar, click the **Create New Collection** button.
- 3 On the **Code Analyst Object Selection** dialog, provide a **Session Name**, locate and selecting the objects to be executed, and click **Next**.



- 4 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.

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

## SESSION 9: SQL DEBUGGING AND PROFILING

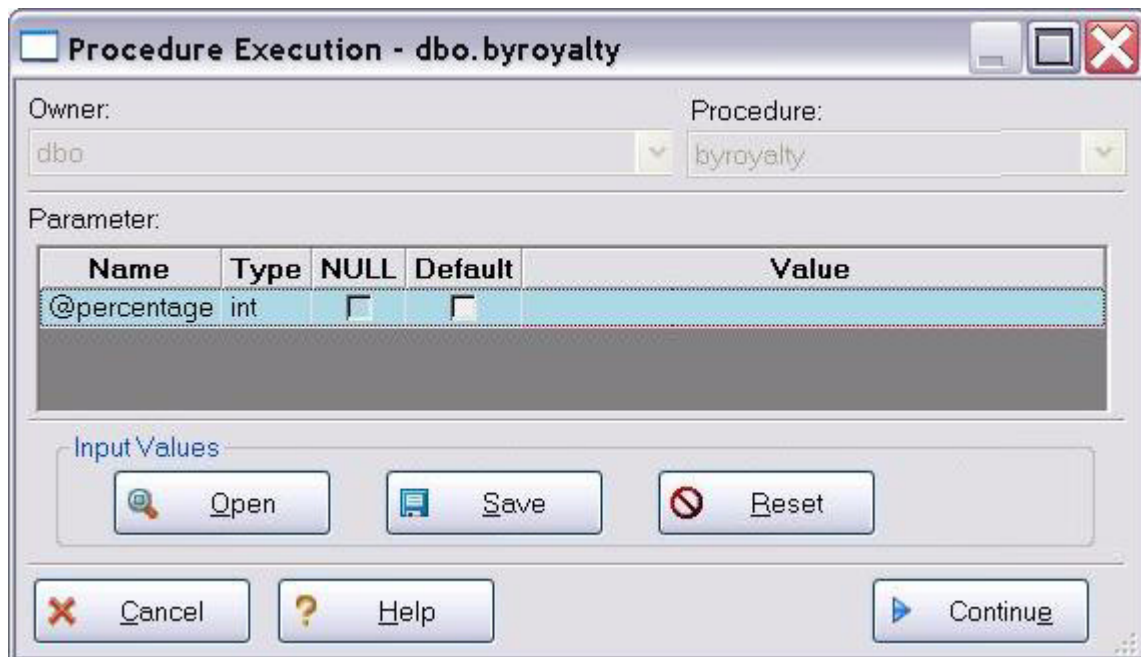
Rapid SQL offers the following facilities that help you test and optimize code:

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

## SQL DEBUGGING

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

- 1 In the Explorer, 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.

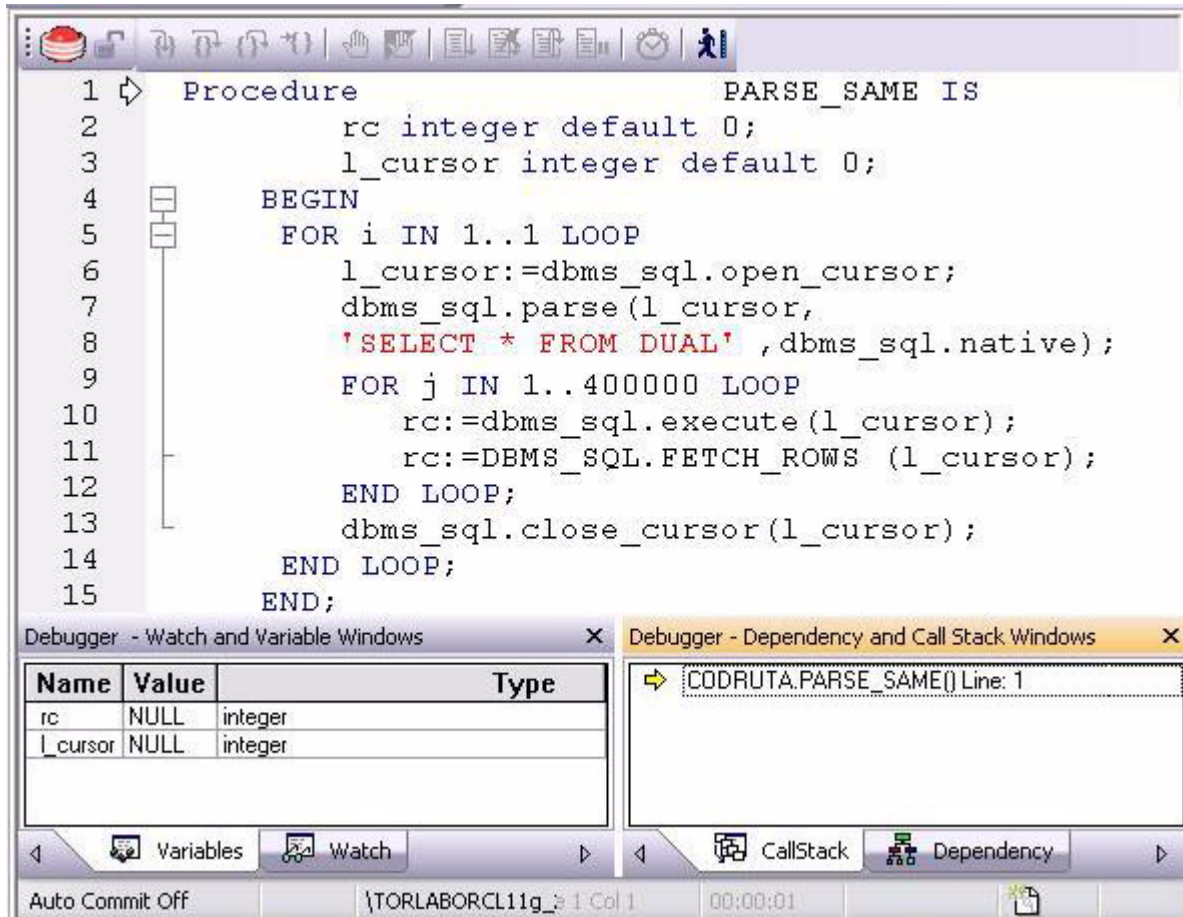


- 4 Enter input values(s) and press **Continue**.

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

The application opens the SQL Debugger Interface.





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.

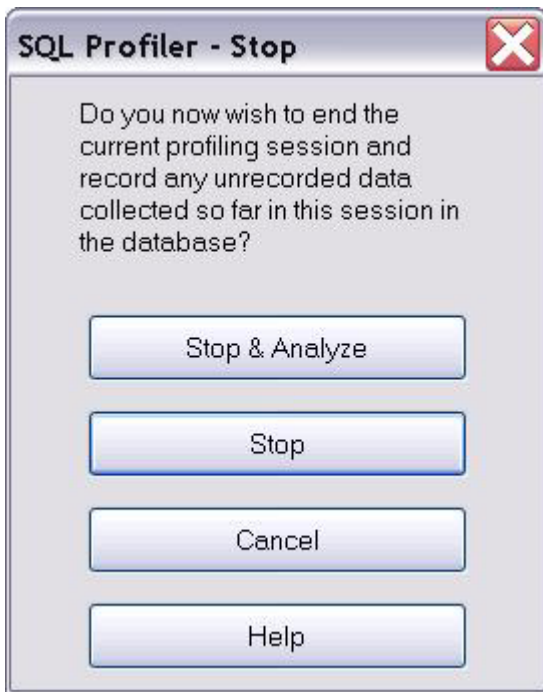
## SQL PROFILING- ORACLE ONLY

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.

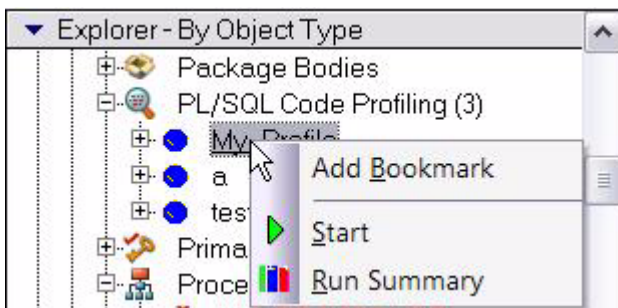
- 1 To start a profiling session, use the **Tools** menu option and select **SQL Profiler > Start**.
- 2 Enter a name for the profiling session or select an existing name from the dropdown. Press **OK**. The Profile session is now active.



- 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 Explorer, expand the **PL/SQL Code Profiling** node.

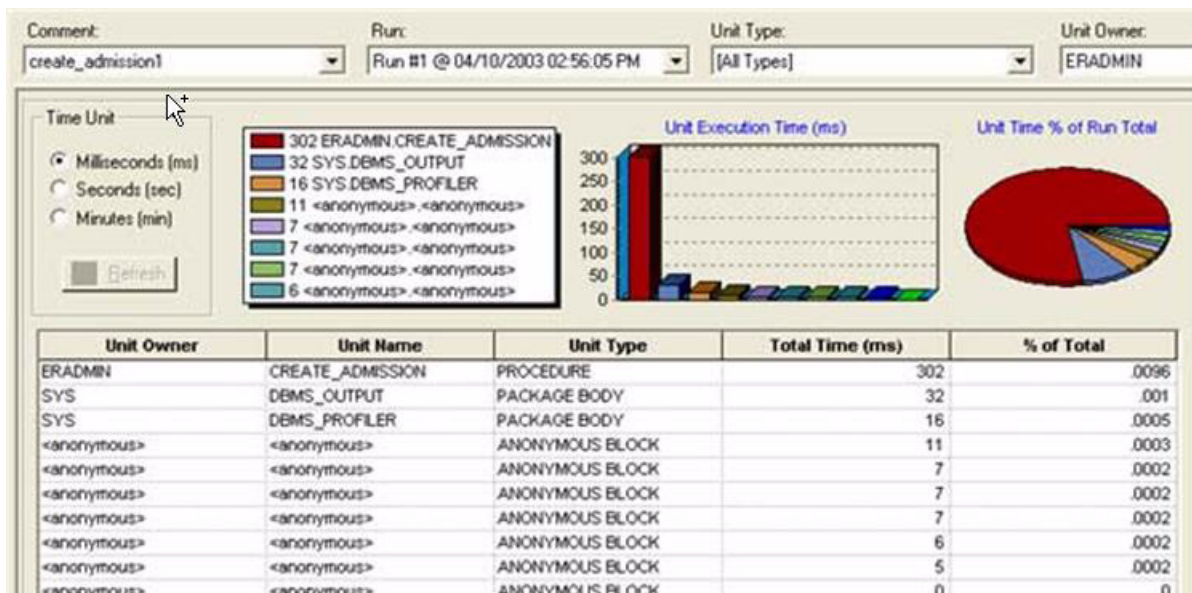




- 7 Right-click on the profile session and select **Run Summary**. The **Run Summary** window opens.

Comment:			
My_Profile			
Run Summary			
Comment	Run ID	Run Date	Total Time (ms)
My_Profile	60	01/09/2009 12:00:43 PM	47261
My_Profile	61	01/09/2009 12:01:52 PM	5484

- 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.



# NEW FEATURES

This release introduces new or updated features in the following categories:

- [Updated DBMS Version Support](#)
- [SQL Server Feature Support](#)
- [Oracle Feature Support](#)
- [Sybase Feature Support](#)
- [Datasource/Server Updates](#)
- [Unicode updates](#)
- [SQL Editor](#)
- [User interface changes and related features](#)

## UPDATED DBMS VERSION SUPPORT

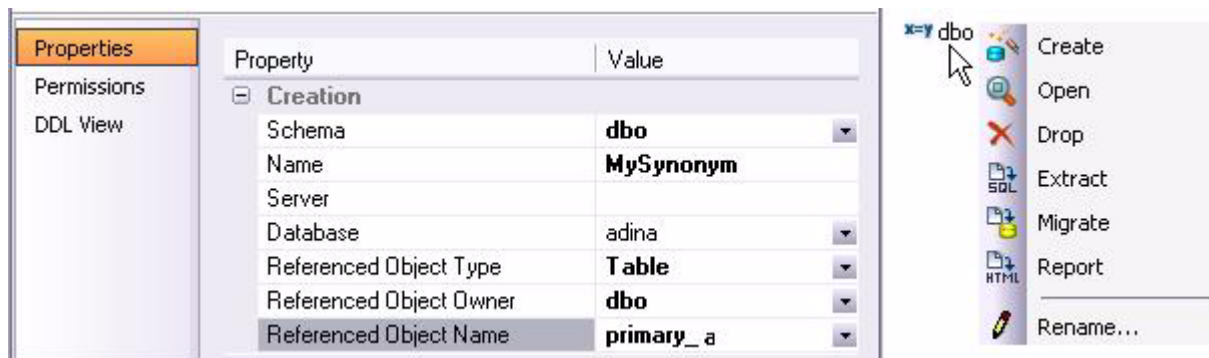
Rapid SQL now provides support for IBM DB2 for Linux, Unix, and Windows version 9.7. All current Rapid SQL functionality is now available on this platform version.

## SQL SERVER FEATURE SUPPORT

The following topics describe updated support for SQL Server features.

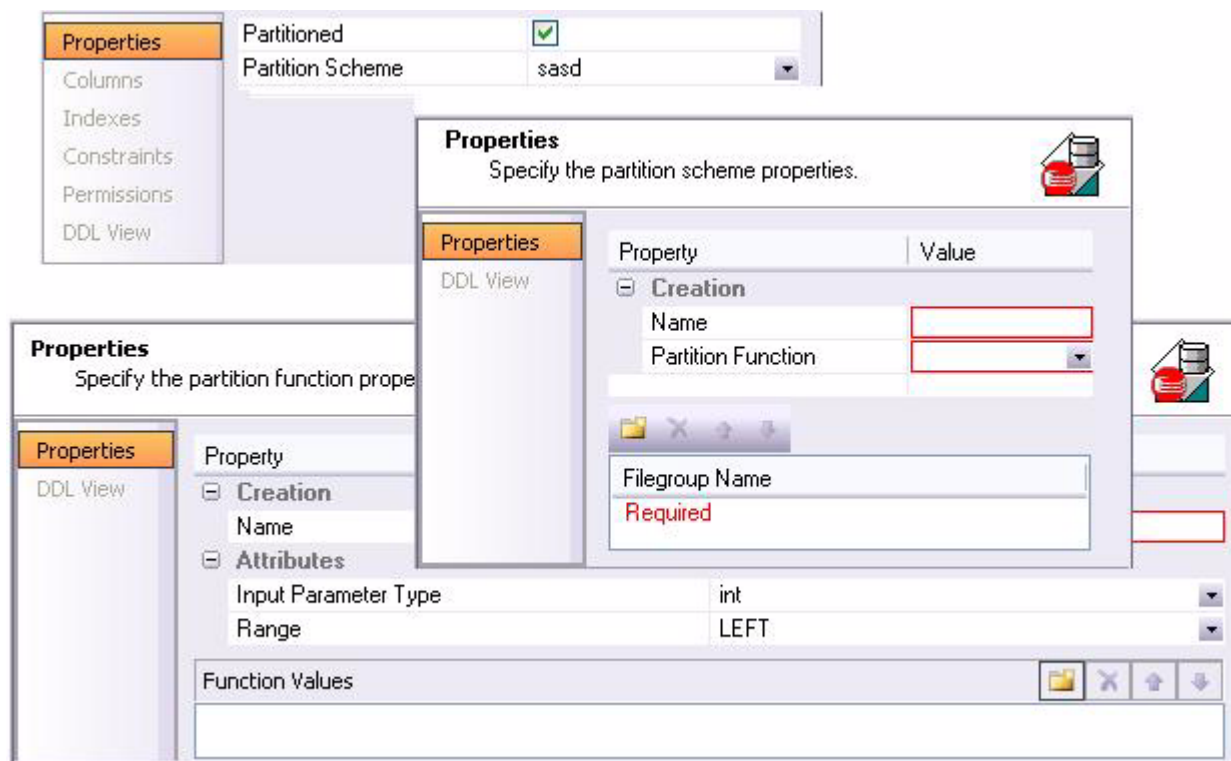
### Synonym Support

This release introduces support for SQL Server synonyms. You can now create a one-part object name used in SQL statements to reference a partially-qualified to fully-qualified, multi-part object name. A new wizard and editor are provided and a basic set of object operations is also available.



## Table and Index Partitioning

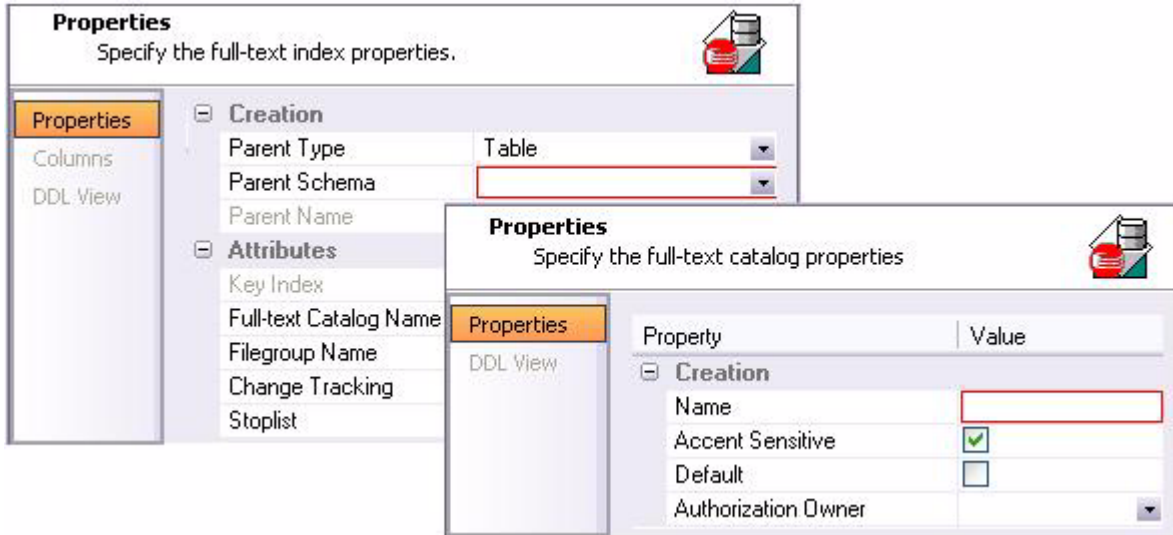
This release introduces support for table and index partitioning on SQL Server. Both Wizards/Editors now include a **Partitioned** property that enables partitioning, and a **Partition Scheme** property used to reference a new object type that lets you specify a file group mapping. The Partition Scheme, in turn, references another new object type, a Partition Function, that maps the rows of a table or index into partitions based on values of a specified column.



A full set of Wizards, Editors, and object operations are available for the new object types.

## Full-text Search Support

Full-text Catalogs and Full-text Indexes are now supported object types in Rapid SQL, letting you set up the indexes that aid linguistic/proximity searches and the files to store those indexes.

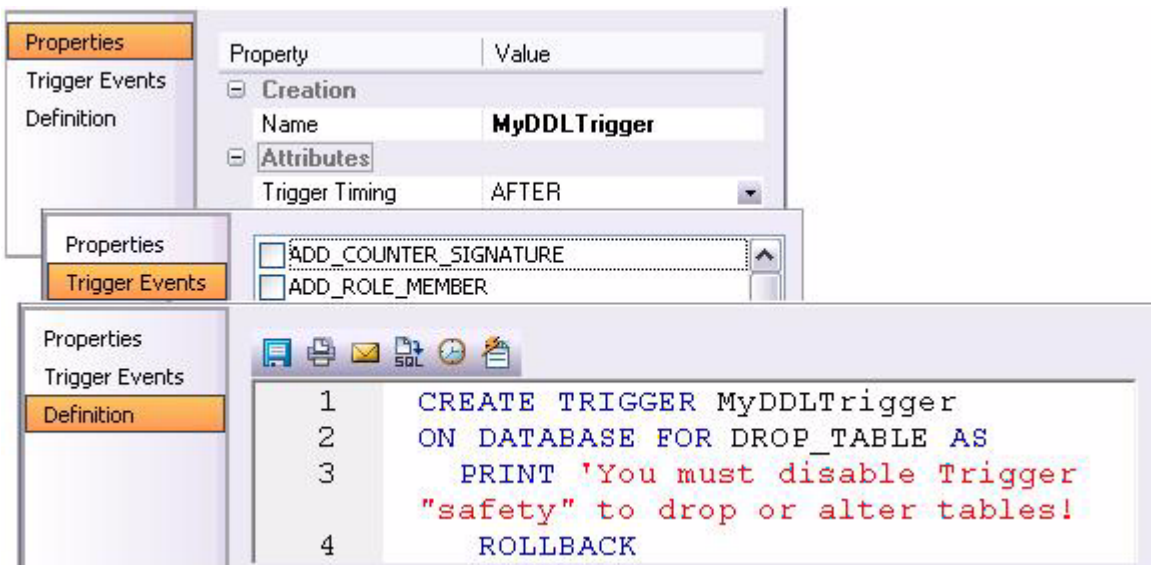


A set of associated object actions lets you rebuild catalogs, merge smaller indexes, enable and disable indexes, and provide native control options for index population.

## DDL Triggers

Rapid SQL now provides support for SQL Server DDL Triggers. These triggers fire in response to DDL events. Support provided is as follows:

- Database Trigger object type – builds and submits CREATE TRIGGER... ON DATABASE statements



A **Change Status** object action lets you enable or disable triggers.

## ORACLE FEATURE SUPPORT

The following topics describe updated support for Oracle features.

### DBMS\_STATS procedure call availability with Analyze object action

The **Analyze** object action, available against clusters, indexes (primary keys, unique keys), and tables, now offers options corresponding to DBMS\_STATS package procedure calls. The following table displays the new Rapid SQL options available in the **Analyze** wizard and the corresponding DBMS\_STATS procedure calls generated for those options:

Rapid SQL Analyze wizard option	DBMS_STATS call generated
<b>Gather Statistics</b>	DBMS_STATS.GATHER_INDEX_STATS DBMS_STATS.GATHER_TABLE_STATS,
<b>Delete Statistics</b>	DBMS_STATS.DELETE_INDEX_STATS DBMS_STATS.DELETE_TABLE_STATS
<b>Import Statistics</b>	DBMS_STATS.IMPORT_INDEX_STATS DBMS_STATS.IMPORT_TABLE_STATS

### Virtual Columns

Against Oracle 11g datasources, Rapid SQL now supports virtual columns. When defining a column in the Table Editor, you can use the new **Virtual** property to define a column as virtual. You then use the **Default Value** control to enter a valid Oracle column expression defining the virtual column.

The screenshot shows the 'Column Attributes' dialog box for a column named 'c3'. The 'Virtual' checkbox is checked. Under 'Datatype', the 'Type' is set to 'integer'. Under 'Encryption', 'Encrypted', 'Password', and 'Salted' are unchecked. The 'Default Value' field contains the expression 'c1 + c2'.

### Unusable Index Partition visibility

Opened against a partitioned index, the Index Editor's **Partition** tab now displays whether Oracle has marked a partition definition as unusable.

## Temporary Tablespace Group Support

The Tablespace Wizard now has a **Tablespace Group** control available when creating TEMPORARY tablespaces.

**Properties**  
Specify the tablespace properties.

Property	Value
[-] <b>Creation</b>	
Name	
[-] <b>Tablespace</b>	
Big File	<input type="checkbox"/>
Type	TEMPORARY
Tablespace Group	
[-] <b>Encryption</b>	
+ <b>Storage</b>	

Temporary tablespace group support provides the following benefits:

- Multiple default temporary tablespaces can be specified at the database level.
- Users can make simultaneous use of multiple temporary tablespaces in different sessions.
- Single SQL operations can make use of multiple temporary tablespaces for sorting.

## Invisible Indexes

For Oracle 11g datasources, Rapid SQL now supports invisible indexes. Both the Index Wizard and Index Editor have an **invisible** property. This property lets you include an INVISIBLE clause with the CREATE INDEX statement in the DDL generated to create or edit the index. Invisible indexes are not used by the optimizer during queries unless the OPTIMIZER\_USE\_INVISIBLE\_INDEXES parameter is set to TRUE at the session or system level.

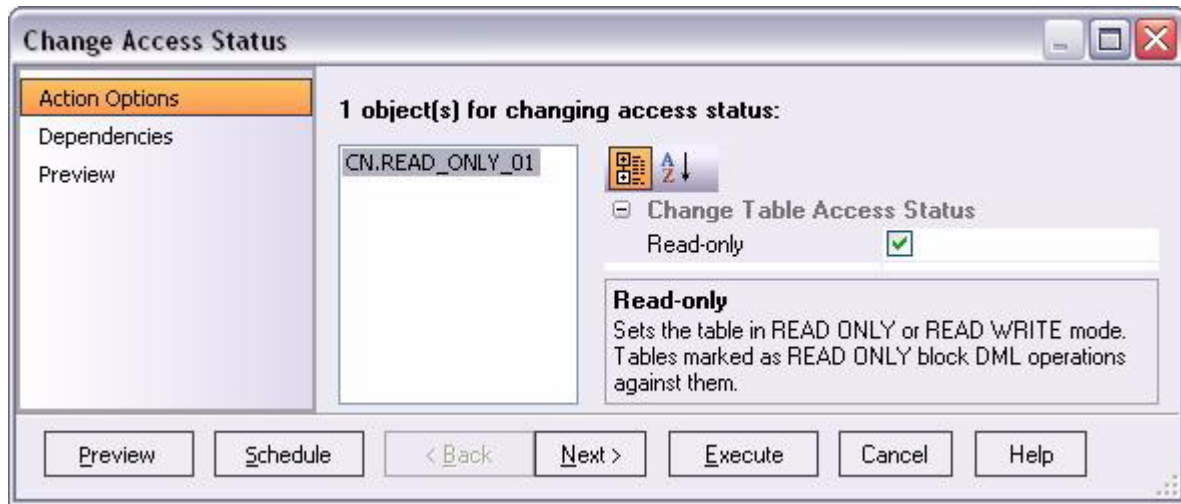
**Properties**  
Specify the index properties.

Property	Value
[-] <b>Attributes</b>	
Index Type	UNIQUE
No Sort	<input type="checkbox"/>
Logging	YES
Reverse	<input type="checkbox"/>
Function-Based	<input type="checkbox"/>
Invisible	<input checked="" type="checkbox"/>



## Read-only Table Support

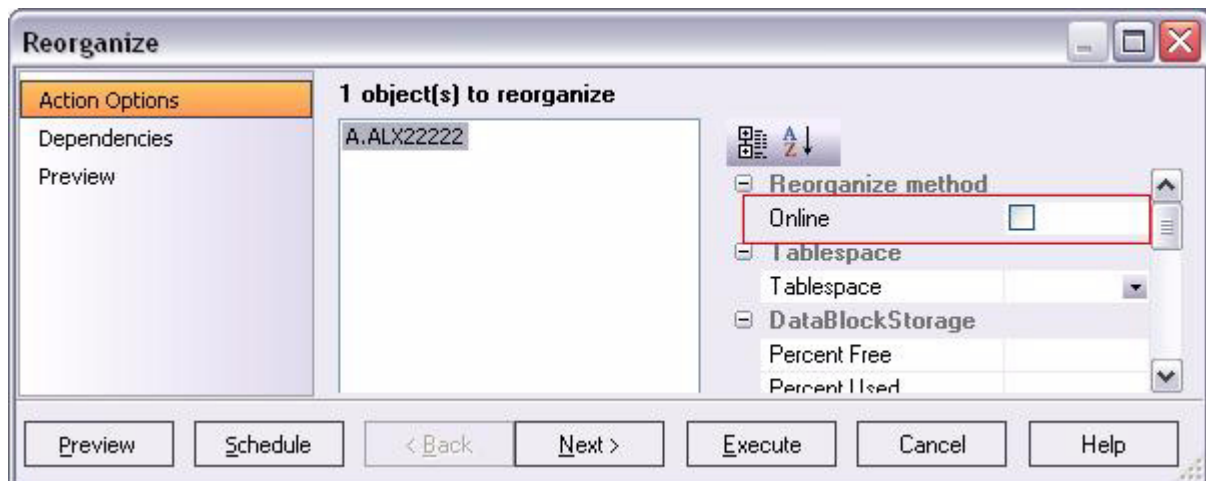
A new **Change Access Status** action lets you toggle a table between READ ONLY and READ/WRITE modes.



The Oracle Tables Editor and the Browser display for an Oracle table have both been updated to indicate the current READ ONLY mode status.

## Online Reorganize Tables Option

When executed against Oracle tables, the **Reorganize** object action now offers an **Online** option. During an online reorganization, the table can still be accessed using DML statements like SELECT and UPDATE.

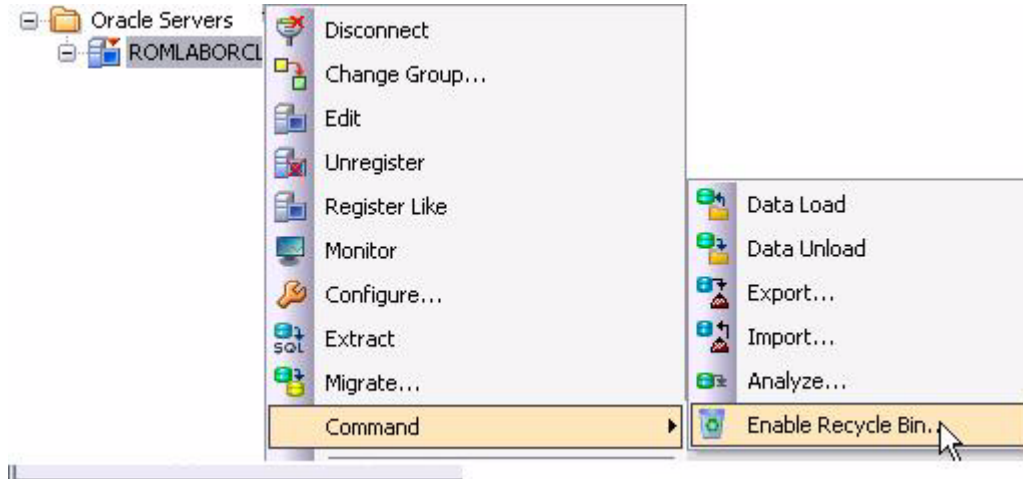


Online reorganization is implemented using DBMS\_REDEFINITION procedures. DBMS\_REDEFINITION is Oracle's online table reorganization package and is available as of Oracle 9i.

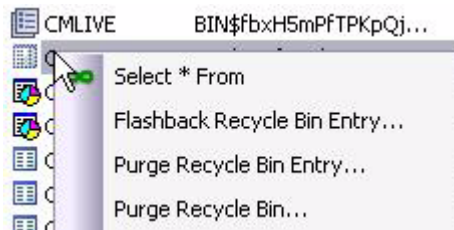


## Recycle Bin Support

This release introduces support for the Oracle Recycle Bin, letting you retain dropped tables and associated objects until they are explicitly purged. The Recycle Bin can be enabled and disabled at the datasource node level.



Expanding the **Recycle Bin** node displays the current contents of the Recycle Bin. Object actions available against objects currently in the Recycle Bin offer a variety of purge, recover, and querying options.



## FLASHBACK TABLE Action Support

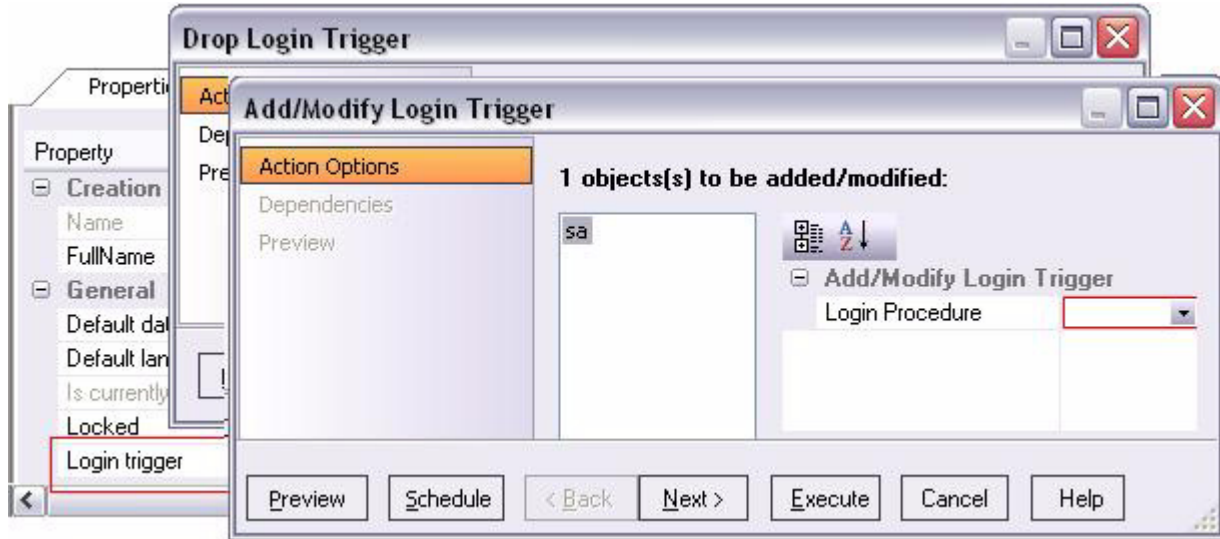
A **Flashback Table** action now available against Oracle tables, lets you restore a table to some previous state. Options let you restore to a timestamp, an SCN, or a defined Restore Point. For tables in the Recycle Bin, you can restore the table to its state before being dropped.

## SYBASE FEATURE SUPPORT

The following topics describe updated support for Sybase features.

### Login Trigger Support

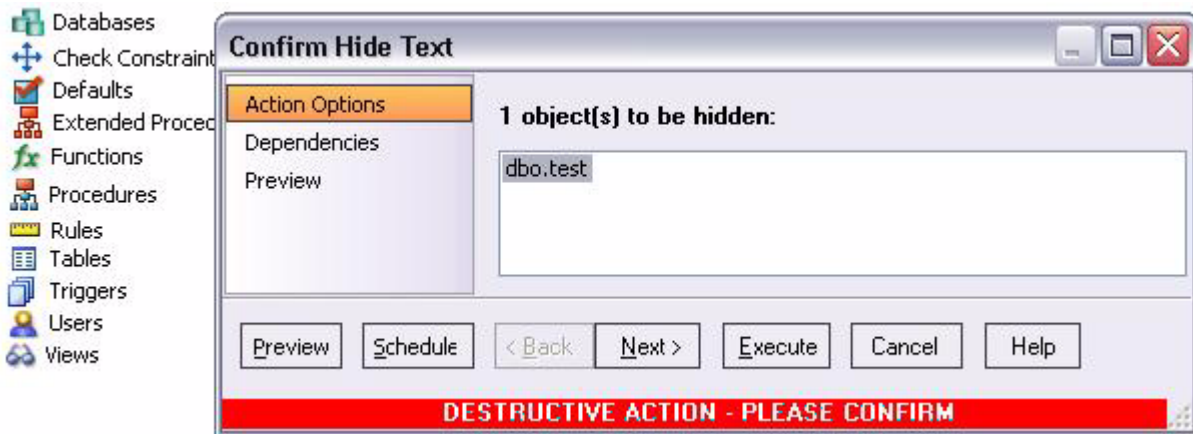
You can now configure a login to have a procedure executed each time a user logs in successfully. The **Add/Modify Login Trigger** object action lets you configure any stored procedure on the user's default database as a login trigger. The **Drop Login Trigger** object action lets you drop a configured login trigger from a login.



When a login is configured with a login trigger, the stored procedure name is visible as a **Login trigger** property in the Logins Editor.

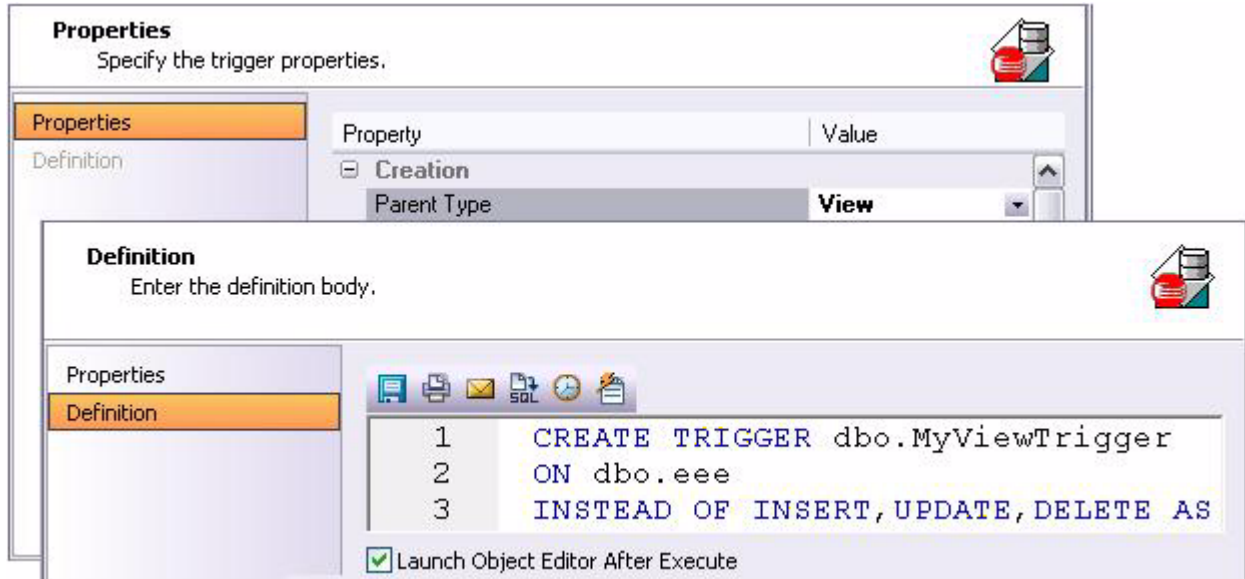
### Support for sp\_hidetext

This release introduces support for the sp\_hidetext system procedure. A new **Hide Text** object action lets you hide the source text for supported, compiled objects.



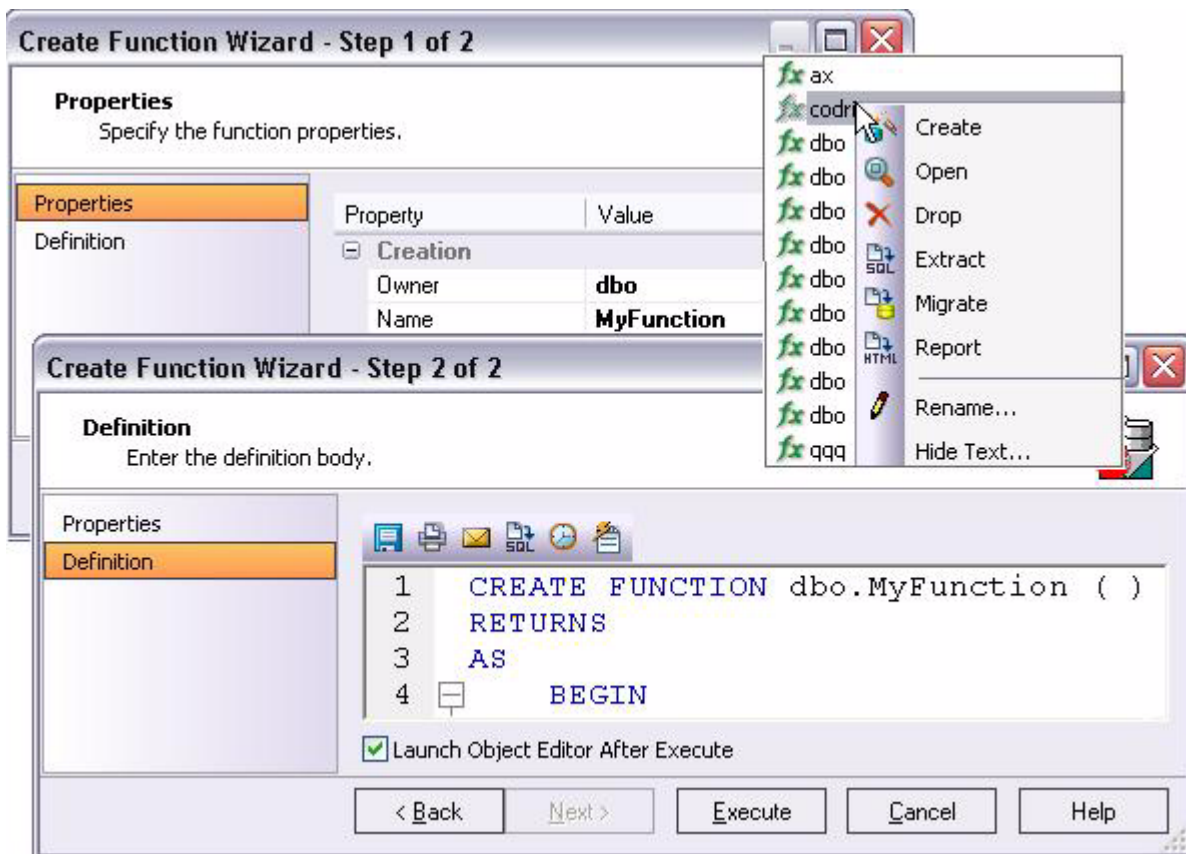
### INSTEAD OF Triggers

The Trigger Wizard and Trigger Editor have been updated to support the INSTEAD OF form of CREATE TRIGGER statements. Now, when you select a **Parent Type** of **View** for a trigger, the wizard generates customizable INSTEAD OF trigger code syntax on the **Definition** tab.



## User-defined Functions

This release provides support for Sybase user-defined functions. A new wizard and editor are provided. The wizard generates CREATE FUNCTION syntax, letting you provide the body of the function. A basic set of object operations is also provided.



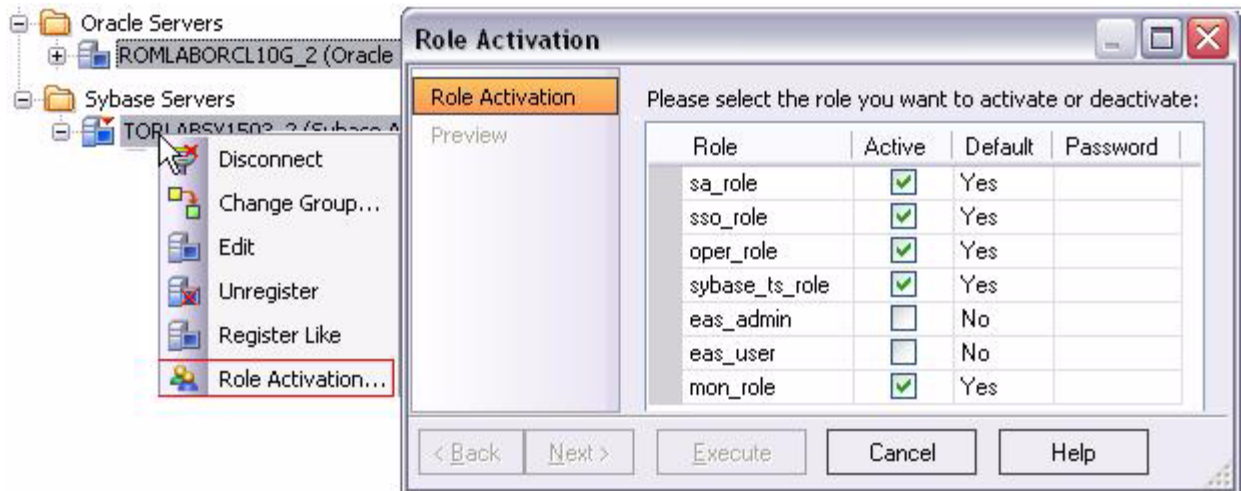
## DATASOURCE/SERVER UPDATES

### JDBC Driver Availability

When registering or editing datasources, most third-party JDBC driver options are no longer available. InterBase datasources are the only exception.

### Current Session Role Activation

For Oracle and Sybase datasources, you can now activate and deactivate roles for the current login or user within the current session. The **Role Activation** feature lets you build and submit SET ROLE commands.



## UNICODE UPDATES

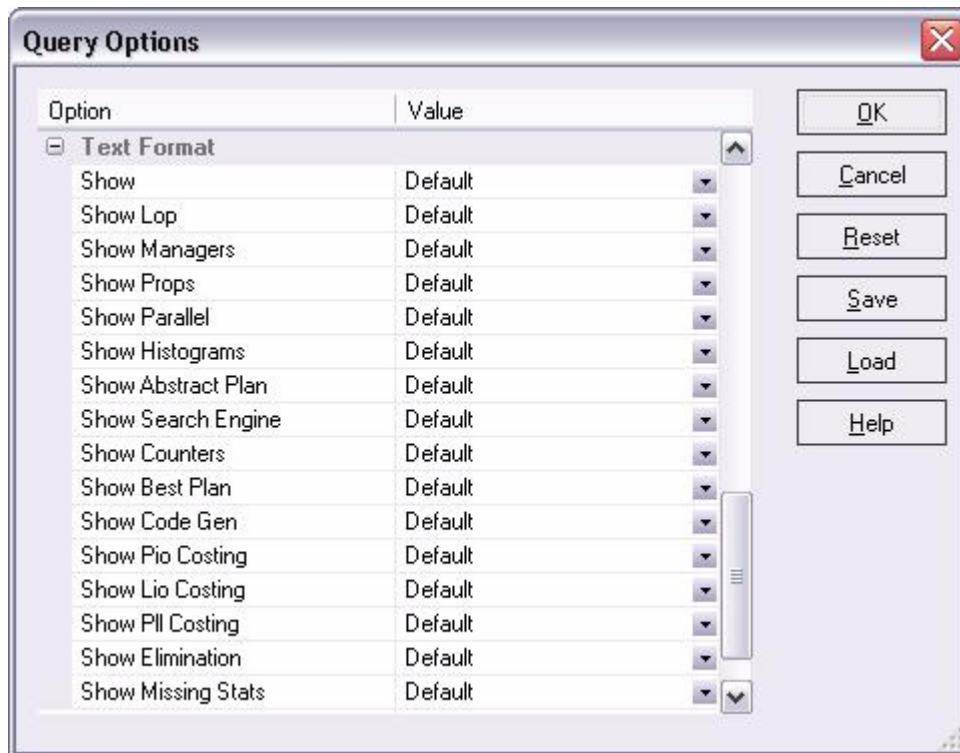
Unicode character-handling has been improved in the SQL Editor and Data Editor. This includes:

- Improved encoding detection and options when saving and opening files.
- Additional UTF-8, UTF-16, and UTF-32 encodings with BOM and endian variations are now available.
- Handling of surrogate pairs and characters made up of multiple Unicode characters (LTR scripts only) have been brought in line with Windows Vista and Windows 7 support.

## SQL EDITOR

### Query Options Supporting Sybase Set Option Text Format Messages

If you are using the `sa_role` or have the set tracing permission, you can now set the query environment to generate diagnostic output in text format. The **Query Options** dialog now offers all **show...** option variations for the **Set** command.



## USER INTERFACE CHANGES AND RELATED FEATURES

Continuing from previous releases, this release features reworked object management editors and wizards. By DBMS platform:

- **Oracle** – Tablespaces
- **SQL Server** – Logins
- **Sybase** - Logins, Groups, User Messages