

Product Documentation

Rapid SQL[®] XE Pro and Rapid SQL[®] 7.7 Evaluation Guide

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INTRODUCTION TO EMBARCADERO'S RAPID SQL

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

PRODUCT BENEFITS BY AUDIENCE

DATABASE DEVELOPERS/ADMINISTRATORS

Rapid SQL provides an easy-to-use graphical user interface (GUI), which allows Database Developers to be immediately productive in a cross-platform environment without having platform specific knowledge. Along this line, Rapid SQL provides standard object creation wizards and graphical object editors for all supported platforms, which greatly reduce the time and effort to build an application database from the ground up.

Rapid SQL also offers several cross-platform code-generation options, which help Developers build SQL code that is syntactically and functionally correct the first time. In addition, Rapid SQL can be used for the immediate or scheduled execution of SQL scripts and files, both with output and notification options. Rapid SQL makes short order of working with data by providing Developers with several easy-to-use browsing, visual query building and data editing options. All operations can be completed with drag-and-drop, point-and-click ease, with little or no SQL coding required.

DATABASE PROJECT MANAGEMENT

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

ABOUT THIS EVALUATION GUIDE

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

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

Session 1: Getting Started Session 2: Productivity Enhancers Session 3: Scripting Session 4: Working with Code Workbench Session 5: Building a Database Project Section 6: Visual Query Builder and Data Editor Section 7: Code Analyst Section 8: 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 <u>Help</u> Topics from the <u>Help</u> menu to find many additional resources including Tutorials that complement and build on many of the activities shown in this brief guide.



SESSION 1: GETTING STARTED

DOWNLOAD AND INSTALL

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

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

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

Overview

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



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

Start Rapid SQL

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

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

To get started:

1. Run Rapid SQL.

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

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

Registering Cross-Platform Datasources

For now, you will register a datasource manually.

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

Datasource Registration	
Information Select the database to	upe.
Database Type	
Connection Information	
Security Parameters	
Datasource Properties	IBM DB2 Universal Database
Datasource Group	○ <u>M</u> icrosoft SQL Server
	OMySQL
	Subase Adaptive Server
	Obbc
	< <u>B</u> ack <u>N</u> ext > Finish Cancel Help

- 2. Choose Microsoft SQL Server as the DBMS type and then click Next.
- 3. Specify the Host name of a SQL Server datasource on your network, override the Datasource name with "SAMPLE_DATASOURCE" and then click Next.
- 4. Provide valid credentials in the User ID and Password boxes, and then select the Auto-Connect? checkbox to eliminate having to provide credentials each time you connect to this datasource.
- 5. In the left-hand pane, select Datasource Group, select the MS SQL Server folder, and then click Finish.

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

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

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

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

There is also a network-shared storage option.

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

SESSION 2: PRODUCTIVITY ENHANCERS

Database Object Management Made Easy

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

The Database Explorer Tree

1. Click on the Explorer title bar and select By Object Type.



2. Select and Expand the SAMPLE_DATASOURCE > Databases > pubs node to display the database object sub-nodes.



Creating an Object Using the Object Creation Wizard

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

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

Create Table Wi Properties Specify the tab	izard - Step 1 of 6 sole properties.	
Properties Columns Indexes Constraints Permissions DDL View	Property Value Creation	×
	< Back Next >	Finish Cancel Help

- 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.

Create Table Wizard	l - Step 6 of 6 📃 🔲 🔀
DDL View (Read-Only Preview the genera	/) ted SQL.
Properties	
Columns	1 USE pubs
Indexes	2 go
Constraints	3 CREATE TABLE dbo.SAMPLE_TABLE
Permissions	4 日(5 L Sample Column1 char(1) NULL
DDL View	6)
	7 ON [PRIMARY]
	8 go
	9 IF OBJECT_ID('dbo.SAMPLE_TABLE') IS NOT NULL
	10 PRINT '<<< CREATED TABLE dbo.SAMPLE_TABLE >>>'
	11 ELSE
	12 PRINT '<<< FAILED CREATING TABLE
	13 go
	14
	, Iaunch Object Editor After Execute
	< Back Next > Execute Cancel Help

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, right-click on your new table and select Open.



Object Editor features are as follows:

- All Object Editors provide standardized, multi-tabbed windows for each database object type.
- All Object Editors provide fully-functional toolbars for easy object management.
- Rapid SQL has full knowledge of the underlying DBMS system catalog, syntax and alteration rules, so the user can concentrate on what needs to be done, not on how to do it.
- Drop-down boxes allow you to easily move between owners and objects.

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

2. Close the Object Editor window.

Object Documentation and Reporting

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

1. Expand the Tables node, right-click on any table and select Report from the menu. A Report dialog opens.

Report 🔀						
Report Home Page File Name:						
Embarcadero\RapidSQL\Report\dbo.simpleTestTable_3fd8aaa6_Table.HTM 📂						
Append date and time stamp to report file name						
Save report in date specific folders						
Report Title:						
Table Report						
Object Name:						
dbo.simpleTestTable_3fd8aaa6						
Object Type:						
Tables						
Execute X Cancel ? Help						

- 2. Enter a destination **Report Home Page File Name**. This can be a network web server directory\file.
- 3. Enter a **Report Title** and click **Execute**.

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

dbo.auth	ors							
Object Type	Table							
Datasource	EBTY 08 (SQL Server 08.00.0760)							
Login	sa VC							
Database	pubs							
Report Date	4/14/2003 16:5	4:45.847	1					
Columns								
Name	Datatype	Null	Default	Default Binding	Rule Binding			
au_id	id	No						
au_Iname	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 Editor allows you to set the Rapid SQL development environment to meet your needs.

1. Select <u>File > Options</u> from the menu. The Options dialog opens.

Options	
Type filter text	Datasource
Datasource General Connection JDBC Logging SMTP Mail Perf Center Reports Explorer ISQL ODL Extract Results Grid Properties Browsers Version Control Warnings Directories Data Editor Query Builder Java Code Analyst	Datasource Storage Management •Windows Registry datasource catalog Legacy datasource storage that is compatible with previous versions of Embarcadero products. File based datasource catalog Datasources are stored in the current user's application data folder. Network shared datasource catalog Datasource stare located in a common resource that is shareable between multiple users. Datasource catalog: Datasource catalog: Default to Alias Usage When Defining New Datasources: Datasource Category Settings: Color the status bar using the datasource's category color Color the tabs using the datasource's category color Color the tabs using the datasource's category color Color the tabs using the datasource toolbar combo
	OK Cancel Help

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

Favorites Tab

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

To open the Favorites Explorer:

- 1. At the bottom of the Explorer pane, click Favorites. The Favorites Explorer appears.
- 2. Expand the Microsoft node and then expand the Schema sub-node.
- 3. Right-click the **Procedures** node and select **Open**. The selected code opens in the SQL Editor window and is ready for execution.
- 4. Right-click in the editor window and select **Close** from the context menu.

To add a custom folder to the Favorites Explorer

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

Working with Scripts and Files

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

Script Execution Facility

- 1. On the Favorites Explorer, navigate to the Microsoft SQL Server node and select the Schema sub-node.
- 2. Right-click the **Procedures** node and select **Script Execution Facility**. The **Script Execution Facility** dialog box appears.

File Execution Facility		×
Show Full File Paths File name C:\Program Files\Embarcadero\RSQL760\DBAScrpt\Microsft\Schema\Proc.sql	Add Remove View Up Down	Files Target Output Notify
X Cancel ? Help) <u>S</u> chedule	Z Z Execute

- 3. Click the Target tab and select the datasources to run the script against.
- 4. Click the **Output** tab and select a type of output format. For the purposes of this example, select **Graphical Output**.
- 5. If you want to send a notification message indicating that the script has executed, click the **Notify** tab and enter the appropriate information in the fields provided.
- 6. Click Execute if you want Rapid SQL to run the script against the datasources specified on the Target tab. If not, simply close the dialog.

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

File Execution Facility

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

- 1. On the **Tools** toolbar, click **File Execution Facility**. Rapid SQL opens the File Execution Facility dialog box.
- 2. To locate the file you want to execute, click Add. Use the Add Files dialog box to locate and select a file.
- 3. On the Target tab, select the datasources to run the script against.
- 4. On the **Output** tab, select the desired output option. For the purposes of this example, select **Graphical Output**.

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

- 5. If you want to send notification that the script has executed, on the **Notify** tab, complete the target information.
- 6. Click Execute if you want Rapid SQL to run the script against the target datasources. Otherwise, close the dialog without executing.

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

Viewing Data

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

Select * Browsing

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

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

Retaining Datasource Explorer View Settings

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



2. Select Retain View Settings.

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

Datasource Explorer Bookmarks

Rapid SQL allows you to set bookmarks for frequently visited database objects. 1. Right-click on any node in the Datasource Explorer Tree.



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

After Bookmarks are defined you can use them to easily navigate to commonly used datasource resources via the main menu "Bookmarks" item.

	DO	okmar <u>k</u> s <u>H</u> eip		
		Bookmark Manager		
		DB2	►	Procedures: DBO.IOTF.IOTFIO @ GUSSY
Ì		DB2OS390	Þ	🗉 🛃 🗗 🐼 📕 🏝 • 🔗 🔲 🗊 🖨 🖂 💕 📲
ĺ		MySQL	Þ	
		Oracle	Þ	
		SQLServer	Þ	
		Sybase	Þ	
		ODBC	Þ	
		Generic	►	

The Bookmark Manager handles maintenance of Bookmarks.

- 1. Select Bookmarks from the menu bar.
- 2. Select Bookmark Manager.

Bookmarks:	Filter:	
È ← DB2 └─ Procedures: DBO.I	OTF.IOTFIO @ GUSSY	

3. Close the Bookmark Manager dialog.

Setting Keyboard Shortcuts and Hotkeys

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



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

3. Close the Customize dialog.

Referencing Most Recently Used Datasources

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



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

SESSION 3: SCRIPTING

Generating Code

By providing several code generation and assistance options, Rapid SQL makes crossplatform 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.

- Embarcadero Code Generator 1. From the menu, open Tools >EBT2K04_SQL_SERVER (SQL Server 0 + 1 <u>o</u>K Code Generation Facility. E pubs . X Cancel ٠ ? Help 2. Select the ← Lables ← Views Select 1 or More V SAMPLE DATASOURCE authors blurbs ject Type discourts dipropertie datasource and the "pubs" au_iname au_iname phone address city state employee obs database from the dropdown list Update new_author ww.author boxes. vew_author GRANT 'EXECUTE' TO Select 1 or More Output Co 3. Select the "authors" table, pub_info publishers roysched ✓ au_id ✓ au_iname ✓ au_iname phone ✓ address ✓ city ✓ state "state" as the input column and-No Yes Yes all columns for output. Spot_Log Spot_RefreshAuto Spot_RefreshRate 4. Select "Select" as the code Spot_Repl_Agents Spot_Repl_PubSub Provide an Output File Na option. essedFeatu Elec 1 ableFragDetails Copen C Execute Immediatel 5. Select a file to save the generated script and check "Open".
- Click "OK" and the DDL to create the procedure will be generated and displayed in an editable window, called the DDL Editor. You can edit the name of the new procedure and any of the generated code at this time. Name the new procedure "sample_select_authors".

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

Finished!

<u>Right-click feature</u>

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

- 🛄 🛛 Tables (13)	1:		
e- dbo.du	Add Bookmark		
te-⊞ dbo.dtp te-⊞ dbo.em	6× New		
te- dbo.job	Q Open		
🔁 🛄 dbo.put	🗙 Drop		
E- dbo.roy	Report		
🕒 🛄 dbo.sal	Ø Rename		
e-m dbo.sto	🖬 Edit Data		
🕀 🥅 dbo.title	8uild Query		
teren un doo.one Briggers	Update Statistics		
🖓 💋 Unique Key	Create Like		
3-¶∑ Users 3- <mark>Al≎</mark> User Datati	DBCC		
- 66 Views	Indexes		
tempdb	Triggers		
	Recompile		
	Truncate		
	Disable Triggers		
	Enable Triggers		
	Create Insert Statements		
	Extract Data as XML		
	Extract		
	💡 Object Help		
	Dependencies		
	Describe		
	<u>₩</u> Schema		
	L Copy Name(s)		
	% SELECT * FROM		
	Generate •	Procedure	Select
			Update
			Delete

- 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.
- Click "OK" and the DDL to create the procedure will be generated and displayed in an editable window, called the DDL Editor. You can edit the name of the new procedure and any of the generated code. Name the new procedure "sample_select_authors".
- 6. Click on the **> >** (execute or step execute) button to submit the DDL and create the procedure.

Finished!

Automated error detection and coding assistance

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

To enable these features:

- 1. On the File menu select Options. The Options dialog opens.
- 2. On the Index Manager panel, ensure that Enable Indexing is selected.
- 3. On the Code Assist panel:
 - Ensure that Severity levels for semantic validation problems has Warning selected.
 - Ensure that Enable Parsing and Parse Always are 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.).

			- 🕨 🔂 🖉	🕒 🛔 🖌 • 🚯	ی 🖄 🐔 🕼	2 I I I	1	
1	Sele	ct *	from Jobs					
2								
Auto Comm	it Off	CUA	\TORLABORCL10g_2\system	n Line 2 Co	11			
Explorer1	Quei	yBuilder	1 * - [\TORLABORCL10g_2\sy	stem] 🔤 SQL1 * - \	TORLABORCL10g_2\	system ×		-

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

With SQL Parsing enabled, Rapid SQL runs a syntax check any time there is an interval of 1.5 seconds between keystrokes. You can also disable automatic syntax checking and only run a check when you manually initiate it. Syntax error annotation persists until you correct the problem.

- This time type a fragment that includes the name of a nonexistent object, SELECT * FROM NON.OBJECT, for example. For now, ignore any popups. The warning condition is a result of on-the-fly semantic validation. Rapid SQL notifies you when a script contains a reference to an object that Rapid SQL cannot resolve.
- Type SELECT * FROM followed by a space and then stop typing. If no popup appears, press CTRL+SPACE. The Code Complete suggestion box lets you select from objects or object name components such as databases or schema.

^{1 🔕} SELECT * FROM

This feature saves keystrokes and minimizes typing errors. See the online Help for full descriptions of these features.

3. Close the current SQL Editor window.

To restore Rapid SQL settings:

- 1. On the File menu select Options. The Options dialog opens.
- 2. On both the Index Manager and Code Assist panels, 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.

Paste SQL								X
Datasource	SAMPLE_DATASOUR	RCE 🔽]				🗙 <u>C</u> a	ncel
Database	pubs	~]				О н	aln
Owner	dbo	~]				<u>г</u> ш	ыр
Object Type	Tables	~			💿 Select (🔾 Update 🔾 I	Insert 🔿 D	elete
	TABLES		COLUMNS			SELECT State	ement	
doo, sutho doo blutbs dbo discou dbo discou dbo areyos dbo arew_a dbo arew_a dbo arew_a dbo arew_a dbo arew_a dbo arew_a	rs ints interesting without a state of the set of the set of the state of the state of the set of t							
Paste	Tables	P	aste Colum <u>n</u> s	ALL	Paste	e Statem <u>e</u> nt		

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

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

Paste SQL Syntax

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



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

Session 4: Working with Code Workbench

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

- Code Templates
- Auto Replace

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



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

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



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



Rapid SQL loads a default set of Auto Replace and Code template definitions at startup but you can also add, edit, and delete definitions. In addition, you can save sets of definitions to file and subsequently load specific sets of definitions, allowing you to customize your templates to different platforms or development projects. To invoke Code Workbench settings: 1. Select Tools > Code Workbench.

Code Workbench	
Settings Code Templates Auto Replace	
Auto Replace	
Import Settings Export Settings Restore Settings	OK Cancel Help

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

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

SESSION 5: BUILDING A DATABASE PROJECT

Creating a new Rapid SQL Project

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

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



Finished! You have now successfully created a working database project. At this point, the project is available to be added to Version Control. This can be done by clicking

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

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

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

Username:	
Password:	
Database: Microsoft V	isual Studio
	and Const

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

Available databases:					
Name Microsoft Visual Studio	Path C:\Program Files\Microsoft Visual Studio	Cancel			
		Browse			
		Hemova			
		Help			

All that remains is to provide a project name.

ojeci:	OK
ample_project	Cancel
	Create
Oasis_test Oasis_test Oasis_test Oasis_test	Help

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

Rapid	SQL 🔀
1	The files in project sample_project.epj have been placed under version control in a Visual Source Safe project named sample_project.epj.
	ОК

SECTION 6: VISUAL QUERY BUILDER AND DATA EDITOR

<u>Visual Query Builder</u>

Rapid SQL gives you the ability to construct complex SQL statements with point-andclick 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.



- Select the au_Iname, 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.

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

<u>Live Data Editor</u>

- 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.

📆 dt	🖞 dbo.authors - \ROMLABSQL00_1\pubs\sa 📃 🗆 🔯									
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	🎤 au_id	📴 au_Iname	📴 au_fname	phone	address	city	state	zip	contract	^
•	172-32-1176]White	Johnson	408 496-7223	10932 Bigge Rd.	Menlo Park	CA	94025	1	
2	213-46-8915	Green	Marjorie	415 986-7020	309 63rd St. #411	Oakland	CA	94618	1	
3	238-95-7766	Carson	Cheryl	415 548-7723	589 Darwin Ln.	Berkeley	CA	94705	1	
4	267-41-2394	O'Leary	Michael	408 286-2428	22 Cleveland Av. #14	San Jose	CA	95128	1	
5	274-80-9391	Straight	Dean	415 834-2919	5420 College Av.	Oakland	CA	94609	1	~
	1 Initial Select Statement 4/14/2009 09:58:07.962									
	3 SELECT T.au_id, T.au_lname, T.au_fname, T.phone, T.address, T.city, T.state, T.zip, T.contract FROM dbo.authors T									
	4									~
							Add Part	tition W	iz Edit Partiti	:

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.

Z

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

Y

SECTION 7: CODE ANALYST

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

To get started, select Tools > Code Analyst

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

Select the database you would like the tables to be installed on and press OK. Once the tables are installed, you're ready to start defining a session.

- 1. On the Code Analyst toolbar, click the Create New Collection button.
- 2. Define the session by giving it a name, selecting the objects to be executed, and clicking **Next**.



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



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

Code Analyst lets you schedule the session to run unattended during off-peak hours.

Run Sur Code Analys	t Object Initialization	Unit Detail
Summary	To set the parameters, double click on eac Items in red have not had the parameters	object.
Sessi	Object Name	UP uler
	pubs.dbo.byroyaky pubs.dbo.reptq1 pubs.dbo.reptq2	Down
		Schedule
	< Back Finish	Cancel Help

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



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



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

Run Summary	RunDetal	- ST0.	Comparison	Unit Summary	Unit Detail
nsion:	Bu	R	11.1.1.	Uni Nane	
nion2	• R	n #8 @Jul 23 2004 9:03	WM J	· A el do create_palient	•
Number of 10 Tota Top Lines 10 Tota Percentage Calculation 4 M 4 Total Flue Tene 1 M 1 Unit Flue 1 M	Time	21 91 13 20 16 2 60 40	Top SOLmen Eve	uton Time (nz)	Top 10 Lines % of Total
III Connel		20			
Image: Second	of Total Avg Time (ms) 21 9097 29	20 0 Min Time (ms) Max T 29	Inter (ma) Bependency 29 [R.L.]	SELECT Gr. patient_id = MAX(patient_ ROM patient	56/ (0)
Image Calls Total Time (ms) N 13 1 79 14 79 14 1 29 15 16 1 2 10 1 2 17 1 1 2	of Total Arg Time (ms) 21 5007 29 1 515152 2	20 0 Main Time (ma) Mas 1 29 2	Inter (mai) Dependency 29 (PRAL) - 2 (PRAL) -	SELECT (gv. patient _id = MAX(patient _iROM patient _id = (gv. patient _id + 1	0) 50 r

SECTION 8: SQL DEBUGGING AND PROFILING

SQL Debugging

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

- 1. From the Datasource Explorer browser, select the procedure/function object group under your database.
- 2. From the detail window at right, select a procedure/function, which you would like to debug.
- 3. Right-click the object to open the pull-down menu.
- 4. Select Debug to invoke the SQL Debugger.

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

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

📃 Procedure	Exec	ution -	dbo.byr	oyalty							
Owner:					Pro	ocedur	e:				
					✓	royalty					*
Parameter:											
Name	Туре	NULL	Default				Va	lue			
@percentage	int	Г	Г								
Input Values	-					_			_		
		Q (<u>)</u> pen		<u>S</u> ave		0	<u>R</u> eset			
									_		
X Cancel		н	eln								Continue
<u></u> dilicer		<u>Ш</u>								Ľ	

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

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

-							
	:01	() ()	• *() 🕘 👿 目 🕃 🕀				
	1 🗘	Proc	edure	PARSE	SAME	IS	
I	2		rc integer d	efault 0; 👘			
I	3		l cursor int	eger default	0;		
I	4	—	BEGIN	-			
I	5	Ē	FOR i IN 11 L	OOP			
I	6	Т	l cursor:=db	ms sql.open c	urso	r;	
I	7		dbms sql.par	se(l cursor,'	SELE	CT * FROM DUAL' , dbms sql.native);	
I	8		FOR j IN 1.	400000 LOOP			
I	9		rc:=dbms	sql.execute(1	cur	sor);	
I	10	-	rc:=DBMS	SQL.FETCH ROW	s (1	cursor);	
I	11		END LOOP;	_		_	
I	12	L	dbms sql.clo	se cursor(l c	urso	r);	
I	13		END LOOP;				
I	14		END;				
I	15						
I	16						
I	17						
I	18						
I							
	Dobuzzor V	Watch and I	Usvishla Wiedowa	×	Debug	aav. Dependency and Call Stack Windows	~
ŀ	Debugger - (per - Dependency and Calibrack Windows	
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	l Wat	ch a	nd Variables			Call Stack and	
	1.1.1					\square	
	i vvin	dow	S			Dependencies vvindows	
				-			

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

SQL Profiling- Oracle Only

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

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

- 3. Execute the programmable object (i.e. Stored Procedure) you wish to capture metrics on.
- 4. When finished, select Tools > SQL Profiler > Stop. The SQL Profiler Stop dialog window prompts you to select an option.



- 5. Press Stop.
- 6. Under the Database Explorer, expand the PL/SQL Code Profiling section.



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

Comment							
My_Profile		×					
Run Summary							
Comment	Run ID	Run Date	Total Time (ms)				
My_Profile	6	0 01/09/2009 12:00:43 PM	47261				
My_Profile	6	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 run in both a graphical and text format.

Comment	Run		Unit Type:	Unit Owner:	
create_admission1	• Run #1@	04/10/2003 02:56.05 PM	[All Types]	ERADMIN	
Time Unit Society State Unit Execution Time (ms) Unit Time % of 1 • Milliseconds (ms) • Second: (sec) • Minutes (min) • Canonymous-secondrymous- • Canonymous-seconymous- • Canonymous- • Canonymous-					
Unit Owner	Unit Name	Unit Type	Total Time (ms)	% of Total	
ERADMIN	CREATE_ADMISSION	PROCEDURE	302	.009	
SYS	DBMS_OUTPUT	PACKAGE BODY	32	.00	
SYS	DBMS_PROFILER	PACKAGE BODY	16	.000	
<anonymous></anonymous>	<anonymous></anonymous>	ANONYMOUS BLOCK	11	.000	
<anonymous></anonymous>	<anonymous></anonymous>	ANONYMOUS BLOCK	7	.000	
<anonymous></anonymous>	<anonymous></anonymous>	ANONYMOUS BLOCK	7	.000	
<anonymous></anonymous>	<anonymous></anonymous>	ANONYMOUS BLOCK	7	.000	
<anonymous></anonymous>	«anonymous»	ANONYMOUS BLOCK	6	.000	
<anonymous></anonymous>	<anonymous></anonymous>	ANONYMOUS BLOCK	5	.000	
CADOON/TOURS	CADOO//TOUR>	ANONYMOUS PLOCK	0		

- 9. To drill down further into the data, highlight a unit and select **Unit Detail** from the right-click Menu. Scroll through the **Source** window to view the times for each statement.
- 10. To compare 2 cases, select the 2 cases you wish to compare (shift-click to select the second case) from the Run Summary screen and select **Compare** from the right-click menu. The SQL Profiler Run Comparison screen appears.

See the online help for more information on profiling.

Additional Resources

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