SQL Navigator™ 7.2

User Guide

Legend

CAUTION: A CAUTION icon indicates potential damage to hardware or loss of data if instructions are not followed.

WARNING: A WARNING icon indicates a potential for property damage, personal injury, or death.

IMPORTANT NOTE, **NOTE**, **TIP**, **MOBILE**, or **VIDEO:** An information icon indicates supporting information.

SQL Navigator User Guide
Updated - February 2015
Software Version - 7.2

Contents

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Quick Overview

Better code, faster.

SQL Navigator™ provides an integrated environment for developing and testing Oracle® stored programs and procedures, schemas, objects, SQL scripts, and more—all from an easy-to-use graphical user interface.

The SQL Navigator family of products is a complete development environment for Oracle server-side development and management. It has been conceived, designed and developed by Oracle developers and DBAs with hands-on experience in the most common problems facing Oracle developers.

Who should use SQL Navigator?

SQL Navigator is intended for use by qualified Oracle developers and DBAs. (You know who you are!)

The developers of this product assume that the user has a good level of competence with Oracle relational database concepts, designs, and methods, including SQL and its procedural extension PL/SQL, Oracle database objects and datatypes.

Every attempt has been made to ensure that SQL Navigator is easy for developers and DBAs to install and use, and is supported by comprehensive user assistance materials.

In the online help materials, we have not attempted to teach basic Oracle RDBMS skills nor to duplicate information that is readily available from Oracle Corporation and from third-party publishers.

Enter A New Authorization Key

Click **Tools | Product Authorization** to enter a new product authorization key.

Check for Updates

Click **Help | Check for Updates** to check for the latest version of SQL Navigator available.

Is there a newer version to download from the web site?

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Working With SQL Navigator

Oracle Sessions

Icon	Menu	Description
	Session Menu | New Session	Connect to an Oracle database instance / Open a new Oracle session. Manage your database connections. Open the Oracle Logon Dialog. TIP: SQL Navigator saves your connection profiles in the Project Manager window for easy access.
	Session Menu | Select	Switch between open Oracle Sessions. TIP: • You can set up multiple sessions with one or many database instances. • Each session-related window (code editor, object editor, and so on) remembers and automatically opens in the appropriate database session.
	Send to Session	Inside the Code Editor, while editing SQL code, you can send the current Code Editor tab or a selected piece of code to another session. Highlight the code and click **Send to New Session**. For more information, see Code Editor SQL on page 52.
	Task Manager	SQL Navigator executes long-running tasks in separate threads in the background. The Task Manager is a display of all active and complete tasks for the current session.

TIP: Manage sessions in the Session Browser.

Finding Objects

SQL Navigator gives you several convenient point-and-click options for quick access to database objects.

Icon	Tool	Description
	DB Navigator	Explore the entire database structure as a tree with expandable nodes. TIP: Highlight a DB Navigator node and press F11 to find objects in that node.

Icon	Tool	Description
	Find objects Dialog	Find objects by means of a search argument. **TIP:** To show a dynamic list of all objects in a schema - Select the schema node in DB Navigator before you click **Search | Find Objects**.
	Database Source Code Search	Search stored programs, triggers and views for a character string in the source code. **TIP:** You can use this utility to perform a quick "where-used" impact analysis.
	Locate In Tree	Show the location of the current database object (for example, the one you are editing) in the DB Navigator hierarchy. Expand all intermediate nodes in the DB Navigator tree and display the object's detail view.
	Find Recycle Bin Objects Dialog	Locate objects dropped in the recycle bin. Requires Oracle 10g or 11g.
	Project Manager	The Project Manager provides instant access to your frequently used database objects and connections. Projects are holding areas where you can store shortcuts to things that you frequently need to work with instead of searching for them in various lists and directories. **TIP:** To find an object in DB Navigator from Project Manager: Right click on the object in Project Manager and select **Locate in DB Navigator**. This opens the DB Navigator window, expands tree nodes as necessary, and displays the details of the selected object.

TIP:

- Use the **Find Objects Dialog** or **DB Navigator** for multiple-selection of objects.
- Your view of the Oracle Data Dictionary determines what objects you can see. For more information, see DBA Dictionary Views on page 48.

Working With Objects

When you select an object, SQL Navigator enables all the appropriate menu or toolbar commands. The available actions vary depending upon the type of object selected.

Icon	Tool	Description
	DB Navigator	Double click on an object to open it for editing. **TIP:** Another way to open an object for editing - drag the object from: • DB Navigator

Icon	Tool	Description
		• Find objects Dialog • Project Manager Drop the object on the application desktop.
	Describe	The Oracle DESCRIBE command reports the attributes, methods and arguments of an object type. With the SQL Navigator Describe command you can describe not only procedures, functions, packages, synonyms, and object types, but also tables, indexes, clusters and objects.
	Visual Object Editors	SQL Navigator editing tools for database objects.
	Code Editor	Maintain SQL and PL/SQL code. Execute SQL queries. Debug PL/SQL code, prepare test data, run stored programs against the database, and immediately view the results. Compilation errors are precisely highlighted.
	Quick Browse	View chained rows information.
	Edit Data	Edit data in a table object. It is possible to display and edit multi byte data. National Language Support can be applied to data in the Table Editor and Code Editor | Data Grid (SQL Query Results Data Grid).

Copy an object from one schema to another

1. Open a second DB Navigator window.
2. Drag the object from the source window to the target window.
3. Execute the DDL displayed in the editing window

Web Development

The SQL Navigator Web Development module provides an integrated development environment with advanced coding, testing, and viewing of PL/SQL programs for the Oracle Web server. This allows users to develop the PL/SQL code independent of the web server and view the HTML in an integrated web browser, thereby eliminating the need to switch from their coding environment to an external browser. The stored procedure will output the HTML code via the Oracle Web Cartridge.

Icon	Tool	Description
	Capture Web Output	Enable the web server. Each time you execute PL/SQL code, the generated HTML is displayed in the HTML viewer.

Icon	Tool	Description
	Web Support Configuration Dialog	Enter details of your Web server's configuration.
	Code Editor	Code Web Server Procedures. The editor includes drag and drop coding for Web toolkit packages, including htp and htf items. Execute the procedure.
	HTML Viewer	View HTML pages.
	Import HTML as PL/SQL	Convert a HTML file into a PL/SQL stored procedure.

Java Source Code

Icon	Tool	Description
	DB Navigator	View Java-related objects (sources, classes, resources)
	Database Source Code Search	
	Java Editor	Edit Java source stored in the database. Compile Java objects
	Object Menu | Extract DDL	Extract SQL DDL of Java Source
	Java Manager	Load Java classes (Oracle LoadJava utility) Drop Java classes (Oracle DropJava utility)
	Publish Java to PL/SQL	Create a PL/SQL package from a Java class stored in the database.

Analysis And Tuning

SQL Navigator provides useful tools for tuning and database management. These tools are intended to be used in conjunction with each other.

Icon	Tool	Description
	Analyze Tool	View and collect statistics, validate structure and list chained rows for database structures such as tables, clusters and indexes.
	Explain Plan Tool	Analyze the execution of a single SQL statement. By examining the execution plan, you can see exactly how Oracle executes your SQL statement, and how it can be improved.
	ER Diagram	Model a table and graphically see the dependencies and joins to other tables.
	Code Road Map	Display the complex PL/SQL inter-dependencies within a database.

Icon	Tool	Description
	Integration with Benchmark Factory	Benchmark Factory™ is a highly scalable load testing, capacity planning and performance tuning tool capable of simulating thousands of users accessing your database, file, Internet and messaging servers.

Team Coding And Version Control

SQL Navigator provides extensive and flexible Team Coding controls, including integration with third-party version control systems. For more information, see Team Coding Menu on page 32.

Icon	Tool	Description
	Connection Settings	Enable / Configure Team Coding. For more information, see Team Coding Settings on page 120.
	Team Coding Viewer	Show details of objects under Team Coding control, including which objects are currently checked out and when they were last checked in.
	Code Collections Viewer	Use Code Control Groups to organize controlled objects into groups associated with development projects.
	Version Control Browser	Show the version control repository. Drill down to any revision of any file, view revision histories, check files in or out, and view differences between revisions. You can also integrate with third party version control products. Refer to the SQL Navigator Release Notes for more information.

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Navigation

Main Menu

File Menu

Operations on files and projects, plus the Exit command.

Menu Icon	Menu Name	More Information
	New File	<table><tr><th>Menu Icon</th><th>Menu Name</th><th>More Information</th></tr><tr><td></td><td>HTML File</td><td>HTML Viewer</td></tr><tr><td></td><td>SQL Script</td><td>Code Editor</td></tr></table>
	New Project	Open a new project window. See also Project Manager. Use **File | Reopen Project** to return to the previous project.
	Open File	Open an external file in the Code Editor.
	Reopen Project	Reopen a project window. See also Project Manager.
	Rename Project	Rename the current project window. See also Project Manager.
	Delete Project	Delete the current project window. See also Project Manager.
	Save File	Save the file to disk.
	Save File As	Save the file to disk. Optionally change the file name and location before saving.
	Print	Print the file.
	Print Preview	Preview the file before printing.
	Print Setup	Enter setup options for printing.
	Exit	Close SQL Navigator

Edit Menu

Common text and code-editing actions.

Menu Icon	Menu Name	More Information
	Undo	Reverse the previous editing action.
	Redo	Reapply the previous editing action
	Cut	Remove selected text and place it on the clipboard
	Copy	Copy selected text to the clipboard
	Paste	Insert the clipboard contents at the cursor location.
	Select All	Select all text in the item being edited
	Indent	Indent the current line To increase or decrease the indent of selected text in the editor
	Unindent	Unindent the current line To increase or decrease the indent of selected text in the editor
	Comment	Enclose the selected text inside PL/SQL comment marks
	Uncomment	Remove the PL/SQL comment marks from the selected text
	Upper Case	Convert selected text to upper case
	Lower Case	Convert selected text to lower case
	Convert Keywords to Upper Case	Convert all keywords and reserved words in the program to uppercase
	Convert Keywords to Lower Case	Convert all keywords and reserved words in the program to lowercase
	Open Selected Text in Code Editor	Place selected text in the Code Editor
Nil	Insert	

Menu Icon	Menu Name	More Information
	File	Insert a text file at the current cursor location.
	DBMS_OUTPUT.PUT_LINE(')	Insert DBMS_OUTPUT.PUT_LINE(') at the current cursor location. This procedure displays program output after execution. For more information, see DBMS_OUTPUT on page 78.

Menu Icon	Menu Name	More Information
		<table><tr><th>Menu Icon</th><th>Menu Name</th><th>More Information</th></tr><tr><td></td><td>Debug Variable</td><td>Create a debugging statement for the variable at the current cursor location. - The statement is copied to the clipboard. - Use **Edit | Paste** to place the statement in the code. </td></tr><tr><td></td><td>CRUD Matrix</td><td>Insert a CRUD (Create-Update-Delete) matrix, enclosed in comment markers, at the current cursor location in the Code Editor. This provides a convenient method of documenting a procedure. SQL Statement CRUD Matrix Dialog</td></tr></table>
	Got to Line	Move to a specific line number in the editor.
	Jump to Matching Bracket	Move to the other bracket within a given pair of brackets
	Toggle Bookmark	Place a bookmark at the current line. You can set up to ten bookmarks (identified numerically 0-9).
	Go to Bookmark	Return to a bookmarked line in the code. Example Scenario: Set bookmark number 1 in the DECLARE section and bookmark number 2 at your current editing location. To return to the DECLARE section press Ctrl+1. After looking at your variable or cursor declarations, return to your editing location by pressing Ctrl+2.
	List Bookmarks	View / Go to / Delete bookmarked lines in the code. Bookmarks Dialog
	Open Object at Cursor	Open the database object referenced at the current cursor location. Use to instantly find objects from stored programs or scripts, and open them in the Visual Object Editors.
	Describe Object at Cursor	Show DESCRIBE information for the database object referenced at the current cursor location. See also Describe.

Search Menu

Find text, code and database objects.

Menu Icon	Menu Name	More Information
	Find	Find a text string. Find and Replace
	Replace	Find a text string and replace it with another. Find and Replace
	Find Next	Find the next occurrence as per Find and Replace
	Find previous	Find the previous occurrence as per Find and Replace
	Code Search	Find source code in the database. Database Source Code Search
	Find Objects	Find one or more database objects matching a search argument. Find objects Dialog
	Find Recycle Bin Objects	Find Recycle Bin Objects Dialog Requires Oracle 10g or later.

View Menu

Control what is displayed in the main application area.

Menu Icon	Menu Name	More Information
	DB Navigator	Open / Focus DB Navigator
	Code Editor	Open / Focus Code Editor
	Visual Object Editor	Visual Object Editors

Menu Icon	Menu Name	More Information
	Cluster Editor	Open a new instance of the Cluster Editor
	Constraint Editor	Open a new instance of the Constraint Editor
	DataBase Link Editor	Open a new instance of the Database Link Editor
	Index Editor	Open a new instance of the Index Editor
	Nested Table Editor	Open a new instance of the Nested Table Editor

Menu Icon	Menu Name	More Information

Menu Icon	Menu Name	More Information
	Profile Editor	Open a new instance of the Profile Editor
	Redo Log Group Editor	Open a new instance of the Redo Log Group Editor
	Role Editor	Open a new instance of the Role Editor
	Materialized View Editor	Open a new instance of the Materialized View Editor
	Sequence Editor	Open a new instance of the Sequence Editor
	Synonym Editor	Open a new instance of the Synonym Editor
	Table Editor	Open a new instance of the Table Editor
	user Editor	Open a new instance of the User Editor
	Varray Editor	Open a new instance of the Varray Editor
	View Editor	Open a new instance of the View Editor
	Java Editor	Open a new instance of the Java Editor
	Instance Property Editor	Open a new instance of the Instance Property Editor

	Project Manager Window	Show / Hide Project Manager
	Task Manager	Show / Hide Task Manager
	Output Window	Show / Hide Output Window
	Code Assistant	Show / Hide Code Assistant
	Code Templates	Show / Hide Code Templates
	Auto-Describe Tool	Show / Hide Auto Describe Tool
	Source Preview	Show / Hide Source Preview
	Preferences	Set SQL Navigator Preferences: View | Preferences
	Screen Layout	Save up to ten layouts of dockable windows and recall them. For more information, see Customize The Screen Layout on page 41.

Menu Icon	Menu Name	More Information

Menu Icon	Menu Name	More Information
Nil	Layout 0-9	The current layout number is highlighted. When you select a different layout number the current layout is saved before the screen layout switches to the selected layout. Use Layout 0 as a general-purpose default layout.
	Reset Docking	Restore the current layout to the SQL Navigator default.

Session Menu

Manage and configure your connection to the database.

Menu Icon	Menu Name	More Information
	New Session	Connect to an Oracle database instance / Open a new Oracle session. Manage your database connections, including to create a database connection. Oracle Logon Dialog
	Select	Switch between open Oracle Sessions. Show the current Oracle session. You can set up multiple sessions with one or many database instances.
	Server Output	Toggle On / Off Server Output
	Capture Web Output	Start/Stop Capture Web Output
	Include Debug Info	Watch, evaluate or modify a stored program variable. 1. Toggle On **Include Debug Info**. 2. Compile the program in the Code Editor. See also: PL/SQL Debugger
	Web Configuration	Set up Oracle Web development support. Web Support Configuration Dialog
	Wallet Operations	Features to decrypt the table keys to encrypt or decrypt application data

Menu Icon	Menu Name	More Information
		Menu Icon / **Menu Name** Generate Master Key Open Wallet Close Wallet
	Suspend	Suspend execution of the stored program. PL/SQL Execution Console
	Stop	Terminate execution of the stored program. PL/SQL Execution Console
	Commit	Commit all pending changes in all open editors for the current Oracle session. Release any row or table locks held by the session.
	Rollback	Undo some or all of the changes made to the database during the current Oracle session. Release any row or table locks held by the session.
	Change Password	Modify the logon password of the current Oracle session. Change Logon Password
	Empty Recycle Bin	Empty the recycle bin for the current Oracle session.
	Reconnect	Re-establish the database connection.
	Close	Close the current session. Close the Oracle connection. Disconnect from the Oracle instance. You can disconnect from an Oracle instance and remain connected to other instances.
	Close All	Close all open sessions.

Object Menu

Operations on database objects.

Menu Icon	Menu Name	More Information
	Create DB Object	Create a database object.
	Open DB Object	Locate and open a database object. Select DB Object Dialog

Menu Icon	Menu Name	More Information
	Open	Open the selected database object for editing. Not all database objects can be altered. You may need to drop the object and create a new one.
	Describe	Show attributes, methods and arguments of the selected procedure, function, package, synonym, table, index or cluster. Ensure the required database connection is active. Describe See also Auto Describe Tool
	Rename	Rename the selected object. Rename Object
	Drop	Remove the selected object from the database. To disable the Drop command: View | Preferences | General | "Drop" and "Truncate" safety options **(Oracle 10g and later)**: A recycle bin is available for handling and restoring dropped objects. You can use DB Navigator to retrieve objects dropped from the database. See also Find Recycle Bin Objects Dialog.
	Drop with Purge	Remove the selected object from the database permanently. Do not place the object in the Recycle Bin.
	Flashback	Restore the selected object from the Recycle Bin. Use DB Navigator to select an object in the Recycle Bin. You can type a new name for the object in the **New Name** column if required.
	Extract DDL	Extract the DDL or other SQL statements that define the selected object or access control. On requesting **Extract DDL** the SQL Navigator Preferences open: View | Preferences | Extract DDL | General. SQL Navigator encloses non-alphanumeric and mixed-case object names inside double-quotes You may like to use DB Navigator to select object(s). Extract DDL runs as a background task. See Task Manager.
	Get Metadata	Get the metadata of the selected object(s).
	Publish Java to PL/SQL	Create a PL/SQL package from the selected Java class stored in the database. Publish Java to PL/SQL
	Import Table	Import objects from a DMP file. Import Table
	Export	Export objects to a DMP file.

Menu Icon	Menu Name	More Information
	Table	Export Table
	Compile	Compile/Rebuild the selected object. **Menu Icon** / **Menu Name** / **More Information**  Compile/Rebuild — Compile the selected object.  Compile Dependents — Compile dependents of the selected object. This eliminates the need to find and compile all dependent objects that became invalid when altering a procedure, table, or other structure.  Compile Dependencies — Compile dependencies of the selected object. See also Task Manager, Code Editor. Watch for feedback in the Output Window. If the object compiles with errors, open it in the Code Editor and compile to make use of the Code Editor's error handling facilities. If the object has been modified, you will need to save it before you can compile it. This is to ensure that the changes in the object have been applied to the database.
	Execute	Execute the selected stored program and display the results in the PL/SQL Execution Console.
	SQL Modeler	Open the selected object in SQL Modeler. Scenario Example: Select a table in DB Navigator. Open the table in SQL Modeler. Build a query by selecting and dragging columns.
	Quick Browse	Execute the SQL query for the selected table object in the Code Editor to view chained rows information. See Quick Browse, SQL Query Results Data Grid
	Edit Data	Execute the SQL query for the selected table object in the Code Editor with **Updateable** switched on. See Edit Data, SQL Query Results Data Grid
	Analyze	View and collect statistics, validate structure and list chained rows for database structures such as tables, clusters and indexes. Analyze Tool
	Truncate	Remove all rows from a table and reset the STORAGE parameters to the values when the table or cluster was created. See also Task Manager. To disable the Truncate command: View | Preferences | General | "Drop" and "Truncate" safety options

Menu Icon	Menu Name	More Information
	Storage	Oracle allocates space to objects in segments. Segments consist of contiguous sections called extents. **Menu Icon / Menu Name / More Information**  Allocate — Explicitly allocate a new extent for a selected table or index.  Deallocate — Deallocate unused space at "the end" of a segment and make that space available for other segments within the tablespace.  Coalasce — Put together discontinuous fragmented extents. For more information, see the Oracle documentation on the ALTER TABLE and ALTER INDEX commands.
	Enable	Enable/Disable the selected constraint object. If a constraint is enabled, Oracle automatically enforces it. If a constraint is disabled, Oracle does not enforce it. See also Constraint Editor. See also Task Manager. Locate objects of type Constraint using Find objects Dialog.
	Disable	
	Grant	Grant object privileges for the selected object.
	Revoke	Revoke object privileges for the selected object.
	Locate in Tree	When an object is open in an editing window, and you want to see where that object resides in the schema, you can use **Locate in Tree** to jump to that object's node in DB Navigator. Locate In Tree
	Properties	Show the properties of the selected object
	Add to Project	Add the selected object to the Project Manager

Tools Menu

Invoke and control integrated tools.

Menu Icon	Menu Name	More Information
	Code Test	The Code Test panel automates the process of testing PL/SQL programs. Code Test

Menu Icon	Menu Name	More Information
	Code Analysis	Code Analysis analyzes code against a set of rules for best practices. Code Analysis
	View Difference	Compare two scripts / two objects. View Differences Dialog
	Formatter Tools	Format PL/SQL, SQL*Forms, Oracle Forms, and SQL*Plus source code.

Menu Icon	Menu Name	More Information
	Format Code	Format the entire source currently in the editor. To format just a selection, select the text you want to format. Output is displayed in the Output Window.
	Syntax Check	Check the syntax. Output is displayed in the Output Window. If syntax errors are detected, the text stays unchanged. The errors are displayed in the Output Window.
	Profile Code	Create a summary of the code statistics. You can copy to clipboard or save to file.
	Multi-File Formatting	Open the Multi-File Formatting Selection dialog. • Select **Folder** and enter the folder that directly contains the files you want to format. Or • Select **Files** and enter the files you want to format. Select **Backup files to folder** to create a backup copy of the files you are about to format.
	Formatting Options	Define how the Formatter Tool formats code. Formatting Options

	Wrap Code	Access Oracle's Wrap Code utility. Wrap Code
	Session Browser	Manage sessions in the Session Browser. Session Browser
	Search Knowledge Xpert	Knowledge Xpert (formerly RevealNet) is a library of more than 900 pre-built PL/SQL routines, written by some of the world's leading PL/SQL experts, that can be integrated into the standard PL/SQL environment. Search Knowledge Xpert
	SQL Optimizer	Analyze and tune the execution of SQL scripts.

Menu Icon	Menu Name	More Information
		SQL Optimizer Requires installation of SQL Optimizer for Oracle®.
	Explain Plan Tool	Create, store and browse execution plans. Explain Plan Tool
	PL/SQL Profiler	Analyze the execution time and efficiency of your stored programs. PL/SQL Profiler
	SQL Modeler	Create the framework of a Select, Insert, Update, or Delete statement. SQL Modeler
	Code Road Map	Show the complex PL/SQL inter dependencies within a database. Code Road Map
	ER Diagram	Model a table and graphically see the dependencies and joins to other tables. ER Diagram
	Job Scheduler	Work with Oracle Job Manager. Job Scheduler
	Java Manager	Load and unload multiple Java source files, classes, resources and archives. This is a convenient alternative to the Oracle LoadJava and UnloadJava command line utilities. Java Manager
	Import HTML as PL/SQL	Convert a HTML file into a PL/SQL stored procedure, to be output via the Oracle Web Cartridge. Import HTML as PL/SQL
	Dell Code Tester	Open Code Tester for Oracle®. Requires installation of Code Tester for Oracle®.
	Benchmark Factory	Open Benchmark Factory. Requires installation of Benchmark Factory.
	Toad Data Modeler	Open Toad™ Data Modeler. Requires installation of Toad™ Data Modeler.
	Profile Manager	Backup and restore SQL Navigator profiles. Profile Manager
	SQL Tracker	Open SQL Tracker. Requires installation of SQL Tracker.
	Server Side Installation	Install the server-side components of SQL Navigator

Menu Icon	Menu Name	More Information
	Wizard	Server Side Installation Wizard
	Product Authorization	Enter A New Authorization Key.

Team Coding Menu

Extensive and flexible Team Coding controls, including integration with third-party version control systems.

NOTE: Before enabling Team Coding: Install Server Side Objects for Team Coding.

Menu Icon	Menu Name	More Information
	Code Control Groups	Use Code Control Groups to organize controlled objects into groups associated with development projects. Open Code Collections Viewer
	Team Coding Viewer	Show details of objects under Team Coding control, including which objects are currently checked out and when they were last checked in. Open the Team Coding Viewer
	Version Control Browser	Show the version control repository. Drill down to any revision of any file, view revision histories, check files in or out, and view differences between revisions. Open the Version Control Browser.
	Get Latest Revision	Get the latest version of an object or script as it is held in the Version Control repository. The **Get Latest Revision** command overwrites the version of the object or script in the database, replacing it with the latest version held in the VCS repository. You can use the View Differences Dialog to compare versions before overwriting the object.
	Check Out	Use to check out and check in an object or script. Open: Check In / Check Out Dialog To indicate the object or script to check in or check out: • Select the object in DB Navigator, Find Objects, Version Control Browser, Team Coding Viewer, Object editing windows • Open the object in one of the Visual Object Editors or Code Editor. Not applicable when Automatic Check-Out and Automatic Check-In are enabled. For more information, see Team Coding Settings on page 120.
	Check In	
	Undo Check Out	Cancel the check-out. You are prompted to confirm that you want to discard any changes you have made and restore the database version of the item as it was prior to check-out.

Menu Icon	Menu Name	More Information
		Confirm Yes: You have made and saved changes to the object and you want to discard those changes. Confirm No: You have made and saved changes to the object and you want those changes to be retained in the database. As a result the version saved in the third party version control repository will be different from the version saved in the database.
	Check In All	Check in all changes.
	Compare To VCS	Select a database object (in DB Navigator for example) and compare it with the latest VCS revision Click Compare to VCS: Compare the selected object with the latest VCS revision Click SHIFT + Compare to VCS: Compare the selected object with a VCS revision that you select Requires that a version control product is in use and the selected database object is included in a Code Control Group.
	Connection Settings	Enable and further configure Team Coding. Open Team Coding Settings
	Status	Show connection details and the privileges granted to the current user. Open the Team Coding Status Dialog
	Provider Login	Logon to the Version Control Product. Requires that a version control product is in use.

Help Menu

Access to user-assistance

Menu Icon	Menu Name	More Information
	Contents	General and How-To information
	Context Help	Open context-sensitive help for the current window or dialog Not all windows and dialogs are linked to help topics.
	Shortcuts & Function Keys	Look up keyboard shortcuts and function keys Open Main Menu Keyboard Shortcuts
	Find a Command	Locate SQL Navigator commands

Menu Icon	Menu Name	More Information
		Open Component List
	SQL Navigator Community	Visit for all the latest product information, including tips and techniques.
	Contact Support	Open the Support Portal. Log issues, search the knowledge base and download products. http://software.dell.com/support/
	Create Support Bundle Files	Create the support bundle file: SupportBundle.dta. This file will contain information about your environment and installation of SQL Navigator. If you log an issue with support then they may request this file.
	Check For Updates	Check for Updates
	About SQL Navigator	SQL Navigator version, licensing version and options, and contact information.

Task Bar

The Task Bar lists all active SQL Navigator windows for the current project.

Use the Task Bar to select a SQL Navigator window to work on. That window is bought to the foreground, giving it focus.

TIP:

- To show / hide the Task Bar, right click over the Main Menu or Task Bar and click **Task Bar (List of Windows)**.
- Point to an item on the Task Bar with your mouse to see a Tool Tip for the associated window.
- When there are lots of open SQL Navigator windows you may want to organize them on the Task Bar. Active windows are grouped by session, with the most recent session's windows appearing on the left.

Toolbars

The following toolbars are available in the main window.

To show / hide a toolbar, right click over the Main Menu, any toolbar or task bar and select the toolbars to show.

Toolbar	Description
Session Toolbar	Duplicates some of the commands from the Session Menu.

Toolbar	Description
	TIP: Pause/Resume and Stop buttons on the Session toolbar allow you to interrupt execution of a current task. A hint on the Stop button dynamically shows which task is running and (if applicable) its current progress.
Edit Toolbar	Duplicates some of the commands from the File Menu and Edit Menu.
Functions Toolbar	Duplicates some of the commands from the View Menu, Tools Menu and Help Menu.
Object Toolbar	Duplicates some of the commands from the Object Menu and shows the current schema.
Team Coding	Duplicates some of the commands from the Team Coding Menu.

TIP:

- Some modules within SQL Navigator have their own toolbars. You should refer to the module's documentation for more information.
- To see a Tool Tip about an item on the toolbar, point to it with the mouse.

Component List

Icon	Component Name	Description
	Analyze Tool	View and collect statistics, validate structure and list chained rows for database structures such as tables, clusters and indexes.
	Auto Describe Tool	Report on the attributes, methods and arguments of an object type. *See also* Describe.
	Benchmark Factory	Simulate user transactions before and during application deployments, enabling performance issues to be addressed before end users are affected.
	Bookmarks Dialog	View / Jump to / Delete bookmarks. *See also* Edit Menu.
	Browse Data	View chained rows information. *See* Quick Browse.
	Change Logon Password	Modify the logon password of the current session.
	Cluster Editor	Join tables that are closely related for storing on the same area of the disk. This lets you interleave the rows of two or more tables together into a single area called a cluster.
	Code Analysis	Analyze code against a set of rules for best practices.
	Code Assistant	Drag and drop PL/SQL syntax, SQL functions, column names, and database object names into code.

Icon	Component Name	Description
	Code Editor	Edit SQL and PL/SQL code.
	Code Explorer	Show a hierarchical view the code. *See* Code Editor | Toolbox | Code Explorer.
	Code Road Map	Show the complex PL/SQL interdependencies within a database.
	Code Search	*See* Database Source Code Search.
	Code Templates	Insert ready-made code segments into any active editor window.
	Code Test	Automate the process of testing PL/SQL programs.
	Constraint Editor	Use the Constraint Editor to specify table constraints.
	Database Link Editor	Use the Database Link Editor to view, create or define database links.
	Database Source Code Search	Search stored programs, triggers and views for a character string in the source code.
	DB Explorer	Find and open database objects. *See* Code Editor | Toolbox | DB Explorer.
	DB Navigator	Show the entire database structure as a tree with expandable nodes.
	Describe	Report on the attributes, methods and arguments of an object type. *See also* Auto Describe Tool.
	Difference Viewer	Compare objects in a split view.
	Edit Data	Edit data in a table object.
	ER Diagram	Model a table and graphically see the dependencies and joins to other tables.
	Explain Plan Tool	Analyze the execution of a single SQL statement.
	Export Table	Export selected tables.
	Extract DDL	*See also* Object Menu. *See also* SQL Navigator Preferences: View | Preferences | Extract DDL | General.
	Find and Replace	Find or replace text strings in the current text file.
	Find objects Dialog	Find objects in any schema.
	Find Recycle	Search for objects in the recycle bin.

Icon	Component Name	Description
	Bin Objects Dialog	
	Formatting Options	Configure how the Formatter Tool formats code. Formatter tools are available from the Tools Menu.
	HTML Viewer	Show HTML in the integrated viewer.
	Import HTML as PL/SQL	Convert a HTML file into a PL/SQL stored procedure. The stored procedure will in turn output the HTML code via the Oracle Web Toolkit.
	Import Table	Import tables.
	Index Editor	Use the Index Editor to view, create or alter indexes, and to set storage allocation.
	Instance Property Editor	Use the Instance Property Editor to view or specify the startup parameters for the instance.
	Java Editor	View and edit Java source.
	Java Manager	Load and unload multiple Java source files, classes, resources and archives.
	Job Scheduler	Access the Oracle Job Scheduler.
	Locate In Tree	Jump to the selected object's node in the DB Navigator tree.
	Materialized View Editor	Use the Materialized (Snapshot) View Editor to view, create or define snapshots.
	Nested Table Editor	Use the nested table editor when you require a large, efficient collection.
	Open DB Object	Select and open a database object similar to the standard Windows File | Open command. *See* Select DB Object Dialog.
	Open Object at Cursor	*See* Edit Menu.
	Oracle Logon Dialog	Manage your database connections, including to create a database connection.
	Outline	Show the syntax tree of the current source. *See* Code Editor | Toolbox | Outline.
	Output Window	Show SQL Navigator messages and server output including Oracle errors.
	PL/SQL Debugger	Tools and features for debugging stored programs. *See* Code Editor | Toolbox | PL/SQL Debugger.

Icon	Component Name	Description
	PL/SQL Profiler	Analyze the execution time and efficiency of your stored programs.
	Profile Editor	Use the Profile Editor to view, create or alter profiles.
	Profile Manager	Backup and Restore SQL Navigator profiles.
	Product Authorization	*See* Enter A New Authorization Key.
	Project Manager	The Project Manager window provides instant access to your frequently used database objects and connections.
	Publish Java to PL/SQL	Create a PL/SQL package from a Java class stored in the database.
	Quick Browse	View chained rows information.
	Redo Log Group Editor	Use the Redo Log Editor to view, create, or alter Redo Logs.
	Role Editor	Use the Role Editor to view or create roles.
	Screen Layout	Save up to ten layouts of dockable windows and recall them. *See* View Menu | Screen Layout
	Search Knowledge Xpert	Drag and drop optimized routines directly into your program editor.
	Sequence Editor	Use the Sequence Editor to view, create, or alter sequences.
	Server Side Installation Wizard	Install server side objects.
	Select DB Object Dialog	Select and open a database object similar to the standard Windows File | Open command.
	Select Session	Switch between open Oracle Sessions.
	Session Browser	Manage sessions in the Session Browser.
	Source Preview	Preview the source code of text objects (stored programs, triggers and views), or a package's individual entry points.
	SQL History	The History tool lists successfully executed SELECT, UPDATE, DELETE commands and PL/SQL blocks up to 1000 of the most recent ones in the current session. *See* Code Editor | Toolbox | History
	SQL Modeler	SQL Modeler dialog provides a fast means for creating the framework of a Select, Insert, Update, or Delete statement. You can select Tables, Views, or Synonyms, join columns, select columns, and create the desired type of statement.

Icon	Component Name	Description
	SQL Optimizer	The SQL Optimizer makes observations about a selected SQL statement and the underlying database environment, then recommends several options to improve performance.
	Synonym Editor	Use the Synonym Editor to view or create synonyms.
	Table Editor	Use the Table Editor to create, alter, or define tables.
	Task Manager	SQL Navigator executes long-running tasks in separate threads in the background. The Task Manager is a display of all active and complete tasks for the current session.
	User Editor	Use the User Editor to create, grant or revoke roles and privileges to users, including forcing a password to expire.
	Varray Editor	Use the Varray Type Editor to create varying arrays.
	View Editor	Use the View Editor to view, create, or alter views.
	View Difference	The Difference Viewer displays the compared objects in a split window. *See* Difference Viewer.
	Visual Object Editors	SQL Navigator's editing tools for database objects.
	Wrap Code	The Wrap Code utility provides an easy way to access Oracle's Wrap Code utility.

Main Menu Keyboard Shortcuts

Generally available keyboard shortcuts are: Close Current Window = CTRL+F4 | Refresh = F5.

Icon	Main Menu	Keyboard Shortcut
	File | Open File	CTRL+O
	File | Print	CTRL+P
	Edit | Undo	ALT+Backspace
	Edit | Redo	SHIFT+ALT+Backspace
	Edit | Indent	CTRL+I
	Edit | Unindent	CTRL+U
	Edit | Comment	ALT+F7
	Edit | Uncomment	CTRL+ALT+F7
	Edit | Upper Case	CTRL+ALT+U
	Edit | Lower Case	CTRL+ALT+L

Icon	Main Menu	Keyboard Shortcut
	Edit | Insert | DBMS_OUTPUT.PUT_LINE(')	CTRL+D
	Edit | Insert | Debug Variable	F2
	Edit | Go to Line	CTRL+G
	Edit | Jump to Matching Bracket	CTRL+J
	Edit | Toggle Bookmark | Bookmark	SHIFT+CTRL+*n*
	Edit | Go to Bookmark | Bookmark	CTRL+*n*
	Edit | List Bookmarks	ALT+B
	Edit | Open Object at Cursor	CTRL+Enter
	Edit | Describe Object at Cursor	CTRL+F3
	Search | Find	CTRL+F
	Search | Replace	CTRL+H
	Search | Find Next	F3
	Search | Find Previous	SHIFT+F3
	Search | Find Objects	CTRL+ALT+O
	Search | Find Recycle Bin Objects	CTRL+ALT+B
	View | Project Manager Window	CTRL+W
	View | Code Editor	CTRL+M
	View | DB Navigator	F12
	Session | Stop	Scroll Lock
	Object | Create DB Object	Alt+Insert
	Object | Open DB Object	CTRL+ALT+D
	Object | Open	CTRL+F2
	Object | Describe	CTRL+F3
	Object | Drop	ALT+Delete
	Object | Drop with Purge	SHIFT+Delete
	Object | Extract DDL	CTRL+D
	Object | Compile | Compile/Rebuild	CTRL+F9

Icon	Main Menu	Keyboard Shortcut
	Object | SQL Modeler *Open the selected object in SQL Modeler.*	CTRL+B
	Object | Quick Browse	F3
	Object | Edit Data	CTRL+E
	Object | Grant	ALT+G
	Object | Locate in Tree	CTRL+L
	Tools | View Difference	CTRL+ALT+V
	Tools | Formatter Tools | Format Code	CTRL+R
	Tools | Search Knowledge Expert	CTRL+K
	Window | More Windows	ALT+0
	Help | Contents	CTRL+F1
	Help | Context Help	F1

TIP: Many additional shortcuts are available for the various modules of SQL Navigator. For example, see the Code Editor Keyboard Shortcuts.

Customize The Screen Layout

Float / Dock

You can save multiple screen layouts of floating / docked items as per the View Menu | **Screen Layout**.

TIP: While moving a dockable item you can prevent it from docking by holding down the CTRL key.

Items that can be floating or docked	More Information
Main Menu Bar	The main menu bar can be floating or docked.
Dockable Windows	The following windows are dockable. They can be docked to any side of the SQL Navigator application window or any other dockable window. You can dock several windows to the same site. • Auto Describe Tool

Items that can be floating or docked	More Information
	• Code Assistant • Output Window • Project Manager • Source Preview • Task Manager Dockable windows open in the same state (floating or docked) and in the same screen position or at the same site as when they were last closed. Dockable windows retain size and position between sessions. The size and location of dockable windows are remembered in screen layouts as per View Menu | **Screen Layout**. **NOTE:** • The size and location of the Output Window is remembered only when docked. • When the Output Window is docked, the Output Window remains visible ("on top") when other windows are opened. When the Output Window is not docked it can be hidden behind the current window.
Toolbars available in the Main Window	The toolbars can be docked to any side of the SQL Navigator application window or can float on top of the current window.
Task Bar	The task bar can be docked to any side of the SQL Navigator application window or can float

Toolbars in the Main Window

Customizations	Description
Show/Hide Buttons	1. If the toolbar is docked, click the down arrow to the far right of the toolbar. If the toolbar is floating, click the down arrow on the title bar. 2. Click **Add or Remove Buttons**. 3. Select the buttons to show.
Add/Remove Toolbars. Reorder Items. Add items from a master list.	1. If the toolbar is docked, click the down arrow to the far right of the toolbar. If the toolbar is floating, click the down arrow on the title bar. 2. Click **Add or Remove Buttons | Customize**.

Customizations	Description
	TIP: While the Customize dialog is open, move the mouse pointer over a toolbar button and right click. Choose an option from the shortcut menu. Reset the toolbar, delete or rename the button, change its appearance or add a separator.
Reset the Toolbar to Default.	1. If the toolbar is docked, click the down arrow to the far right of the toolbar. If the toolbar is floating, click the down arrow on the title bar. 2. Click **Add or Remove Buttons | Reset Toolbar**.

Main Menu Bar

Customizations	More Information
Customizable Menu Items	While the menu is docked, click the down arrow in the far right corner. If the menu is floating, click the down arrow on the title bar.

4

Oracle Logon

Oracle Logon Dialog

Manage your database connections, including to create a database connection.

Oracle Client Settings

Field	Description
Oracle Home/Client	Select from the list of available Oracle Home names.
TNSNAMES/LDAP/SQLNET Configuration File Path	The location of your Oracle configuration files.
Names.Directory_Path	As specified in your sqlnet.ora file.

Connection Parameters

Fill in the fields for one of the TNS, Direct or LDAP tabs.

TNS

Field	Description
Database	Select from the list of database connections in the TNSNAMES.ora file.

Direct

DIRECT is used for Direct Connection.

Field	Description
Host	Enter the name or IP address of the machine which hosts the Oracle server.
Port	Enter the port number for the Oracle server.

Field	Description
Service Name	Enter the service name of the Oracle server.
SID	Enter the Oracle System Identifier (SID) of the Oracle server. Use this option when connecting to an instance running a version earlier than Oracle 8.1.

LDAP

Select from the databases on the LDAP server.

Username / Password

Field	Description
Username	Your Oracle username to the database. When **Save Password** is selected the username field automatically recalls username/password combinations based on the first letter(s) entered into the field.
Password	Your Oracle password to the database/username combination.
Save password	Select to save the password for this database/username combination. **NOTE:** • Your password is saved in encrypted format. • Ensure you have safeguards in place to prevent other users from physical access to your computer (for example, automatic keyboard locking). • If you have saved a password then deselect **Save Password** to delete it.
TNSNames Editor	Add a new service and configure the TNSNames.ora file: Oracle TNS Configuration.

TIP: To change the logon password for the active connection: Close this dialog. Select **Session | Change Password** to open Change Logon Password.

Options

Option	Description
Bytes per Character	Allow the system to automatically detect the number of bytes per character for the connection or select from the list of available numbers. The default preference is set in View | Preferences | General | Session. If you receive ORA-01026

Option	Description
	errors (or similar) when working with the database, we recommend setting this preference to the minimum possible value (2, 3 or 4) that eliminates the errors.
Connect As	Select the type of system privileges you want to use for this connection—Normal, SYSDBA, or SYSOPER. Your Username must first be granted these privileges. For information about system privileges, see the *Oracle Database Administrator's guide*.
Enable using DBA views	Selected: Use DBA views to query the Oracle Data Dictionary. Not Selected: Use ALL views to query the Oracle Data Dictionary. For more information, see DBA Dictionary Views on page 48. Your Username must first be granted appropriate Oracle privileges.
Enable Trace	When selected, SQL Navigator generates a log file of database operations and results. Dell Support may request you enable trace for troubleshooting purposes. Enabling Trace slows down your access to the database.

Oracle TNS Configuration

Field	Description
Name	The service name of the database. Click **Add** to create a new configuration - Oracle TNS Configuration

Service configuration

Field	Description
SID	Specify the Oracle Instance. Click **Advanced** to open the Advanced Service Options Dialog. This field is visible if **Use Oracle 8i release 8.0 Compatible Identification** is selected.
Service name	Type the service name. This field is visible if **Use Oracle 8i release 8.0 Compatible Identification** is clear.
Connection type	Select a database connection type from the Connection Type list for the net service name. Oracle Corporation recommends you use the default setting of **Database Default**.
Use Oracle 8i release 8.0	Select if the destination service is prior to release 8.1, then type its SID in

Field	Description
Compatible Identification	the SID field. Clear if the destination service is an Oracle release 8.1 database, then type the service name in the Service Name field.

Address configuration

Field	Description
Protocol	Select a protocol from the list.
Host Name	The host name of the computer where the database is located.
Port Number	The TCP/IP port number. The default is 1521.
Add	Add an address configuration.
Advanced	Address List Options Dialog

Advanced Service Options Dialog

Option	Description
Instance Name	Type the database instance to access
Session Data Unit	Type the SDU (Session Data Unit) to optimize the transfer rate of data packets being sent across the network.
Use for Heterogeneous Services	Select this option, if you want an Oracle8i server to access a non-Oracle system.

For further information see the *Oracle Administrator's Guide*.

Address List Options Dialog

Option	Description	Compatibly with Net8 8.0 Clients
Try each address in order, until one succeeds	FAILOVER=ON for release 8.1 clients SOURCE_ROUTE=OFF for pre-release 8.1 clients.	Yes
Randomly try each address until one succeeds	LOAD_BALANCE=ON FAILOVER=ON	No
Try one address selected at random	LOAD_BALANCE=ON	No
Use each address in order until a	SOURCE_ROUTE=ON	Yes

Option	Description	Compatibly with Net8 8.0 Clients
destination is reached		
Use only the first address	LOAD_BALANCE=OFF FAILOVER=OFF SOURCE_ROUTE=OFF	No

Best Practice: Unless multiple address options are configured, the first address in the list is contacted.

DBA Dictionary Views

By default, SQL Navigator gives you USER object data dictionary views, meaning you can see only objects you own or for which you have been granted object privileges.

When you Enable DBA views in SQL Navigator you can...	Edit Profiles, Roles, and Users. View the following nodes of the DB Navigator tree: • Roles • Some nodes under Users • Datafiles under Tablespaces • Redo Log Groups • Rollback Segments • Partitioned tables in another user's schema
How to enable DBA views in SQL Navigator	Oracle Logon Dialog | Enable DBA Views
Oracle requirements to query DBA views	Your username must have one of the following roles or privileges: • DBA Role • SELECT_CATALOG_ROLE Role • SELECT ANY TABLE Privilege DBA role and SELECT_CATALOG_ROLE role must be defined as the default roles in Oracle. In addition to the SELECT ANY TABLE privilege, Oracle 9i may also require the user to have the SELECT ANY DICTIONARY privilege if the O7_DICTIONARY_ACCESSIBILITY initialization parameter is set to FALSE. For information about system privileges, see the *Oracle Database Administrator's guide*.

NOTE: Enabling DBA dictionary views may affect performance for some Oracle instances, depending on the number of users and objects, as well as other environmental factors.

How SQL Navigator handles the views

When DBA dictionary views are selected, SQL Navigator interrogates the data dictionary differently:

Regardless of DBA View setting, SQL Navigator uses USER_% views for the logged-on user's objects.

Without DBA Views, SQL Navigator uses ALL_% views for other user's objects.

With DBA Views, SQL Navigator uses SYS.DBA_% views for other user's objects.

Troubleshooting Connections to Oracle

Message	Solution
Directory not in path	Ensure that the Oracle bin directory is specified in the path. Enter the path command in the DOS prompt to check the path. If the directory is not in the path, add it to the path in autoexec.bat and reboot the system.
Oracle Required Support Files not installed	Ensure that at least one of the 32 bit Oracle Required Support Files are installed. These files are installed by default when you install any of the 32 bit Oracle products such as SQL*Net and SQL*Plus. To verify whether the Required Support Files are installed, start the Oracle installer. All installed components are listed in the right side of the dialog box. If the Required Support Files do not appear on the right-hand side list box, install these files from Oracle software media.
Connect strings for local and remote database	If you are connecting to a local database use 2: (or a blank) as the connect string. If you are connecting to a remote database: • Ensure that the 32 bit SQL*Net client is installed • Ensure that the file tnsnames.ora has been properly configured using the SQL*Net Easy Configuration • Ensure that proper network connectivity is available to the remote computer. Use the TNSPING Utility from Oracle. Open a command prompt and enter tnsping <instance name> 6. If correctly configured, SQL*Net responds with 6 OK messages and measured response times. • Ensure that the SQL*Net listener application is running on the remote computer.

Command Line Parameters

Connection details can be passed via command line parameters. In addition, a key parameter /EXEC can be passed along with the file name in the command line to force execution of a script.

TIP: Avoid storing your password in a Windows startup shortcut unless your computer is protected from unauthorized access.

To connect to the database immediately on startup and bypass the Oracle Logon Dialog, pass the parameter in the command line when starting SQL Navigator. Use the following format:

CONNECT=USERNAME/password@connect_string

Note the upper-case username. For example:

CONNECT=SCOTT/tiger@Marvin817

There is an alternative method, using /u, /p and /cs parameters (user, password, and connect string, respectively). For example, you could create a Windows shortcut with the following Target property:

"C:\Program Files\Dell\SQL Navigator for Oracle\sqlnavigator.exe" /u=scott /p=tiger /cs=Marvin817

5

Code Editor

SQL Development

The Code Editor opens ready to edit SQL code.

More Information	Brief Description
Code Editor SQL	The Code Editor toolbar in SQL development.
Edit, Compile And Execute	Write SQL code. Compile the code.
SQL Query Results Data Grid	Browse the results of executed SQL queries.
SQL Query Log (The Spool Tab)	View a log of executed SQL statements. Retrieve executed SQL statements.

PL/SQL Development

The Code Editor layout for PL/SQL development is used when a stored object is opened or is being created.

More Information	Brief Description
Code Editor PL/SQL	The Code Editor toolbar in PL/SQL development.
Edit, Compile And Execute	Write PL/SQL code. Compile the code.
PL/SQL Execution Console	Set input parameters. Run the PL/SQL program.

Toolbox

Icon	More Information	Brief Description
	Code Explorer	Show a hierarchical view the code.

Icon	More Information	Brief Description
	Outline	Show the syntax tree of the current source.
	DB Explorer	Find and open database objects.
	Describe	Show the data structure for tables, indexes, views and synonyms.
	History	Show the most recent successfully executed SELECT, UPDATE, DELETE commands and PL/SQL blocks in the current session.
	Dependencies	Show the Dependants and Depends On objects of the current script.
	Columns	Show/hide columns of the retrieved table in the data grid.
	PL/SQL Debugger	Tools and features for debugging stored programs. Show/Hide the PL/SQL Debugger in the Toolbox from the Code Editor toolbar.

TIP:

- Align the Toolbox left or right of the Code Editor (Right Click on the Toolbox).
- Pin/Unpin the Toolbox to allow more editing space.

Code Editor SQL

The Code Editor opens ready to edit SQL code. The toolbar is appropriate to SQL development. Each of the toolbar icons is described below. In addition, all standard editing functions are available. See For more information, see Edit, Compile And Execute on page 60. for more information.

General Code Editor Functions

Icon	Tool Tip	Description
	Back	Navigate between hyperlinked database objects (in the editing pane) and their dependent objects and components.
	Forward	
	New SQL	Write a single SQL statement or a series of SQL statements in a new editing pane. The toolbar will open for SQL development.
	New Stored Object	Create a stored object. Open the New Stored Object Dialog.
	Open File	Open an external file in the Code Editor. An alternative way to open file is to drag and drop a file from Windows Explorer to the SQL Navigator window.

Icon	Tool Tip	Description
	Save to File	Save the contents of the current Code Editor pane to an external file.
	Open Object	Locate a stored object using the Select DB Object Dialog and open the object in the editing pane.
	Auto Code Completion	Turn On/Off Auto Code Completion. When turned on, the Code Editor matches variables, parameters, procedures and types as you type.
	Vertical Split	Adjust the layout of the editing pane. Select from the options to split the editing pane in half either horizontally or vertically. The content of the editing pane will be visible in both panes. You can scroll the panes independent of each other. **TIP:** To open a different script in one of the panes: 1. Open the second script in a new editing pane of the Code Editor. 2. Return to the split panes. In the pane to load the second script right-click and select **Split/Compare | Second Source**. 3. Select the second source from the list of all scripts currently open in the Code Editor.

SQL Specific Functions

Icon	Tool Tip	Description
	Send to Session	Switch to other sessions and continue working within the same window, with the same script. This feature allows you to run the same script against different databases without the need to copy it into another instance of the Code Editor. It also allows you to correct the oversight of opening a file into the wrong session. You can choose from a list of current sessions or start a brand new session. **NOTE:** • When you run that window (execute the SQL or compile the PL/SQL code, for example), SQL Navigator will prompt you to change to the new (current) session. It allows you to quickly correct the oversight of opening a file into the "wrong" session. • You can change session while editing SQL scripts only. This option is not available to stored programs.

Icon	Tool Tip	Description
	Add Condition	Insert **Where** clause conditions in the SQL script using a graphical interface. 1. Type the SQL statement up to the where clause (`Select * from emp_table`). 2. Click **Add Condition** to open the Add Filter window. 3. Select and fill in the field, operator and value(s) accordingly. 4. Click Ok to insert the where clause. The **Value(s)** field is shown depending on which Operator has been selected. Use when there is no semicolon (;) in the script.
	Remove All Conditions	
	Updateable	On: Edit the data returned by SQL queries. Update, delete and insert new records and save your changes back to the database. This feature is particularly useful for creating test data. **TIP:** • Updateable requires simple SELECT statements with no joins, subqueries in select clause, calculated fields, group by, having, count(), substr or DISTINCT. • Updateable queries are slow to execute. Off: Data returned by SQL queries is read-only.
	Stop on Error	Use in conjunction with **Execute to End** to validate syntax. Not Selected: Execute all SQL statements. Highlight all erroneous statements. Selected: Stop execution of SQL statements on encountering the first error. Highlight the offending code.
	Fetch All	Limit the rows retrieved on execution of the SQL statement: Not Selected: Retrieve enough rows to fill the visible area of the grid. Fetch additional rows on scroll down requests. Selected: Retrieve all rows.
	Spool Screen	Select to capture a log of executed SQL statements in the SQL Query Log (The Spool Tab).
	Scan Defines/Substitutions	Turn On/Off Scan Defines/Substitutions Turn on Scan Defines/Substitutions if your script uses variables or text that contain the characters &, &&, or = :[bind variable]. Otherwise, the statements containing the variables will generate an error.
	Echo SQL	On/Off

Icon	Tool Tip	Description
	SQL History	Show/Hide the Toolbox History If the Toolbox is unpinned, showing History will not make History visible until the Toolbox is shown.
	Expand SQL Pane	Maximize screen real estate of the SQL pane.
	Skip to Top	Execution Control Buttons: • The location of the cursor marks the execution start point. • Use **Skip to Previous** and **Skip to Next** to move the cursor through the SQL statements. • Click **Execute to End** or press **F9** to run the script to the end. • Click **Execute Step** or press **F8** to execute the current statement. • To work with the result see SQL Query Results Data Grid. **TIP:** • You cannot run multiple queries within the same session simultaneously. If you need to run multiple queries simultaneously, you can open another connection to the same database. • To validate syntax use **Execute to End** in conjunction with **Stop on Error**.
	Skip to Previous	
	Execute to End	
	Execute Step	
	Stop	
	Skip to Next	
	Skip to Bottom	
	PL/SQL Debugger	Show/Hide the Toolbox PL/SQL Debugger If the Toolbox is unpinned, showing the PL/SQL debugger will not make the PL/SQL debugger visible until the Toolbox is shown.
	Abort Debug Session	For more on debug see PL/SQL Debugger.

Team Coding Version Control

To enable Team Coding see Team Coding Settings.

Icon	Tool Tip	Description
	Get Latest Revision	Get the latest version of an object or script as it is held in the Version Control repository. The **Get Latest Revision** command overwrites the version of the object or script in the database, replacing it with the latest version held in the VCS repository. You can use the View Differences Dialog to compare versions before overwriting the object.
	Check Out	Check out or check in the current object or script. Open: Check In / Check Out Dialog

Icon	Tool Tip	Description
	Check In	
	Undo Check Out	Cancel the check-out. You are prompted to confirm that you want to discard any changes you have made and restore the database version of the item as it was prior to check-out.

Confirm Yes	You have made and saved changes to the object and you want to discard those changes.
Confirm No	You have made and saved changes to the object and you want those changes to be retained in the database. As a result the version saved in the third party version control repository will be different from the version saved in the database.

Tools and Applications

Icon	Tool Tip	Description
	SQL Optimizer	SQL Optimizer
	Explain Plan	Explain Plan Tool
	PL/SQL Formatter	Format PL/SQL, SQL*Forms, Oracle Forms, and SQL*Plus source code.

Menu Icon	Menu Name	More Information
	Format Text	Format the entire source currently in the editor. To format just a selection, select the text you want to format. Output is displayed in the Output Window.
	Syntax Check	Check the syntax. Output is displayed in the Output Window. If syntax errors are detected, the text stays unchanged. The errors are displayed in the Output Window.
	Profile Code	Create a summary of the code statistics. You can copy to clipboard or save to file.
	Multi-File Formatting	Open the Multi-File Formatting Selection dialog. • Select **Folder** and enter the folder that directly

Icon	Tool Tip	Description		
		Menu Icon	Menu Name	More Information
				contains the files you want to format. Or • Select **Files** and enter the files you want to format. Select **Backup files to folder** to create a backup copy of the files you are about to format.
			Format Options	Define how the Formatter Tool formats code. Formatting Options
	Knowledge Xpert	Search Knowledge Xpert		
	Code Analysis	Code Analysis		

Code Editor PL/SQL

The toolbar appropriate to PL/SQL development opens when you create / open a stored object in the Code Editor. Each of the toolbar icons is described below. In addition, all standard editing functions are available. For more information, see Edit, Compile And Execute on page 60.

General Code Editor Functions

Icon	Tool Tip	Description
	Back	Navigate between hyperlinked database objects (in the editing pane) and their dependent objects and components.
	Forward	
	New SQL	Write a single SQL statement or a series of SQL statements in a new editing pane. The toolbar will open for SQL development.
	New Stored Object	Create a stored object. Open the New Stored Object Dialog.
	Open File	Open an external file in the Code Editor. An alternative way to open file is to drag and drop a file from Windows Explorer to the SQL Navigator window.
	Save to File	Save the contents of the current Code Editor pane to an external file.
	Open	Locate a stored object using the Select DB Object Dialog and open the object in the

Icon	Tool Tip	Description
	Object	editing pane.
	Auto Code Completion	Turn On/Off Auto Code Completion. When turned on, the Code Editor matches variables, parameters, procedures and types as you type.
	Vertical Split	Adjust the layout of the editing pane. Select from the options to split the editing pane in half either horizontally or vertically. The content of the editing pane will be visible in both panes. You can scroll the panes independent of each other. TIP: To open a different script in one of the panes: 1. Open the second script in a new editing pane of the Code Editor. 2. Return to the split panes. In the pane to load the second script right-click and select **Split/Compare | Second Source**. 3. Select the second source from the list of all scripts currently open in the Code Editor.

PL/SQL Specific Functions

Icon	Tool Tip	Description
	Open/Create Package Body	Navigate to a function/procedure inside the package body.
	Entry	Move the cursor to the function / procedure definition in the code.
	Undo all changes	Undo all changes since the last save.
	Generate DDL script	Generate a DDL script of the procedure / function / package. Switch between the DDL script and procedure / function / package using the tabs at the bottom of the screen. While the DDL script is on view the Code Editor toolbar adjusts to editing SQL code.
	Save to Database	Save changes. Submit the PL/SQL to the database, compile, and report errors
	Save to Database As (Clone)	Save (clone) the object. The new stored program will have a definition identical to the stored program currently open in the editor. Optionally select a new schema and name for the object.
	Execute Procedure / Function	Open the PL/SQL Execution Console from editing mode. If the PL/SQL Execution Console is already open then execute the code. TIP: Once you have opened the PL/SQL Execution Console, toggle between execution and editing mode via the tabs at the bottom of the screen.
	Stop procedure execution	Use if required to stop execution of the procedure before it finishes.
	Toggle	Add / Remove breakpoint on the selected line of code. For more on debug see

Icon	Tool Tip	Description
	Breakpoint	PL/SQL Debugger.
	PL/SQL Debugger	You can watch the result values during runtime. You can run stored programs in parallel by opening additional sessions within SQL Navigator. Show/Hide the Toolbox PL/SQL Debugger
	Abort Debug Session	For more on debug see PL/SQL Debugger.

Team Coding Version Control

To enable Team Coding see Team Coding Settings.

Icon	Tool Tip	Description
	Get Latest Revision	Get the latest version of an object or script as it is held in the Version Control repository. The **Get Latest Revision** command overwrites the version of the object or script in the database, replacing it with the latest version held in the VCS repository. You can use the View Differences Dialog to compare versions before overwriting the object.
	Check Out	Check out or check in the current object or script. Open: Check In / Check Out Dialog
	Check In	
	Undo Check Out	Cancel the check-out. You are prompted to confirm that you want to discard any changes you have made and restore the database version of the item as it was prior to check-out.

Confirm Yes	You have made and saved changes to the object and you want to discard those changes.
Confirm No	You have made and saved changes to the object and you want those changes to be retained in the database. As a result the version saved in the third party version control repository will be different from the version saved in the database.

Tools and Applications

Icon	Tool Tip	Description
	SQL Optimizer	SQL Optimizer

Icon	Tool Tip	Description
	Explain Plan	Explain Plan Tool
	PL/SQL Formatter	Format PL/SQL, SQL*Forms, Oracle Forms, and SQL*Plus source code.

Menu Icon	Menu Name	More Information
	Format Text	Format the entire source currently in the editor. To format just a selection, select the text you want to format. Output is displayed in the Output Window.
	Syntax Check	Check the syntax. Output is displayed in the Output Window. If syntax errors are detected, the text stays unchanged. The errors are displayed in the Output Window.
	Profile Code	Create a summary of the code statistics. You can copy to clipboard or save to file.
	Multi-File Formatting	Open the Multi-File Formatting Selection dialog. • Select **Folder** and enter the folder that directly contains the files you want to format. Or • Select **Files** and enter the files you want to format. Select **Backup files to folder** to create a backup copy of the files you are about to format.
	Format Options	Define how the Formatter Tool formats code. Formatting Options

	Knowledge Xpert	Search Knowledge Xpert
	Code Analysis	Code Analysis

Edit, Compile And Execute

The Code Editor opens ready to edit SQL code. You will see the SQL Toolbar (Code Editor SQL) and a blank canvas to write SQL code. If you create / open objects requiring PL/SQL code you will see the PL/SQL Toolbar (Code Editor PL/SQL).

Features	Description
Standard	All standard editing functions are available.

<table>
<tr><th>Features</th><th>Description</th></tr>
<tr><td>Editing Functions</td><td>See:
<table>
<tr><td>Control the contents of the Code Editor window</td><td>Toolbars for Code Editor SQL or Code Editor PL/SQL as appropriate.</td></tr>
<tr><td>Manage objects in schemas</td><td>Main Menu | Object Menu</td></tr>
<tr><td>Handle text-and code</td><td>Main Menu | Edit Menu</td></tr>
<tr><td>Search for code or objects</td><td>Main Menu | Search Menu</td></tr>
<tr><td>Access to various SQL Navigator windows and tools</td><td>Main Menu | View Menu</td></tr>
<tr><td>Manage database sessions</td><td>Main Menu | Session Menu</td></tr>
<tr><td>Access add-ons, integrated applications and additional tools</td><td>Main Menu | Tools Menu</td></tr>
</table>
See also:
• Main Menu Keyboard Shortcuts
• Code Editor Keyboard Shortcuts
• Toolbars
Some functions are duplicated on the shortcut menu. Right click in the editing pane to open the shortcut menu.</td></tr>
<tr><td>Working with objects</td><td>Drag and drop objects from the following SQL Navigator modules into the editing pane.
• DB Explorer
• Project Manager
• DB Navigator
Show the definition of the object at the cursor location:
1. Right click on the object in the editing pane and select Go to Definition.
2. The result is shown in the Output Window.
Describe the object at the current cursor location:
1. Press CTRL and click the object's name.
2. This opens Describe for the object.
TIP:
• To construct SQL statements, drag and drop column names from the Describe tool into the editing pane.
• If the described object is a text object (view, procedure, function, package or packaged procedure/function) and the Source Preview window is open, the object’s source is automatically previewed.</td></tr>
</table>

<table>
<tr><th>Features</th><th>Description</th></tr>
<tr><td rowspan="5">Automated Coding Assistance</td><td>Auto Code Completion</td><td>As you type an identifier the editor displays a selectable list of matching symbols (variables, parameters, procedures, types) in the current scope.

TIP: Turn on/off code completion from the Code Editor Toolbar.</td></tr>
<tr><td>Dot-lookup</td><td>Type a dot character after a name of variable. The editor automatically displays a selectable list of members of a PL/SQL record, cursor, package or %ROWTYPE record.</td></tr>
<tr><td>Code Explorer</td><td>The Code Explorer displays a hierarchical list of all symbols in the package or procedure, and highlights the procedure the cursor is currently in. Double-click on a symbol to navigate within the program. It dynamically parses and checks syntax.</td></tr>
<tr><td>Hyperlinks</td><td>To see the declaration of an identifier, press Ctrl+click. The text cursor automatically jumps to the declaration of the symbol if it's defined within the same program. If it's a name of an external database object, an Auto Describe opens.</td></tr>
<tr><td>Syntax tool tips</td><td>Point to a variable, parameter or procedure with the cursor to see a description of it.</td></tr>
<tr><td>Insert ready made code</td><td colspan="2">Insert ready made code into the editor.

1. Place the cursor in the editor window where you want the code to be inserted
2. Press Ctrl+J. The template names display in a drop-down list.
3. Select the name of the template you want to insert from the drop-down list.
4. Press Enter.

To manage, create and edit the ready made code, see Code Templates.</td></tr>
<tr><td></td><td colspan="2">Drag and drop PL/SQL syntax, SQL functions, column names, and database object names into code using the Code Assistant.</td></tr>
<tr><td>Code with multiple SQL statements

and

PL/SQL blocks</td><td colspan="2"><table><tr><th>Code</th><th>Description</th></tr><tr><td>SQL</td><td>If you write multiple SQL statements in the editing pane then ensure each SQL statement ends with either:

• a semicolon (;)
• " / " on the next line.

TIP: There is a quick way to construct SELECT statements for multiple tables. Highlight the tables in DB Explorer, drag and drop them into the editing pane. This behavior is set in View | Preferences | Code Editor | General | Drag & Drop.</td></tr><tr><td>PL/SQL</td><td>PL/SQL blocks entered into the script must have either

• a forward slash /
• or a period mark .</td></tr></table></td></tr>
</table>

Features	Description

	Code **Description**
	following the last line of the block.
	This is necessary because the PL/SQL blocks can themselves contain blank lines and semicolons.
	When you create or execute a PL/SQL anonymous block, the semicolons are required in the SQL statement. For example
	BEGIN
	Test_procedure;
	END;

Execute the SQL query or Compile the PL/SQL code	**Execute the SQL query** *See:* The toolbar: Code Editor SQL. **Compile the PL/SQL code** *See*: Code Editor PL/SQL, PL/SQL Debugger, DBMS_OUTPUT. You can compile a program that is stored in the database. While the program is being edited, use the Save command to compile and store it. Once the program has been modified, you will need to save the program prior to any further usage of the Compile/Rebuild functionality - This is to ensure that the changes in the program have been applied to the database. SQL Navigator displays all syntax and compiler errors in a separate scrollable pane. Click on the error text to show the source code at the source of the error. Double click on the error text to show the error message description, cause and actions as per the Oracle documentation. Also watch for feedback in the Output Window. **Auto Reparse** Many features of the Code Editor, including the Code Explorer window, code completion, tool tip display of program arguments, bracket matching, collapse loops/blocks, and others, rely on automatic parsing of the PL/SQL code and internally generating a symbol table. This parsing occurs when the editor first loads the objects, and it also occurs in the background in order to maintain the symbol table as the user edits the code. You can also manually trigger a full reparsing (updating of the internal symbol table) at any time by right-click and select **Auto Reparse** from the shortcut menu. However, when loading a really large script having this option on will slow down SQL Navigator. Hence, to avoid wasting CPU resources, you should turn this option off when editing large scripts. **Symbols in the gutter margin** Symbols in the gutter margin provide a visual indication of the statement's status.

Features	Description

Icon	Description
	Enabled breakpoint. For more on debug see PL/SQL Debugger.
	Disabled breakpoint. For more on debug see PL/SQL Debugger.
	Current execution line
	Invalid breakpoint. For more on debug see PL/SQL Debugger.
	This statement executed with errors. Information about the error is displayed. Double click on this information to open the **Oracle Error Information dialog**.
	This SELECT statement produced results. **TIP:** • Double click on the icon to jump to the associated results tab (Press CTRL+F11). • There can be multiple results displays, one per statement executed. Each result set is displayed in a separate tab. • See SQL Query Results Data Grid • When a result tab is selected, the corresponding statement will be focused.
	This non-select statement executed successfully.
	This statement was executed with warnings.

Look and Feel	Feature	Description
	Collapse / Expand Statements	You can collapse/expand a block, procedure, loop or IF statement by clicking on the - or + symbols to hide/show codes. **TIP:** When the script is exceptionally long the collapse/expand codes may slow down the application. You can choose to disable this feature in **View | Preferences |** Code Editor | General **| Enable Code Collapsing**.
	Syntax highlighting	The Code Editor uses colors to highlight PL/SQL and SQL keywords, text and comments. When you set the cursor at a bracket within an expression, the matching bracket is automatically highlighted.
	Bookmarks	Lines of code can be bookmarked so you can return to them easily. • To add / list / go to bookmarks see the Edit Menu. •  (0-9) in the gutter margin indicate Bookedmarked lines.

Feature	Description
Variable declarations	To move the cursor to the declaration of a variable (or Auto Describe it if it's the name of an external database) Press CTRL and point to the variable with the mouse. To return to the former position in the text, press ALT+Left Arrow.
Switch between specification and body	Press CTRL+SHIFT plus the down or up arrow to move the cursor between the specification and the body.
Formatter Tools	SQL Navigator's Formatter Tools is a unique utility for reformatting existing PL/SQL, SQL*Forms, Oracle Forms, and SQL*Plus source code. See the Code Editor toolbar: Code Editor SQL or Code Editor PL/SQL.
Automatic Indentation	When you insert multi-line text into the editor, the text is placed at the same indentation level as the current cursor position. For best results, before inserting text, place the cursor at the location and indentation level where you want the inserted text to appear.
Manipulate rectangular blocks of code	Right click on the code and select **Edit | Selection Mode | Block** or press **ALT+F7**. The block selection is limited to the length of the last line. To overcome this limitation select **View | Preferences** | Code Editor | General | **Allow Caret after EOL**.
Show/hide invisible characters	Right click on the code and select **Edit | Show Tabs/Eol/Eof**
Switch between tabs and spaces	Right click on the code and select **Edit | Tabs/Spaces** and select from the available options. Requires **View | Preferences** | Code Editor | General | **Use Tab Characters** selected.

SQL*Plus command support

The Code Editor supports the following SQL*Plus commands:

- Comment Delimiters (/*...*/)
- Double Hyphen (- -)
- At Sign (@)
- Double At Sign (@@)
- Forward Slash (/)
- CONNECT

- DESCRIBE
- DISCONNECT
- EXECUTE
- REMARK

NOTE: Consult Oracle documentation for details about Oracle's SQL*Plus utility.

SQL Navigator also allows large scripts or SQL statements to be executed in the background, allowing you to perform other functions on your PC simultaneously.

Executing Scripts Invoked By At Sign (@) or Double At Sign (@@) SQL*Plus Commands

Ensure that all the required scripts are in the same directory and in the correct SQL format.

In the Code Editor, invoke the master script using the @ command.

The output of the executed scripts will be displayed in the appropriate window of SQL Navigator, for example the output of a SELECT statement will appear in the grid (SQL Query Results Data Grid), while the output of a CREATE statement will appear under the appropriate node in DB Navigator.

Connect To A Database Via The Code Editor

To execute a SQL statement or script within the Code Editor, you must first be connected to the relevant database.

It is possible to connect and disconnect databases from within the Code Editor using SQL*Plus commands.

Connect	Open a new Code Editor tab, and then type and execute a connect statement using the following SQL*Plus format Connect name/password@database
Disconnect	Open a new Code Editor tab, and then type and execute a disconnect statement using the following SQL*Plus format Disconnect name/password@database **NOTE:** If you type and execute the disconnect statement without specifying any database details, the current session you are using will be disconnected.

Bind Variables

A bind variable is a variable in a SQL statement that must be replaced with a valid value or address of a value in order for the statement to successfully execute.

Bind variables enable you to use PL/SQL in a SQL*Plus script. They provide a mechanism for returning data from a PL/SQL block so that it can be used in subsequent queries.

The Code Editor supports bind variables; use them the same way as you would use them in SQL*Plus.

Here is an example of how to declare a bind variable:

VARIABLE s_table_name varchar2(30)

To reference a bind variable in a PL/SQL block, preface it with a colon (:)

BEGIN

:s_table_name := 'EMPLOYEE';

END;

/

Auto Code Completion

Scenario: Use Point-And-Click to insert column names for a database object into your code.

1. Ensure **Auto Code Completion** is turned on.
2. Place the cursor in the editor window where you want the column names to be inserted.
3. Type the name of the object followed by a period mark (.).
4. Select the name of the column you want to insert from the drop-down list.
5. Press Enter.

Scenario: Show a parameters list for a procedure or function.

1. Ensure **Auto Code Completion** is turned on.
2. Type in the name of the procedure or function followed by an open bracket '**(**'.
3. Automatic code completion brings up a list of parameters (including alternative lists for overloaded procs/funcs).

Scenario: Dot lookup for record members.

1. Ensure **Auto Code Completion** is turned on.
2. Type in the name of the variable followed by a full stop.
3. SQL Navigator displays a list of matching members. Dot-lookup automatically displays a 'pick' list of members of a PL/SQL record, cursor, package or %ROWTYPE record.

Scan Defines/Substitutions

The Code Editor lets you use substitution variables in SQL statements—similar to the way SQL*Plus handles them.

NOTE: Turn on Scan Defines/Substitutions when using variables or text that contain the characters &, &&, or = :[bind variable]. Otherwise, the statements containing the variables will generate an error.

Specifying substitution variables in SQL statements

Use substitution variables for flexible SQL statements. Flexible SQL statements are a powerful way to improve productivity.

Feature	Example	Description
Use the & symbol followed by a variable name to specify a substitution variable.	&EMPNUM	You can use &EMPNUM as a valid substitution variable name.
An example of a SQL statement demonstrating the use of a substitution variable	SELECT * FROM EMP WHERE EMPNUM = '&EMPNUM';	When you execute this SQL statement, the Code Editor prompts you to enter the value for the employee name. This allows you to create generic SQL statements that can be reused.
You can use substitution variables in any part of the SQL statement.	SELECT &COL1, &COL2 FROM &TAB;	When you execute this SQL statement, the Code Editor prompts you to enter the column names, as well as the table name.
You can use this concept to create other types of generic SQL statements or scripts. One practical application of this concept is creating a generic script for creating user codes at your site.	CREATE USER &&UNAME IDENTIFIED BY &PASS; GRANT ALL ON EMP TO &&UNAME;	
You can use the double ampersand the same way as the single ampersand with some differences.	&&UNAME	When you execute this SQL statement • The first time the Code Editor encounters the && variable, it looks up the variable to determine whether it has already been defined in either a DEFINE statement or in a previous && variable. • If the variable is defined, Code Editor substitutes the value in the SQL statement. • If the variable is undefined, the Code

Feature	Example	Description
		Editor prompts you to enter the value of the variable, defines the variable for future look-ups, and substitutes the value in the SQL statement. • Once a && variable is defined, you are no longer prompted to enter its value in the same session until you UNDEFINE the variable.

DEFINE and UNDEFINE

You can use the terms DEFINE and UNDEFINE to define and undefine numeric and character variables in SQL scripts.

Statement	Example	Description
DEFINE	DEFINE EMP_ NAME='SCOTT' DEFINE EMP_NUM=4467	Define a substitution variable. A character/varchar substitution variable definition uses single quotes.
UNDEFINE	UNDEFINE EMP_NAME	Undefine a previously defined substitution variable.

TIP: Alternatively, right click in the editing pane and select **SQL Script Options | Substitutions** to open the **Substitutions** dialog.

New Stored Object Dialog

Select the object type:

Procedure	A procedure is a sequence of executable statements that performs a particular action. Procedures can be stored in the database (where they are also executed) and reused; they are then referred to as stored procedures. Stored procedures cannot be embedded in a SQL statement.
Function	A function is a block that returns a value. Functions can be stored in the database and reused. Stored functions can be called from within a SQL statement.
Package+Body	A package is an encapsulated collection of related schema objects, including modules and other constructs, such as cursors, variables, exceptions, and records. Packages allow procedures, functions, variables, and cursors that share common or related functions to be compiled and stored as a single schema object. • Packages allow encapsulation of internal subroutines and variables.

	• With packages, you can specify which code is publicly available to programmers and which data should be hidden. In addition, you can implement global variables, data structures, and values; these persist for the duration of a user session. • Packages have both a specification and a body. The package specification declares procedures, functions, cursors, and variables. • The package body contains the implementation of the public procedures and functions, together with internal and private programs and variables.
Type+Body	Object types are user-defined data types, equivalent to "classes" in object-oriented languages, that may consist of composite data types or collections such as repeating groups or complex record types. Object types may be associated with member functions and procedures that are implemented in PL/SQL. These modules implement the methods of the object type. Like packages, object types have both a specification and a body. • The specification lists the object's attributes and member functions. • The body contains the actual code for the methods.
Trigger	A trigger is a named PL/SQL unit that is stored in the database and executed in response to a specified event that occurs in the database.

TIP: For each object type, SQL Navigator provides a ready made template or "shell" to make coding easier. You can modify these templates. The template name and location is defined in the opening comments when the new object is created.

SQL Statement CRUD Matrix Dialog

Insert a CRUD (Create/Update/Delete) worksheet into the code editor.

The CRUD matrix is inserted as commented text at the current cursor position. This can be a convenient way of documenting and analyzing your procedures.

SQL Query Results

SQL Query Results Data Grid

Browse the results of an executed SQL query in a dynamic grid with options for viewing, sorting and navigating. There can be multiple results displayed, one per statement executed. Each result set is displayed in a separate tab.

NOTE:

- When a result tab is selected, the SQL query statement that generated the result is focused.
- If the data is LOB, XML or Array then double click on the data cell for more information. For more information, see Viewers: LOB, XML, Array on page 74.

- The Data Grid supports National Language Support (NLS). Display and edit multi byte data.
- To display the results of a SQL query as text see SQL Query Log (The Spool Tab).

Rows Retrieved

Icon	Tool Tip	Description
	Count Dataset Rows	The value appears in bold in the Status bar at the bottom of the Code Editor window.
	Fetch More	Retrieve more rows.
	Fetch All	Retrieve all rows.
	Stop Fetching	Use when it takes too long to fetch more/all rows.
	Refresh Data	Populate the grid with the latest data.

Export / Print

Icon	Tool Tip	Description
	Print Data Grid	Print the SQL query results. **TIP:** • Format the data grid as required for the printed page before you print. • To print preview, click the cursor in the data grid and click **File | Print Preview**. • Set printing preferences at **View | Preferences |** General | Printing.
	Export Data	Open the Export Data Dialog.

TIP: Right click on the data grid to select a row or column or the entire data grid. You can copy selected data to the clipboard. There is an option to include the row number or column heading with the copied data.

Browse

Icon	Tool Tip	Description
	Top	Display the first, previous, next or last record.
	Prior Row	
	Next Row	
	Bottom	

Edit (Updateable Queries)

Turn **ON** Updateable in the SQL Editor Toolbar (Code Editor SQL) before you execute the SQL query. The status panel at the bottom of the Code Editor window says "Updateable" if the results can be edited. It says "Read Only" if the results cannot be edited.

TIP:

- Press F2, Space or Enter to edit straight from the cell.
- A calendar opens for a date field (on pressing F2 or Space). Press Space to switch between the Date field and Time field.
- Double click on the cell if a wider editing space is required.
- Right click on the data grid for more options.

Requirements

- The SELECT statement must be a simple SELECT statement (no joins, subqueries in select clause, calculated fields, group by, having, count(), substr or DISTINCT). If you get an error message such as TOKEN:.(12121,2) then your query does not conform to the restrictions for updateable queries.
- You must have the appropriate privileges to update the table or view.

Icon	Tool Tip	Description
	Add Row	Insert a new row before the selected row.
	Duplicate Selected Rows	Duplicate the selected row(s). The duplicated data is highlighted in the grid until it is committed.
	Delete Selected Rows	Put the cursor on the row you want to delete and click .
	Commit Transaction	Save new or modified data to the database.
	Rollback Transaction	Undo changes made to grid.

Group Display

To create a group display, right click the data grid and select **Group by this column**.

Icon	Tool Tip	Description
	Cancel Grouping	Cancel the group display.

Format

Icon	Tool Tip	Description
	Default/User Defined Column Formatting	User-defined column width. Overrides automatic column width setting. Drag the separators to set column width.
	Format Columns By Data Width	Set the column widths to show the widest cell data. Column names may appear truncated.
	Format Columns By Name Width	Set the column widths to show the widest column name. Table data may appear truncated.
	Format Columns By Names And Data	Set the column widths to show the widest column data or column name (whichever is greater).

TIP: The formatted widths are based on the results currently visible. The column widths may change as you scroll down, retrieving new rows. To prevent the column widths from changing when scrolling, **Fetch All** rows before scrolling.

Sort & Display

Icon	Tool Tip	Description
	Grid View	Display multiple rows in a data sheet format  **TIP:** Click any column header to sort and change the sort options.
	Single Row View	Display details of the selected record.
	Expand Data Grid	Maximize screen real estate of the data grid.
	Auto Refresh	Select to refresh the SQL Results Data Grid every (number specified) seconds.

SQL Query Log (The Spool Tab)

View a log of executed SQL statements. Retrieve executed SQL statements.

1. Enable **Spool to Screen**. For more information, see Code Editor SQL on page 52.
2. Execute the SQL query. For more information, see Code Editor SQL on page 52.
3. Click the **Spool** tab to view the log.

> **TIP:** Right click on the log to Select / Copy / Save / Print / Clear the log.

Export Data Dialog

Export the SQL query results

Options	Description

Export to:	• Format -
	  ◦ HTML
	  ◦ Excel®
	  ◦ XML
	  ◦ Spool Text
	  ◦ Table INSERTs
	  ◦ Delimited Text
	• Unicode -Select to export the data in unicode format.
	• Open exported file - Select to open the file after it is exported.
	• Clipboard - Select to copy the data to the clipboard for subsequent pasting.

Columns	Select the columns to export.
Rows	Export all records or a specific range. The records can be sorted.

Viewers: LOB, XML, Array

View the contents of a large object (LOB, XML, Array) that is a cell in a table or result of a SQL query. Click on the cell containing the large object.

LOB Editor

You can work with the following Oracle8i LOB datatypes.

Datatype	View	Edit
BLOB (binary)	Y	N
CLOB (character)	Y	Y
BFILE (external)	Y	N
NCLOB (multibyte character)	Y	N

You can use toolbar buttons to perform actions on LOBs. The actions available depend on the LOB and include:

- Copy to clipboard
- Save to disk file
- Save, then view in external application
- View in preview window
- Mask or show ASCII values between 128 and 255
- View BFILE as image or HEX

NOTE: SQL Navigator does not support working with LOB or Object table columns when using an Oracle 7 client connected to Oracle 8 database. For full functionality, use an Oracle 8 client to connect to an Oracle 8 database.

ARRAY Editor

- Click on +/- to add/remove items in the array.
- Select any item and click the arrow buttons to reorder the list.

PL/SQL Execution Console

From the Execution Console you can select an entry point (for packages), enter the parameter input values, and choose various run options, such as profiling and directing the results to DBMS_OUTPUT.

The Execution Console helps you set various parameters for wrapping an anonymous block around a stored program so that you can execute it. If you generate an anonymous block, the Console assigns a file name to your block in the form: <Schema name>.<procedure name>.STB. If the anonymous block is for a packaged procedure, then the assigned name has an additional component—the entry point.

NOTE: If an error occurs when trying to run a generated code block (for example, due to a syntax error), the text is opened in the Output Window.

Run Time Parameters

Option	Description
Parameter	Name and type of each input parameter.
Input	Define input values for each parameter.

Field	Description
Def	Select to use the default input value.
Null	Select to use a Null input value.
Exp	Select to use a PL/SQL Expression.
Value/Expression	When **Exp** is selected, enter a value or expression in the Value/Expression column.

Load/Save	Click to load the input parameter values from an external file.
Save	Click to save the input parameter values to an external file.
Reset	Click to Reset changes to the parameter values.

Run Options

Command	Description
Auto-create test case after code execution	When selected a test case is automatically created (when you click **Execute**) based on the parameter values (both input and output) currently displayed in the grid. For more information, see Code Test on page 148.
Use Profiler	Select to use the PL/SQL Profiler. Analyze the execution time and efficiency of your stored programs. Click (...) to open the **Profiler Options** dialog.

Option	Description
Collect Session Statistics when Creating the Profiling Run	Select to store session statistics in a table.
Before Creating the Profiling Run …	Select when measuring performance and tuning. Re-initialize the execution environment after a previous run, giving you a better basis for comparison between one run and another.

Command	Description
	For more information, see PL/SQL Profiler on page 184.
Direct results to Output	Select: Generate a DBMS_OUTPUT PUT statement for each OUT parameter. Clear: Generate a Bind variable for each OUT parameter. This is useful when you want to view complex data returned by the procedure, such as REF cursors and LOBs. For more information, see DBMS_OUTPUT on page 78.
Include exception block	Select to populate the Exception block when the **Stub** tab is generated. **TIP:** Click **Preview** to generate the **Stub** tab.
Commit changes after code execution	Once the procedure has finished executing, do you want to COMMIT / ROLLBACK changes made by the procedure?
Preview	Show the code to be executed. **NOTE:** This generates the **Stub** tab. For more information, see PL/SQL Stub on page 78. Toggle between the Code / Run / Stub tabs at the bottom of the screen.
Execute	Execute the PL/SQL code. If **Use Profiler** is selected, opens PL/SQL Profiler.

Code Test

The Code Test panel automates the process of testing PL/SQL programs. See also the module: Code Test.

Command	Description
Test Case	Select the test case to work on.
In/Out	Display the in/out parameters and associated values for the selected test case.
New	Create a test case. Open Test Case Properties
Edit	Edit the selected test case. Open Test Case Properties
Delete	Delete the selected test case.
Test > Param	Upload the selected test case into the parameters.
Param > Test	Update the selected test case with the current parameters.
Manage	Clone and edit existing test cases, create new test cases and run multiple test cases at once. Open Code Test
Run Test	Run the selected test case. The result of the test is displayed in the Test case status pane.

Command	Description
Run All Tests	Run all code tests available for the current object.

PL/SQL Stub

Instead of using the Execution Console, you can generate and preview a PL/SQL block to execute a stored program.

To generate a stub

From the PL/SQL Execution Console

1. Enter the run time parameters.
2. Select **Include exception block** to populate the exception block when the stub is generated.
3. Click **Preview**.

NOTE: Different stubs are generated depending on the selected options.

DBMS_OUTPUT

The DBMS_OUTPUT package is a standard package provided by Oracle specifically for the purpose of debugging stored programs.

Feature	Description
Insert a DBMS_OUTPUT.PUT_LINE statement in the code	Edit Menu | Insert | DBMS_OUTPUT.PUT_LINE (")
Create a DBMS_OUTPUT.PUT_LINE statement for the selected variable in the editor.	In the Code Editor 1. Place the cursor on the variable. 2. Click **Edit |Insert | Debug Variable**. The debug statement is generated and copied to the clipboard. 3. Place the curser where you would like to insert the debug statement in your code. Click **Edit | Paste**.
Capture output from DBMS_OUTPUT	The SQL Navigator Output Window captures output from DBMS_OUTPUT.

NOTE: The SYS schema owns this package. To view the procedure and parameter definitions of this package you can display it in the Code editor.

Code Editor Keyboard Shortcuts

Right Click Over The Editing Pane

Icon	Right Click	Keyboard Shortcut	Description
	Cut	CTRL+X	Remove the selected text from the editing pane. Place on the Clipboard ready to **Paste** elsewhere.
	Copy	CTRL+C	Alternative shortcut: **CTRL+Insert**
	Paste	CTRL+V	Alternative shortcut: **SHIFT+Insert**
Nil	Select All	CTRL+A	Select all the text in the editing pane. This is usually followed by **Cut** or **Copy**.
	Auto Code Completion	CTRL+ALT+A	Turn on/off Auto Code Completion. (Auto Code Completion) Use **SHIFT+Spacebar** to force code completion.
	Go to Definition	CTRL+Enter	Open the selected object in an appropriate editor: Visual Object Editors. Errors are sent to the Output Window.
	Describe Object at Cursor	CTRL+F3	Open Describe. As per **Object | Describe**.
Nil	Toolbox | Next Page	CTRL+ALT+N	Scroll through the pages of the Code Editor toolbox. Toolbox: PL/SQL Debugger | Code Explorer | Outline | DB Explorer | Describe | History | Dependencies | Columns
Nil	Toolbox | Previous Page	CTRL+ALT+P	
	File | New SQL Tab	CTRL+T	Open a new tab for a SQL script in the Code Editor.
	File | Open File	CTRL+O	Open a file from Windows Explorer.
	File | Save to File	CTRL+S	Save the file. This option is enabled once the file has a name. For an *Untitled* tab, save the file using **File | Save to File As** first.
	Object | New Stored Object	CTRL+N	Create a stored object.
	Object | Open/Create Package Body	ALT+N	Create a body for an existing package or (object) type
	Object |	F9	Opens PL/SQL Execution Console.

Icon	Right Click	Keyboard Shortcut	Description
	Execute		
	Object | Generate Execution Stub	SHIFT+F9	Generate PL/SQL Stub.
	Object | Save to Database	CTRL+S	Save the object to the database.
	Edit | Duplicate Line	ALT+Y	
	Edit | Format Text	CTRL+R	As per Tools Menu | Formatter Tools | Format Code
	Edit | Comment Selection	ALT+F7	Enclose the selected text in comments.
	Edit | Uncomment Selection	CTRL+ALT+F7	Remove comment markers from the selected text.
	Edit | Jump to Matching Bracket	CTRL+]	Jump to matching Bracket.
	Bookmarks | Toggle Bookmark	Ctrl+Shift+0...Ctrl+Shift+9	Set a bookmark. The gutter margin in the Code Editor marks the bookmark.
	Bookmarks | Go To Bookmark	Ctrl+0...Ctrl+9	Go to the set bookmark. See also **Edit | List Bookmarks ALT+B**.
	Split/Compare | Vertical Split	SHIFT+ALT+F11	Adjust the layout of the editing pane. Select from the options to split the editing pane in half either horizontally or vertically. The content of the editing pane will be visible in both panes. You can scroll the panes independent of each other.
	Split/Compare | Horizontal Split	SHIFT+F11	
	Split/Compare | No Split	SHIFT+CTRL+F11	
	Execute | Skip to Top	SHIFT+F7	Execute SQL statement in Code Editor. As per Code Editor SQL
	Execute | Skip to Previous	SHIFT+F8	
	Execute | Execute to End	F9	
	Execute | Execute	F8	

Icon	Right Click	Keyboard Shortcut	Description
	Step		
	Execute | Skip to Next	F10	
	Execute | Skip to Bottom	F11	

PL/SQL Debugger Keyboard Shortcuts

For more information, see PL/SQL Debugger on page 83.

Icon	Right Click	Keyboard Shortcut
	PL/SQL Debugger	CTRL+ALT+S
	Toggle Breakpoint	F5
	Abort Debug Session	SHIFT+CTRL+F9
	Trace Into	F7
	Step Over	F8
	Add Watch	CTRL+F5
	Trace Out	SHIFT+F8
	Run to Cursor	F4
	Stop on Exception	CTRL+ALT+X
	Auto Step Over	SHIFT+CTRL+F8
	Auto Trace Into	SHIFT+CTRL+F7
	Pause Auto Stepping	ALT+P

Further Shortcuts In The Code Editor Editing Pane

Keyboard Shortcut	Description
CTRL+Home	Go to the top of the file
CTRL+End	Go to the bottom of the file
Home	Go to the beginning of the line
End	Go to the end of the line
CTRL+Right Arrow	Go to the next word
CTRL+Left Arrow	Go to the previous word

Keyboard Shortcut	Description
CTRL+I	Indent current line/selection
CTRL+U	Unindent current line/Selection
F6	Go to the next tab
SHIFT+F6	Go to the previous tab

Further Shortcuts Viewing SQL Code Execution Results

Keyboard Shortcut	Description
ALT+*n*	Following a SQL query with many result tabs, go to the result tab numbered *n*.
CTRL+F11	Switch between the Query and Results page.
ALT+Enter	Edit Cell Data.

Shortcuts In The Code Editor Toolbar

Icon	Tool Tip	Keyboard Shortcut	Description
	New SQL Tab	CTRL+T	Open a new tab for a SQL script in the Code Editor.
	New Stored Object	CTRL+N	Create a stored object.
	File | Open File	CTRL+O	Open a file from Windows Explorer.
	File | Save to File	CTRL+S	Save the file. This option is enabled once the file has a name. For an *Untitlted* tab, save the file using **File | Save to File As** first.
	Auto Code Completion	CTRL+ALT+A	Turn on/off Auto Code Completion. (Auto Code Completion) Use **SHIFT+Spacebar** to force code completion.
	Split/Compare | Vertical Split	SHIFT+ALT+F11	Adjust the layout of the editing pane. Select from the options to split the editing pane in half either horizontally or vertically. The content of the editing pane will be visible in both panes. You can scroll the panes independent of each other.
	Split/Compare | Horizontal Split	SHIFT+F11	
	Split/Compare | No Split	SHIFT+CTRL+F11	
	SQL History	CTRL+ALT+R	Recall SQL statement. Open in the Toolbox: History

Icon	Tool Tip	Keyboard Shortcut	Description
	PL/SQL Debugger	CTRL+ALT+S	Open in the Toolbox: PL/SQL Debugger
	Execute | Skip to Top	SHIFT+F7	Execute SQL statement in Code Editor. As per Code Editor SQL
	Execute | Skip to Previous	SHIFT+F8	
	Execute | Execute to End	F9	
	Execute | Execute Step	F8	
	Execute | Skip to Next	F10	
	Execute | Skip to Bottom	F11	
	Object | Open/Create Package Body	ALT+N	Create a body for an existing package or (object) type
	Save to Database	CTRL+S	Save the object to the database.
	Execute Procedure / Function	F9	Opens PL/SQL Execution Console.
	Toggle Breakpoint	F5	Add / Remove breakpoint on the selected line of code.
	PL/SQL Debugger	CTRL+ALT+S	Open in the Toolbox: PL/SQL Debugger
	Abort Debug Session	SHIFT+CTRL+F9	For more information see PL/SQL Debugger.

Toolbox

PL/SQL Debugger

NOTE: Show/Hide PL/SQL Debugger in the Toolbox from the Code Editor toolbar.

All the tools and features for debugging stored programs can be found inside the PL/SQL Debugger window.

Use the debugger to perform the following functions:

- Run to the end or to the next breakpoint.
- Step over code.
- Step into code, when other procedures are called from the current line.
- Display the execution stack.
- View and modify any variable value.
- Set watch variables.
- Set and remove breakpoint on the fly as the code is executing, except in an anonymous block.
- Stop a running procedure.
- Set an option to either stop execution if an exception occurs, or ignore exceptions.

Requirements

Area	Requirement
Oracle server connection	Debugging is functional only when you are connected to an Oracle server via a SQL*Net connection. If you are using a local database, such as Personal Oracle, use the loopback SQL*Net connection to perform interactive debugging.
Oracle Permissions	create session alter session
Debug on/off	To watch, evaluate, or modify variables of a stored program: Compile the program with debug information: Session Menu | **Include Debug Info**.
Successful compile	If the procedure fails to compile, it is displayed in red in DB Navigator. It cannot be debugged.

Debug

F **e** **a** **t** **u** **r** **e**	**Description**
L **o** **c** **a** **l**	Use the **Locals** tab to test the effect of different variable values in your procedure. **Example Scenario**: Your procedure performs a computation. Start the procedure, enter a starting value and watch how the pr

Feature	Description
Locals tab	**NOTE:** • If you see an error such as "Not compiled with debug info" instead of the variable value, you need to recompile th • The values in the **Locals** tab are only populated when the code is running. • The values of the input parameters cannot be modified in the **Locals** tab. • When you evaluate a variable in a current breakpoint, remember that the current breakpoint has not yet been e
REF CURSOR variables	When evaluating/watching a variable of REF CURSOR type, its value is displayed in the following format: flags:FFF, rowcount:RRR. RRR determines the number of records fetched so far by the examined cursor. FFF is a combination of cursor status flags: %ISOPEN %FOUND %NOTFOUND If the user enters the watched variable names as C1%NOTFOUND, C1%FOUND, C1%ISOPEN, C1%ROWCOUNT, the displayed value
type variables	
Watches	You can set breakpoints and watches at any time before or during a debug session. You do not have to recompile your program
Breakpoints	Add/remove breakpoints by clicking in the gutter margin left of the code.  For more information, see Edit, Compile And Exec When execution of a procedure is paused at a breakpoint, you can evaluate or modify any scalar variable within procedure code
Watches	**NOTE:** • You can open multiple editors and set breakpoints in several stored programs simultaneously.

FDescription e a t u r e	
a n d B r e a k p o i n t s	• When you evaluate a variable in a current breakpoint, remember that the current breakpoint has not yet been e • Variable values in the "watch" window are updated only at the breakpoint, so strategically place breakpoints afte • Increasing the number of variables in the watch list may result in slower debugger performance.

Code Explorer

Make your work with packages, procedures, and functions more efficient and error-free.

Features

Code Explorer:

- Is based on an advanced parsing technique that understands PL/SQL syntax.
- Displays detailed information about a package's components, such as variables and parameters, their types, structure and cursors.
- Highlights the packaged procedure you are currently in.
- Supports drag-and-drop into the editor.
- Combines information from the specification and body.
- Distinguishes non-published procedures and functions (by icon).

Working with packages

Work with packages is fast and easy in the Code Editor with the integrated Code Explorer.

The Code Explorer graphically displays a tree-structure view of the package currently in the editor. It shows variables, parameters, record structures, types, cursors, and so on.

The tree-view is synchronized with the editing cursor in the code-editing window, so when you click any package component in the tree-view, you can see the corresponding PL/SQL code in the editing window. Likewise, as you move the cursor in the editing window, the tree-view changes to show the object corresponding to the PL/SQL code at the cursor location.

Auto Reparse

PL/SQL parsing occurs when the editor first loads objects, and in the background as the user edits the code. You can also manually trigger a full reparsing (updating of the internal symbol table) at any time by right-click and select **Auto Reparse** from the shortcut menu. However, when loading a really large script having this option on will slow down SQL Navigator. Hence, to avoid wasting CPU resources, you should turn this option off when editing large scripts.

Outline

A graphic representation of the syntax tree of the current source.

DB Explorer

Find and open objects.

Icon	Tool Tip	Description
	Refresh	Refresh the tree data. Use if you have created new objects that are not visible in the tree yet.
	Name Filter	Type in a filter phrase (for example c% to filter all objects with names starting with c).
	Upper case filter	Click to toggle between *Upper case filter* and *Mixed case filter*. The upper case filter is selected by default. Use the mixed case filter to find objects with names that are mixed case, lower case or have special characters.
	Filter	Open the Filter Properties dialog. Filter Properties Dialog

DB Explorer is similar appearance to DB Navigator. DB Explorer is a light version of DB Navigator, integrated into the Code Editor for extra convenience.

TIP:

- Expand the tree nodes to display the filtered objects.
- Drag and drop objects from DB Explorer into the Code Editor.
- Set the behavior of dragging and dropping table names from View | Preferences | Code Editor | SQL Scripts | Drag & Drop.

Describe

Show the data structure for tables, indexes, views and synonyms.

NOTE: To increase response time, the drop down list is not populated with objects when the tool is first activated.

Icon	Tool Tip	Description
	Filter	To show the complete list, leave the Filter blank and press Enter. You can use wildcards to filter the objects. For example, type t% and press Enter to display only objects with names starting with "t". Select an object from the list to show its column names and types.
	Quick Browse	View the chained rows information as per Object Menu | Quick Browse. Select the object to Describe. The results show in SQL Query Results Data Grid.
	Edit Data	Edit data in a table object as per Object Menu | Edit Data. Select the object to Describe. The results show in SQL Query Results Data Grid. The Edit Data command executes an Updateable query.

History

The History tool lists successfully executed SELECT, UPDATE, DELETE commands and PL/SQL blocks up to 1000 of the most recent ones in the current session. In the History window, each SQL statement is accompanied with the date, time and the schema that they were executed on.

You can easily recall the most recent SQL statements that have been executed in the current session.

1. Select the statement you want to recall.

   TIP: You can press Ctrl+up arrow to move back in the sequence, and Ctrl + down arrow to move forward.

2. Take action.

Button	Description
New Tab	Open a new Code Editor tab and paste the statement into it.
Insert	Add the recalled statement to the current contents.

Button	Description
Replace	Replace the current contents of the editing window with the selected SQL statement.
Clipboard	Copy the statement to the clipboard, ready to paste the statement into another location.
Delete	Drop the statement from the SQL History list.
Double Click...	Select an action (New Tab, Insert, Replace or Clipboard) that will be executed on double-clicking an entry in History.

TIP: You can also insert the statements by dragging and dropping them into the Code Editor.

Dependencies

Lists the **Dependants** and **Depends On** objects of the current script.

NOTE: Objects with a large amount of dependant and depends on objects will take more time to load. To improve the performance, hide this pane when opening those objects.

TIP: Right click over the **Dependents** or **Depends On** lists to view available commands to manipulate objects in the lists.

Columns

The Columns window provides an easy-to-use tool to arrange and hide/show columns of the retrieved table in the data grid.

TIP: Run a valid query statement to populate the window.

Action	Description
Show/Hide columns	Show selected columns. Hide deselected columns.
Select column	Click on the column's name.
Arrange columns	Click **Move Up** or **Move Down**.

NOTE: The settings will be saved and taken into account when you refresh or rollback the query. However if you rerun the query, the settings will be set back to default.

6

Visual Object Editors

SQL Navigator's editing tools for database objects:

- Are visual. They give you a graphical representation of a database object definition. This makes it easy to see relationships and properties.
- Allow you to view database object definitions and create or alter database objects via a point-and-click interface, eliminating the need to remember SQL syntax and write SQL statements manually.
- Generate the DDL or other database code automatically when you create or alter a database object. You can also and edit the code directly, if needed.

When opened, a visual object editor connects to the active database session (Session Menu | Select).

Object	Object Type	SQL Navigator Visual Object Editor
Schema	Indexes	Index Editor
	Database Links	Database Link Editor
	Materialized (Snapshot) Views	Materialized View Editor
	Sequences	Sequence Editor
	Synonyms	**Object Type** / **Editor**: Tables – Table Editor; Constraints – Constraint Editor; Nested tables – Nested Table Editor; Clusters – Cluster Editor
	Varying arrays	Varray Editor
	Triggers	Now in the Code Editor.
	Views	View Editor
Non-Schema	Users	User Editor
	Roles	Role Editor
	Profiles	Profile Editor
	Instance properties	Instance Property Editor
	Redo Log Groups	Redo Log Group Editor

Cluster Editor

Use the cluster editor to join tables that are closely related for storing on the same area of the disk. This lets you interleave the rows of two or more tables together into a single area called a cluster.

About Cluster Objects	The cluster key is the column or columns by which the tables are usually joined in a query. You can only cluster together tables that you own. You can create either an index cluster or a hash cluster. With an indexed table or index cluster, Oracle locates the rows in a table using key values that Oracle stores in a separate index. To use hashing, you create a hash cluster and load tables into it. Oracle physically stores the rows of a table in a hash cluster and retrieves them according to the results of a hash function. The characteristics and usage of this database object are described in the Oracle documentation.

Ways to Open The Cluster Editor

Icon	Action	Description
	From the Main Menu View Menu | Visual Object Editors | Cluster Editor	Open the Cluster Editor.
	From DB Navigator or Find objects Dialog Right click on a **Cluster** object and click **Open**.	Open the selected Cluster object in the Cluster Editor.

Constraint Editor

Use the Constraint Editor to specify table constraints.

About Constraints	In Oracle, a constraint is a rule applied to an object that restricts the data allowed in any instance of the object. The characteristics and usage of this database object are described in the Oracle documentation.

NOTE:

- SQL Navigator's visual constraint editor is intended to be used only for table-related constraints.

- Once a constraint has been defined and saved to the database, it cannot be altered in the constraint editor. To change the constraint it is necessary to drop it and then create a new constraint with the necessary properties. Use DB Navigator or Find objects Dialog to locate a constraint then Object Menu | **Drop** to drop the constraint.

Using The Editor

Steps To Create A Constraint

1. Click **Create a new constraint** to open the **New Constraint** dialog.

Field	Description
Parent Schema	Select the parent schema for the new constraint.
Parent Object	Select the parent object (table) for the new constraint.
Name	Name the new constraint.
Constraint Type	**Type** / **Purpose** Check – Specifies a condition that each row in the table must satisfy Primary Key – Designates a column or combination of columns as a table's primary key Unique – Designates a column or combination of columns as a table's unique key Foreign Key – Designates a column or combination of columns as the foreign key

2. More on the Constraint Type.

Type	Action
Check	Enter the check condition following Oracle syntax conventions. Example: (loc is not null)
Primary Key	Designate the column(s) to be used as the Unique, Primary Key, or Foreign key. To add columns to the constraint, use the arrow button to move one or more selected columns from the Available Table Columns pane to the Constraint Columns pane. The double arrow adds all available columns to the constraint.
Unique	
Foreign Key	

3. If the constraint type is Foreign key:
   - Designate the Unique or Primary Key in the Reference field.
   - If desired, select the On Delete Cascade property.

NOTE: Before selecting the On Delete Cascade property, be sure you understand the potential consequences of using this option. It could result in lost data. Consult your Oracle documentation for information about the DELETE CASCADE command.

Now the constraint is defined

Icon	Tool Tip	Description
	Generate SQL for changes	Extract the DDL for the new constraint and place it into the Code Editor.
	Revert to previous constraint	Undo your entries without saving them. After saving your changes, you will not be able to use the Revert command.
	Apply changes to DB	Save your new constraint definition to the database. SQL Navigator generates the DDL and commits it to the database.
	Enable current constraint	This duplicates Enable/Disable Constraint on the Object Menu.

Ways to Open The Constraint Editor

Icon	Action	Description
	From the Main Menu View Menu | Visual Object Editors | Constraint Editor	Open the Constraint Editor.
	From DB Navigator or Find objects Dialog Right click on a **Constraint** object and click **Open**.	Open the selected Constraint object in the Constraint Editor.

Database Link Editor

Use the Database Link Editor to view, create or define database links.

About Database Links	A database link allows access to a username on a remote database through the local database. A public database link (which only a DBA can create) allows the remote database access to all users of the local database. The characteristics and usage of this database object are described in Oracle documentation.

NOTE:

- The SQL Navigator Database Link editor will try to automatically add the domain name when required by the server. However if the user cannot see the view v$parameter, then the domain name is not automatically added. The user should enter a fully qualified database link name in the **New Database Link** dialog.
- Due to limitations in the Oracle Data Dictionary it is not possible for Extract DDL to correctly apply the SHARED and AUTHENTICATED clauses in a CREATE DATABASE LINK statement

Ways to Open The Database Link Editor

Icon	Action	Description
	From the Main Menu View Menu | Visual Object Editors | Database Link Editor	Open the Database Link Editor.
	From DB Navigator or Find objects Dialog Right click on a **Database Link** object and click **Open**.	Open the selected Database Link object in the Database Link Editor.

Index Editor

Use the Index Editor to view, create or alter indexes, and to set storage allocation.

About Index Objects	An index is a sorted map of selected columns in a table or object. Therefore an index is similar to a table, and the columns in an index refer to the rows and columns of the associated table. By indexing columns frequently used in queries, you can improve data retrieval performance. An index can be either unique or non-unique. • A unique index validates every new or changed row in a table for a unique value in the column(s) in the index. • A non-unique index allows duplicate values in rows. A non-unique index often enables faster queries. Oracle8 supports a type of index called a bitmap index. A bitmap index uses a compressed bit-stream storage technique that allows very fast retrieval. The characteristics and usage of this database object are described in Oracle documentation.

Ways to Open The Index Editor

Icon	Action	Description
	From the Main Menu View Menu | Visual Object Editors | Index Editor	Open the Index Editor.
	From DB Navigator or Find objects Dialog Right click on an **Index** object and click **Open**.	Open the selected Index object in the Index Editor.

Nested Table Editor

Use the nested table editor when you require a large, efficient collection.

About Nested Tables	A nested table type is an unordered set of elements. The elements may be built-in datatypes or user-defined types. You can view a nested table as a single-column table or, if the nested table is an object type, as a multicolumn table, with a column representing each attribute of the object type. A nested table definition does not allocate space. It defines a datatype, which can then be used to declare: • columns of a relational table • object type attributes • PL/SQL variables, parameters, and function return values. When a nested table appears as the type of a column in a relational table or as an attribute of the underlying object type of an object table, Oracle stores all of the nested table data in a single table, which it associates with the enclosing relational or object table. The characteristics and usage of this database object are described in Oracle documentation.

Profile Editor

Use the Profile Editor to view, create or alter profiles.

About Profiles	A profile is a set of limits on the use of database resources that can be applied to a user. If you assign the profile to a user, that user cannot exceed those limits. If a user exceeds a limit, Oracle aborts and rolls back the transaction, and then ends the session. Profile settings include connect time, password lifetime and reuse, idle time, and similar restrictions. The characteristics and usage of this database object are described in Oracle documentation.

Requirements

To edit profiles:

- You must have the CREATE PROFILE system privilege.
- Query the Oracle Data Dictionary with DBA Views. For more information, see DBA Dictionary Views on page 48.

Ways to Open The Profile Editor

Icon	Action	Description
	From the Main Menu View Menu | Visual Object Editors | Profile Editor	Open the Profile Editor.
	From DB Navigator Right click on a **Profile** object and click **Open**.	Open the selected Profile object in the Profile Editor.

Redo Log Group Editor

Use the Redo Log Editor to view, create, or alter Redo Logs.

About Redo Logs	Every Oracle database has a set of two or more redo log files, collectively known as the database's redo log. Oracle uses the redo log to record all changes made to data. The characteristics and usage of this database object are described in Oracle documentation.

Ways to Open The Redo Log Group Editor

Icon	Action	Description
	From the Main Menu View Menu | Visual Object Editors | Redo Log Group Editor	Open the Redo Log Group Editor.
	From DB Navigator Right click on a **Redo Log Group** object and click **Open**.	Open the selected Redo Log Group object in the Redo Log Group Editor.

Role Editor

Use the Role Editor to view or create roles.

About Roles	A Role is a set of privileges that can be assigned to or removed from a user. (Use the User Editor to create and grant or revoke roles and privileges to users.) The characteristics and usage of this database object are described in Oracle documentation.

Requirements

To edit roles:

- You must have the CREATE ROLE system privilege.
- Query the Oracle Data Dictionary with DBA Views. For more information, see DBA Dictionary Views on page 48.

Ways to Open The Role Editor

Icon	Action	Description
	From the Main Menu View Menu | Visual Object Editors | Role Editor	Open the Role Editor.
	From DB Navigator Right click on a **Role** object and click **Open**.	Open the selected Role object in the Role Editor.

Materialized View Editor

Use the Materialized (Snapshot) View Editor to view, create or define snapshots.

About Snapshots	A snapshot is a segment that contains the result of a query. The snapshot typically contains local copies of remote objects. From Oracle 8i onwards a materialized view is equivalent to a snapshot but allows queries to be dynamically and transparently rewritten to use the materialized view.

Using The Editor

Editor Toolbar

Icon	Tool Tip	Description
	Create new Materialized view	Open the **New Materialized View** dialog. **Field** / **Description** Schema: Select the parent schema for the new Materialized view. Name: Name the new Materialized view.
	Open object from DB	Open the **Select Materialized View** dialog. Select the materialized view from the database.
	Clone current Materialized view	Create a clone of the selected materialized view. You will be prompted in the **New Materialized View** dialog to enter new name.
	Revert to pervious Materialized view	Undo or revert any modifications made to the view.
	Generate SQL for changes	Generate SQL code for the changes made.
	Apply changes to DB	Apply changes to the database.

Editor Tabs

Tab	Description
Details	1. Select the Updateable and Query Rewrite options to include them in the query's DLL. 2. Set the Parallel options and turn Logging and Cache on or off.
Refresh	1. Set the frequency of the refresh. 2. Set the rollback segments to be included. 3. Set when to populate the materialized view.
Storage	1. Set the Physical Attributes for the materialized view log. 2. Set the Storage Clause options for the materialized view log.
Master Info	Display the owner, table and links for the materialized view (after the materialized view has been saved).

Ways to Open The Materialized View Editor

Icon	Action	Description
	From the Main Menu View Menu | Visual Object Editors | Materialized View Editor	Open the Materialized View Editor.
	From DB Navigator or Find objects Dialog Right click on a **Materialized View** object and click **Open**.	Open the selected Materialized View object in the Materialized View Editor.

Sequence Editor

Use the Sequence Editor to view, create, or alter sequences.

About Sequence Objects	A sequence is an Oracle object that delivers a unique number, incremented by some specified amount, every time it is requested. Sequences are usually used to generate a primary key for a table or for a set of tables. You can use the sequence to create unique number that you can use in your tables as primary identifiers. The characteristics and usage of this database object are described in Oracle documentation.

Ways to Open The Sequence Editor

Icon	Action	Description
	From the Main Menu View Menu | Visual Object Editors | Sequence Editor	Open the Sequence Editor.
	From DB Navigator or Find objects Dialog Right click on a **Sequence** object and click **Open**.	Open the selected object in the Sequence Editor.

Synonym Editor

Use the Synonym Editor to view or create synonyms.

About synonym Objects	A synonym is an alternate name for a table or view. A synonym can be private (for use only by its creator) or public (for use by any user). Primarily, synonyms enable multiple users to reference an object without adding the schema as a prefix to the object. They can also allow different applications to reference the same object using different names. You can make synonyms for the following database objects: • tables • views • other synonyms • functions • packages • procedures • sequences • database links The characteristics and usage of this database object are described in Oracle documentation.

Ways to Open The Synonym Editor

Icon	Action	Description
a=b	From the Main Menu View Menu | Visual Object Editors | Synonym Editor	Open the Synonym Editor.
	From DB Navigator or Find objects Dialog Right click on a **Synonym** object and click **Open**.	Open the selected object in the Synonym Editor.

Table Editor

Use the Table Editor to create, alter, or define tables. Functionality includes:

- Adding and deleting columns
- Defining column properties
- Setting tablespace storage parameters
- Setting partitioning properties

Although you won't need to type any PL/SQL code when editing tables in SQL Navigator, you should be familiar with Oracle rules and guidelines for using tables.

NOTE:

- Be sure to place quote marks ("xxx") around any non-numerical data you enter in the default column. If non-numerical data is not enclosed in quotes, then error message 'ORA-00984: column not allowed here' is returned.
- It is possible to display and edit multi byte data in the Table Editor through National Language Support (NLS).
- The **Data** tab operates as per the SQL Query Results Data Grid.

Ways to Open The Table Editor

Icon	Action	Description
	From the Main Menu View Menu | Visual Object Editors | Table Editor	Open the Table Editor.
	From DB Navigator or Find objects Dialog Right click on a **Table** object and click **Open**.	Open the selected object in the Table Editor.

User Editor

Use the User Editor to create, grant or revoke roles and privileges to users, including forcing a password to expire.

About Oracle Users	In Oracle, a User is simply a unique log-in name. A user's capabilities inside the database are determined by the User's role assignments. The characteristics and usage of this object are described in Oracle documentation.

Requirements

To edit users:

- You must have the CREATE USER system privilege.
- Query the Oracle Data Dictionary with DBA Views. For more information, see DBA Dictionary Views on page 48.

Ways to Open The User Editor

Icon	Action	Description
	From the Main Menu View Menu | Visual Object Editors | User Editor	Open the User Editor.
	From DB Navigator or Find objects Dialog Right click on a **User** object and click **Open**.	Open the selected object in the User Editor.

Varray Editor

Use the VArray Type Editor to create varying arrays that can be used to:

- loop through the elements in order
- store only a fixed number of items
- retrieve and manipulate the entire collection as a value.

About Varying Array Objects	The varying array is a collection type you can use when you want to retrieve entire collections as a whole. They are best suited for small collections. If you require a large, efficient collection, you would be better to use a nested table collection type (see Editing a nested table). You must set a maximum number of elements for a varying array but you can change this limit. A varying array object is normally stored in line, that is, in the same tablespace as the other data in its row. The characteristics and usage of this database object are described in Oracle documentation.

View Editor

Use the View Editor to view, create, or alter views.

About Views	A view is a query that is named in the database so that it can be used as if it were a table. It can be thought of as a virtual table in the database whose contents are defined by the Select query. You can use views to rearrange, filter and select the way you see data in tables without creating any copies of that data. Views help make data access simpler by hiding complexities. They can also help separate data for different users as a security measure. SQL Navigator's view editor makes it easy to create and alter views. Although you won't need to type any PL/SQL code when editing views in SQL Navigator, you should be familiar with Oracle rules and

guidelines for using views.

The attributes of this database object are described in Oracle documentation.

Using The Editor

Editor Toolbar

Icon	Tool Tip	Description
	Create new view	Click to open the **New View** dialog.
	Open object from DB	Open an existing view.
	Clone current view	Create a clone of the selected view. You will be prompted in the **New View** dialog to enter a new name.
	Revert to pervious view	Undo or revert any modifications made to the view.
	Generate SQL for changes	Generate SQL code for the changes made.
	Apply changes to DB	Apply changes to the database.

Editor Tabs

Tab	Description	
Text	**Field**	**Description**
	Create View (	Enter the view column names, separated by commas.
	) AS	Type the SQL for the view. If you enter the Select * syntax to include all the table columns in the view, then all the table column names from the Select * table appear automatically in the CREATE VIEW pane.
Columns	1. Select a column. 2. Right click and select **Edit Comments** 3. Enter any comments required. 4. Repeat for each column as appropriate.	

Tab	Description
Options	Select from the available options to be applied to the view.
Comment	Enter any comments related to the view.

Ways to Open The View Editor

Icon	Action	Description
	From the Main Menu View Menu | Visual Object Editors | View Editor	Open the View Editor.
	From DB Navigator or Find objects Dialog Right click on a **View** object and click **Open**.	Open the selected object in the View Editor.

Java Editor

Features:

- Load a Java source file from the database into the editor
- Create a new Java source file
- Clone an existing Java source
- View and edit Java source with color syntax highlighting
- Compile the Java object
- Save the Java class to the database.

To see tooltips describing the toolbar buttons, simply point to them.

Ways to open the Java Editor

Icon	Action	Description
	From the Main Menu View Menu | Visual Object Editors | Java Editor	Open the Java Editor with a new Java source.
	From DB Navigator or Find objects Dialog Right click on a **Java Source** object and click **Open**.	Open the selected Java Source object in the Java Editor.

Instance Property Editor

Use the Instance Property Editor to view or specify the startup parameters for the instance.

About Instance Properties	The characteristics of the Oracle database instance are specified during startup. These parameters are stored in a file called init.ora. This file may, in turn, call a corresponding config.ora file. The Instance Property Editor is based on what the Oracle v$parameter data dictionary view reports. Some attributes are Session Modifiable, which means that they are applied immediately to the current session, but are not permanent. Others are System Modifiable and further may be Immediate or Deferred (requiring a server shutdown/restart). Some are not modifiable at all. These parameters and the rules governing their usage are described in Oracle reference sources.

Using The Editor

Instance Property

Select the Instance Property you want to view. Not all properties can be modified.

Icon	Description
	The Property can be modified.
	The Property cannot be modified.

Editor Toolbar

Icon	Tool Tip	Description
	Create new Instance property	N/A to the Instance Property Editor. Oracle does not allow this action.
	Open object from DB	Open the property from the current database
	Clone current Instance property	N/A to the Instance Property Editor. Oracle does not allow this action.
	Revert to pervious Instance property	Undo changes made to the property.

Icon	Tool Tip	Description
	Generate SQL for changes	Generate SQL code for the changes made
	Apply changes to DB	Apply the changes to the database

Details Tab

Attribute	Description
Description	Brief description of the parameter
Is Default	Whether this parameter has been specified by the user as an initialization parameter
System Modifiable	Whether this parameter can be modified at an instance-wide level dynamically after the instance has started
Session Modifiable	Whether this parameter can be modified at the session level
Is Modified	Whether this parameter has been modified after instance startup, and if so, whether it was modified at the session level or at the instance (system) level
Is Adjusted	Whether Oracle has adjusted a value specified by the user
Type	The Oracle datatype
Value	Current value for this session (if modified within the session); otherwise, the instance-wide value
Alter For	Whether the new value is to be current for this session or instance-wide

Ways to Open The Instance Property Editor

Icon	Action	Description
	From the Main Menu View Menu | Visual Object Editors | Instance Property Editor	Open the Instance Property Editor.
	From DB Navigator Right click on a **Property** object and click **Open**.	Open the selected object in the Instance Property Editor.

7

Team Coding and Version Control Support

Code Control Groups

How do CCGs work?

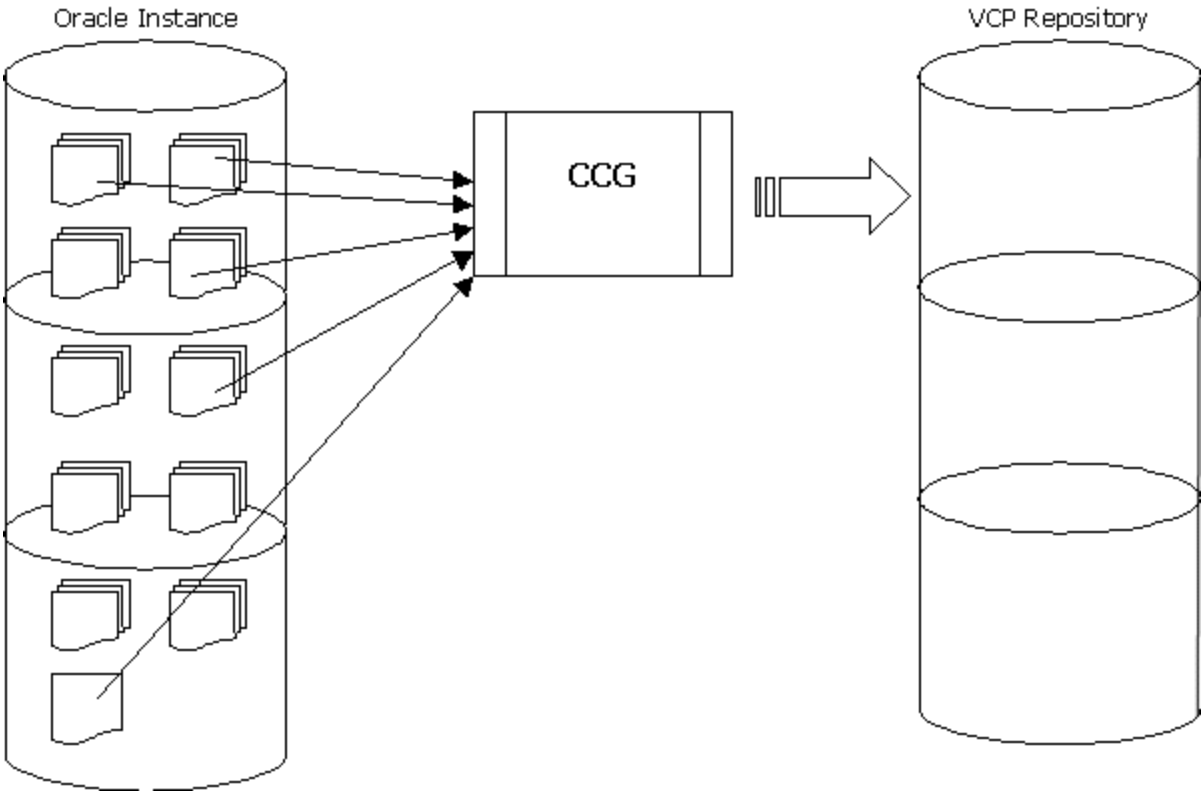
SQL Navigator's code control groups (CCGs) are the most powerful and flexible feature of Team Coding.

Following are examples of how CCGs can be useful.

Example 1: A Single Application

Suppose you have a schema containing stored programs that all relate to a single application on your Oracle instance. You can easily create a CCG that includes all objects in that schema, and map it to a Version Control project in your provider's repository.

Example 1 Using CCGs to map objects from multiple schemas to one VCP Project



Excluding objects

If the schema also contains some objects that you do not want controlled (for example, you may have some test packages which don't form part of your application), it is a simple matter to add an exclusion reference (Object Mask) in your CCG. For more information, see Code Collection Viewer on page 110.

Including certain object types and schemas

If your application contains some objects located in a different schema, it is easy to modify the CCG to include those objects. To take this a step further, you can also configure your CCG so that it contains any of the following:

- object Masks based on a particular schema
- stored programs of any type or a particular type (such as Trigger)
- objects of any name or using a name mask (such as ACC_%).

Any object mask can used to exclude as well as include, so you can readily include a group of objects, but exclude (for instance) all objects of name like DBG_%

Scripts

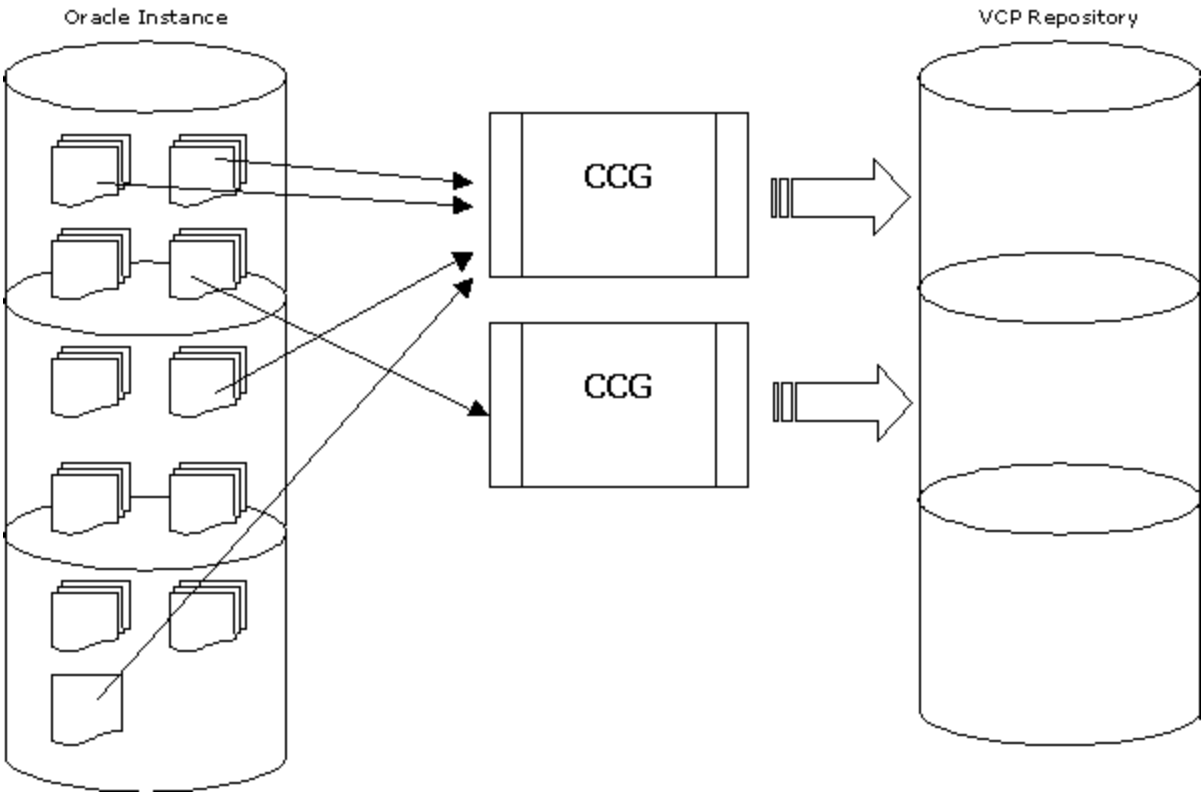
If your application involves ancillary scripts, you can include references to these scripts in your CCG. As with other objects, you can use wildcard masks and exclusions.

Example 2: Multiple Applications

If you subsequently start development of a second application, using objects stored in the same schema as the one used for the first application, you can then simply create a second CCG. This new CCG would contain object masks for the stored programs that are related to your new application, and you would associate the new CCG to a different project in your version control repository.

For example, if second application is made up of procedures whose names all begin with a common prefix such as "ACC", your second CCG would contain an Object mask for all procedures in the schema with a name like ACC%. Team programming automatically recognizes objects with names matching the new object mask and maps them to the second VCP project rather than the first.

Example 2 Using CCGs to map objects from one schema to different VCP projects



Code Collections Viewer

Use Code Control Groups to organize your controlled objects into groups associated with development projects. For example, you can create multiple Code Control Groups for a single Oracle instance, each group pointing to the stored programs relating to a particular customer application.

TIP: Enable Code Control Groups from Team Coding Menu | Team Coding Settings.

Toolbar

Icon	Tool tip	Description
	Add Group	Create a Code Control Group. **In the New Group dialog** • Enter a descriptive name for the Group. • If you are using a third party version control product then select that product from the VCS Project list. Open: Code Collection Viewer.
	Open Group	View or Modify the selected Code Control Group. Open: Code Collection Viewer.
	Delete Group	Delete the selected Code Control Group.
	Remap Group	Change the descriptive name for the selected Code Control Group. Change the third party version control product associated with the selected Code Control Group.
	Refresh	Refresh the list of Code Control Groups.
	Export to VCS	Export objects to the third party version control product repository. Open: Export Dialog
	Import to Database	Update your Oracle instance, or generate an import script, from the version control project for the selected Code Control Group. **TIP:** Use after you Map to group to update the objects in your schema. Open: Import Dialog
	Mirror to group	Map the current user (the user logged on to the Oracle Instance) to the selected Code Control Group. **Note**: If the Code Control Group contains Object Masks for multiple schemas then you will be prompted to select the schema. Open: Linking a CCG to a user schema
	List all mapped users	Show the users mapped to the selected Code Control Group. **NOTE:** If the Code Control Group contains Object Masks for multiple schemas then show the selected schema.

Code Collection Viewer

Define a Code Control Group: a set of database object masks and script masks identifying which objects are under Team Coding control.

TIP: Enable Code Control Groups from Team Coding Menu | Team Coding Settings.

Toolbar

Icon	Tool tip	Description
	Add DB Object Mask	Specify an object or group of objects to be included in the Code Control Group. Object masks are the symbolic references that define the Code Control Group. When Team Coding processes a CCG, it associates a certain ranking with object masks in order to determine which database objects belong to that CCG. In the Mask Properties dialog:

Option	Description
Object Type	Choose from View, Procedure, Function, Package, Package Body or All.
Schema	Pick a user from the list, or type a schema name. You can use the % wildcard character.
Object Name	You can type an object name, including the % wildcard. Alternatively, you can launch the Select DB Object Dialog to choose an object matching the Object Type and Schema settings.
Excluded	Select to exclude any objects matching this object mask from the CCG.

Object mask ranking

Object masks are ranked based on the number of wildcards they contain. Highest ranking is given to the most specific mask, and when there are duplicate matching masks of different ranking the highest ranking mask takes precedence. Only when duplicate masks of the same ranking are encountered is it not possible to resolve the object to the CCG for which it belongs.

The mask rankings are, from highest to lowest:

Specific object reference:

Trigger SCHEMA.NAME

One wildcard only:

Any Type SCHEMA.NAME

Trigger SCHEMA%.NAME

Trigger SCHEMA.NAME%

Two wildcards:

Any Type SCHEMA%.NAME

<table>
<tr><th>Icon</th><th>Tool tip</th><th>Description</th></tr>
<tr><td></td><td></td><td>Any Type SCHEMA.NAME%
Trigger SCHEMA%.NAME%
Three wildcards:
Any Type SCHEMA%.NAME%</td></tr>
<tr><td></td><td>Add Script Mask</td><td>Specify a group of file server scripts (or a specific script) to include in the selected Code Control Group.
In the Mask Properties Dialog:
<table><tr><th>Option</th><th>Description</th></tr><tr><td>File Name/Mask</td><td>Type a file name or mask using the * wild card, or browse to a file by clicking the ellipse (…) button.</td></tr><tr><td>Include Path</td><td>If this option is selected, the mask will apply only to files in the directory specified under File Path. If this option is not selected, the mask will apply to files in the user’s working directory.</td></tr><tr><td>File Path</td><td>The directory to which this mask applies. Requires that Include Path (see above) be selected.</td></tr><tr><td>Excluded</td><td>Exclude from the CCG any files matching this object mask.</td></tr></table></td></tr>
<tr><td>  </td><td>Delete Mask</td><td>Delete the selected mask.</td></tr>
<tr><td>  </td><td>Edit Mask Properties</td><td>Edit the selected mask.</td></tr>
<tr><td>  </td><td>Refresh Mask</td><td>Refresh the list of masks.</td></tr>
</table>

TIP: To create a code control group for all objects in the schema except procedures, you have to create two masks. The first one is to include all objects in that schema. The second one is to exclude the procedures. If only the second mask is created, it will not have any effect on the procedures at all.

Linking a CCG to a user schema

Team Coding allows developers to associate their own schemas with a Code Control Groups. When you open an object in your own schema, SQL Navigator searches for the object in the mapped CCG and opens it just as if as if you had opened the object from the original schema. If you check out the object, the archive for the original schema becomes Locked to other users, and the database object status is Locked for both schemas.

This is useful in cases where you often work in your own schema on projects containing objects that actually exist in another schema, or work on more than one project over a short period.

In essence, mapping a user to a CCG is equivalent to creating a new CCG identical to the mapped CCG, but with all Object masks pointing to a particular user schema. The same Version Control archive is shared between the user schema and the other (production or development) schema.

TIP:

- If the CCG contains Object Masks for multiple schemas, follow the prompts to select the schema you want.
- Click **Import to Database** to update the objects in your schema.

Example -- Linking a CCG to a user schema

Can developers work on common code in their own schema? Yes—Team Coding accommodates this requirement through User Mapping.

For example, assume you have common schema(s) containing all the code for your development environment, but you would prefer that your developers check code in and out of your source control product using their own schema. Then at an appropriate time, you would update your "master" schema(s) for testing purposes before moving your code to Production.

User Mapping allows developers to work on their own copies of objects existing in a schema (the "master") that is controlled by a CCG (Code Control Group). This means that the objects in the master schema can remain unchanged during development, until the master schema is updated from the version control system using the Import function. (Note: the CCG must be exported to the version control system before it can be imported into the master schema.

This example shows how a developer can map to the REPORTS schema, for which a CCG has been created. To add copies of the master schema's objects to the developers' schemas, each developer must import the CCG.

Mapping the developer Scott to a CCG called REPORTS

1. Log in as the developer SCOTT.
2. From the Team Coding menu, open the Code Control Groups window and select the REPORTS Group.
3. Click the Map to Group button, and verify that the user mapping icon appears beside the group name.
4. In the Code Control Groups window, click the Import to Database button.
5. In the Import into Database window, select the objects to import. Only those objects found in the VCS for this CCG are shown. When selection is complete, click OK.
6. In the Import Options window, select the Update another schema option, and click OK to begin the import.

Done! Scott can now check out the REPORTS objects from his own schema. When a user-mapped object is checked out or checked in, the Team Coding Check Out/In dialog will show the object's Master Owner.

When a developer has a copy of a user-mapped object checked out, other developers are not allowed to check out their copies, and neither is the master owner.

Import Dialog

Import objects from your third party version control product.

In the Import dialog

Select and exclude objects for import. The Import listing is populated based on existing archives contained in the third party version control product repository (objects do not have to exist on the Oracle instance), but filtered down to only those objects defined in the Code Control Group.

Select import options

The following options are available:

Option	Description
Update original schema	Create or update objects in the original location in the Oracle instance, as per the Code Control Group and archive file names.
Update another schema	Choose an alternate destination schema. All objects will be created in this schema regardless of the original object for which the archive was created. You must have the appropriate privileges to create objects in the destination schema.
Add new revision to VCS	Create a new revision in the third party version control product repository for each archive, using the comment entered here to indicate the reason for the new revision
Update database	Update the objects in the selected schema.
Generate import script	Instead of updating the database, generate an import script and open it in the Code Editor.

TIP: Save or print the status report as required.

Export Dialog

Once you have configured code control groups (CCGs), you can

- Construct a first revision of an application development project in your version control repository.
- Create a new revision in your repository for all objects—for example, when you have completed your project and updated your production server.

TIP: You should have access to all the objects referenced by the CCG. Otherwise, the process will need to be launched multiple times by all the different owners of the objects.

In the Export dialog

Select and exclude objects for export.

Select Export options

The following options are available:

Option	Description
Add objects not existing in the repository	Allows new stored programs to be added to the VCP repository. Any objects for which there are already VCP archives will not be updated
Create a new revision for existing objects	Forces all existing archives within the repository to be updated, as well as adding new archives for any new database objects
Create a revision only if the object has changed	Compares the object in the database with the archive in the repository, updating it only if it differs. This is useful when objects have been modified by a tool other than SQL Navigator
Prompt individually for all existing objects	Permits the you to choose for each object that already exists in the repository whether or not it will be updated.
Comment	Lets you enter a comment to be applied to all new revisions created in the repository.

TIP: Save or print the status report as required.

Team Coding Viewer

The Team Coding Viewer shows details of objects under Team Coding control, including which objects are currently checked out and when they were last checked in.

TIP: Enable Team Coding and the objects under Team Coding control from Team Coding Menu | Team Coding Settings.

Toolbar

Icon	Tool Tip	Description
	Refresh List	Refresh the list of objects in the Team Coding Viewer.
	Filter	Show only the object types that you are interested in. Click to open the **Team Group Filter** window. • Select the schema object types you want to see. • Clear the schema object types you do not want to see.

<table>
<tr><th>Icon</th><th>Tool Tip</th><th>Description</th></tr>
<tr><td>  </td><td>Get Latest Revision of Object</td><td>Get the latest version of an object or script as it is held in the Version Control repository.

The Get Latest Revision command overwrites the version of the object or script in the database, replacing it with the latest version held in the VCS repository. You can use the View Differences Dialog to compare versions before overwriting the object.</td></tr>
<tr><td>  </td><td>Check Out Object</td><td rowspan="2">Check out or check in the selected object or script.

Open: Check In / Check Out Dialog</td></tr>
<tr><td>  </td><td>Check In Object</td></tr>
<tr><td>  </td><td>Undo Checkout</td><td>Cancel the check-out. You are prompted to confirm that you want to discard any changes you have made and restore the database version of the item as it was prior to check-out.

<table><tr><td>Confirm Yes</td><td>You have made and saved changes to the object and you want to discard those changes.</td></tr><tr><td>Confirm No</td><td>You have made and saved changes to the object and you want those changes to be retained in the database. As a result the version saved in the third party version control repository will be different from the version saved in the database.</td></tr></table></td></tr>
<tr><td>  </td><td>Freeze Object</td><td rowspan="2">Users with the LEADER role can freeze and unfreeze objects.

When you freeze an object other users are prevented from checking it in or out.</td></tr>
<tr><td>  </td><td>Un-Freeze Object</td></tr>
<tr><td>  </td><td>Open Object</td><td>Open the selected object. May open the Different Files Dialog.</td></tr>
<tr><td></td><td>Delete Record</td><td>Users with the LEADER role can delete objects.</td></tr>
<tr><td></td><td>View Differences between Object / Script and latest VCS revision</td><td>Compare the selected database object with the latest VCS revision

<table><tr><td>Click Compare to VCS</td><td>Compare the selected object with the latest VCS revision</td></tr><tr><td>Click SHIFT + Compare to VCS</td><td>Compare the selected object with a VCS revision that you select</td></tr></table>
Requires that a version control product is in use and the selected database object is included in a Code Control Group.</td></tr>
<tr><td>  </td><td>View Object Details</td><td>View team coding details of the selected object.</td></tr>
</table>

TIP: You can make changes to a selection of multiple objects simultaneously.

List of Objects - Status Codes

In the List of Objects the Status column is of particular interest.

Status	Meaning	Editable?	Actions allowed
Uncontrolled	The object is not under Team Coding control	editable	None
Available	The object is available for check-out	read only	Check out Freeze
Checked Out	The object is checked out to you	editable	Undo checkout Check in Freeze
Locked	The object is checked out to another user	read only	Freeze
Frozen	The object cannot be checked out or in by any user	read only	Unfreeze
Disabled	The object is disabled due to a Team Coding specific error	read only	None

Version Control Browser

Show version control archives. Show differences between revisions. Check out objects and scripts.

NOTE: Refer to the SQL Navigator Release Notes for more information on Third Party Version Control products. This topic is not applicable to users of SCC API Team Coding support. Refer instead to the documentation for the third-party product in use.

Toolbar

Icon	Tool Tip	Description
	Refresh	Refresh the list.
	Get Latest Revision of Object	Get the latest version of an object or script as it is held in the Version Control repository. The **Get Latest Revision** command overwrites the version of the object or script in the database, replacing it with the latest version held in the VCS repository. You can use the View Differences Dialog to compare versions before overwriting the object.
	Check Out Object	Check out or check in the selected object or script. Open: Check In / Check Out Dialog
	Check In Object	
	Undo Checkout	Cancel the check-out. You are prompted to confirm that you want to discard any changes you have made and restore the database version of the item as it was prior to check-out.

Icon	Tool Tip	Description
		Confirm Yes: You have made and saved changes to the object and you want to discard those changes. Confirm No: You have made and saved changes to the object and you want those changes to be retained in the database. As a result the version saved in the third party version control repository will be different from the version saved in the database.
	Open Object	Open the selected object. May open the Different Files Dialog.
	View Differences	Open the **View Differences** dialog. Select to: • View differences between two specified revisions • View differences between the selected revision and the database object (via Code Control Groups) • View differences between the selected revision and any database object or file system script Click OK to open the Difference Viewer.

TC Locks option

On the Version Control Browser, there is an option of setting TC locks. The setting on this option determines how SQL Navigator decides the status of the files under version control.

This option can significantly increase the time it takes to expand a project node. However, this option can be particularly useful when using CVS as the Version Control Provider, since CVS does not support locking of files. In this case, using Show TC Locks is the only way you can see what files Team Coding has locked under CVS.

Note: After selecting the Show TC Locks option, remember to refresh any project nodes which have already been expanded, as this does not happen automatically.

The state of the Show TC Locks option will be saved when the VCS Browser is closed.

TC Locks not selected	When this option is not selected, the VCS Browser determines which files are locked by querying the Version Control Provider; essentially it is just showing the status of each file as it would look in the provider's own GUI.
TC Locks selected	When Show TC Locks is selected, the VCS Browser will attempt to determine if a file is locked by Team Coding, through its association with an object. In this case, the file's icon is changed to either a Team Coding checked out icon if the object is locked by the current user, or a Team Coding locked icon, if the object is locked by another user. These icons are the same as those used in the Team Coding Viewer. If the VCS Browser does not determine that a TC lock affects the file, it will still show the usual Version Control Provider locks, using a different locked icon, where appropriate.

Check In / Check Out Dialog

Option	Description
Comments	Enter comments about the modifications. The comments entered at check-in time will be visible in the Team Coding Viewer. If a third-party version control system is in use, the comments are also logged against the new revision in the repository.
Apply to All Items	Applicable when multiple objects are selected. Select to apply a single comment to multiple objects.
Same Comment for All	
Force Revision	When using a third-party version control system select this option so objects that are unchanged are updated in the database, so that new or changed comments can be stored.

On checkout: Follow the prompts to check the item out or choose Cancel to open it in read-only mode.

Different Files Dialog

When you open an object or script, Team Coding compares it with the latest revision in the VCP repository (unless it is checked out). Team Coding advises when the database object or script differs from the version saved to the VCP repository.

Such differences might be due to a number of factors; for example:

- Another tool may have been used to edit the object
- A script may have been executed that modified the object
- The archive in the VCP repository may have been updated by another developer, or by some other means

You can choose one of the following options in the Different Files dialog.

Option	Description
View Differences	Open the Difference Viewer so that you can compare the two objects.
Open Database Version	Load the database version into the VOE or Code Editor in Read Only mode.
Open VCS Version	Update the database with the VCP repository version and load it into the VOE or Script Editor in Read Only mode. **NOTE:** Opening the version from the repository will cause the object in the database to be updated.
Make editable	Check the selected item out for editing

Team Coding Settings

Configure Team Coding for the current connection for all users. The options set here apply to all users.

NOTE: Before enabling Team Coding: Install Server Side Objects for Team Coding.

Configuration

Option	Description

Enable Team Coding	Select to enable Team Coding for the current connection for all users.
	In the basic mode of operation, the following rules apply:
	• Every supported object in every schema on the database must be checked out before being edited.
	• Supported objects are:
	  ◦ Procedures
	  ◦ Functions
	  ◦ Packages and package bodies
	  ◦ Triggers
	  ◦ Views
	  ◦ Object Types
	  ◦ Object Type Bodies
	• An object can be checked out to only one user at a time.
	• No Revision History is maintained.
	NOTE: The user enabling Team Coding should be granted the "Administrator" role.

Use Code Control Groups	A Code Control Group is a set of database object masks and script masks identifying which objects are under Team Coding control. Code Control Groups help you organize your controlled objects into groups associated with development projects. **NOTE:** When selected only objects referenced by a CCG are under Team Coding control.
Use 3rd Party Version Control	Integrate with a third-party version control product. When selected, individual CCGs can be related to a VCS project in the selected provider's version control repository. This option also permits scripts residing on the file system to be managed by Team Coding. You can add references to scripts to CCGs.
Apply Team	When selected, objects not defined in a CCG can be controlled (but without revision

Option	Description
Coding to all Objects	history). All stored program objects will be under Team Coding control and must be checked out before they can be edited
Version Control Provider - Only Show Installed Providers	When **Use 3rd Party Version Control** is selected, a list of all 3rd party Version Control Providers is displayed. Select **Version Control Provider - Only Show Installed Providers** to limit the list to providers installed on the current system. NOTE: When you select a provider on this list, selection does not in itself allow for maintenance of revision histories. The 3rd party version control product must also be installed on the current system.

File Extension Options

Specify the file name extensions to be used for database objects: Views, Procedures, Functions, Packages, Package Bodies and Triggers.

These extensions are used to create the work files that are stored in the VCP project. Objects are stored in files named according to the following convention: SCHEMA.NAME.EXT

For example, the procedure MYPROC in schema DEV would be stored in a file in the VCP repository as DEV.MYPROC.PRC

There is generally no need to modify these settings. Note that any change will also affect SQL Navigator 3.2 clients.

NOTE: Do not change the file extensions after exporting objects to the VCP repository.

PVCS versions 5.2 through 6.0 will replace the last character of the file extension with 'V' when creating its internal archive. For this reason, it is important to ensure that:

- The first two characters of the file extension are unique (hence the default extensions for packages are not PKS and PKB)
- The character 'V' is not used as an extension (hence the default extension for views is not VEW)

General

Define how Team Coding should handle objects and scripts.

Default Settings for User Preferences

Option	Description
Working Directory	Specifies a default workstation directory in which to store work files checked out from a version control product. A local preference is also available to override this setting.

Option	Description	
	NOTE: The version control product may override both these settings.	
Automatic Check Out	Select	Initiates a **Check Out** whenever the user opens the Visual Object Editors or Code Editor for an object or script. Open Check In / Check Out Dialog. Follow the prompts to check the item in.
	Clear	Check out the object from the Team Coding Menu.
Automatic Check In	Select	Initiates a **Check-In** whenever the user closes the Visual Object Editors or Code Editor for a modified and checked-out object or script. Open Check In / Check Out Dialog. Follow the prompts to check the item out or choose Cancel to open it in read-only mode.
	Clear	Check in the object from the Team Coding Menu.
Force New Revision on Check-in	Allows a "comments-only" revision to be created in the repository. In other words, allows a new revision to be created in the VCP even if there has been no change to the object or script itself, but only to the comments. **NOTE:** The check-in dialog also provides this option; this setting simply sets the default behavior.	

Global Settings

Option	Description
Update database after Check-In	Forces the database object to be updated after a check-in so that it is identical to the checked-in work file. This option is useful when the version control product performs keyword-expansion when files are checked in.
Use Trigger Description for DDL	When using Team Coding with triggers, EXTRACT DDL is used to store the DDL of the object in the VCP repository. For triggers, though, there are two ways this text can be created. • Construct the DDL from the Data Dictionary. (default) • Use the complete DDL from the description field in the Data Dictionary.
Force comment during Check-In	When selected, the Check-In dialog requires that the user enter a comment before the dialog can be closed.
Deny "Drop" for Checked-Out/Frozen Objects	When selected, disallows the Drop action on objects that are checked out or frozen. **NOTE:** • This will not prevent objects from being dropped by means of the Oracle "drop" command executed by user DDL. • The General | "Drop" and "Truncate" safety options | **No drop for Stored Programs/Triggers** preference takes priority over this preference.

Script File Extensions

Specify the extensions that will appear in the "Files of type" drop-down list for Script Files when you add script masks to a CCG.

Use a semicolon as a separator; for example:

*.SQL; *.DDL

Team Coding Status Dialog

Show the privileges granted to the current user.

Show connection details, such as

- which features are available
- which version control product support DLLs are installed
- which one is currently in use.

Click **Settings** to open Team Coding Settings.

If system errors exist, click **Errors** to view error details.

Version Control Products

Concurrent Versions Systems (CVS)

You can use Concurrent Versions System (CVS) with SQL Navigator's Team Coding feature.

To do this, you need to perform some basic configuration tasks. For more information, see CVS Configurations Options on page 123.

In addition, you must have a CVS client installed on your system (for example, WinCVS, CVSNT, TortoiseCVS).

Team Coding has been tested with:

- CVS clients 1.11.9 and 1.11.17 and CVSNT clients 2.0.8 and 2.0.41a with the pserver authentication method.
- CVS client 1.11.12 with pserver and ssh.
- CVSNT clients 2.0.11, 2.0.26, 2.0.34, and 2.0.41 with sserver, pserver, and sspi.
- CVSNT client 2.0.14 with sserver, pserver, sspi, ssh, ext, and local.

CVS Configurations Options

On the CVS Configuration Options dialog box there are several options you can use to configure how SQL Navigator works with CVS.

CVS

Option	Description
CVS Executable	Enter the name of the CVS program file here. The default is CVS.EXE. If your file is different, you can enter it here. You can specify the full path to the file, such as C:\Program Files\CVS\cvs.exe. This will force SQL Navigator to use the specified program. If you enter only the file name, rather than the entire path, the location of the program file must be in your system path. SQL Navigator will then use the first occurrence it finds of the specified file name.
Global Options	Use this option to specify any global options you want SQL Navigator to pass to CVS whenever a CVS command is executed by SQL Navigator. For example, the default option of -f tells CVS to ignore your .cvsrc options file. The default is -f. You can use more than one option. Separate multiple options with a space. **NOTE:** Do NOT enter a -d CVSROOT option here. SQL Navigator adds this option automatically, using the CVSROOT you provide in the CVS Login Window.

Dates and Times in CVS Output

Option	Description
Date Format/Separator, Time Format/Separator	These options tell SQL Navigator how CVS will send dates and times. This lets SQL Navigator present correct revision date and time stamps in windows such as the VCS Browser. The default for Date Format is: yyyymmdd The default for Date Separator is: / The default for Time Format us: hhnnss The default for Time Separator is: :
Available Date/Time formats	**Format** / Display d – Day as a number without a leading zero (1-31) dd – Day as a number with a leading zero (01-31) m – Month as a number without a leading zero (1-12) mm – Month as a number with a leading zero (01-12) yy – Year as a two-digit number (00-99) yyyy – Year as a four-digit number (0000-9999)

<table>
<tr><th>Option</th><th>Description</th></tr>
<tr><td></td><td>
<table>
<tr><th>Format</th><th>Display</th></tr>
<tr><td>h</td><td>Hour without a leading zero (0-23)</td></tr>
<tr><td>hh</td><td>Hour with a leading zero (00-23)</td></tr>
<tr><td>n</td><td>Minute without a leading zero (0-59)</td></tr>
<tr><td>nn</td><td>Minute with a leading zero (00-59)</td></tr>
<tr><td>s</td><td>Second without a leading zero (0-59)</td></tr>
<tr><td>ss</td><td>Second with a leading zero (00-59)</td></tr>
</table>
</td></tr>
<tr><td>Time Zone</td><td>This option tells SQL Navigator to adjust the time stamps read from the output of CVS commands. For example, to subtract eight hours from all timestamps, specify a value of -800. To add three hours, enter a value of 300.

The default is 0000.</td></tr>
<tr><td>Login</td><td>These options control SQL Navigator's behavior when attempting to log into CVS. SQL Navigator creates a console window and executes the CVS Login command at the command prompt. When the password prompt appears, SQL Navigator sends the password you have specified.</td></tr>
<tr><td>Login Automatically</td><td>When this option is checked, upon connecting to the database SQL Navigator logs in to CVS without prompting you. The most recently used CVSRoot will be used.

To use this option, the following must be true:

• The Team Coding option "Disable Login Prompt on Connection" is UNCHECKED
• The TC=NO command-line option is NOT used
• You have previously logged into CVS in SQL Navigator
• The previous login used an authentication method not requiring a password

OR: You checked the Save Password option on the login form</td></tr>
<tr><td>Password Prompt Timeout</td><td>Enter the amount of time, in seconds, you want SQL Navigator to wait for the CVS password prompt. If the timeout expires before the password prompt appears, the login will fail.

The default is 10.</td></tr>
<tr><td>Login Timeout</td><td>Enter the amount of time, in seconds, that you want SQL Navigator to wait for a login result to be returned after the password is sent. If the timeout expires before a result is returned, the login will fail.

The default is 10.</td></tr>
<tr><td>Time Between Keypresses</td><td>This option controls the amount of time (in milliseconds) SQL Navigator pauses after sending each character of the password to the CVS password prompt.

The default is zero.

  NOTE: If you find that CVS is returning "invalid password" errors, you may need to increase this number. A suggested figure is 100 milliseconds.</td></tr>
</table>

Option	Description
Restore Defaults	Click Restore Defaults to restore all options to their default values.

CVS Login Window

By default, when you have Team Coding with CVS set up, SQL Navigator will automatically display the CVS login prompt when you connect to the database.

NOTE:

- If you do not want to connect automatically, then select **Disable Login Prompt on Connection** from **View | Preferences |** Team Coding.
- When you log into CVS from within SQL Navigator, SQL Navigator opens a command prompt window to send the password to the CVS server. This window may open in the background instead of the foreground causing the login to fail. If this happens, select Team Coding Menu | **Provider Logon** and log in again.

To display the login prompt manually

Select Team Coding Menu | **Provider Logon**

To login to CVS

Option	Description	
Select the root you want to use.	Use $CVSROOT Environment variable	SQL Navigator attempts to use your CVSROOT environment variable. When you select this option, your current CVSROOT environment variable is displayed in the first box. **NOTE:** This cannot be edited in SQL Navigator ; for instructions on changing environment variables, see you Windows Help.
	Specify CVSROOT	Select this to specify which CVSROOT to use when issuing CVS commands. SQL Navigator passes this to CVS using the -d option. Up to ten of the most recently used CVS ROOT values will be remembered. You can select from these by clicking the arrow in the right of the box.
Path	Enter a path to your chosen working directory in the Working Directory box. **TIP:** Click **Select** to select a directory rather than entering the entire path by hand.	
Password	Enter your password for the specified CVSROOT. If you have specified a CVSROOT that does not use password authentication (for example, the :local:method) you can leave this box blank. In this case, SQL Navigator will not issue a CVS login command.	
Save Password	If selected, SQL Navigator stores the password in an encrypted form in the CVS.INI file.	

Click **OK** to proceed with CVS login or **Cancel** to stop the login process.

NOTE: Selecting **Team Coding | Provider Logon** will log you out of CVS for the current connection, even if you click **Cancel** at the logon prompt. To reconnect, click **OK** without changing any values.

Updating Working Folders

SQL Navigator requires that your working folders are up-to-date so that it can determine what files and folders are in your CVS repository.

You must update your working folders manually.

To update your working folders

Perform a full checkout and update with your CVS client. You can do this from the CVS command-line client by issuing the following CVS commands in your root working folder:

cvs co .

cvs update .

Multiple Connections And CVS Logins

From one SQL Navigator instance, you can connect to multiple databases.

You can:

- Establish different CVS logins for each database
- Share the same login between several instances

After you have logged into CVS once, you will remain logged in, and SQL Navigator will not display the CVS Login dialog box as long as the first instance remains connected.

NOTE: Each time a new connection to the database is established in SQL Navigator , the CVS login of the most recently established connection will be used.

To log into a different CVSROOT after initial logon, select **Team Coding | Provider Logon**. See CVS Login Window.

Authentication Methods and the CVS Root

Most CVS servers support several different authentication methods. The authentication method used to access a CVS server is specified in the first part of the CVSRoot. The CVSRoot contains the following sections

:authentication method:user@host:port:/path

All sections except path are optional. The following rules apply:

- A CVSRoot consisting only of a path will use the local authentication method. It is synonymous with:

  :local:/path
- If the user section is omitted, the CVS client will use your Window login name.
- The host section must be included for all methods other than local.

- The port section is only necessary when the CVS server is listening on a port other than the default port, which is 2401.

CVS Authentication Methods tested with SQL Navigator

SQL Navigator has been tested with the following CVS authentication methods:

- pserver
- sserver
- ssh
- sspi
- ext
- local

Using pserver and sserver methods

Using pserver and sserver is straight-forward.

- Both require a username and password.
- With both, SQL Navigator executes the CVS login command.
- With sspi, username is optional. If a username is supplied, SQL Navigator executes the CVS login command. If no username is supplied, SQL Navigator will not execute the CVS login command.

Using local and ext methods

The local and ext methods do not require a password.

- The local method is used to access a local CVS repository. This method is assumed if no authentication method is specified.
- The ext method is used for SSH authentication. For more on using SSH, see SSH Authentication Using The ext Method.

SSH Authentication Using The ext Method

SQL Navigator supports the use of SSH (Secure Shell) with the ext method as long as the following conditions are met:

- An external SSH client and SSH Authentication Agent must be installed and configured.
- SSH authentication must be transparent. Toad cannot respond to requests for private key or passphrase.
- The CVS_RSH user environment variable must be set to specify the SSH client program if the SSH client program is anything other than "ssh".

Example SSH configuration steps:

This configuration uses Plink as the SSH client and Pageant as the SSH authentication agent. Plink, Pageant and PuttyGen are parts of the PuTTy software package by Simon Tathem.

This is just one sample configuration.

1. Install PuTTy (including Plink and Pageant)
2. Generate public and private keys using PuttyGen.
3. Upload public key to the CVS server, which must be running SSHD.
4. Load Pageant and register your private key with it. Keep Pageant running whenever SSH is being used.
5. Set CVS_RSH environment variable to the path to plink.exe (for example: c:\program files\Putty\plink.exe).
6. Set CVSRoot to :ext:user@host:port:/path, where

   user = your SSH login name on the CVS server

   host = the CVS server hostname or IP address

   port = the CVS server port (optional)

   path = the path to the CVS repository on the server

   (for example: :ext:smithj@cvs.toadrocks.com:2401:/usr/local/cvs/project).

8

Modules, Windows And Dialogs

Analyze Tool

Use the Analyze tool to view and collect statistics, validate structure and list chained rows for database structures such as tables, clusters and indexes.

Ways to open the Analyze Tool

From DB Navigator	1. Select a table, cluster or index node in DB Navigator. 2. Click **Object | Analyze** or right click **Analyze**.
From the Explain Plan Tool	1. Select a node in the Explain Plan Tool. 2. Click **Show/Collect Statistics**.

Collect Statistics

Select the collection method.

Collection Method	Description
Compute Statistics	The entire object is scanned to gather data. The larger the object, the longer it takes to complete the analysis. Select this option only if the object is small.
Estimate Statistics	Sample by rows or percentage of the object. The accuracy of the statistics depends on the representatives of the sampling. This option suits large objects.
Delete Statistics	Delete the statistics gathered for the object.

Validate Structure

Use to verify the integrity of the selected object.

Select **Cascade** to additionally verify dependent objects. For example, if you validate the structure of a cluster and select Cascade, SQL Navigator checks all tables and indexes in the cluster.

NOTE: Oracle returns an error message if it encounters corruption in the structure of an object. To fix errors: Drop and recreate the object from the commands on the Object Menu.

List Chained Rows

Use to identify migrated or chained rows in a table or cluster. Having a high percentage of chained rows can impair application performance. UPDATE statements that cause migration and chaining perform poorly. Queries that select migrated or chained rows must perform more I/O than those that do not. For these reasons, it is important to detect and correct them. See Oracle documentation on the possible ways of fixing chained-rows problems.

1. The default name for the table that will contain the chained rows information is CHAINED_ROWS. This is defined at **View | Preferences |** General | Default Tables.
2. Click **Create Chained Rows Table** to create the table. Watch for verification in the Output Window.
3. Click **List Chained Rows** to collect the information. Watch for verification in the Output Window.
4. To view the information select the CHAINED_ROWS table in DB Navigator and click Object Menu | Quick Browse.

Auto Describe Tool

The Oracle DESCRIBE command reports the attributes, methods and arguments of an object type. The SQL Navigator Describe command works with more objects than does the SQL*Plus version of the command. You can describe not only procedures, functions, packages, synonyms, and object types, but also tables, indexes, clusters and objects.

Ways to open the Auto Describe Tool

From the View Menu	1. Click **View	Auto Describe Tool**. 2. Ensure the required database connection is active. 3. Select the object to describe. The object may be in DB Navigator, Project Manager, (for example).
From the Code	1. Press and hold CTRL. 2. Click on the object's name.

Editor	If the object is a text object (view, procedure, function, package or packaged procedure/function) and the Source Preview window is open then the object's source is automatically previewed.

TIP:

- Can be used to provide a quick summary of a table or view and all its column names and data types.
- The Auto Describe Tool is dockable. For more information, see Customize The Screen Layout on page 41.
- The Auto Describe Tool always stays on top of the application window.
- Select the following to automatically display the Auto Describe Tool when you press CTRL and click on an object name and create a hyperlink: View | Preferences | Code Editor | General | **Describe Object at Hyperlink**.

Tips to use the Auto Describe Tool

A quick way to construct a SELECT statement	To drag column names into a Select statement 1. Open the Auto Describe Tool. 2. In the Code Editor select the table name. 3. Drag and drop column names from the Describe window into the SELECT statement.
In the Code Editor	To move the text cursor to the declaration of a variable (or Auto Describe it if it's the name of an external database) press CTRL and point to the variable with the mouse. To return to the former position in the text, press Alt+Left Arrow.

Describe Command or Auto Describe Tool

Use either the Describe command or the Auto Describe Tool to describe an object

View Menu | Auto Describe Tool	Automatically see a description of any object you select. A dockable Describe window opens and stays on top of the application window. As you select various objects you will automatically see a description of the selected object in the Auto Describe window.
Object menu | Describe	Click the Describe command on the Object menu whenever needed. It opens a describe window for a single selected object and will not update automatically when you select another object.

Benchmark Factory

Benchmark Factory™ is a highly scalable load testing, capacity planning and performance tuning tool capable of simulating thousands of users accessing your database, file, Internet and messaging servers. Benchmark Factory can simulate user transactions before and during application deployments, enabling performance issues to be addressed before end users are affected.

- Allows IT professionals to determine system capacity and isolate system stress related problems
- Common interface displays the testing of databases, Internet, e-mail and file servers.
- Simulates the maximum number of users on a minimal amount of hardware
- Enables IT professionals to discern problems before and after applications are deployed
- Comprehensive tutorials cover load testing, benchmarking, capacity planning and performance tuning, including information on configuring your system and analyzing results.

NOTE: Requires installation of Benchmark Factory. Benchmark Factory is installed independent of SQL Navigator.

Bookmarks Dialog

View / Go to / Delete bookmarked lines in the code.

Option	Description
List of bookmarks	Click on a bookmark to highlight it.
Jump	View the highlighted bookmark in an editor.
Delete	Delete the highlighted bookmark.

TIP: More bookmark actions can be found on the Edit Menu.

Capture Web Output

When you first log in to SQL Navigator, the Web server is not enabled for use.

Start Capturing Web Output

1. Click **Session | Capture Web Output**.
2. Verify that the Oracle Web Toolkit is installed and visible to the schema. Check the Output Window for a confirmation message.

While Capturing Web Output

Each time you execute PL/SQL code that generates HTML output, the generated HTML is displayed in the HTML Viewer.

NOTE: If the PL/SQL procedure is run under the debugger, the HTML output is not visible until the procedure is complete.

Change Logon Password

Modify the logon password of the current session.

Option	Description
Old password	The password you used to logon to the Oracle session.
New password	What you want to change the password to.
Verification	Type the new password twice: once in the New password box and then again in the Verification box.

Code Analysis

Code Analysis is an automated code review and analysis tool. It enables individual developers, team leads, and managers to ensure that the quality, performance, maintainability, and reliability of their code meets and exceeds their best practice standards.

NOTE: This feature is available in the Professional Edition and higher.

Access to Code Analysis

Code Editor	Code Analysis is available in the Code Editor, which ensures code quality from the beginning of the development cycle. In the Code Editor, Code Analysis evaluates how well a developer's code adheres to project coding standards and best practices by automatically highlighting errors and suggesting smarter ways to build and test the code.
Code Analysis Window	SQL Navigator also provides a dedicated Code Analysis window, where you can perform more detailed analysis, evaluate multiple scripts at the same time, and view a detailed report of the analysis.

Rules and Rule Sets

Code Analysis compares code against a set of rules (Code Analysis Rules) for best practices. These rules are stored in rule sets (Code Analysis Rule Sets).

The Code Analysis rules and rule sets can be adjusted to suit the requirements of different projects. Regardless of whether developers are responsible for their own code quality or if this needs to be managed centrally, Code Analysis can be adapted to fit either need.

Code Analysis Metrics

Code Analysis uses a variety of metrics to evaluate code, including the following:

- Computational Complexity (Halstead Volume)—Measures a program module's complexity directly from source code, with emphasis on computational complexity. The measures were developed by the late Maurice Halstead as a means of determining a quantitative measure of complexity directly from the operators and operands in the module. Among the earliest software metrics, they are strong indicators of code complexity. Because they are applied to code, they are most often used as a maintenance metric.
- Cyclomatic Complexity (McCabe's)—Cyclomatic complexity is the most widely used member of a class of static software metrics. It measures the number of linearly-independent paths through a program module. This measure provides a single ordinal number that can be compared to the complexity of other programs. It is independent of language and language format.
- Maintainability Index (MI)—Quantitative measurement of an operational system's maintainability is desirable both as an instantaneous measure and as a predictor of maintainability over time. This measurement helps reduce or reverse a system's tendency toward "code entropy" or degraded integrity, and to indicate when it becomes cheaper and/or less risky to rewrite the code than to change it. Applying the MI measurement during software development can help reduce lifecycle costs.

The Code Analysis Report includes detailed descriptions of the code metrics and how they work. For more information, see Code Analysis Window on page 135.

Code Analysis Window

The Code Analysis window provides detailed analysis, including a results dashboard, report, and tree view with violations and code properties. You can also simultaneously analyze multiple files from this window.

NOTE: This feature is available in the Professional Edition and higher.

To perform detailed code analysis

1. Click **Tools | Code Analysis**.
2. Load files or objects to analyze.

Open files.
Load objects from the database. You can click the drop-down arrow beside this button to load all objects or choose a group of objects to load.

3. Select the rule set you want to use in the Code Analysis toolbar (the default is Top 20).
4. To evaluate statements' complexity and validity, select **Run SQL Scan** in the **Run Review** list on the Code Analysis toolbar.
5. Select the items to analyze in the grid.

   Use SHIFT or CTRL to select multiple items.
6. Analyze code for all selected items. Click or press F9. (Ensure **Run Review** is selected.)

   Alternatively, to apply your selection to all items press F5.
7. Review the Code Analysis results.

Send code back to the Code Editor from the selected file or object. SQL Navigator displays the Code Analysis errors and violations in the tabs below the Code Editor.

Additional details

Grid Dashboard	The right side of the grid displays a dashboard of violations and statistics. The dashboard includes the item's Toad Code Rating (TCR), which is a composite of several rating criteria. The score ranges from 1 (best) to 4 (worst). It provides a quick reference for how your code has performed in the analysis.
Result tab	The Results tab displays the analysis results in a tree view. Expand each node for details on the violations. If you select a violation in the tree view, the preview on the right displays the corresponding code. The Result tab displays the results for the item selected in the grid. If you analyzed multiple items and select them in the grid, the tab displays the results for all of the selected items. NOTE: Click in the Code Analysis toolbar to view an icon legend.
Report tab	The Reports tab summarizes the analysis results and includes rule definitions. Items in the table of contents are hyperlinked so you can easily navigate the report. NOTE: By default, the Report tab only displays the analysis for one item. However, you can select **Display all selected results on Report tab** to include multiple items in the report.

Code Analysis Rule Sets

A rule set is a collection of rules that Code Analysis uses to evaluate code. You can create your own rule set and determine which rules to include. You can also import existing rule sets from outside SQL Navigator, and export user-defined rule sets.

1. From the Tools Menu, click **Tools | Code Analysis**.
2. From the Code Analysis toolbar, click  .

Create and Edit

Icon	Description
	Edit the selected rule set. **NOTE:** You cannot edit SQL Navigator's standard rule sets.
	Create a rule set
	Use the selected rule set as your template

For each rule in the rule set, select the rule to include it, deselect the rule to exclude it.

Import and Export

Icon	Description
	Import a rule set. Navigate to the location of the rule set and click **Open**. If the rule set has user defined rules then when importing you will be asked if a rule-export file exists, and you want to import it. If so the rules are imported. If any rule numbering has to occur because of conflicts, the rule set is automatically updated to the new rule numbers.
	Export a user-defined rule set. If the rule set has user defined rules then when exporting you will be asked if you want to export those user-defined rules with the rule set. If so the rules are saved as RuleExport.XML in the same directory as the exported rule set.

Code Analysis Rules

You can use existing Code Analysis rules or clone them and customize them to confirm your code meets your code review requirements. you can import and export rules.

1. From the Tools Menu, click **Tools | Code Analysis**.
2. From the Code Analysis toolbar, click  .

Create or Clone

Icon	Description	The Code Analysis Rule Builder
	Create a rule	Rule IDs are automatically generated sequentially from 7000 to 9000. Enter the **Description** and specify the **Rule Tip**. • Specify **Rule Severity**, **Rule Objective**, and **Rule Category**. • Click  to display the XML that SQL Navigator generates. This is helpful for use in an external XPath parser such as SketchPath to refine the XPath expression. • Create the XPath Expression. To test the rule, click  .
	Clone the selected rule	

A checked box in the User Defined column will be displayed for the rule you created.

Edit

Select the rule to edit. Edit the fields as necessary.

Field	Description
Code Preview	Enter code to use for testing the rule.
XPath Expression	Edit the XPath. If this field is blank, then you cannot edit the XPath for the rule. To test the rule, click  .

To restore a rule or all rules, you can select the rule and click the 'Restore Original Rule Value' button, or the double-arrow 'Restore All Original Rule Values' button. 

Import and Export

Icon	Description
	Import a rule. Navigate to the location of the rule and click **Open**.  **NOTE:** • If a modified SQL Navigator rule is imported, the changes are applied to the rule in place. • If a user-defined rule has a number that already exists, the imported rule is given the next available rule number and added.

Icon	Description
	Export the selected user-defined rule.

Code Assistant

Drag and drop PL/SQL syntax, SQL functions, column names, and database object names into code.

Move a code snippet into the editor

1. Click View Menu | Code Assistant.
2. Click the cursor in the editor where you would like the snippet inserted.
3. Select the code snippet in Code Assistant. Double click on the code snippet or drag it into the editor.

Locate a code snippet in the Code Assistant

Code Snippets are stored in catalogs. The catalogs are as follows.

Catalog	Description
Syntax and Web Catalog	Browse the ready-to-use library of PL/SQL syntax. The Knowledge Xpert gives SQL Navigator users a library of more than 900 pre-built PL/SQL routines that can eliminate hours of low-level coding and debugging while enhancing application performance and reliability.
PL/Vision Catalog	Knowledge Xpert products are available as optional add-on modules. For more information, see Search Knowledge Xpert on page 193.
Code and SQL Catalog	Store your own frequently used SQL statements and code fragments here. For example, you can store your frequently-used cursor declarations or variable declarations. **TIP:** The catalog sorts the folders and items alphabetically by name. Use your own naming conventions or prefixes to group similar snippets together. Syn- IF THEN ELSIF … Syn- WHERE clause … Syn- SQL - Correlated subquery Etc.

The Code Assistant Toolbar

Icon	Tool Tip	Description
	Add new item or node	Add a code snippet or SQL statement. Open the Add to Catalog / Edit Dialog.
	Edit item or node	Edit the selected item. Open the Add to Catalog / Edit Dialog. **NOTE:** • To quickly rename an item: select it in the catalog then click on it. • You cannot rename the top level folders in the tree.
	Delete item or node	Delete the selected item. **NOTE:** You cannot delete the top level nodes of the tree.
	Paste snippet into editor	Use to paste a code snippet into an editor: 1. Click the cursor in the editor where you would like the snippet inserted. 2. Click Paste snippet into editor. **TIP:** Alternatively drag and drop the snippet into the editor.
	Show information window	Show/Hide the information pane. The information pane shows detailed information on the selected item.
	Capture code	Use to add a code snippet or SQL statement from an editor window into the catalog: 1. Select the code in the editor window. 2. Click Capture Code. This opens the Add to Catalog / Edit Dialog with the selected code already inserted.
	Save all catalogs to disk	Save changes.

Add to Catalog / Edit Dialog

Add a code snippet or folder to the Code Assistant **Code and SQL Catalog**. Manage items in the catalog.

Field	Description
Name	Make the name descriptive. Names can be up to 35 characters long and contain uppercase letters, lowercase letters, and

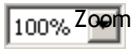
Field	Description
	any of the following characters: _ - & space < > / , ' ( ) ..
Entry Type	Select **Code Snippet** or **Folder**.
Snippet	The snippet of code. NOTE: For code snippets only.
Information	The text to be displayed in the Code Assistant Information pane.
Hint	The text to be used as a hint in the status bar at the bottom of the Code Assistant window.
Image	The icon to identify the code snippet in the catalog (Generic, Function, or Procedure). NOTE: For code snippets only.

Code Road Map

The Code Road Map graphically displays the complex PL/SQL interdependencies within a database.

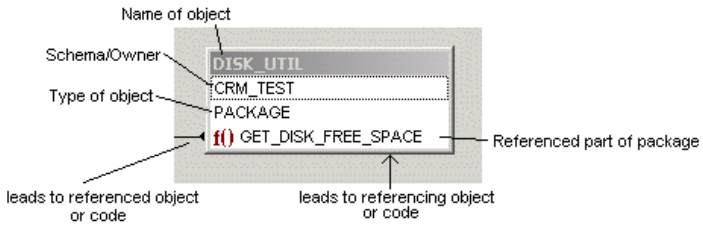
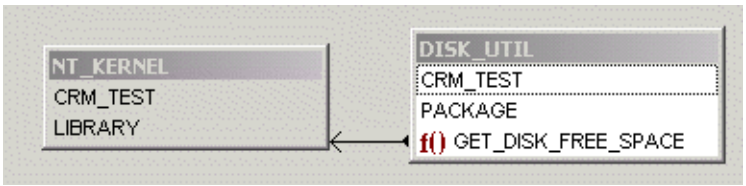
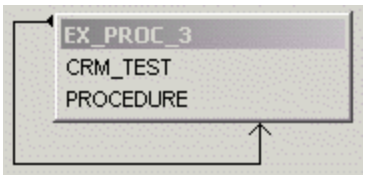
Code Road Map Toolbar

Icon	Tool Tip	Description
	New code road map	This opens the Model Code Dialog.
	Clear diagram	Clear the model window. Revert to the initial start up state.
	Open file	Open a saved map file (Extension: .crm).
	Save file as	Save the map with a new name (Extension: .crm).
	Save file	Save the map (Extension: .crm).
	Save diagram as text file	Save the map as a text file. The file consists of a list of the objects and what they reference. For example the following might be the results of a small code map: PROCEDURE CRM_TEST EX_PROC_1 ---> PACKAGE CRM_TEST EX_PACK_2

Icon	Tool Tip	Description
		PROCEDURE CRM_TEST EX_PROC_1 ---> PROCEDURE CRM_TEST EX_PROC_2 PROCEDURE CRM_TEST EX_PROC_1 ---> PROCEDURE CRM_TEST EX_PROC_3 PROCEDURE CRM_TEST EX_PROC_1 ---> TABLE CRM_TEST EMP_SNAPSHOT PROCEDURE CRM_TEST EX_PROC_1 ---> VIEW CRM_TEST SALES The map is laid out as follows where the arrow means "calls". OBJECT-TYPE SCHEMA OBJECT NAME --> OBJECT-TYPE SCHEMA OBJECT NAME
	Save diagram as bitmap	Create a bitmap version of the map. **TIP:** You could copy the image to the clipboard. Right click over the map and select **Copy Image to Clipboard**.
	Print diagram	Print the model side of the map.
	Print preview	Preview before printing.
	Code road map info	Add a comment to your code map.
	Collapse packages	Collapse/Expand Package View. **Icon / Tool Tip / Description**  Collapse Packages — Show/Hide referenced sub units under the object type.  Expand Packages **NOTE:** Applicable to **Code Type** | **Package** as set in the Model Code Dialog.
	Refresh diagram	Refresh the diagram.
	Choose colors for database objects	Color code database objects.
	Zoom	Zoom in or out of the model.
	Previous auto layout / Next auto layout	Scroll through layouts of the Code Road Map.

The Code Model

The code model consists of two panels. The left panel shows a list of components in a hierarchical tree. The right panel shows a graphic model of the code. The design is similar to models created using SQL Modeler.

Hierarchical Tree	Graphical Model
The hierarchical tree is organized by object type. All procedures are listed under the Procedures node, and all tables under the Tables node. Click on an object to highlight it in the Graphical Model.	Each object listing contains the name of the object, the schema where it resides, and the type of object. For **Code Type | Package** in **Collapse Package** view, any sub units that are referenced will be included under the object type. For example:  Lines indicate where an object is dependent on another. Lines have a knob end (the referencing object) and an arrow end (the referenced object). In this example, DISK_UTIL references the library NT_KERNEL, specifically from the function GET_DISK_FREE_SPACE. The model is in Collapse Package view.  A self-recursive reference is shown with the arrow returning back to the object, as follows: 
Actions: • Click on an object in the tree view and the Graphic Model centers on that object. • Right-click on an object to	Actions: • Right-click on an object to display the popup menu from the Schema Browser for that object type. • F2 toggles full screen mode. • F4 or Double-clicking on an object performs a Describe, if SQL

Hierarchical Tree	Graphical Model
display the popup menu from the Schema Browser for that object. • F4 performs a Describe, if SQL Navigator supports Describes on that object type. • Double-click an object to perform a Describe.	Navigator supports Describes on that object type.

Model Code Dialog

Select the code to map and the options to use when the code is mapped.

Field	Description
Schema	The schema where the code is located.
Code Type	Select from: function, package, procedure and trigger.
Code Unit	The options depend on the **Code Type** selected.
Sub Unit	The various parts of the package, sorted alphabetically. The first sub unit is selected by default. NOTE: Visible for **Code Type** | **Package**.
Levels to Model	The number of levels to model down from the starting object. The default is ten.
Display Mode	**Option** / **Description** Code Only: Model the code the object calls. Display a graphical representation of the run-time, call-stack dependencies. Code + Data: Model both the code called and data (tables, views, and so on) referenced by the object. Display the database objects the code references and in what manner (for example, read versus write). You can also include pertinent triggers and views. Views are essentially treated as tables.
Display Options	Select as appropriate. These options affect the visual display of the map. The data in the map is not affected. • Expand packages and types for calls into them • Include triggers (for Code + Data) • Include views (for Code + Data) • Include calls to SYS-owned objects

Field	Description
	• Include calls to other schema PL/SQL

Code Templates

Insert ready-made code segments into any active editor window.

Action	Description
Insert code from a template into an active editor window.	1. In the editor, place the cursor where you want to insert the code segment. 2. Choose one of the following: • Type the shortcut key to the code template. • Type the full or partial name of the code template and press Ctrl+J to either insert the matching code template or select from a list of matches. • Press Ctrl+J. Select the template name from the drop-down list and press Enter.
Add / Edit / Delete code templates.	Click **View | Code Templates | Edit Code Templates**. This opens the Code Shortcuts And Templates Dialog Each template is a file in the SQL Navigator installation Templates directory. The maximum number of templates allowed, including preformatted templates, is 100.

Standard code routines for which templates have been provided:

Code Description	Shortcut Key
Basic Loop Statement	Shift+Ctrl+L
Boolean Statement	Shift+Ctrl+B
Close Cursor Statement	Shift+Ctrl+C
DBMS_OUTPUT.Put_Line	Shift+Ctrl+D
Exception	Shift+Ctrl+E
Exit When Statement	Shift+Ctrl+X

Code Description	Shortcut Key
For Loop Statement	Shift+Ctrl+F
GOTO Label Statement	Shift+Ctrl+G
IF Statement	Shift+Ctrl+A
MLSLABEL Statement	Shift+Ctrl+M
Number Statement	Shift+Ctrl+N
Open_Cursor Statement	Shift+Ctrl+O
Raise_Exception	Shift+Ctrl+R
SQLCODE Statement	Shift+Ctrl+S
VARCHAR2 Statement	Shift+Ctrl+V
Variable_name	Shift+Ctrl+T
While Condition Statement	Shift+Ctrl+W

Code Shortcuts And Templates Dialog

Create your own code templates. Edit or delete existing code templates. Change the shortcut key definitions attached to a template.

<table>
<tr><th>Option</th><th>Description</th></tr>
<tr><td>Templates</td><td>Click on a template to select it.
<table>
<tr><th>Column</th><th>Description</th></tr>
<tr><td>Name</td><td>The name of the template. A template name is a single word with no spaces.
You cannot change a template name. Instead, you can delete an existing template and create another like it with a different name.</td></tr>
<tr><td>Description</td><td>A short description of the template.
Click in the Description field to edit it.</td></tr>
<tr><td>Shortcut key</td><td>The shortcut key combination used to insert the template code into an editor.
Click in the field to change the Shortcut key. Select from those available. To have no shortcut key select None.</td></tr>
</table></td></tr>
<tr><td>Code</td><td>View / Edit the SQL code for the selected template.</td></tr>
<tr><td>Add</td><td>Create a new template.</td></tr>
<tr><td>Delete</td><td>Delete the selected template.
You cannot delete all the templates. There must be at least one template remaining in the Code Shortcuts and Templates dialog.</td></tr>
</table>

Default Templates

Name	Description	Code	Shortcut Key
Basic Loop	Basic Loop Statement	LOOP statements; END LOOP;	SHIFT+CTRL+L
Boolean	Boolean Statement	Boolean;	SHIFT+CTRL+B
Close Cursor	Close Cursor Statement	CLOSE cursor_name;	SHIFT+CTRL+C
DBMS_PutLine	DBMS_OUTPUT.Put_Line	DBMS_OUTPUT.Put_Line(string);	SHIFT+CTRL+D
Exception	Exception Statement	EXCEPTION WHEN exception_name THEN statements; WHEN no_data_found THEN statements; WHEN others THEN— *Handles all exceptions* statements;	SHIFT+CTRL+E
Exit_When	Exit When Statement	EXIT WHEN condition_is_true ; -- To exit loop	SHIFT+CTRL+X
For_Loop	For Loop Statement	FOR J IN 1..12 LOOP statements; END LOOP;	SHIFT+CTRL+F
GOTO_Label	GOTO Label Statement	GOTO label_name ;	SHIFT+CTRL+G
IF	IF Statement	IF condition_is_true THEN statements;	SHIFT+CTRL+A
MLSLABEL	MSLABEL Statement	MSLABEL;	SHIFT+CTRL+M
Number	Number Statement	NUMBER(precision , scale),	SHIFT+CTRL+N
Open_Cursor	Open_Cursor Statement	OPEN cursor_name ;	SHIFT+CTRL+O
Raise_Exception	Raise_Exception	RAISE exception_name ;	SHIFT+CTRL+R
SQLCODE	SQLCODE Statement	SQLCODE;	SHIFT+CTRL+S
VARCHAR2	VARCHAR2 Statement	VARCHAR2(size),	SHIFT+CTRL+V
Variable_name	Variable_name	variable_name ColName%TYPE;	SHIFT+CTRL+T
While_	While	WHILE condition_is_true LOOP	SHIFT+CTRL+W

Name	Description	Code	Shortcut Key
Condition	Condition Statement	statements; END LOOP ;	
Unassigned			SHIFT+CTRL+H
Unassigned			SHIFT+CTRL+J
Unassigned			SHIFT+CTRL+K
Unassigned			SHIFT+CTRL+P
Unassigned			SHIFT+CTRL+Q
Unassigned			SHIFT+CTRL+Y
Unassigned			SHIFT+CTRL+Z

Code Test

The Code Test panel automates the process of testing PL/SQL programs.

To open the Code Test module

1. Open a procedure or function to test in the Code Editor.
2. Click **Tools | Code Test**
3. All test cases currently defined for the procedure / function are displayed. Packages are grouped by entry point.

Icon	Tool Tip	Description
	Open and Select Object	Opens the Select DB Object Dialog.
	Refresh	Refresh the list of test cases against the current object.
	Create New Test Case	Opens Test Case Properties. Create a new test case. The first time you create a test case, you are prompted to install the Code Tester for Oracle® repository. Installation of this repository is required. Complete the wizard that is launched.
	Edit Test Case	Opens Test Case Properties. Includes the properties of the highlighted test case.
	Clone Test Case	Opens Test Case Properties. Renames the test case. Includes the properties of the highlighted test case.
	Run Selected	Runs the selected test cases.

Icon	Tool Tip	Description
	Test Cases	• Test Case Selected • Test Case Not Selected As test cases are run, the status of each is shown.

TIP:

- Right click on the test case for further options.
- Use the search facility to search for test cases by name or parameter.
- Test cases created in SQL Navigator can also be used in Code Tester for Oracle®.

Test Case Properties

You describe the expected behavior of a program and then SQL Navigator generates the required code for the test case.

Field	Description
Test Name	The name of the test case selected or a new name. This field is editable.
Parameter, Input & Expected Output	Configure input parameters and expected outputs.
Test & Result	
Exception Outcome	**Field** / **Description** No Exception — Select if you do not expect the test to raise an exception. Exception Expected — Select if you expect the test to raise an exception. Fill in the expected **Error Code** as a number.
Elapsed Time Outcome	**Field** / **Description** Check — Select to test the time taken to execute the code. Time (ms) — The maximum time allowed for the code to complete execution (in milliseconds).

Database Source Code Search

Search stored programs, triggers and views for a character string in the source code.

TIP: You can use this utility to perform a quick "where-used" impact analysis.

Open the Database Source Code Search dialog

Select **Search** | **Code Search**.

Define the search criteria

1. From the **What** tab define the search string.
2. From the **Where** tab select the schema and object type.
3. Click Search.

You can stop/suspend the search from the Session Menu or toolbar.

Now objects have been found

Take actions on found object(s)

Icon	Action	Description
	Edit	Double click on the object. The object opens in the corresponding editor with the cursor at the line containing the search string. For more information, see Visual Object Editors on page 90.
	Describe	View Describe information on the object. Right-click on a row in the results set to see Describe information.
	Add to Project Manager	Save a shortcut to the code location. Drag the selection from the result list to the Project Manager.
	Source Preview	Open Source Preview. Select found text objects to view their source code.

DB Navigator

DB Navigator shows the entire database structure as a tree with expandable nodes.

DB Navigator Toolbar

Icon	Tool Tip	Description
	Back and Forward	Retrace your steps. Navigate between hyperlinked database objects and their dependent objects and components. Move between— • An object and its dependencies, and vice-versa • An index or trigger and the table to which it refers, and vice-versa • A collector type and the base type of table it is related to • A synonym and its base object You can also use the Forward and Back buttons in conjunction with Up One Level.
	Up One Level	Change hierarchy levels in the DB Navigator tree. TIP: Use **Back** to return to the level where you first used moved up.
	DB Navigator Preferences	Set and Save filters to limit the objects displayed in the tree. Open the Filter Properties Dialog.
	Fully Expand Node from DB	Expand the selected DB Navigator node and all its descendants.
	Refresh from Current Node	Refresh the selected DB Navigator node.
	Show/Hide Details Panel	Show / Hide details about the selected DB Navigator node. • When you select a Schema node or Object Type node (for example, Tables or Indexes) the details pane shows a list of objects contained in that node. This list allows for selection of multiple objects for batch operations like Drop, Extract DDL, or Compile. • When you select a specific object the details pane shows attributes of the selected object.

Using DB Navigator

DB Navigator displays all types of Oracle objects, giving you a hierarchical view of any schema, including dependent objects. The tree view includes nodes for "My Schema," "All Schemas," and "Current Instance."

This symbol	Indicates
	The node can be expanded. Click + to drill down to underlying objects or data. Alternatively, press the right arrow key or the space bar while the node is selected.
	The node can be collapsed. Click the - sign. Alternatively, press the left arrow key while the node is selected.
(Grayed text)	The database object at that node is disabled or offline.
(Red text)	The database object at that node is invalid.

TIP:

- Drag objects or connections that you use frequently to the Project Manager for fast access.
- Double click on an object to open it for editing (Visual Object Editors, Code Editor).
- Further commands are available on a selected object (or objects). Try the Object Menu. Right click on the object.
- When a property is a reference to another database object (for example the base table for an index, or synonym's base object), click on the reference in the Value column to jump to the referenced object's node and display its properties.
- To move around in the Navigator window you can use the keyboard arrow keys. Use **Page Up** and **Page Down** to scroll multiple lines.
- To purge objects: Select the object(s) in the Recycle Bin and right click **Purge**. Alternatively, right-click on the **Recycle Bin** node and select **Empty Recycle Bin**.
- To copy an object from one schema to another:
  1. Open a second DB Navigator window.
  2. Drag the object from the source window to the target window.
  3. Execute the DDL displayed in the editing window
- To switch to another session's DB Navigator window, select the session and click **View | DB Navigator**.
- Your view of the Oracle Data Dictionary determines what objects you can see. For more information, see DBA Dictionary Views on page 48.

Filter Properties Dialog

Create or modify DB Navigator filters that restrict the display of objects in the DB Navigator tree. You can save your filters, so that they will be available from the DB Navigator toolbar.

Select filter

Field	Description
Filter Name	Select an existing filter name or enter a new one.

Select filter settings.

Tab	Description
General	Selected schemas will be visible in the DB Navigator tree when the filter is applied.
Global Filters	Selected top level nodes will be visible in DB Navigator when the filter is applied.
Object Filters	Selected object types will be visible in the DB Navigator window when the filter is applied. ***Application of name masks*** Type the name mask in the **Filter** box. Name masks are specified according to Oracle's LIKE operator definition. For example, setting the name mask ABC% will result in displaying only those objects with names beginning with the characters "ABC". The name mask is applied to all selected object types. Click **Assign Globally**.to apply the name mask to all objects.

Describe

The Oracle DESCRIBE command reports the attributes, methods and arguments of an object type. The SQL Navigator Describe command works with more objects than does the SQL*Plus version of the command. You can describe not only procedures, functions, packages, synonyms, and object types, but also tables, indexes, clusters and objects.

To open the Describe window

Object Menu	1. Ensure the required database connection is active. 2. Select the database object. 3. Click **Object | Describe**.
DB Navigator	Right click the object in DB Navigator and select **Describe**.
Project Manager	Right click the object in Project Manager and select **Describe**.
Code Editor	Right click the object in Code Editor and select **Describe Object at Cursor**.

Shortcut	Ctrl+F3

TIP: To keep the existing Describe window open while opening additional Describe windows, click the Pin toolbar icon in the Describe window. Set the default pin behavior in **View | Preferences | General | User Interface**.

- Can be used to provide a quick summary of a table or view and all its column names and data types.

Tips to use the Describe window

A quick way to construct a SELECT statement	***To drag column names into the Select statement*** 1. In the editing window, click the cursor on the table name. 2. Open the Describe window. 3. Drag and drop column names from the Describe window into the SELECT statement.

Describe Command or Auto Describe Tool

Use either the Describe command or the Auto Describe Tool to describe an object

Auto Describe Tool	Automatically see a description of any object you select. A dockable Describe window opens and stays on top of the application window. As you select various objects you will automatically see a description of the selected object in the Auto Describe window.
Object | Describe	Click the Describe command on the Object menu whenever needed. It opens a describe window for a single selected object and will not update automatically when you select another object.

Difference Viewer

The Difference Viewer displays the compared objects in a split window. Differences between the objects are highlighted, and the toolbars and menus give you access to controls for customizing the view and creating reports.

The Difference Viewer Toolbar

Icon	Tool Tip	Description
	Reload and recompare files	Reload the external SQL/text files. Recompare.
	Open files	Open an external SQL/text file.
	Save	Save to an external SQL/text file.
	Switch sides	Switch left and right sides.
	Find Previous Difference	Go to the previous difference.
	Find Next Difference	Go to the next difference.
	Show All	Show all lines of the compared objects.
	Just Show Differences	Show only lines with differences.
	Just show major differences	Show only lines with major differences (as defined by File Comparison Rules).
	Just show matching lines	Show only matching lines.
	Find	Find a text string.
	Find again	Find the next occurrence of the text string.
	Go to line number	Go to a specific line number.
	Copy To Right	Replace the selected line (right) with the selected line (left).
	Copy To Left	Replace the selected line (left) with the selected line (right).
	Delete left text	Delete the selected line (left).
	Delete right text	Delete the selected line (right).
	Undo	Undo the change made to the selected line.
	Produce file differences	Generate a report of differences.

Icon	Tool Tip	Description
	report	
	Comparison summary	Compare similarities and differences in a summary.
	Show whitespace	Show/Hide space characters as tilde (~) characters.
	Show line numbers	Show/Hide line numbers.
	Show thumbnail view	Show/Hide thumbnail view. The thumbnail view (to the left of the viewing window) is a visual summary of differences. Colored lines show the relative position of line mismatches. A white rectangle represents the part of the text currently visible in the Difference Viewer window. You can click on the thumbnail view to position the viewer at that point. Use to quickly change locations within the viewing window.
	Show line details	Show full details of the current line below the viewing window (so you don't have to scroll to see the entire line)
	File comparison rules	Open File Comparison Rules.
	Options	Open Viewer Options.

View Differences Dialog

Select objects or scripts to compare in the Difference Viewer.

Viewer Options

Appearance | Color Scheme

1. Select a color scheme for each of:
    - Matching Text
    - Similar Text
    - Different Text
2. Define how missing text should be displayed.

    Select **Color** and click **Select Color** to choose the color block to show to represent missing text.

    Alternatively, select **Blank**.

3. Click **Font** to customize the font, font style, font size and script.
4. Select **Horizontal Lines Between Mismatches** if desired.

TIP: All changes to the appearance can be previewed in the sample viewer display in the **Viewer Options** window.

Appearance | Find Next Difference

Customize finding the next difference.

File Comparison Rules

General

Option	Description
Tab Stops	Set the width of Tab Stops displayed in the Difference Viewer.
Synchronization Settings	The Synchronization Settings control the workings of the comparison engine that reports differences and similarities between the two files. You can set the synchronization parameters low to allow more efficient searches for small differences, or higher for handling larger files or files with large differences. Unless you are experienced in manipulating comparison synchronization algorithms, you will probably find that the default settings work well enough for most situations.

Option	Description
Initial Match Requirement	The minimum number of lines that need to match in order for text synchronization to occur.
Skew Tolerance	The number of lines the Difference Viewer will search forward or backward when searching for matches. Smaller numbers improve performance.
Suppress Recursion	Suppress Recursion refers to the method used to scan for matches. Recursion improves the ability to match up larger as well as smaller sections of text, but it can take longer.

Ignore Minor Differences	Selected	Ignore minor differences so you can focus only on significant differences.
	Not Selected	Highlight minor differences in the Difference Viewer window. Minor Differences are as defined in the **Define Minor** tab.

Define Minor

Option	Description
Case	Select the items you want highlighted as minor differences. Items not selected will be ignored. Ensure **General | Ignore Minor Differences** is not selected.
Leading Whitespace	
Trailing Whitespace	
Embedded Whitespace	
/* Text within Slash-Asterisk */	
(* Text within Parenthesis-Asterisk *)	
{ Text within Curly Braces }	
Text Beginning With	
Fortran Comments	

Edit Data

Use to edit data in a table object.

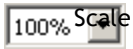
1. Select the table object.
2. Click **Object | Edit Data**.
3. The Code Editor opens. The query is run with **Updateable** switched on. For more information, see SQL Query Results Data Grid on page 70.

ER Diagram

The ER (Entity Relationship) diagrammer lets you quickly model a table and graphically see the dependencies and joins to other tables.

NOTE: To ensure indexes are delivered in the correct order in a diagram, ensure the Oracle Data Dictionary is queried with DBA Views. For more information, see DBA Dictionary Views on page 48.

ER Diagram Toolbar

Icon	Tool Tip	Description
	New ER Diagram	Opens Create ER Diagram.
	Clear ER Diagram	Clear the ER Diagram window.
	Open File	Open a saved ER Diagram.
	Save File As	Save the ER Diagram.
	Save File	
	Save Diagram as Bitmap	
	Print Diagram	Print the ER Diagram.
	Print Preview	
	ER Diagram Info	Show detail of the ER Diagram.
	Load ER Diagram in the SQL Modeler	For more information on the SQL Modeler, see SQL Modeler.
	Find Table Dependencies	Show joins between tables. This feature does not add new objects to the diagram; it only finds joins between objects already displayed.
	Refresh Diagram	Refresh the ER Diagram window.
	Scale	Zoom in / out of the window.
	Previous auto-layout / Next auto-layout	Scroll through the layouts.

ER Diagram Display Area

For each table in the model

Diagram Part	Description
Title Bar	The name of the table and schema it resides.
Body Area	The columns in the table, the column type, whether the column is indexed, and icons as applicable and selected in Create ER Diagram.

Diagram Part	Description
Connector Lines	Lines connect tables that are dependent on each other. Lines have a knob end and an arrow end. The referencing table resides at the knob end, and the referenced table at the arrow end.

To add tables to the diagram

Drag-and-drop from:

- DB Navigator
  - From the tree, drag a single object only.
  - From the Details pane, drag a list of objects.
- Find objects Dialog
- Project Manager

Create ER Diagram

Field	Description
Schema	Select the Schema where the table resides.
Table	Select the table to diagram.
How many levels of referential tables do you want to load?	Select as appropriate. The more levels of referential tables you load, the more complicated the diagram will become, and the longer SQL Navigator will take to create the diagram.
Display Options	Select from: • Show primary keys • Show foreign keys • Show unique keys • Show data type • Show not nullable • Show indexes If the display option has an icon associated with it, the icon is displayed to the right of the option. In the diagram, the appropriate icon will appear to the left of the table name.

Explain Plan Tool

Use the Explain Plan tool to analyze the execution of a single SQL statement. By examining the execution plan, you can see exactly how Oracle executes your SQL statement, and how it can be improved.

This tool lets you:

- generate plans and save them in the table of your choice
- organize your saved plans by various criteria, such as type (for example, online SQL statements, batch SQL statements, and so on), module, or subsystem
- build separate plan tables for different subsystems in your project
- browse each table separately.

TIP: The Analyze Tool can be used in conjunction with the Explain Plan tool. The Explain Plan Tool does not analyze tables itself prior to executing the Explain Plan, but it does have a toolbar button for manual launch of the Analyze Tool.

Explain Plan Window

<table>
<tr><td>Generate Plans</td><td>Drag a SQL Statement into the editor on this tab.

<table><tr><th>Option</th><th>Description</th></tr><tr><td>Stmt ID</td><td>If required, you can enter a Statement ID to identify the statement within the current plan table.</td></tr><tr><td>Save SQL text</td><td>Select to save the SQL when saving the generated plan.</td></tr><tr><td>Comment</td><td>Optionally, comment on the plan.</td></tr><tr><td>Plan Table Owner</td><td>Enter the Plan Table Owner or use the default listed.</td></tr><tr><td>Name</td><td>Enter the Plan Table Name or use the default listed.

TIP: If specifying a new plan table, use the Create Table button to create the table.</td></tr><tr><td>Generate</td><td>Click to view the Oracle execution plan for the statement.</td></tr></table></td></tr>
<tr><td>Browse Saved Plans</td><td>Browse previously saved execution plans.</td></tr>
<tr><td>Operation Description</td><td>Explain the node selected in the Explain Plan tree. Show how each SQL operation is executed in relation in the Explain Plan.

Show / Hide in Generate Plans | Show Description.</td></tr>
<tr><td>Plan</td><td>The generated execution plan. Click on nodes to expand and collapse them.</td></tr>
</table>

Print the Explain Plan tree

Use **File | Print**.

The following data is printed:

- The SQL Statement from which the explain plan tree was derived
- Statement ID, Type, Cost and Time stamp
- The Explain Plan tree, including the execution sequence numbers in brackets

TIP:

- When the printout exceeds one page, the headings (such as the SQL Text and statement ID lines) are not repeated. This makes it easy for you to 'tile' multiple pages together to display the explain plan tree as a single diagram.
- Use **File | Print Preview** to preview your output.

Export Table

Open the Export Tables window

Open the Export Tables window from Object Menu | Export Table.

TIP: Select the objects to be exported before you open the Export Tables window. Use for example DB Navigator, DB Explorer, Project Manager, a list of results after finding objects.

Select the tables to export (1)

In the **Export Tables** window, tables in the Selected Tables list are exported.

Ways to move tables to this list (from the Browse Table to Export list):

- Double-click on a table.
- Selecting one or more tables and click >.
- Select one or more schemas and click >. This adds all tables in the selected schemas.
- Click >>. This adds all tables in all schemas.
- Select objects before you open the Export Tables window.

Select export options (2)

<table>
<tr><th>Option</th><th>Description</th></tr>
<tr><td>Objects to export</td><td>Select the objects you want exported from the database to the DMP file.</td></tr>
<tr><td>Additional Parameters</td><td>
<table>
<tr><th>Field</th><th>Description</th></tr>
<tr><td>Direct</td><td>Data is extracted directly, bypassing the SQL Command-processing layer. This method may be faster that a conventional path export.</td></tr>
<tr><td>Consistent</td><td>Uses the SET TRANSACTION READ ONLY statement to ensure the data does not change during the execution of the export command.

Select this parameter if you anticipate other applications will update the data after an export has started.

NOTE: Tables are usually exported in a single transaction. However, nested and partitioned tables may be exported as separate transactions. If nested or partitioned tables are being updated by other applications, the exported data may be inconsistent. To minimize this possibility without selecting the Consistent parameter, export those tables at a time when updates are not being performed.</td></tr>
<tr><td>Record</td><td>Records an incremental or cumulative export in the system tables SYS.INCEXP, SYS.INCFIL, and SYS.INCVID.</td></tr>
<tr><td>Compress</td><td>
<table>
<tr><td>Selected</td><td>Flags table data for consolidation into one initial extent upon import. If extent sizes are large (for example, because of the PCTINCREASE parameter), the allocated space will be larger than the space required to hold the data.</td></tr>
<tr><td>Not Selected</td><td>Export uses the current storage parameters, including the values of initial extent size and next extent size. The values of the parameters may be the values specified in the CREATE TABLE or ALTER TABLE statements or the values modified by the database system. For example, the NEXT extent size value may be modified if the table grows and if the PCTINCREASE parameter is nonzero.</td></tr>
</table>
</td></tr>
</table>
</td></tr>
</table>

NOTE:

Option	Description

Field	Description
	• Although the actual consolidation is performed upon import, you can specify the COMPRESS parameter only when you export, not when you import. The Export utility, not the Import utility, generates the data definitions, including the storage parameter definitions. Therefore, if you do not select Compress when you export, you can import the data in consolidated form only. • Neither LOB data nor subpartition data is compressed. Rather, values of initial extent size and next extent size at the time of export are used.
Buffer size (leave blank for default)	The size, in bytes, of the buffer used to fetch rows. This parameter determines the maximum number of rows in an array fetched by Export. Use the following formula to calculate the buffer size: buffer_size = rows_in_array * maximum_row_size If you specify zero, Export Tables fetches only one row at a time. Tables with columns of type LOBs, LONG, BFILE, REF, ROWID, LOGICAL ROWID, or DATE are fetched one row at a time. **NOTE:** See your Oracle operating system-specific documentation to determine the default value for this parameter.
Record Length	The length, in bytes, of the file record. The RECORDLENGTH parameter is necessary when you must transfer the export file to another operating system that uses a different default value. If you do not define this parameter, it defaults to your platform-dependent value for buffer size. You can set RECORDLENGTH to any value equal to or greater than your system's buffer size. (The highest value is 64 KB.) Changing the RECORDLENGTH parameter affects only the size of data that accumulates before writing to the disk. It does not affect the operating system file block size. You can use this parameter to specify the size of the Export I/O buffer.

<table>
<tr><th>Option</th><th>Description</th></tr>
<tr><td></td><td>
<table>
<tr><th>Field</th><th>Description</th></tr>
<tr><td></td><td>NOTE: See your Oracle operating system-specific documentation to determine the proper value or how to create a file with a different record size.</td></tr>
<tr><td>Statistics</td><td>Select the type of database optimizer statistics to generate when the exported data is imported.</td></tr>
<tr><td>Provide a feedback dot each time n rows are exported</td><td>Export should display a progress meter in the form of a period for n number of rows exported.
For example, if you specify FEEDBACK=10, Export displays a period each time 10 rows are exported.
NOTE: The FEEDBACK value applies to all tables being exported; it cannot be set individually for each table.</td></tr>
</table>
</td></tr>
<tr><td>Specify files</td><td>
<table>
<tr><th>Field</th><th>Description</th></tr>
<tr><td>Output file name (.dmp)</td><td>The names of the export dump files.
This field is mandatory.</td></tr>
<tr><td>Parameter file name (.dat)</td><td>A name for the file that contains a list of import parameters.
This field is mandatory.</td></tr>
<tr><td>Log file name (.log)</td><td>The name of the log file.
All informational and error messages are written to the log file.</td></tr>
</table>
</td></tr>
</table>

Results (3)

When execution is complete there are three tabs in the Export Tables window. The results of the export are shown on the Output tab. The Log and Parameter file tabs show the contents of their respective files.

Find and Replace

Find or replace text strings in the current text file.

NOTE: Select **Regular expressions** if you want your strings to be recognized as Regular Expressions. Regular Expressions are a widely-used method of specifying patterns of text to search for. Special metacharacters allow you to specify, for instance, that a particular string you are looking for occurs at the beginning or end of a line, or contains >n< recurrences of a certain character.

Find objects Dialog

Find objects in any schema.

What To Search For

You can construct a search argument for any database object.

- You can use wild-card characters %" and "_" (according to SQL LIKE operator definitions).
- You can filter by schema, object type, date last modified and status.

TIP: To display a dynamic list of all objects in a schema

1. In DB Navigator, select a schema node in the top level of the DB Navigator tree.
2. Click **Search | Find Objects**.

Now Objects Are Found

Task	Action
Describe	View a description of object structure (index, cluster, procedure, function, or package). Use Describe or Auto Describe Tool on the selected object.
Sort	Sort on any column (name, owner, type, creation/modification date, status) in ascending or descending order. Click the column header.
Open the object for editing	Double click on the object. See Visual Object Editors or the Code Editor for more information.
Locate in schema	Display the selected object in DB Navigator. For more information, see Locate In Tree on page 183.
Batch selection and update	On selecting multiple objects you can • apply commands like Copy Text, Drop, Extract DDL, Compile, Get Metadata, Properties, Send to Code Analysis, Add to Project Manager, Enable, Disable, and Truncate to the entire batch of objects. For more information, see Object Menu on page 26. • drag the group of objects into a text editor or DB Navigator.

TIP: Other actions are available. Right-click on the object and select a command from the shortcut menu

Find Recycle Bin Objects Dialog

Search for objects in the recycle bin.

NOTE: Requires Oracle 10g or later.

What To Search For

You can construct a search argument for any database object.

- You can use wild-card characters %" and "_" (according to SQL LIKE operator definitions).
- You can filter by schema, object type, drop date and System Change Number (SCN).

Now Objects Are Found

Task	Action
Sort	Sort on any column (name, owner, type, creation/modification date, status) in ascending or descending order. Click the column header.
Open the object for editing	Double click on the object. See Visual Object Editors or Code Editor for more information.
Batch selection and update	When multiple objects are selected, you can apply commands like Copy Text, Purge and Flashback to the entire batch of objects.

TIP: Other actions are available. Right-click on the object and select a command from the shortcut menu

Formatting Options

Configure how the Formatter Tool formats code. Formatter Tools are available from the Tools Menu.

Formatting Options Toolbar

Icon	Tool Tip	Description
	Open	Open a previously saved file of SQL Navigator formatting options.
	Save	Save the currently selected formatting options to the SQL Navigator installation folder, filename FmtOptions.opt. TIP: Click **File** | **Save as** in the Formatting Options window to save the options to a different file name or location.
	Reset Pane to Recommended Defaults	Reset the Formatting Options to the default values

TIP: SQL Navigator loads the Formatting Options from the default file (FmtOptions.opt) and default location each time the Formatting Tool Options window is opened and when the Formatter Tool performs formatting. The default location for Formatting Options is in the SQL Navigator installation folder.

Set formatting options

Category	Options in the Category
Oracle Formatter Options	**Tooltips** Show tooltips when the mouse cursor is hovered over certain options. **Copy Options to Clipboard** Copy the options in both INI and XML format to clipboard for backup or reviewing purposes. **Show the Example Window** Show an example window when navigating different pages of the Formatter Options window. You can specify a script file to be formatted as an example, or select the **Document per Pane** option to use the example scripts from the Example document folder. You can modify the example scripts in the Example window. Changes are saved automatically.
Header	Select Enable to generate a header tagline after formatting the script. You can specify some text to be included in the header tagline. Do not use /* or */ in the text. **Note**: The date time options are currently not in use.
Spacing	Set physical output characteristics such as tab size, margins, and indents.

Category	Options in the Category
Comments	Select this option to align trailing comments to the right margin.
Case	Modify the lowercase, uppercase, or initial capitals of various syntax elements.
Operators & Punctuations	Specify the behavior of various operators and punctuations.
Alignments	Set alignments of various syntax elements.
List Arrangements	Define list attributes such as parentheses, commas and folding/stacking characteristics.

HTML Viewer

Show HTML in the integrated viewer.

This eliminates the need to switch from your coding environment to an external browser.

TIP:

- Enable Capture Web Output so each time you execute PL/SQL code, the generated HTML is displayed in the integrated viewer. If the PL/SQL procedure is run under the debugger, the HTML output is not visible until the procedure is complete.
- You can select links and submit forms from the integrated viewer. If the link or submit target is another PL/SQL generated page then that page appears in the viewer. If it is an external link then an error message will appear. You must fill in the Web Support Configuration Dialog for this to work correctly.
- Use the Web Support Configuration Dialog to specify where images can be loaded or enter the details of your web server's configuration.
- Click **View in External Web Browser** to open the page in your default Windows web browser.

  This is useful for testing links to pages that are not PL/SQL generated. SQL Navigator will map images as defined in the Web Support Configuration Dialog, but this mapping will only apply to the generated page. All links, frame sources and your browser and Web server, not SQL Navigator, will handle form posting.
- Click **File | Print** to print the page.

Stored Procedure > HTML

Developing Oracle Web server applications involves programming with PL/SQL using the PL/SQL Web toolkit supplied with Oracle Web Server. SQL Navigator provides an integrated development environment with advanced coding, testing and debugging of PL/SQL programs for Oracle Web server.

Actions	Description
Enable the web server	Select Session | Capture Web Output.
Open the procedure for editing.	Code Web Server Procedures in the Code Editor. The editor includes drag and drop coding for Web toolkit packages, including htp and htf items.
Execute the procedure.	Execute the procedure in the Code Editor. **NOTE:** You can use the SQL Navigator Debugger to step through the stored procedure, if you want to debug the generation of HTML. However, the HTML will not be displayed until the stored program has completed execution.
Preview HTML output	View the translated HTML page in the **HTML Viewer** **TIP:** Use the drag and drop feature as you would for any script development. The Web Server Syntax allows you to drag Web server syntax directly into your script. The results of dragging and dropping syntax into your program are displayed.
Compile and save your script.	Use the Code Editor.

See also Import HTML as PL/SQL for HTML > Stored Procedure.

Import HTML as PL/SQL

Convert a HTML file into a PL/SQL stored procedure. The stored procedure will in turn output the HTML code via the Oracle Web Toolkit.

Actions	Description
Enable the web server	Select Session | Capture Web Output.
Open the Code Editor.	Click View | Code Editor.
New Stored Object	Create a new stored object in the Code Editor. Enter the name and the parent schema of the new procedure.
Import HTML file as PL/SQL	Click Tools | **Import HTML as PL/SQL** The import process wraps each line of the imported HTML file inside the htp.print (…); markers. PL/SQL statements can be embedded in HTML code inside comments; for example: <!--PLSQL a_random_plsql_statement; --> These comments must start with the string

Actions	Description
	<!--PLSQL and end with --> You can put things in the declaration section of the procedure (to declare a cursor, for example) by ensuring they come first in the file, before the first <HTML> tag. For example: <!—PLSQL CURSOR emp_cur IS SELECT ename FROM emp;
Save the program to the database.	When the HTML is imported into the stored program, you can save the program to the database.

See also HTML Viewer for Stored Procedure > HTML.

Sample code for displaying query results in a HTML page

The following example code will display details from a query in a web browser.

First, create a table named emp with a column ename. Add some data to the ename column, and then run the following procedure with the SQL Navigator Web Development Module enabled.

PROCEDURE PLH_EXAM1 is—this procedure generated from "\\phanevski1\c$\docs\EXEone.HTM".—warning: any changes made to this procedure will not be—reflected in the original HTML file.

CURSOR emp_cur IS

SELECT ename

FROM emp;

begin

htp.print(‘ ‘);

htp.print(‘<HTML>’);

htp.print(‘<HEAD>’);

htp.print(‘<TITLE>Embedded PL/SQL Example</TITLE>’);

htp.print(‘</HEAD>’);

htp.print(‘<BODY>’);

```
htp.print('<H1>Employee Names</H1>');
htp.print('<TABLE>');
htp.print(' ');
FOR emp_rec IN emp_cur LOOP
htp.print(' <TR>');
htp.print(' <TD>');
htp.print(emp_rec.ename);
htp.print('</TD>');
htp.print(' </TR>');
htp.print(' ');
END LOOP;
htp.print('</TABLE>');
htp.print('</BODY>');
htp.print('</HTML>');
end;
```

Import Table

Open the Import Tables window

Open the Import Tables window from Object Menu | Import Table.

Select the tables to import (1)

Option	Further Options and Description
Import all tables	Import all tables in the DMP file into the current user's schema regardless of which user the tables belong to.
Specify From User To User	Import all the tables owned by the **From User** to the **To User**. Specify the from and to users in the relevant fields. To import tables from more than one user, use a space or comma (,) to separate the user names.
Manually enter table names	Type the names of the tables to import and click **Add**. Do not include the schema prefix in the table name.

Select import options (2)

<table>
<tr><th>Option</th><th>Description</th></tr>
<tr><td>Objects to export</td><td>Select the objects you want imported to the database from the DMP file.</td></tr>
<tr><td>Additional Parameters</td><td>
<table>
<tr><th>Field</th><th>Description</th></tr>
<tr><td>Reuse existing data files</td><td>Reuses the existing datafiles making up the database. Selecting this parameter causes the Import utility to include the Reuse parameter in the datafile clause of the CREATE TABLESPACE statement. This results in the Import utility reusing the original database's datafiles after deleting their contents.

  NOTE:
• The export file contains the datafile names used in each tablespace. If you select this parameter and attempt to create a second database on the same system the Import utility will overwrite the first database's datafiles when it creates the tablespace. In this situation, it is recommended that this parameter is deselected so that an error occurs if the datafiles already exist when the tablespace is created. In addition, if you need to import into the original database, select the Ignore errors parameter to add to the existing datafiles without replacing them.
• If datafiles are stored on a raw device, deselecting this parameter does not prevent files from being overwritten.</td></tr>
<tr><td>Commit after each array insert</td><td>Sets the Import utility to commit after each array insert.

By default, the Import utility commits only after loading each table. If an error occurs, a rollback is performed before continuing with the next object.

Selecting this parameter prevents rollback segments from growing inordinately large and improves the performance of large imports. If the table has a uniqueness constraint it is recommended that this parameter is selected. If a table does not have a uniqueness constraint, the Import utility could produce duplicate rows if you reimport the data.

If a table has nested table columns or attributes, the contents of the nested tables are imported as separate tables. Therefore, the contents of the nested tables are always committed in a transaction distinct from the transaction used to commit the outer table.

If this parameter is not selected and a table is partitioned, each partition and subpartition in the export file are imported in a separate transaction.</td></tr>
</table>
</td></tr>
</table>

Option	Description

Field	Description
	For tables containing LONG, LOB, BFILE, REF, ROWID, UROWID, or DATE columns, array inserts are not done. If this parameter is selected, the Import utility commits these tables after each row.
Ignore errors	Specifies how object creation errors should be handled. If selected, the Import utility overlooks object creation errors when it attempts to create database objects, and continues without reporting the errors. Note that only object creation errors are ignored; other errors, such as operating system, database, and SQL errors, are not ignored and may cause processing to stop. In situations where multiple refreshes from a single export file are done and this parameter is selected, certain objects may be created multiple times (although they will have unique system-defined names). You can prevent this for certain objects (for example, constraints) by deselecting the Constraints parameter when importing. If you do a full import with the Constraints parameter deselected, no constraints for any tables are imported. If a table already exists and the Ignore errors parameter is selected, then rows are imported into existing tables without any errors or messages being given. This may be helpful when importing data into tables that already exist in order to use new storage parameters or because you have already created the table in a cluster. If this parameter is not selected, the Import utility logs or displays object creation errors before continuing. If a table already exists, then errors are reported and the table is skipped with no rows inserted. Objects dependent on tables, such as indexes, grants, and constraints, will not be created. **NOTE:** When importing into existing tables, if no column in the table is uniquely indexed, rows may be duplicated.
Show export file contents only	When this parameter is selected the contents of the export file are displayed and not imported. The SQL statements contained in the export are displayed in the order in which the Import utility will execute them.
Buffer size (leave blank for default)	The size of the buffer, in bytes, through which the data rows are transferred. BUFFER determines the number of rows in the array inserted by the Import utility. The following formula gives an approximation of the buffer size that inserts a given array of rows: buffer_size = rows_in_array * maximum_row_size

<table>
<tr><th>Option</th><th>Description</th></tr>
<tr><td></td><td>
<table>
<tr><th>Field</th><th>Description</th></tr>
<tr><td></td><td>For tables containing LONG, LOB, BFILE, REF, ROWID, UROWID, or DATE columns, rows are inserted individually.

The size of the buffer must be large enough to contain the entire row, except for LOB and LONG columns. If the buffer cannot hold the longest row in a table, the Import utility attempts to allocate a larger buffer.

NOTE: See your Oracle operating system-specific documentation to determine the default value for this parameter.</td></tr>
<tr><td>Record Length</td><td>The length, in bytes, of the file record.

The RECORDLENGTH parameter is necessary when you must transfer the export file to another operating system that uses a different default value.

If you do not define this parameter, it defaults to your platform-dependent value for BUFSIZ. For more information about the BUFSIZ default value, see your Oracle operating system-specific documentation.

You can set RECORDLENGTH to any value equal to or greater than your system's BUFSIZ. (The highest value is 64 KB.)

Changing the RECORDLENGTH parameter affects only the size of data that accumulates before writing to the database. It does not affect the operating system file block size.

You can also use this parameter to specify the size of the Import I/O buffer.

NOTE: Note: See your Oracle operating system-specific documentation to determine the proper value or how to create a file with a different record size.</td></tr>
<tr><td>Provide a feedback dot each time n rows are exported</td><td>Displays a period each time the number of specified rows has been imported.

For example, if you specify 10, Import displays a period each time 10 rows have been imported.

NOTE: The FEEDBACK value applies to all tables being imported; it cannot be set on a per-table basis.</td></tr>
</table>
</td></tr>
<tr><td>Specify files</td><td>
<table>
<tr><th>Field</th><th>Description</th></tr>
<tr><td>Dump file name</td><td>The name of the export file to import.

The default file extension is .dmp. This field is mandatory.</td></tr>
</table>
</td></tr>
</table>

Option	Description

Field	Description
Parameter file name (.dat)	The name of the file that contains the list of import parameters. This field is mandatory.
Log file name (.log)	The name of the log file. All informational and error messages are written to the log file (if specified).

Results (3)

When execution is complete there are three tabs in the Import Tables window. The results of the import are shown on the Output tab. The Log and Parameter file tabs show the contents of their respective files.

Java Manager

The Java Manager is a convenient alternative to the Oracle LoadJava and UnloadJava command line utilities. Use the Java Manager to load and unload multiple Java source files, classes, resources and archives.

Field	Description
Files to Load, Add & Remove	Manage the list of objects to load.
Options	Set the command line switches found in the Oracle LoadJava and UnloadJava command line utilities. For details, consult the Oracle documentation.

Job Scheduler

Access the Oracle Job Scheduler.

A job assigns a task to a schedule. The job tells the schedule which tasks - either one-time tasks created "on the fly," or predefined programs - to run. A specific program can be assigned to one, multiple, or no schedule (s); likewise, a schedule may be connected to one, multiple, or no program(s).

Tab	Description	Oracle
Jobs Tab	Check the status and settings of existing jobs. Create, run, schedule, edit and remove jobs.	All Oracle releases
Programs Tab	Define or select programs to be executed.	Oracle 10g release or later
Schedules Tab	Define the frequency with which the Scheduler will execute a particular set of tasks.	Oracle 10g release or later
Windows Tab	Define time windows during which resource plans will be activated.	Oracle 10g release or later
Window Groups Tab	Create a named group with containing windows with similar scheduling properties for ease of management	Oracle 10g release or later
Job Classes Tab	Group together jobs that have similar resource demands into job classes to ensure best utilization of resources.	Oracle 10g release or later
Job Log Tab	Show the current status and information about jobs over a specified date range or by owner.	Oracle 10g release or later
Window Log Tab	Show the current status and information about Windows over a specified date range.	Oracle 10g release or later

Jobs Tab

The Jobs function in the Job Scheduler allows you to create, run or schedule jobs.

Note that some of the functionality below is only available in Oracle 10g or later releases.

Button	Description
New	Click to create a job. This opens the New Job Wizard: 1. Enter a Job Name (for 10g or later) 2. Select a Job Type (PS/SQL Block or Stored Procedure - in 10g or later) 3. Click Next (for 10g or later) 4. Enter the PL/SQL code or select a stored procedure to run 5. Click Next 6. Specify a start date, start time and frequency for your job to run 7. Select a repeat frequency if desired 8. Click Finish. The new job will appear in the Jobs window.
Save	To attach a program, schedule or job class to a job (for 10g or later) 1. Select the job to be scheduled. 2. Select the program, schedule or job class to be attached to the job.

Button	Description
	3. Click Save. To schedule a job (for 10g or later) 1. Select the job to be scheduled. 2. Click En (Enabled) next to the job. 3. Select Start and End date and time. 4. Click Calendar, choose the frequency and intervals for the job and click 5. Click Save.
Advanced	Edit available Attribute Values for the selected item (for 10g or later).
Clone	Create a copy of the selected item (for 10g or later).
Run	To run a job 1. Select the job to be run. 2. Click Enabled next to the job. 3. Click Run.
Drop	Remove the selected item from the database (for 10g or later).

Programs Tab

(Only for Oracle 10g release or later)

A program defines what the Scheduler will execute. A program's attributes include its name, type (for example: a PL/SQL procedure or anonymous block), and the action it is expected to perform. A program can also accept zero to many arguments, which makes it a flexible building block for constructing schemes of tasks to be scheduled.

Button	Description
New	Click to create a program 1. Enter a Program Name. 2. Select a Type, that is PL/SQL Block, Stored Procedure or Executable. 3. If you do not want the program to be enabled by default, clear the Enabled check box. 4. Define the Action the program is to perform. 5. For PL/SQL Block or Executable, enter the relevant command string. 6. For Stored Procedure, select one of the available stored procedures from the database. 7. Enter any Comments if required 8. Click Save.
Save	Save changes to a selected program or a new program.

Button	Description
Advanced	Edit available **Attribute Values** for the selected item.
Drop	Remove the selected item from the database.

Schedules Tab

(Only for Oracle 10g release or later)

A schedule defines when and at what frequency the Scheduler will execute a particular set of tasks. A schedule's attributes include the date on which a set of tasks should begin, how often the tasks should be repeated and when the set of tasks should no longer be executed, either as of a specified date and time, or after a specified number of repetitions.

Button	Description
New	Click to create a schedule 1. Enter a Schedule Name. 2. Select Start and End dates and times. 3. Click Calender, select the required Frequency and Interval and click OK. 4. Enter any Comments if required 5. Click Save.
Save	Save changes to a selected schedule or a new schedule.
Advanced	Edit available **Attribute Values** for the selected item.
Drop	Remove the selected item from the database.

Windows Tab

(Only for Oracle 10g release or later)

Assign resource plans to activate at different times such as during specific peak or off-peak periods.

Button	Description
New	Click to create a window 1. Enter a Window Name 2. Select a Resource Plan from the drop-down list 3. Select a Priority from the drop-down list 4. Select a Schedule to attach to run during the window as appropriate 5. Select the Duration (days, hours, months) for the window 6. Specify a start date/time and end date/time for the window 7. Select a repeat interval if desired

Button	Description
	Click Save. The new window will appear in the Windows list above. Click Enabled to activate the window.
Save	Save changes to a selected window or a new window.
Advanced	Edit available **Attribute Values** for the selected item.
Open	Activate the selected Window and commence running the scheduled jobs based on the durations currently entered. You can change the duration values if required.
Close	Stop the currently active window. Any jobs using that window as their schedule which were started at the beginning of this window and have indicated that they must be stopped on closing of the window will be stopped.
Drop	Remove the selected item from the database.

Window Groups Tab

(Only for Oracle 10g release or later)

Create a named windows group to which you can assign any number of previously created windows on the Windows Tab

Button	Description
New	Click to create a window group 1. Enter a Group Name 2. Enter any Comments relevant to that windows group Click Save. The new group name will appear in the Window Group Name list on the left-hand side. Select those Windows listed in the right pane that you want included in the group. Click Enabled to activate the window group .
Save	Save the window group.
Drop	Remove the selected item from the database.

Job Classes Tab

(Only for Oracle 10g release or later)

The Scheduler provides the capability to group together jobs that have similar resource demands into job classes. A job class can be used to ensure all jobs within it utilize the same job class attributes, execute at a higher or lower priority than other jobs in other job classes and only allow jobs in the job class to start if there are sufficient resources available.

Button	Description
New	Click create a job class 1. Enter a Job Class Name. 2. Select the appropriate Resource Consumer Group as defined for the database. 3. Select the appropriate Service as defined for the database. 4. Select a Logging Level for the database. • Off • Runs • Full 5. Select the number of days the Log History will be retained. 6. Enter any required Comments Click Save.
Save	Save the job class.
Advanced	Edit available Attribute Values for the selected item.
Drop	Remove the selected item from the database.

Job Log Tab

(Only for Oracle 10g release or later)

You can view a history of the Job Scheduler transactions over a range of dates, including all job owners if desired.

Field	Description
From date / To date	Select the Start and End date range to view.
Owner	Select job owner to use in log display.
Refresh	Update the display.

Window Log Tab

(Only for Oracle 10g release or later)

You can view a history of the Job Scheduler window transactions over a range of dates.

Field	Description
From date / To date	Select the Start and End date range to view.
Refresh	Update the display.

Job Scheduler (Requirements)

Specific system privileges are required in order for you to manage the Job Scheduler for connections to Oracle 10g and later.

Job Scheduler system privileges

The system privileges associated with the Job Scheduler (for Oracle 10g and later) are as follows:

System Privilege	Purpose…
CREATE JOB	Enables you to create jobs, schedules and programs in your own schema. **Note**: You can always alter and drop jobs, schedules and programs which you own, even when you do not have the CREATE JOB privilege.
CREATE ANY JOB	Enables you to create jobs, schedules, and programs in any schema. This effectively gives the grantee the ability to run code as any user so it must be issued with care.
EXECUTE ANY PROGRAM	Enables jobs the ability to use programs from any schema.
EXECUTE ANY CLASS	Enables jobs to run under any job class.
MANAGE SCHEDULER	Enables you to create, alter and drop job classes, windows and window groups. It also enables you to purge scheduler logs and modify scheduler attributes.

INIT.ORA configuration file

In order to successfully use the Job Scheduler, you may also need to adjust the settings on your server in the INIT.ORA configuration file to allow use of the DBMS_JOBS package (Oracle 9.2 and earlier) or the DBMS_SCHEDULER (Oracle 10g and later).

The following minimum settings are recommended:

job_queue_processes = 2

job_queue_interval = 10

job_queue_keep_connections = false

(Remember to restart your server to apply these settings.)

Locate In Tree

When an object is open in an editing window, and you want to see where that object resides in the schema, you can use **Locate in Tree** to jump to that object's node in the DB Navigator tree. This action expands all intermediate nodes and displays the object's details—such as privileges and columns.

Locate in Tree is available from the following windows:

- DB Navigator
- Find objects Dialog
- Database Source Code Search
- Project Manager
- Describe
- Analyze Tool
- Quick Browse
- Edit Data
- Visual Object Editors

Output Window

The Output Window displays SQL Navigator messages and server output including Oracle errors.

Interpreting the output display

User Interface	Description
Tabbed Pages	There are tabs for each session, plus one for general messages not related to any particular session.
Icons & Color Coding	The types of output are distinguished by font color. Icon markers make them even more noticeable.

Color	Data type
Blue	Server output
Red	Error Messages
Black	Other processing messages

NOTE: The Output window displays the results of program compilation and execution, including errors. You can view the full Oracle error description by double-clicking the error code in the Output window. The resulting dialog contains the error message description, cause and recommended actions, just as they appear in Oracle documentation.

Actions

Action	Description
Copy to the Clipboard	Select the text you want to copy. Right-click the selection and select **Copy**.
Clear	Right-click in the Output window and select **Clear**.
Print Contents	Right-click in the Output window and select **Print**.

PL/SQL Profiler

Analyze the execution time and efficiency of your stored programs. The Profiler is particularly useful for finding bottlenecks in stored code and quality assurance and testing.

NOTE:

- Requires Oracle 8.1.5 or higher.
- Before using the Profiler, debug your stored program, as there is no editing capability from within the Profiler.

Toolbar

TIP: Use the Runs / Groups tabs to select Runs and Groups.

Icon	Tool Tip	Description	Keyboard Shortcut
	Refresh	Update both Run and Group tree views with the latest profiling data.	Alt+R
	Filters / Preferences	Open the Profiler Filter/Preferences Dialog. You can sort and filter the result data according to thresholds that you set. This makes it easy to limit the amount of data displayed, and to isolate the most significant items. For example, you can select lines that were not called during the run, or runs with total times higher than average.	Alt+P

Icon	Tool Tip	Description	Keyboard Shortcut
	Delete	Delete the data for the selected run. If a group is selected then delete the group. Removing the group does not remove the associated run data.	Del
	Create New Group	Create a new group. Open the New Group / Group Properties Dialog. Create groups to logically connect code units and runs. You determine which units and runs belong to a group. You can combine data for a single code unit across multiple runs in order to determine the real coverage and execution times. This is useful when testing stored code in several different runs with different parameters.	Ins
	Locate the selected object in DB Navigator	Open DB Navigator with the tree expanded to highlight the selected object. See where the object is in the database tree.	
	Open the selected object	Open the selected object in the Code Editor. Select a line of source code in the **Source Viewer** tab to open the Code Editor at that line.	
	Properties	Open the New Group / Group Properties Dialog to modify the selected group.	Alt+F2
	Launch Xpert tuning	Open SQL Optimizer for Oracle.	

Runs Tab

A run contains all code units that are called during execution. If a procedure or function is a part of a package, the whole package becomes part of the run. The same rule applies to type methods.

Selection	Description of information
All Runs	Totals across all the available runs. Coverage Time Statistics
Run	Basic run characteristics (comment, date, number of lines, etc…), totals across all the run units. Coverage Time Statistics

Groups Tab

For each group, you have the option of displaying the data either separately by run, or with runs combined.

Selection	Description of information
All Groups	Totals across all the groups. Time Statistics
Group	Basic group characteristics, totals across the group units and runs. Coverage Time Statistics

Select PL/SQL Code on the Runs or Groups Tab

A PL/SQL code unit can be a stand-alone procedure or function, a package body, a type body or an anonymous block. A package body and type body contains further procedures and functions. For a procedure or function, it is sometimes possible to determine how many times it has been called during a run by parsing the available source code and combining the data about the lines where the procedure/function is called.

The Profiler will show you a line-by line analysis of the execution, including the number of times each line was executed and the time required for execution.

The Profiler:

- stores data about each code unit executed during a run, down to the level of source code lines
- divides all the available profiling data into hierarchically organized logical items
- displays profiling and coverage statistics about each item and compares them with others

The Profiler displays the profiling data alongside the actual source code. (This feature is not available if the source code has changed since it was last tested in the currently selected run, or if it is not identical across the runs in a group.)

Selection	Description
Procedure, Function, Trigger Body	Basic characteristics, totals across the runs. Combines the group runs if **Combine Runs in Group Result Sets** is selected in the Profiler Filter/Preferences Dialog. Time Statistics Call Distribution Source Viewer
Type Body, Package Body	Basic characteristics, total across the runs. Combines the group runs if **Combine Runs in Group Result Sets** is selected in the Profiler Filter/Preferences Dialog. Coverage Call Distribution

Selection	Description
	Time Statistics
	Source Viewer

NOTE: The Profiler uses the Oracle session it was activated in.

Profiler Filter/Preferences Dialog

Use the PL/SQL Profiler Filters/Preferences dialog to set the data filter options, sorting and chart drawing properties.

Data Filters

TIP: Threshold and sorting works only if there is a single series to be displayed in the Runs tree and 'Combine Runs in Group Result Sets' is enabled for the Groups tree.

<table>
<tr><th>Option</th><th>Description</th></tr>
<tr><td>Data Value Filter in Runs Tree View</td><td>
<table>
<tr><th>Option</th><th>Description</th></tr>
<tr><td>Display only items with value</td><td>When selected, charts and lists display only the items with the value specified</td></tr>
<tr><td>More than, Less than, Equal to Zero, Nonzero</td><td>Set the method of filtering</td></tr>
<tr><td>50 or other value</td><td>Set the Threshold value.
Applicable when More than and Less than are selected.</td></tr>
<tr><td>Total/Average</td><td>Set the value against which the threshold value is to be compared.
Applicable when More than and Less than are selected.</td></tr>
</table>
</td></tr>
<tr><td>Show Anonymous Blocks</td><td>Set the tree views to display the anonymous blocks executed during runs.</td></tr>
<tr><td>Parse Packages for Subroutines</td><td>Set the profiler to break package data down to discrete procedures/functions.</td></tr>
<tr><td>Display Line Data</td><td>Set the data displays to always show line data for the selected tree view item.</td></tr>
</table>

Option	Description
Directly	For example, when a run is selected, the charts/lists will show all the lines executed in the run, not the run units.
Sort Result Sets in Runs Tree View	Enable sorting of the result data in the **Runs** display. When selected, you can control the sort order by your selection of the **Descending Order** option.
Combine Runs in Group Result Sets	Enable the combining of data from different Runs in the Group (for example, to obtain correct coverage value across the Runs).

Chart Options

Option	Description
3D	Select to add a 3D look and feel to the charts.
Group Chart Series	Select the color generation method for the chart series when displaying Group data (Groups tree view).
Run Chart Series	Select the color generation method for the chart series when displaying Run data (Runs tree view).
Chart Panel	Control the chart background color.
Series Color Gradient	Select the colors used when **Gradient** is selected.
Series Color Sequence	Select the colors used when **Sequence** is selected. TIP: Click on the color selection rectangles. Select a color from the Windows-standard color selection dialog.

New Group / Group Properties Dialog

Use the Group Properties dialog to set group name, comment, used units and runs.

The Group Units and Group Runs list boxes display the units/runs used for analysis in the given group. You must specify at least one group unit.

PL/SQL Profiler Requirements

Required Oracle Conditions

To run the PL/SQL Profiler	The DBMS_PROFILER package needs to be installed under SYS. This is does not happen by default on a new instance.
To collect session statistics	The users need access to V$SESSION, V$SESSTAT and V$STATNAME. This condition is satisfied when the users have SELECT privilege on system views V_$SESSION, V_$SESSTAT and V_$STATNAME.
For schemas that use the PL/SQL Profiler	The profiler server side objectsInstalling_server_side_objects (tables and sequences) need to be installed.

Profile Manager

Profiles saved in SQL Navigator can be:

- Re-used in other versions of SQL Navigator.
- Made available to other users of SQL Navigator.
- Used on other computers.
- Made available to support staff to help resolve issues.

To backup a profile

1. Open the Profile Manager: Windows **Start | All Programs | Dell | SQL Navigator | Profile Manager**
2. Select **Backup User Profile**.
3. Select the version of SQL Navigator which has the preferences you want to save.
4. Select the directory into which the backup file is to be saved.
5. Enter a name for the backup file, or accept the name displayed.
6. Click Backup.

NOTE: The file is saved into the designated folder and has an extension of .prof.

To restore a profile

1. Open the Profile Manager: Windows **Start | All Programs | Dell | SQL Navigator | Profile Manager**
2. Select **Restore User Profile**.
3. Select the directory from which the backup file is to be restored.

4. Select the file containing the backed-up profile file. Click Next.
5. Select the version of SQL Navigator that you want the backed-up to replace. Click Restore.

Project Manager

The Project Manager provides instant access to your frequently used database objects and connections. Projects are holding areas where you can store shortcuts to things that you frequently need to work with instead of searching for them in various lists and directories.

Project Manager Toolbar

Icon	Tool Tip	Description
	Select types of items to display	See the Project Filter Dialog.
	Sort items by specified field	Sort items.
	Display items in a list	Show/Hide item details.
	Display extra details about each item	
	View Tree	Show/Hide Tree View. Navigate between projects. Navigate folders in projects.
	Go Up One Level	Navigate the Project Manager.
	Create New Folder	Organize items in the project in folders.

Manage Your Projects

Action	Description
File Menu | New Project 	Create a project.
File Menu | Rename Project 	Rename the current project. **TIP:** Change the current project in the Project Manager window.
File Menu | Delete Project 	Delete the current project.
Drag and drop into the Project Manager window.	Add items to the current project: • Objects from DB Navigator. • Objects from Find objects Dialog.

Action	Description
	• Code Selection from Database Source Code Search • A file from Windows Explorer. • An Oracle Connection shortcut. (username/connection strings) These items can include: • schemas (in particular connections) • schema objects • code location bookmarks within stored programs • schema object templates

Actions on Items in the Project Manager

Select an object in Project Manager and ...

Action	Description
Preview the source code of text objects	Source Preview
To connect to a database from the Project Manager	You can select a database object in your Project Manager and open it for viewing or editing. SQL Navigator automatically opens the required database connection and displays the object's properties in an object editing window. Double click on the shortcut to open the connection.
Code Location shortcuts	Drag the selection from the result list in Database Source Code Search to the Project Manager.
Drop an object	1. Select the object in the Project Manager window. 2. Locate the object in DB Navigator. 3. Drop the object in DB Navigator.

Keyboard Shortcuts In The Project Manager Window

TIP: Right click in the Project Manager window to see all options available.

Keyboard Shortcut	Description
Ins	Add Objects in Project Manager. Open Select DB Object Dialog.
Shift+Ins	Add Files in Project Manager
Ctrl+H	Hide items of the selected type (Requires you to select an object in the Project Manager).
Ctrl+U	Go up one level (Requires you to have navigated to a sub-folder in the Project Manager window).

Project Filter Dialog

Select the object types you want to display in the project manager window.

Publish Java to PL/SQL

Create a PL/SQL package from a Java class stored in the database.

1. Select a Java Class stored in the database. Use DB Navigator or the Find objects Dialog.
2. Click **Object | Publish Java to PL/SQL**.
3. Follow the prompts to generate a PL/SQL package that stores the procedures and functions used to call Java methods for handling the stored object.
4. The package is generated and displayed in the window. Do you want to open it for editing before saving it to the database, or save it as shown?

Quick Browse

View chained rows information.

1. Select the table object.
2. Click **Object | Quick Browse**.
3. The Code Editor opens. The query is run. For more information, see SQL Query Results Data Grid on page 70.

Rename Object

1. Select the object.
2. Click **Object | Rename**.

Search Knowledge Xpert

Drag and drop optimized routines directly into your program editor.

Knowledge Xpert is a library of more than 900 pre-built PL/SQL routines, written by some of the world's leading PL/SQL experts, that can be integrated into the standard PL/SQL environment. The complete PL/SQL Code Library can eliminate hours of low-level coding and debugging while enhancing application performance and reliability.

Knowledge Xpert

SQL Navigator users can now access 5,400 technical topics, error messages, pre-built and tested code solutions, and code formatting technology. Using the Code Assistant, you can drag and drop these optimized routines directly into your program editor.

For example:

- Knowledge Xpert for Oracle® Administration A complete and essential resource for Oracle DBAs.
- Knowledge Xpert for PL/SQL Comprehensive PL/SQL knowledge combined with an extensive PL/SQL code library.

TIP: Knowledge Xpert add-on modules are available directly from your Dell representative.

Select DB Object Dialog

Select and open a database object similar to the standard Windows **File | Open** command.

- Enter the name of the object or type in a name mask using the SQL wildcard (%)
- Specify the object type (optional)
- Select the object from a list of matches

Server Output

Capture output from the Oracle server and display it in the Output Window.

Tips For Use

Toggle on/off	• Toggle on/off capturing server output from the Session Menu. • Click **Session | Server Output** to toggle On/Off Server output.
Output Window	• When toggled ON the Output Window opens if it is not already open. • Closing the Output Window does not stop the capturing of Server Output. • The Output Window reopens automatically if you execute a stored program in a session capturing server output. • The default size of the run time buffer is 32k bytes.
Oracle Sessions	• Output is captured for the current Oracle session. • Server Output is captured individually for each session. Capturing it in one session does not automatically capture it in other concurrent sessions.

Server Side Installation Wizard

Installing server side objects.

The wizard requires connection as a DBA user so that the SQLNAV user can be created, as well as a number of roles. The wizard permits you to specify a password of your choice for this user. Note that the option "Base SQLNAV Repository" must be selected on at least one occasion to allow the other support features to be installed. All objects installed by the wizard are installed into the SQLNAV schema.

For example: Install Server Side Objects for Team Coding

Install Server Side Objects for Team Coding

Before you can use Team Coding features, you need to install server-side objects on each Oracle instance where these features are to be used.

You can perform these steps from the Tools Menu | Server Side Installation Wizard.

After running the Server Side Installation Wizard, you will need to grant the roles.

NOTE: Before running the Server Side Installation wizard, close all sessions that are Team-Coding enabled.

Run the Wizard

Window	Description
Install or Remove scripts?	Select to Install Scripts
Which scripts would you like the Wizard to install?	Select for Team Coding • Base SQLNAV Repository • Team Coding Support
Which Database and Tablespace do you want to install the scripts to?	Connect as a DBA user to the database where Team Coding is to be installed.
For security the Base SQLNAV repository requires a user password. Please enter and confirm a password.	Supply a password for the SQLNav User. This user is the owner of the objects required for Team Coding support.
Select migration preferences	In the Migrate from VCS 3.2 to Team Coding dialog, if you are not migrating existing VCS Option data from SQL Navigator 3.2 to SQL Navigator 4, just press Next. If you are migrating existing VCS Option data, select a migration preference. **TIP:** Click **More Info** for more information on the migration preferences. Also see the VCSMigrate documents in the \Doc folder within the SQL Navigator installation folder.
Create Team Coding Roles	Team Coding uses Oracle table and column privileges to control access. You can create the following default roles using settings that represent the most likely desired use of these privileges: • Administrator • Project Manager • Team Leader For each set of privileges, you can choose to create a new role, use an existing role (you may already have appropriate roles for your users), grant them to public, or to skip privilege assignment completely. ***Default roles*** The default roles created by the Wizard have the following Team Coding privileges: • Administrator Can configure the instance to define how Team Coding operates, which VCP (if any) is used, etc. This role is automatically assigned to the SQLNAV user. • Manager Can create and delete code control groups (CCGs) and relate them to a VCP project.

Window	Description
	• Leader Can modify CCGs, defining which objects or scripts are included in the group, and freeze objects. Can also delete rows from the Team Coding Viewer. After creating the roles, you need to grant them to users.

Grant the roles

You can use the SQL Navigator User Editor or the Code Editor to grant the Team Coding roles created by the Server Side Installation Wizard to individual users. You must be connected as a DBA user.

For example:

- grant SQLNAV_ADMIN to DBA
- grant SQLNAV_MGR to JOHN
- grant SQLNAV_LDR to ARTHUR
- grant SQLNAV_LDR to SUSAN

Session Browser

Manage sessions in the Session Browser.

To open the Session Browser click **Tools | Session Browser**.

Session Browser Toolbar

Icon	Tool Tip	Shortcut	Description
	New Session		As per **Session	New Session**, open the Oracle Logon Dialog
	Current Session		Show the current session. Use to switch to a different session.
	Include NULL and SYSTEM OS User		Show / Hide NULL and System OS users.
	Refresh	F5	Refresh the Session Browser.
	Auto Refresh Every…		Refresh the Session Browser automatically. Select **Auto-Refresh every** and enter the refresh interval in seconds.

Sessions Grid

The current session is displayed in pink.

Action	Description
Select / Highlight a session	The tabbed pages show details of the selected session. For more information, see Session Information on page 198.
Sort / Group Sessions	• Click the column heading you would like to sort by. • Drag the column you would like to group the sessions by to the gray area above the grid.
Show / Hide Columns	Right click on the grid and select **Visible Columns**. All columns are listed. Only selected columns are visible on the grid. **TIP:** You can rearrange the columns. Drag and drop the column header into the location you want.
Filter Sessions	When a filter is applied, only sessions that meet the criteria are displayed. 1. Click the arrow alongside the column heading you want to apply the filter to. 2. Select the value you want to filter by. 3. Apply additional filters if required. ***To apply custom filters*** 1. Click the arrow alongside the column heading you want to apply the filter to and select (Custom...). 2. Create a conditional expression from the menu options provided. • Values are case sensitive. • Use **And** / **Or** to related multiple conditions. **NOTE:** • The filtered columns are given a blue arrow. Click the blue arrow and select **(All)** to remove all filters applied to the column. • The filter expression is displayed below the Sessions grid. Click **X** to remove all filters.
Kill Sessions	Right-click the session and select **Kill Sessions**. **NOTE:** • When you kill a top level node you kill all sessions below it. • You must have appropriate permissions (ALTER SYSTEM) to kill sessions. • You cannot kill the current session (displayed in pink). • The following query is used to kill sessions: ALTER SYSTEM KILL SESSION <SID, SERIAL#> IMMEDIATE

Session Information

Select a session on the Sessions Grid. Details for the selected session are displayed in the tabbed pages.

Tab	Description
Session	Further session information for the selected session.
Process	Process information for the selected session.
IO	IO information for the selected session.
Waits	Waits information for the selected session. **NOTE:** WAIT_TIME = -2 on platforms that do not support a fast timing mechanism. If you using one of these platforms and you want this column to reflect true wait times, you must set the TIMED_STATISTICS parameter to TRUE. Doing this has a small negative effect on system performance.
Current SQL	The current SQL statement and explain plan for the select session.
Access	Objects in the database currently locked by the selected session.
RBS Usage	Transaction information for online rollback segments for the selected session.
Parallel Session	Parent and slave sessions belonging to a parallel session.
Locks	User and system locks. Locks are displayed in groups; Blocking, Blocked By, System, and All Locks.
Long Ops	Operations that run for longer than six seconds in absolute time, including some backup and recovery functions, statistics gathering, and query execution.
Open Cursors	Cursors that the selected session has opened and parsed.

Source Preview

Preview the source code of text objects (stored programs, triggers and views), or a package's individual entry points.

1. Select the object

Module	How to select the object
In the Code Editor	Press CTRL and click on the object name
In DB Navigator	Click on the object
In the Find objects Dialog results	Click on the object
In Database Source Code Search results	Click on the object
In the Project Manager	Click on the object
In DB Explorer	Click on the object

2. Click **View | Source Preview**.

TIP:

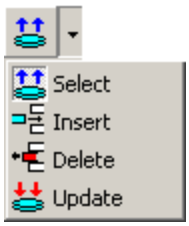
- While the Source Preview window is open, you can select objects in any of the windows named above, and the object's source code will automatically appear in the Source Preview window.
- Use a bookmark to conveniently mark various locations in the source code and quickly move about in the text without searching through the code and without losing your current editing location. You can set up to ten bookmarks. See Edit Menu.

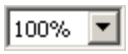
SQL Modeler

The SQL Modeler provides a fast means for creating the framework of a Select, Insert, Update, or Delete statement. You can select Tables, Views or Synonyms, join columns, select columns, and create the desired type of statement.

Section	Description
Model Area	Used to graphically lay out a query.
SQL Modeler Toolbar	Most frequently used Modeler functions.
Criteria Tab	Criteria used in generating the model.
Generated Query Tab	Automatically generated SQL as a result of the model.
SPLITTERS	The SQL Modeler has two splitters to change how you divide the screen. • There is a horizontal splitter between the Model Area and the Criteria/Generated Query/Query Results tabs. Drag it up or down and release to see more or less detail. • There is a vertical splitter between the Model Area and the Table Selector List. Drag it left or right to see more or less detail.

SQL Modeler Toolbar

Icon	Tool tip	Description
	New model	Clear the modeler window ready to create a new query.
	Open an existing model	Open a saved query.
	Save current model as...	Save the query. Specify the filename and location.
	Save model	Save the query to the current filename and location.
	Model information	Edit current model information
	Edit calculated fields	Edit calculated fields
	Generate a SELECT statement	Select the type of statement you want to create.  If the query in the SQL Modeler is an UPDATE, DELETE or INSERT statement, a rollback will occur automatically.
	Execute query	Use to test the query. The results show in Query Results Tab.
	Explain plan	Open the Explain Plan Tool.
	Load in the Code Editor	Copy the new query to the Code Editor.
	Show Table List	Show/Hide the Table Selector. The Table Selector lists the tables, views and synonyms available to you for inclusion in your SQL Model. You can select from the current schema or any other schema. Only those tables, views or synonyms for which you have SELECT privilege will be listed. To add a table, view or synonym, double click on it or drag and drop it onto the Model Area.
	Save sub query and return to master query	Save sub query and return to master query

Icon	Tool tip	Description
	Cancel sub query and return to master query	Cancel sub query and return to master query
W	Edit global where clauses	Edit global WHERE clauses. Open the Global WHERE Conditions Window.
H	Edit global having clauses	Set Global HAVING conditions (Must have a **Group By** condition set in the Criteria Tab.) Open the Global HAVING Conditions Window.
	View joins	View Joins Dialog
	Auto join objects	Auto join objects
		Percentage of zoom for modeler pane

View Joins Dialog

From this dialog you can see individual joins, browse through the joins, and make changes to the joins.

Dialog Section	Description	
From / To	The join fields, joined from one table to another.	
Join Type	You can change the Join Type from Inner to Outer. The line color denotes the type of join.	
Outer Join On	If you have selected an Outer join, you can change which table the outer join is performed on.	
Join Test	You can change the test for the join. You can make it Less than, Greater than, etc. instead of Equal to.	
Buttons	Previous Join	Delete the current join.
	Next join	Move forward in the join list.
	Delete Join	Move backward.
	OK	Close the window and return to the SQL Modeler.

To open this dialog, click **View Joins** on the SQL Modeler toolbar. Alternatively, double click on a join line in the Model Area.

Global WHERE Conditions Window

W

Add, Edit, Delete global where conditions as per the toolbar.

The Add and Edit buttons open the **Global WHERE Definition dialog**. Global Where entries are in the form of <expression1> <operator> <expression2>.

TIP: You could alternatively populate the WHERE clause via the Criteria Tab. Entries into the cells of the Criteria tab should be in the form of <operator> <expression2>.

Example

Construct the following query

SELECT dept.deptno, dept.dname, dept.loc

FROM scott.dept

WHERE ((dept.deptno BETWEEN 1 AND 25)

AND (dept.deptno < 40)

AND (dept.loc IS NOT NULL)

Follow the numbered steps

1. Open the SQL Modeler (as SCOTT/TIGER).
2. Double-click DEPT to add it to the model.
3. Right-click DEPT and choose Select All.
4. On the criteria tab, double click the Where Cond. cell under DEPTNO.
5. Choose < and fill in the value 40. Click OK.
6. On the criteria tab, double click the Where Cond. cell under LOC and then choose the Expert tab and click Yes at the warning dialog.
7. In the top edit box, enter IS NULL. Click OK.
8. On the criteria tab, double-click the OR cell under LOC. Choose the Expert tab and click Yes at the warning dialog.
9. In the top edit box, enter = 'CHICAGO'
10. In the table model area (the area around the table images), right-click and choose SQL>Global Where
11. In the top edit box, enter Data Field DEPT.DEPTNO. Click OK.
12. From the SQL Function panel, select BETWEEN _Const_ AND _Const_. Replace the constants with values, for example 1 and 25 respectively. Click OK twice.
13. View the generated query. It should appear as described above.

Global HAVING Conditions Window

H

Add, Edit, Delete global having conditions as per the toolbar.

The Add and Edit buttons open the **Global HAVING Definition dialog**. Global Having entries are in the form of <expression1> <operator> <expression2>.

> **TIP:** You could alternatively populate the HAVING clause via the Criteria Tab. First set a GROUPed BY field. Then set the Having clause for that field by entering it in the group cond. row. This has the limitation that you can only have the selected field on the left side of the relational operator. If you need to have multiple fields on that side of the operator, use the Global Having feature.

Example

Construct the following query

SELECT emp.empno, emp.ename, emp.job, emp.mgr, emp.sal,

emp.comm, emp.deptno

FROM emp

GROUP BY emp.deptno, emp.comm, emp.sal, emp.mgr, emp.job,

emp.ename, emp.empno

HAVING ((emp.sal + NVL (emp.comm, 0) > 4000))

Follow the numbered steps

1. Open the SQL Modeler (as SCOTT/TIGER).
2. Double-click EMP to add it to the model.
3. Right-click EMP and choose Select All, then deselect Hiredate.
4. In the Criteria tab, double-click the Group By field for DEPTNO.
5. Double-click the Group By fields for COMM, SAL, MGR, JOB, ENAME and EMPNO as well.
6. Click the Global Having button in the toolbar. Click the Add button to add a new Having clause.
7. Enter the Having clause to say:
    - EMP.SAL + NVL(EMP.COMM, 0) > 4000
8. Click OK.

View the generated query.

It should appear as described above. This query selects all the employees whose salary plus commission is greater than 4000. The NVL command substitutes a null value in the specified column with the specified value, in this case, 0.

Model Area

Use the model area to visually join or manipulate the Tables, Views and Synonyms.

Add objects

Show/Hide the Table Selector on the SQL Modeler Toolbar. It lists the tables, views and synonyms available to you for inclusion in your SQL Model. Double-click each desired Table, View, Synonym, OR drag and drop them from the list to the model area. As the objects are presented on the model area, join lines are drawn from any established foreign keys in the DDL.

Additionally, drag-and-drop objects from:

- DB Navigator tree (single object only)
- DB Navigator details pane (when a list is displayed)
- Find objects Dialog
- Project Manager

TIP:

- To open SQL Modeler with a table, select the table in DB Navigator then click Object Menu | SQL Modeler.
- You can click in a table header and drag and drop the table where you want it in the Model Area.

Build a query

Steps	Description
Clear an existing query from the Model Area, if required.	Click **New Model** on the SQL Modeler Toolbar.
Define the type of statement you want to create.	Choose SELECT, UPDATE, DELETE, or INSERT from the SQL Modeler Toolbar.
Add objects to the Model Area.	Drag and drop Tables, Views, or Synonyms from the Table Selector to the modeling area. You can show/hide the Table Selector on the SQL Modeler Toolbar.
Specify table columns to be used in the query.	Select column names in the tables in the Model Area. **NOTE:** If no table columns are selected, then all columns will be included in the query.
Set criteria for the query	See the Criteria Tab.
View your query as SQL code or as a data grid.	Click the Generated Query Tab and Query Results Tab.
Save the model	Save the model from the SQL Modeler Toolbar.

TIP: You can use the SQL Modeler Toolbar to copy the query to the Code Editor window.

Create a table join

1. Add two table names to the Model Area.
2. In the first table, click the column name that you want to join. Drag it to the corresponding column name in the second table.
3. When the join is successfully created, SQL Modeler draws a connecting line that represents the join between the two table columns.

TIP: To specify criteria for a table join, double-click on the connecting line joining the two columns. This opens the View Joins Dialog.

Menus in the Model Area

Right click the model

Menu	Description	
Copy Model Image To Clipboard	Copy a bitmap image of the model to the Windows Clipboard	
Tables	Visibility	Show / Hide tables in the model. Hidden tables are not included in the Generated Query (Generated Query Tab).
	Calculated Fields	Add calculated fields based on other table columns.
Show	Join Text	Show the column names that comprise the joins.
	Adjust Model Origin	Move the model so the upper left object is in the upper left of the Model Area.
	Primary Key	Show the Table Primary Keys. Show **PK** next to each Primary Key column.
	Indexes	Show the Table Indexes. Show **IDX** next to each Index column.
	Show Field Type	Show the column data type in each table.

Menu	Description	
SQL	Run Query in Thread	Run the query in a way that allows you to halt it in the middle if necessary.
	Global Where Clauses	Open the Global WHERE Conditions Window. Use to add a WHERE clause to the query.
	Global Having Clauses	Open the Global HAVING Conditions Window. Use to add a HAVING clause to the query. **TIP:** Use the Criteria Tab to set GROUP BY first.
	Query Variables	Add variables. These variables are used in the **Global WHERE Definition Dialog** and **Global HAVING Definition Dialog**.
Auto Join All Objects	Join all tables based on DDL Foreign Key Constraints.	
Hide fields	Show / Hide the list of columns in the table in the model area.	
Zoom to table	Select a table to focus.	
Toggle Full Screen Mode	Show / Hide the Table Select List and Criteria/Generated Query/Query Results tabs.	
Optimize All Table Sizes	Minimize the size of the tables in the Model Area.	
Arrange Tables	Arrange the tables in the Model Area.	

Right click the Table object

Menu	Description
Set Table Alias	Set the Table Alias. The value is added to the Criteria Tab.
Alias Field Names	Set the Field Alias for each column in the table. The values are added to the Criteria Tab.
Auto Join	Automatically join this table to others based on DDL Foreign Key Constraints.
Show Schema Name in SQL	Shows / Hide the schema name in the Generated Query (Generated Query Tab).
Remove Table	Remove this table from the model.
Select All	Select / unselect columns in the table.
Unselect All	
Invert Selection	
Optimize Size	Restore the size of the table to its default size.
Hide	Temporarily hide the table from the model. While the table is hidden it will not be included in the Generated Query (Generated Query Tab). **TIP:** To hide multiple tables or show hidden tables, right click on the Model Area and select **Tables | Visibility**.

Keyboard Shortcuts

Key	Action
Up and down arrow keys	Move you around in lists
Space bar	Select / Unselect boxes
Tab	Move forward one area (table, menu, list, etc)
Shift-Tab	Move back one area (table, menu, list, etc)

Tabs

Criteria Tab

1. Add tables, views and synonyms to the Model Area.
2. In these tables, views and synonyms, select the columns you want to add to the Criteria tab. Only Selected columns appear on the Criteria tab.

TIP: To rearrange the order of the columns on the Criteria tab, drag and drop them left or right.

Field	Description
Only fetch unique records	Select to apply the DISTINCT command to the query.
Schema	The schema cannot be edited.
Null Value Subst.	Double click in the cell to enter a value to substitute for any null values. To clear the cell, highlight it and press **Delete**.
Aggregate F.	Double click in the cell to select an aggregate column function, such as Average, Count, Max, Min, or Sum. To clear the cell, highlight it and press **Delete**.
Where Cond.	Double-click in the cell to open the WHERE Definition dialog.

Section	Description
Conditions	Set a condition which tests if a column is equal to (or <, >, <=, >=, <>, LIKE, BETWEEN) a constant or another field _or_ a condition where the selected field is in a sub query.
Clear Form	Click to reset the dialog box and begin the WHERE condition again.

Field	Description
	Section — **Description** Remove Condition — Click to remove the WHERE definition. **TIP:** A quick way to remove the WHERE definition is to highlight the cell and press **Delete**.
Or	Double-click in the cell to open the WHERE Definition dialog (as above). This WHERE criteria will be OR'ed together with the above WHERE criteria. If you want to AND multiple column criteria together, then select **Expert** from the WHERE Definition dialog. For more information, see Global WHERE Conditions Window on page 202.
Group By	Double-click in the cell to select it as a GROUP BY column. A number in parentheses indicates the order of the columns in the GROUP BY clause. *See also* The **Having Cond.** cell. To clear the cell, highlight it and press **Delete**.
Having Aggregate	Double click in the cell to select an aggregate column function (such as Average, Count, Max, Min, or Sum) for the HAVING clause. This allows for the following type of query: SELECT emp.job_id FROM employee emp GROUP BY emp.job_id HAVING ((AVG (emp.salary) > 1500)) To clear the cell, highlight it and press **Delete**.
Having Cond.	Double click in the cell to open the GROUP BY Definition dialog. **NOTE:** Requires a value in the **Group By** cell. To create more complex Having conditions see Global HAVING Conditions Window for more information. To clear the cell, highlight it and press **Delete**.
Sort	Double click in the cell to sort this column as Ascending, Descending, or no sort. To clear the cell, highlight it and press **Delete**.
Visible	Double click in the cell to have it be visible / hidden. When visible the column is returned in the column list.
Field Alias	Double click in the cell to change the field name alias.
Table Alias	Double click in the cell to enter a value for the table alias. To clear the cell, highlight it and press **Delete**.

Right-click over the Criteria grid:

Menu	Description
Suppress Current Column	Remove this column from the query
Best Fit (All Columns)	Set the column width of the Criteria grid to show all text
Default Width (All Columns)	Set the column width of the Criteria grid to the default width
Copy Query Grid Image to Clipboard	Copy the Criteria grid to the clipboard

Generated Query Tab

This tab lists the automatically generated SQL statement.

NOTE:

- Any changes made to the Model Area or Criteria Tab will automatically regenerate this SQL statement.
- You cannot directly edit the SQL on the **Generated Query** tab.

Right-click over the query

Menu	Description
Copy	Copy the query to the clipboard.
Save As	Save the query to a file.
View Query in Code Editor	Copy the query directly to the Code Editor.

Query Results Tab

Show the results of executing the generated query.

NOTE:

- Insert, Update, and Delete queries can only be executed in the Code Editor.
- Making changes to the Tables or Columns, then clicking on the Query Results tab will prompt you whether or not to re-query the data.

SQL Optimizer

SQL Optimizer supplements Oracle tuning skills for developers. The SQL Optimizer makes observations about a selected SQL statement and the underlying database environment, then recommends several options to improve performance. Users can then view the logic behind the advice, implement the recommendation, apply it to the database, and see the results. The SQL Optimizer module automatically produces all necessary SQL to effect the corresponding change.

NOTE:

- SQL Optimizer can be used to analyze the execution of SQL scripts containing more than one statement.
- SQL Optimizer is an external application. It is installed independently of SQL Navigator.
- Example Scenario: in the Code Editor highlight the text of the SQL statement you want to investigate and click **SQL Optimizer**.
- For more details, see the online help supplied with the SQL Optimizer product.

Task Manager

SQL Navigator executes long-running tasks in separate threads in the background. They lock only the current session. Background execution happens automatically, and means that all the application's functionality remains available to the user while the task is running in a separate session.

The Task Manager is a display of all active and complete tasks for the current session.

The following background tasks can be managed through the Task Manager:

Background Tasks	More Information
Batch commands on database objects, such as Drop, Compile, Truncate and Extract DDL	Object Menu
Enable	Constraint Editor
Execute PL/SQL code	PL/SQL Execution Console
View Differences	Difference Viewer
Full expansion of a node in DB Navigator	DB Navigator
Source Code Search	Database Source Code Search
Find Objects	Find and Replace

NOTE:

- Right click on a task to **Suspend**, **Resume**, **End** or **Delete**.
- Ending some tasks, such as compiling dependants in a complex table, may appear to "hang." This is due to SQL Navigator waiting for a response from the Oracle server. Even though there may be a delay, control will ultimately be returned to SQL Navigator.

Web Support Configuration Dialog

Specify a local directory where images can be loaded or enter details of your Web server's configuration.

This is required to view images and follow hyperlinks in your documents.

Wrap Code

The Wrap Code utility provides an easy way to access Oracle's Wrap Code utility. This window is connection independent so you do not need an open database session to use it.

To wrap code

1. Click Tools Menu | Wrap Code to open the Wrap Code window.
2. Input File details:

Field	Description
Input File	Enter the file (of PL/SQL code) you want to wrap, including the full path. **TIP:** Click the drill down button to browse for the file.
Input File Text	When you have selected the file, the text of the file appears here. **TIP:** Right-click in the text area to copy the code to the clipboard.
Output File	By default this is given the same name as the input file, but with extension **.plb**.

3. Click **Wrap Code**.

Field	Description
Output File Text	The wrapped code appears in the Output File Text area and is automatically saved to the specified Output File. **TIP:** Right-click in the text area to copy the code to the clipboard.

9

View | Preferences

Section	Topic
General	General | User Interface
	General | "Drop" and "Truncate" safety options
	General | Session
	General | Default Tables
	General | Explain Plan
	General | Code Assistant
	General | Printing
	General | Object Editors
	General | Task Bar
Extract DDL	Extract DDL | General
	Extract DDL | Table/View Specific
	Extract DDL | Constraints
	Extract DDL | Materialized Views/Snapshots
	Extract DDL | Users
Project Manager	Project Manager
Code Editor	Code Editor | General
	Code Editor | SQL Scripts
LOB Viewer	Lob Viewer
Team Coding	Team Coding

NOTE: Settings in **View | Preferences** can be changed by any user and apply to the current user only - unless otherwise stated.

General

General | User Interface

Set SQL Navigator preferences.

User Interface

Option	Description
Style	Select the look and feel of SQL Navigator windows from the following styles: • Standard • Flat • XP • Native (the default style) • Office 2003
Tutorial Messages	Select to display tutorial messages automatically for windows. First-time users may find these messages especially helpful.
Hints	Select to show Tool Tips. Tool Tips are labels that pop up when you point to a button or other control.
Font	Select the font to use in SQL Navigator windows.
Date Displayed Format	Select the preferred layout for showing dates.
Time Displayed Format	Select the preferred layout for showing the time.
Display time in DATE fields	Should DATE fields include the time?
Bold Folders in DB Navigator Tree	Select to show folders as bold in the DB Navigator tree. Showing the folders as bold may help clarify the structure of a complex tree. Used by: DB Navigator.
Default Directory	The default directory SQL Navigator points to for Open and Save operations. Used by: File Menu, Toolbars, Code Editor, HTML Viewer.
Background Color	The color of the background area.

Data Grid

Related to: Code Editor | SQL Query Results Data Grid, Edit Data, Quick Browse

Option	Description		
Show Row #	Select to show row numbers in the data grid.		
Display Long columns	Select the display for LONG columns.		
	On demand (in pop-up editor)	Data in a LONG column is displayed in a separate pop-up editor. For each cell:	
		The word "MEMO" in upper case	Indicates the cell has data. Double-click the word to display the data in a pop-up editor.
		The word "memo" in lower case	Indicates there is no data to display.
	Full text (within cells)	Columns are effectively treated like normal string (VARCHAR2) columns, that is, data is displayed within the corresponding cells as a single string.	
Trim column width while pasting	When an object is copied from the Code Editor or one of the Visual Object Editors and pasted to another tool, for example Note Pad...		
	Selected	The length of each pasted column is trimmed to approximately the length of the longest character string in the column.	
	Not Selected	The pasted data reflects the actual length of the column as defined in the object.	
Display NULL values as (Null)	Selected	Show Null values as "(Null)" in the data grid.	
	Not Selected	Show Null values as empty cells in the data grid.	
Data Grid Font	The font used in the data grid result set.		
Show Row Background Color	Set up an alternate row color in the data grid.		

Pin at Start

Option	Tool	Description
Analyze	Analyze Tool	Selected: The window is pinned. Open multiple instances of the tool at the same time.
Describe	Describe	Not Selected: The window is not pinned. If you reopen the tool, the newly opened instance of the tool will replace the current instance.
Explain Plan	Explain Plan Tool	
Object Editors	Visual Object Editors	

NOTE: Once a window of the selected type is open, you can pin or unpin it at any time.

Automatically Show Output Window

Related To: Output Window.

Option	Description
Errors	Show the Output window automatically when errors are sent to it.
Server Output	Show the Output window automatically when server output is sent to it.
Information	Show the Output window automatically when informational text is sent to it.

Startup

Option	Description
Show Splash screen	Select to show the Splash screen when you launch SQL Navigator.
Reopen active windows	Select to show all active windows from the last time SQL Navigator was used.
Show Welcome Screen	Select to show the welcome screen when you launch SQL Navigator.

ER Diagrammer

Related To: ER Diagram.

Option	Description
Show real index names	Show real index name instead of the one generated by the system.

Task Manager

Related To: Task Manager.

Option	Description
Auto delete complete&more-than-one-day tasks	Remove completed tasks, and still running tasks that started more than one day ago.

General | "Drop" and "Truncate" safety options

Drop and Truncate

Related to: Object Menu | Drop and Object Menu | Truncate.

Option	Description
No "Drop" or "Truncate" for Table/Cluster	Select to disable the **Delete** option for table and cluster objects.
No "Drop" for Stored Programs/Triggers	Select to disable the **Drop** command for stored programs and triggers.

General | Session

Session

Option	Description	
Allow multi Code Editor windows per Session	Related To: Code Editor.	
	Selected	Allow multiple Code Editor windows per Session.
	Not Selected	Show multiple instances of the Code Editor in the same window as tabs.
Show Logon Dialog startup	Select to show the Oracle Logon Dialog when you launch SQL Navigator.	
Show code editor after connection	Selected	Show the Code Editor after a connection is made.
	Not Selected	Show the DB Navigator after a connection is made.
Default date format	Select the default date format, for example, MM/DD/YYYY. Used when a date-to-string conversion request is explicitly made; for example, in SELECT TO_CHAR(SYSDATE) FROM DUAL. Otherwise a binary format is used for date/time handling. On screen	

Option	Description
	date/time representation is made using the client machine's Regional Settings (set in the Windows Control Panel). NOTE: **<Same as Displayed Date Format Setting>** refers to **View | Preferences |** General | User Interface | **Date Displayed Format**.
DBMS Output On by default	Related To: Server Output. Selected — Server Output is switched on, on connecting to the database. Not Selected — Server Output is switched off, on connecting to the database.
DBMS Output buffer (bytes)	Change the buffer size for server output. Set the desired upper limit for the DBMS Output Buffer (Bytes). Related To: Output Window.
Cache Capacity	The number of database objects that can be placed in the cache before the cache refreshes itself and accesses the database.
Optimizer Goal/Mode	The approach the Oracle optimizer uses to optimize a SQL statement. For more information, see the *ORACLE 7 SERVER Concepts Manual*.
Immediate load in Open Object Dialog	Related To: Select DB Object Dialog. Selected — SQL Navigator automatically builds a pick-list of all available database objects. Not Selected — Specify selection parameters before loading the pick list of database objects. This saves time and resources.
Close when last session window closes	Selected — SQL Navigator terminates a session when all session windows are closed. SQL Navigator prompts you before terminating the session, unless you have disabled the prompt previously. Not Selected — A session can still be active when all its windows are closed.
Show Users in Schema Lists	Related To: • The All Schemas node in DB Navigator. • The Current Schema drop-down list in the Object toolbar (Toolbars). • The drop-down lists in the editing windows.

Option	Description
	Selected — The lists of schemas will be populated with Users—regardless of whether those users own any objects. Not Selected — The schema lists will include only users with objects.
Retrieve large numbers as strings	Selected — Numeric fields from the database with a precision exceeding 15 digits will be converted to strings on the server. Not Selected — These numbers will be represented in scientific notation. The advantage of converting large numbers to strings rather than displaying them in scientific notation is to avoid loss of precision in screen displays and reports. However, note that converting numbers to strings means that they: • Will be left-aligned in windows and dialogs • Will be sorted alphabetically rather than numerically in sorted lists • Cannot be used with SQL Navigator calendar functions **NOTE:** The related **View | Preferences |**Code Editor | SQL Scripts | **Retrieve all result fields as strings** overrides this preference.
Show All Constraints	Related To: DB Navigator Selected — Show system-defined constraint names for NOT NULL attributes. Not Selected — Exclude system-defined constraint names.
Bytes per character	The number of bytes to allocate per character. If you select **Autodetect** then SQL Navigator attempts to determine the actual number of bytes per character while establishing connection. **NOTE:** You can override this preference for specific connections from the Oracle Logon Dialog. If you receive ORA-01026 errors (or similar) when working with the database, we recommend setting this preference to the minimum possible value (2, 3 or 4) that eliminates the errors.
Retrieve tablespace usage info	Select to add the following columns to the tablespace details pane: • size_mb – the allocated size of the tablespace in megabytes • used_mb – the number of megabytes currently used by the tablespace

<table>
<tr><th>Option</th><th>Description</th></tr>
<tr><td></td><td>
used_percent - the percentage of the tablespace currently used.
NOTE: Available only for users with access to DBA views. For more information, see DBA Dictionary Views on page 48.
</td></tr>
<tr><td>National Language Support (To make this option changes effective right away, shut down SQL Navigator then restart)</td><td>
<table>
<tr><td>No Support</td><td>NLS is not supported by default.</td></tr>
<tr><td>Display and Edit multi-byte data</td><td>Display and enter data in the Code Editor Data Grid (SQL Query Results Data Grid) in any language supported by Windows. This option is not applicable with the column or object names. However, multiple languages can be displayed without making any changes to the system environment.</td></tr>
</table>
</td></tr>
<tr><td>Read Buffer Size</td><td>The number of records SQL Navigator reads per database request.</td></tr>
<tr><td>Use user's dictionary views</td><td>This preference is specific to background queries to list objects and to get object details for the logged in user’s schema
<table>
<tr><td>Selected</td><td>SQL Navigator uses USER views to query the Oracle Data Dictionary.</td></tr>
<tr><td>Not Selected</td><td>SQL Navigator uses ALL or DBA views to query the Oracle Data Dictionary, dependent on the value of Enable DBA Views in the Oracle Logon Dialog.</td></tr>
</table>
</td></tr>
<tr><td>Keep existing sessions alive</td><td>
<table>
<tr><th>Option</th><th>Description</th></tr>
<tr><td>Issuing 'select * from dual' every interval (minutes)</td><td></td></tr>
</table>
</td></tr>
</table>

Auto run script at connect

Option	Description
Auto run script at connect	Run the named script on connecting to the database.
Close script on successful execution	Select for the named script to close automatically when it has finished running.

Trace

Option	Description
Enable	Select to log all transactions with the database to a file. This is useful for debugging purposes.
Level	Select the type of messages the trace file will record.

General | Default Tables

Default Tables

Option	Description
Exception Table Owner	Name of the schema where the exception table is to be stored.
Exception Table	Name of the exception table.
Chained Rows Table Owner	Name of the schema where the chained rows are to be stored.
Chained Rows Table	Name of the chained rows table.

General | Explain Plan

Explain Plan

Option	Description
Explain Plan Table Owner	User name of the owner of the default plan table.
Explain Plan Table	Name of the default plan table.
Table Access Full warning Threshold	The number of rows that must exist in a table before the icon in the execution plan is changed from green to red to draw your attention to the full table scan.
Abbreviate Join Text	Select to abbreviate the text that is displayed in the execution plan for table joins. The abbreviation feature reduces the large amount of join text associated with a large query so that you can focus on the overall steps in the execution plan.
Explain Plan Color	The color of the individual items in the execution plan. **TIP:** Click the ... button, then click the Color column in the row of an item to select a new color.

General | Code Assistant

Code Assistant

Option	Description
Auto Start with Editors and Explain Plan	Open Code Assistant automatically when an editor or the Explain Plan Tool is opened.

Option	Description
Standards Catalog Directory	The directory path for the Standards Catalog.
Shared Catalog Directory	The directory path for the Shared Catalog.

Displayed Pages

Option	Description
Syntax Catalog	Show the Syntax Catalog in the Code Assistant.
Web Catalog	Show the Web Catalog in the Code Assistant.
Code Catalog	Show the Code Catalog in the Code Assistant.
SQL Catalog	Show the SQL Catalog in the Code Assistant.

PL / Vision Catalog

Option	Description
PL / Vision Lite	Show the PL / Vision Lite Catalog in the Code Assistant
PL / Vision Professional	Show the PL / Vision Professional Catalog in the Code Assistant.

General | Printing

The printing preferences control the appearance of printer output from various SQL Navigator windows, dialogs and reports.

NOTE: Of all the options in this section, only **General | Printing | Editors** options are applicable to the Code Editor.

Printing

Option	Description
Measurement Units	The measurement unit for margin width and other print settings.
Header and footer	Enable/Disable headers and footers on printed output. **NOTE:** Header and footer properties are specified separately (see below).
Font	The font to be used for printing SQL Navigator output.

Margins

Option	Description
Left Margin	The width or height of the page margins using the **Measurement Unit** specified above.
Right Margin	
Top Margin	
Bottom Margin	

Header

Option	Description
Font	The page header properties.
Alignment	Be sure to enable Header and Footer (above) if you want headers and footers to be printed.

Footer

Option	Description
Font	The page footer properties.
Page Number	Be sure to enable Header and Footer (above) if you want headers and footers to be printed.
Date	

Editor

Option	Description
Syntax highlighting	Applicable to output printed from an editing window; for example, the Code Editor.
Show line numbers	

DB Navigator

Applicable to output printed from DB Navigator.

Option	Description
Header	Type the text you want to appear as header text in the printed output from DB Navigator.
Orientation	If you select a printer orientation other than **Default**, your setting will override any setting made in the Print Setup dialog when you print.
Print Selection	Print the selected item or the entire DB Navigator Tree.

General | Object Editors

Object Editors

Option	Description	
Auto Recompile Dependents	Selected	Automatically recompile dependent objects when an object is altered.
	Not Selected	Force a manual recompile of dependent objects based on your preference. This is the default.
Auto Recompile Invalid Only	Selected	Automatically recompiles only the dependent objects that have a status of invalid.
	Not Selected	Force all dependent objects to recompile automatically when using the debugger feature.
Apply changes	This option specifies the conditions necessary for the Apply Changes toolbar button to be available. Select to have the button available • only when you have made changes to valid objects, or • when you have made changes to any objects (valid or invalid), or • available at all times.	
Save on clone	Select to automatically save a cloned object without prompting.	

General | Task Bar

Task Bar

Option	Description	
Group Similar Taskbar Buttons	Display buttons with similar functionality into groups.	
Group Similar Taskbar Button Threshold	Specified the maximum numbers of separate items on taskbar before grouping is performed. (if the threshold is 4 and there are 4 items on the taskbar, when another window is opened, it will be grouped). **NOTE:** Requires selection of group functionality (above).	
Order Taskbar Items by Session	Selected	Task bar items of one session are grouped close together followed by items of other sessions.
	Not Selected	All items of the same type will be grouped together regardless of their sessions.

Option	Description
Reverse Order of Taskbar Items	When selected, new Task bar items will be populated on the left hand side.
Rotate Taskbar Item caption when vertical	Horizontal / Vertical direction of Task bar item captions.
Allow Taskbar Items to expand onto multiple lines	Display Task bar items on multiple lines if the current line is full.

Extract DDL

Extract DDL | General

NOTE: Preferences preceded by an asterisk (*) are applicable to team coding operations when the Team Coding preference (see Use Extract DDL Preferences) is checked.

Extract DDL/MetaData

Option	Description	
Show this window before performing the task	Show the preferences before the DDL is extracted from the object.	
<schema>, <object> File Name Prefix	Selected	The default file name will be prefixed with the schema name and object name.
	Not Selected	The default file name will be the same as the object name.
New tab in the Code Editor for each object	Selected	Show a new tab for each object that is extracted DDL.
	Not Selected	All the objects' extracted DDLs will be on the same tab.
Extract DDL to the same tab in the Code Editor	Selected	The script is inserted into the current tab in the Code Editor.
	Not Selected	A new tab is created with the SQL scripts.

Extract DDL

Option	Description
Extract DDL on drag & drop within DB Navigator	Allow drag & drop of the extracted DDL to another database within the same DB Navigator tree.
Keywords case	Select the case used for keywords in the DDL.
Names case	Select the case used for names in the DDL.
Generate comments	Show pre-generated comments in the DDL. Can be helpful to identify different parts of the script.
Prefix with Schema name	Any Object Name that is displayed within the DDL is prefixed with the Schema Name.
Include Drop	Include the drop statement at the beginning of the DDL to drop the object first.

Option	Description
Include "Cascade Constraints" with DROP	

Include "Force" with TYPE DROP	Include Drop with Force in the DLL statement for type objects.
Use "CREATE OR REPLACE"	Add Create or Replace to the start of the object, rather than just having Create.
Include "Tablespace name"	Include the Tablespace name in the DDL.
Include "Storage clause" (Only Non-Default Values for Partitioned Tables)*	Include the Storage clause in the DDL.
Include "Physical Attributes Clause"*	Include the Physical Attributes clause in the DDL.
Include "Grants"*	Include the Grants in the DDL.

Option	Description
Include Object Grants (for Users)	Includes any object grants for users in the DDL.

Body and Spec for Packages/Objects	Includes DDL for both the body and the specification when extracting from packages or objects. The package specification declares procedures, functions, cursors, and variables. The package body contains the implementation of the public procedures and functions, together with internal and private programs and variables.
Show Trigger Snapshot	The Oracle Data Dictionary stores the DDL used to create a trigger in the all_triggers_ view, along with all the other trigger parameters.

Option	Description
	Selected: SQL Navigator extracts the DDL as stored in the all_triggers_view. Any user comments stored in the DDL are retained when extracting the DDL. Not Selected: SQL Navigator constructs the DDL from the object's parameters, and any user comments will not be retained.
Separator Character	Select the character to be used as the separator in the DDL. If you extract DDL for several objects, the DDL for each object will be separated using the selected separator. NOTE: The '/' character is used automatically when extracting DDL for objects without stored code.
Format Output (will not include Inline Advice)	Format the DDL according to Formatting Options. Inline advice is never included even if **Tools | Formatter Tools | Enable Inline Advice** is selected.

Extract DDL | Table/View Specific

Table/View specific

NOTE: Preferences preceded by an asterisk (*) are applicable to team coding operations when the Team Coding preference (see Use Extract DDL Preferences) is checked.

Option	Description
Include "Constraints"	* Includes any constraints for the object in the DDL. Option: Disable "Constraints" — Description: *Generate DDL with constraints in a disabled state.
Include "Triggers"	*Includes any triggers for the object in the DDL.
Include "Indexes"	Includes any indexes for the object in the DDL.
Include "Comments"	*Includes any comments for the object in the DDL.
Include "Primary Key in Table Definition"	Includes the Primary Key for the table in the DDL.
Include "Synonyms"	Includes any Synonyms for the object in the DDL.
Exclude Table column default values*	*Excludes all default values for the object from the DDL.
Include ENCRYPTION clause	Includes any encryption-related clauses (such as encryption algorithm to be used, salting and so forth) for the object in the DDL.

Option	Description
Include FORCE clause	Select the measurement unit you want to use for specifying margin width and other print settings.
Include datatype definition for table column	Include datatype definition for any columns that are of complex type.
Include Byte/Char for Table Columns	Display Byte or Char as length for a column.

Partitioning

Option	Description
Include "Storage Clause" for Partitions	Includes any Partition settings from the Storage Clause for the object in the DDL.
Include "Storage Clause" for Index Partitions	Includes any Index Partition settings from the Storage Clause for the object in the DDL.
Storage Clause Options	Include storage clauses with either non-default values or all values in the DDL.
Include "Tablespace Name" for Partitions	Includes the Tablespace names any Partition for the object in the DDL.
Include "Tablespace Name" for Index Partitions	Includes the Tablespace names in any Indexed Partition for the object in the DDL.
Exclude Partition List for Local Index	Excludes Local Index Partitions for the object in the DDL. NOTE: Not applicable when **Include "storage Clause" for Index Partitions** (above) is selected.
List Individual Hash Partitions	Selected: The "individual_hash_partitions" clause will be used. Not Selected: The "hash_partitions_by_quantity" clause will be used.

Extract DDL | Constraints

Constraints

Option	Description
Include ON DELETE SET NULL clause	Includes the ON DELETE SET NULL clause in the DDL.

Extract DDL | Materialized Views/Snapshots

Materialized Views/Snapshots

Option	Description
Include BUILD clause	Choose the type of build clause used for snapshots.

Extract DDL | Users

Users

Option	Description
Include encrypted password	Select to include the user's password (encrypted) in the extract ddl script.

Project Manager

Project Manager

Option	Description
Hide inactive project windows	Only display the selected Project Manager window.
Hide Project Manager after connecting	Once a connection has been made successfully, close the Project Manager window.
Remember Oracle Home/Client for each connection	Displays the Home/Client column. Remembers the Oracle client for each connection and automatically connects the next time the item is opened (if the connection is closed).

Auto add items to Project Manager

Option	Description
On Connect	Once a connection has been made successfully, add the connection to the Project Manager. Direct connections are not added to the Project Manager.
On Create/Open	Once an object has been created or opened it is added to the Project Manager Window.

Option	Description
object	
On Create/Open file	Once a file has been created or opened it is added to the Project Manager window.
On Browse/Edit Data	If the user browses data in a table, then the table is added to the Project Manager Window.
On Describe object	If the user chooses to describe an object, then the object is added to the Project Manager Window.
On Execute object	If the user executes a procedure or function, then that object is added to the Project Manager Window.

Code Editor

Code Editor | General

General

Option	Description
Find Text at Cursor	Automatically place the word at the current cursor position into the Find box.
Font	The font used in the Code Editor window.
Code Convention Lowercase	Paste objects in lower case into the editor. Also affects column names in the drop down list as part of code completion in any of the text editors, as upper or lower case, when you type in a table name with the '.' operator. The preference was previously known as Drag and Drop Objects to Lowercase.
Auto Indent	Position the cursor under the first nonblank character of the preceding nonblank line when user presses Enter.
Indent Size	Indent Size used when Indenting selected text using CTRL + I. Not applicable if **Use TAB Characters** is selected.
Use TAB Characters	Selected: Insert tab characters. Not Selected: Insert space characters. If **Smart TAB** is selected this option is off.
Tab Size	The horizontal width of the Tab space in number of characters.
Smart Tab	Tab to the first character in the preceding line. If **Use TAB Characters** is selected this option is off.

Option	Description
Smart Fill	Begins every auto-indented line with the minimum number of characters possible, using tabs and spaces as necessary.
Keywords to Uppercase	Convert all keywords to uppercase as they are typed into the editor.
Syntax highlighting	Enable the highlighting of syntax within the editor. **Option** / **Description** Highlighting Style — Default Styles with color schemes for syntax highlighting. Colors — Set a custom style for syntax highlighting. Also set the highlighting style to custom.
Column Track	When selected the cursor "remembers" its starting column position and moves to the same position when you move it up or down to a new line. Use together with **Allow Caret after EOL**.
Hot Links	When selected the user can open an object from the SQL text via Ctrl+Click.
Allow Caret after EOL	Selected — The user can move the cursor beyond the end of the current line. The cursor's vertical movement ignores the EOL position of the line current line. Use together with **Column Track**. Not Selected — The user cannot move the cursor beyond the end of the current line. The cursor's vertical movement is constrained by the EOL position of each line.
Show Line Numbers	Show line numbers in the Code Editor.
Show Right Margin	When selected, draw a vertical line in your editing window representing the right-hand page boundary. **Option** / **Description** Right Margin Width — Placement is controlled by the Right Margin Width setting.
Templates	Open the Code Shortcuts And Templates Dialog. Create, edit, or delete templates.
Describe Object at Hyperlink	When selected, open the Describe window (Describe) when press Ctrl and right-click on an object name and create a hyperlink.
Highlight Current Line	When selected, the line containing the cursor is highlighted.
Allow Tab Items to Expand onto Multiple Lines	Display Tab items on multiple lines if the current line is full. Select for ease of navigating through multiple open PL/SQL objects and SQL queries.
Enable Code	Related to: Edit, Compile And Execute

Option	Description
Collapsing	When selected, the Code Collapsing functionality is turned on allowing the user to collapse/expand blocks of code. **Option** / **Description** Disable Code Collapsing when line count exceeds — When a script/object exceeds the specified number of lines, Code Collapsing is disabled to improve performance.
Save successfully executed sql in the History tool	Select to save a copy of successfully executed queries in C:\Documents and Settings\<username>\Application Data\Dell\SQL Navigator\Unified Editor\history.
Turn Off Variable Hints	Select turn off the pop up hints that are displayed when you hover the mouse over function or procedure names, or variables.
Scan Defines/Substitutions	Related to: Scan Defines/Substitutions
Sub-tab row location	Specify the position of the sub-tab to be displayed.
Close Code Editor when last tab closes	When selected, the Code Editor closes when the last tab in the editor is closed.

Code Editor | SQL Scripts

SQL Scripts

Option	Description
Spool Output	When selected, returned results are sent to the spool pane (SQL Query Log (The Spool Tab)) of the Code Editor on query execution. This option does not turn on/off the Spool option of the existing code editor tabs. **Option** / **Description** Default Rows Displayed — Specifies how many rows of returned results are sent to the spool pane of the Code Editor on query execution when Fetch All is set to OFF. Bring to front after execution — When selected, the Spool tab is shown on top after the execution of a PL/SQL block.
Split Window to Display Results	Selected — The data grid is shown below the script tab. Not Selected — The data grid is shown in a whole window.

Option	Description	
Fetch All	Selected	Retrieve all results and display in the data grid.
	Not Selected	Retrieve the number of rows that can be displayed in the data grid. Scroll down the grid to retrieve more rows.
Show Errors in Output Window	Selected	Show a brief error message in the Execution Status pane below the editing area. Show detailed error messages in the Output Window.
	Not Selected	Show a brief error message in the Execution Status pane only.
Retrieve all result fields as strings	When selected, this option causes all numeric fields to be converted to strings on the server.	
Use Table Alias	Select to use table aliases in the SQL statements generated by Quick Browse and Edit Data.	
Cursor focus stays in the SQL query after single execution	When selected, the cursor will stay in the Script area instead of moving to the data grid.	
Highlight query for corresponding data result	When selected, the SQL that has been executed, and corresponds to the data shown in the data grid, is highlighted.	
Focus query for corresponding data result	When selected, the cursor will stay in the Script area instead of moving to the data grid.	
Allow session switching	Selected	You can switch sessions for an open editor. This means you can easily run the same SQL statement(s) against multiple databases.
	Not Selected	You will need to open multiple editing windows to accomplish this task.

Code Completion

Option	Description
Delay (milliseconds)	
Automatic Code Completion	When selected,a 'pick' list of matching symbols (variables, parameters, procedures, types) in the current scope is displayed when you start typing in an identifier. When selected, it will also include **Automatic Dot-Lookup**.
Automatic Dot Lookup	when selected, a 'pick' list of members of a PL/SQL record, cursor, package or %ROWTYPE record are displayed when you type a dot character after a name of variable. Automatic Dot Lookup can be selected as a stand-alone option.

Drag & Drop

Option	Description
Drag & Drop of Tables or Views nodes	Specifies what will be inserted when a table node is dragged and dropped from DB Explorer into the Code Editor. If this preference is set to insert a query statement for each table, using Ctrl or Shift key while drag and drop will not have any effect on the format of the queries.
Drag and Drop arguments with code objects	When selected, drag & drop code objects (such as procedure, function) will include their arguments (such as Input parameters, Output parameters)

Code Analysis

Module: Code Analysis

Option	Description
Embed Code Analysis in editor windows	When selected, a Code Analysis tab appears in the editor window next to the Code tab which you can open as required.

Lob Viewer

Option	Description
Hex Dump Mask	Filter for ASCII characters.
LOB Save Path	Specify the default location to save the lob content.
Text Font	Specify the font attributes to be used for displaying text content.
Fixed Font	Specify the font attributes to be used for displaying non-text content.

Team Coding

General

Option	Description	
Disable Team Coding Detection on Connection	Selected	Team Coding is disabled for the connection. The Oracle connection will run faster.

Option	Description	
	Not selected	Queries are run against the Oracle connection to detect the Oracle server team coding settings. This is the default behavior.
Automatic Check In	Related to: Check In / Check Out Dialog.	
	Selected	Initiates a **Check-In** whenever the user closes the Visual Object Editors or Code Editor for a modified and checked-out object or script.
	Not selected	Check in the object from the Team Coding Menu | Check in.
Automatic Check Out	Related to: Check In / Check Out Dialog.	
	Selected	Initiates a **Check Out** whenever the user opens the Visual Object Editors or Code Editor for an object or script.
	Not selected	Check out the object from the Team Coding Menu | Check out.
Confirm Check In	Selected	This option is useful only for users of IBM® Rational® ClearCase®. SQL Navigator performs an extra step to verify that each check-in is successful. If the check-in is not successful, SQL Navigator automatically performs an Undo of the check-in to ensure that SQL Navigator and ClearCase remain in synchronization. **NOTE:** • There may be a performance issue when this option is in use. • This confirmation is not necessary with VCS providers other than Rational ClearCase.
	Not Selected	Appropriate when no VCS provider is in use or for VCS providers other than Rational ClearCase. When Rational ClearCase is in use and an unmodified file is checked in, Rational ClearCase may fail the check-in without notifying SQL Navigator.
Show in DB Navigator	Select to add Team Coding functions to the DB Navigator right-click menu. Selecting this may have a performance impact.	
Prompt for Check In All	When selected, you are prompted you to check in all checked-out files when you close a session.	
Prompt for Check Out Comment	Selected	Prompt for comment on Check In and Check Out even if there has been no change to the object or script.
Prompt for Check In Comment	Not selected	To provide a comment on Check In and Check Out if there has been no change to the object or script, press SHIFT with Check In / Check Out.
Schema	Applies to cloning and importing of stored code.	

Option	Description	
replacement for Stored Code	Selected	The reference to the parent schema of a cloned object is automatically changed from the source schema to the destination schema.
	Not selected	The reference to the source parent schema of a cloned object remains unchanged when the object is cloned into a new schema.
Schema Replacement for Views	Applies to cloning and importing of views.	
	Selected	The reference to the parent schema of a cloned object is automatically changed from the source schema to the destination schema.
	Not selected	The reference to the source parent schema of a cloned object remains unchanged when the object is cloned into a new schema.
Schema Replacement for Triggers	Applies to cloning and importing of triggers.	
	Selected	The reference to the parent schema of a cloned object is automatically changed from the source schema to the destination schema.
	Not selected	The reference to the source parent schema of a cloned object remains unchanged when the object is cloned into a new schema.
Simultaneously Check In/Out Spec and Body	When selected, and you check in or check out a package specification, the package body will automatically be checked in or out at the same time. The same goes for the reverse—checking in or checking out the body automatically checks in or out the specification.	
Disable Login Prompt on Connection	When selected, the team coding third-party provider login prompt will not appear on connection.	
Disable Upgrade Prompt on Connection	When selected, the team coding upgrade notification will not appear on connection.	
Local Working Directory	Set the working directory for the current user.	

Advanced

Option	Description	
Prompt to Remap on Check Out	When selected and you check out an object that is not in your schema, and not in a schema you are mapped to, show a prompt asking whether you want to be re-mapped to the other schema.	
Automatic Transfer of CheckOut Status	Selected	Automatically (without prompting) transfer check out status of the master object when you open a cloned object in your own schema. (This assumes that you have the master object checked out.) The check-out status is automatically transferred to the cloned object.

Option	Description
	Not selected: Show the Transfer Checkout prompt when you open the cloned object.
VCS Provider Options	List all of the options available from the current selected version control provider.
Global Connection Settings	Click the Connection Settings (ellipsis) button to open Team Coding Settings.

Keyboard Shortcuts (View | Preferences)

Action	Keyboard Shortcut
Select next item	CTRL+Enter
Toggle: Selected / Not Selected	Spacebar
Open drop down boxes	ALT+Down Arrow key
Close drop down boxes	ALT+Up Arrow key
Expand subgroup	+ on number pad
Close expanded subgroup	- on number pad
Decrement values in numeric spin controls	CTRL+Down Arrow
Increment values in numeric spin controls	CTRL+Up Arrow

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- Obtain product notifications
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- Engage in community discussions
- Chat with a support engineer