Embarcadero® PowerSQL™ 1.1 Evaluation Guide

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Introduction to PowerSQL

Embarcadero PowerSQL simplifies SQL development for application developers with many features for improving productivity and reducing errors. A rich SQL IDE with code completion, real-time error checking, code formatting, and sophisticated object validation tools help streamline coding tasks. PowerSQL's user interface helps improve overall productivity with database object look up functionality and side-by-side views of application code and SQL code. PowerSQL offers native support for IBM DB2 for LUW, Oracle, Microsoft SQL Server, and Sybase, as well as JDBC support for other DBMS. PowerSQL is available as a stand-alone application or as an Eclipse plug-in.

Product Benefits

- SQL Code Assist ensures 100% object name accuracy without the requirement to connect to a database, plus real-time SQL syntax validation.

- SQL Project Insight provides project-level SQL file cataloging and search features to streamline project organization and maintenance.

- The Migration Wizard imports data sources from Eclipse DTP (Data Tools Project) or Quest TOAD.

- Data Source Explorer enables you to navigate, search, extract DDL, execute commands, and browse an outline, without having to open the SQL file.

- Formatting Profiles ensure consistent, quality code layout for easy review and extension. Profiles can be customized and shared.

About This Evaluation Guide

This evaluation guide enables you to get started with PowerSQL.

Its purpose is to provide you with the foundation needed to fully utilize the features and benefits of the products, and apply them to your own enterprise. This guide contains information on how to get the application up and running, and how to browse data sources, and create, modify, and execute SQL code for the purpose of database development.

This guide is divided into five sections:

Session 1: Getting Started with PowerSQL

Session 2: Working with Data Source Explorer

Session 3: Working with SQL Code Assist

Session 4: Executing SQL Code

Session 5: Working with SQL Project Insight

Once you have started, you can select **Help** from the Menu Bar to find additional resources that complement and build upon the features and tasks presented in this guide.

Session 1: Getting Started with PowerSQL

Install PowerSQL

Launch the installation program via the Installer included in your software package and follow the instructions in the Wizard to complete it.

PowerSQL can be installed as a standalone application (RCP installation) or as an Eclipse plug-in (Plug-In installation).

- The RCP installation provides an enclosed application that runs PowerSQL in a contained framework.

- The Eclipse plug-in installation leverages Eclipse plug-in capabilities to run within the Eclipse framework. You must have a previously installed version of Eclipse on your machine prior to installing PowerSQL as a plug-in.
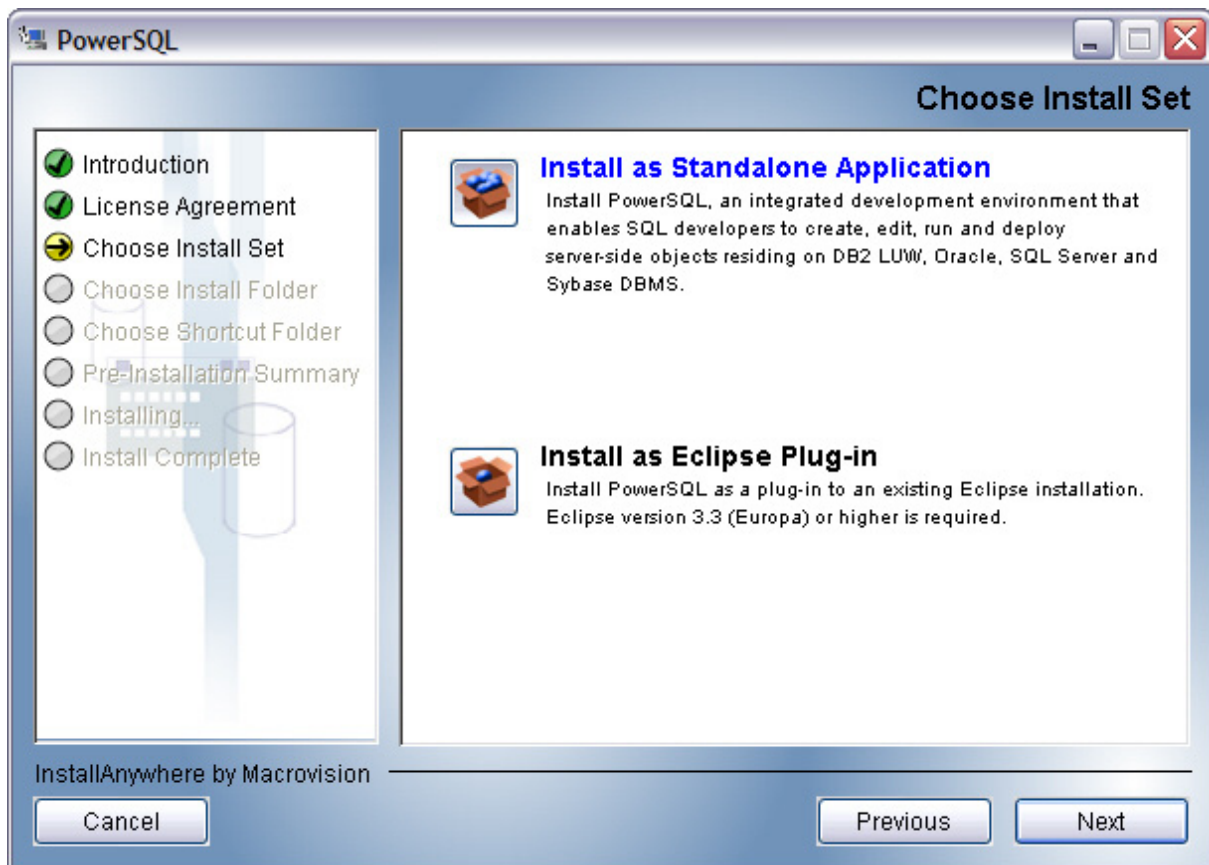
PowerSQL can be installed as a Standalone application or as a plug-in for an existing Eclipse installation.

Both the RCP and plug-in versions of PowerSQL provide full functionality.

You may be required to restart your machine to complete the installation of PowerSQL. It is also recommended that you copy the installer to the desktop of your machine prior to running the Installer.

Note: PowerSQL can be installed with a 14-day trial license, after which you must purchase a permanent license to continue using the product.

To start PowerSQL:

- From the Desktop, choose the Windows Start menu and then select **Programs > Embarcadero > PowerSQL > PowerSQL**.

User Interface Overview

The PowerSQL application environment is known as the **Workbench**. The Workbench provides an interface through which you create, manage, and execute SQL code.

The Workbench is composed of common interface elements that provide tools to accomplish the creation, management, and execution of SQL code. These objects provide a uniform system for working with jobs and data sources.
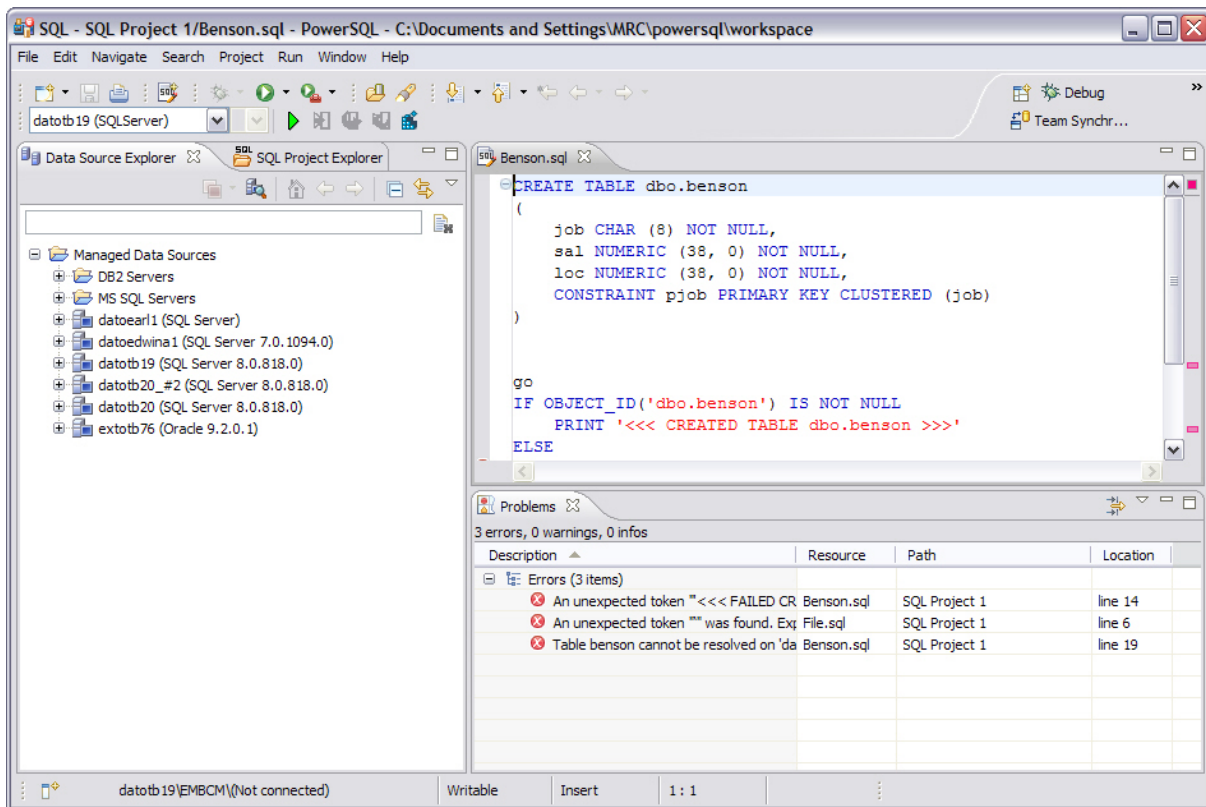
The Workbench provides an environment to define, manage, and execute SQL code.

- The **Welcome Page** is the first screen you will see when you initially launch the application. This screen provides links to documentation and other help files/tutorials to further familiarize you with the product. It provides easy access to information that may be of value to new users.
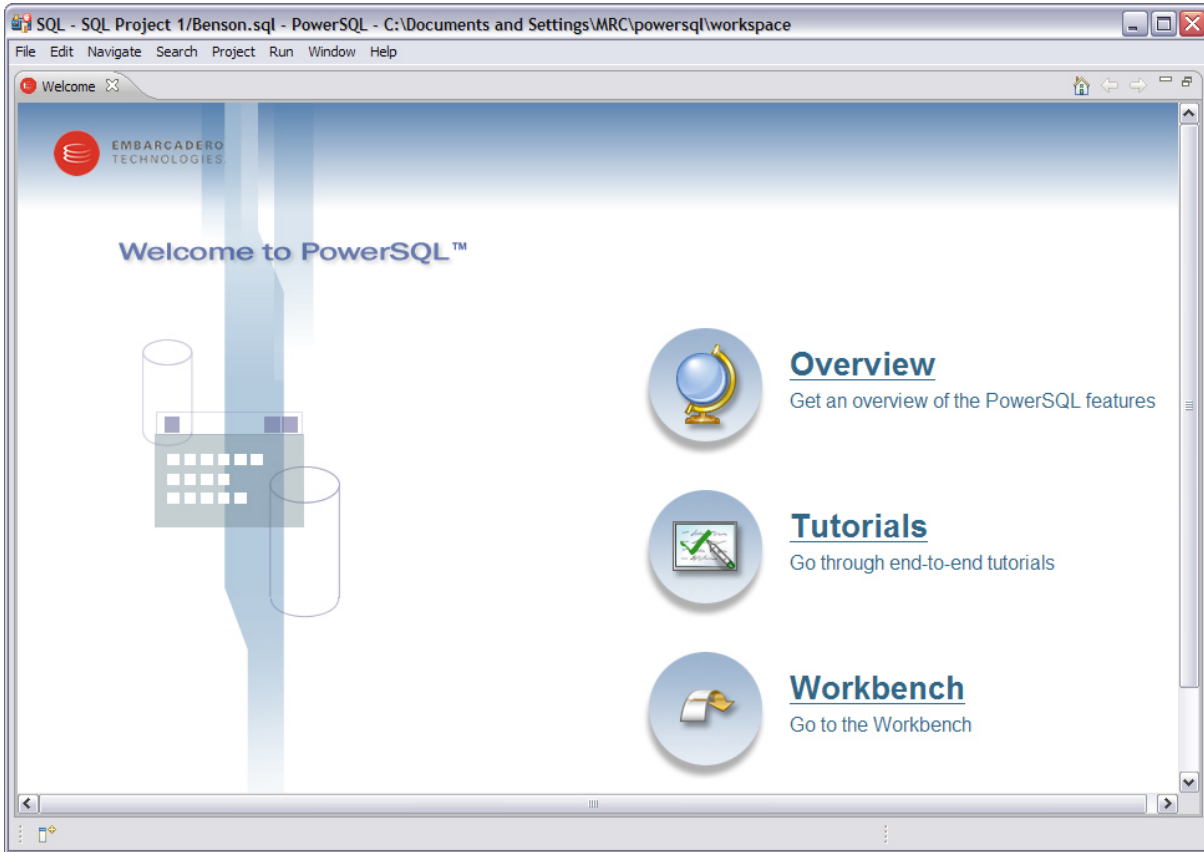

The Welcome page provides links to help tutorials and provides access to the application environment.

- The **Workbench Space** is composed of **Views**, **Editors**, and the **Menu Bar** and **Command Toolbar**. Views and Editors are interface components that enable you to define and execute SQL code, as well as manage resources.

- The **Menu Bar** and **Command Toolbar** contain commands that execute various functional aspects of the application such as launching Views and Editors, navigation commands, and environment preference settings. The Toolbar contains icons that represent specific menu commands. For example, the **Search** command can be launched via the **Search > Search** menu in the Menu Bar, and also via the **Search** icon in the Command Toolbar.

- **Views** are Workbench interface components typically used to navigate a hierarchy of information, open Editors, or display the properties of various application elements. For example, the **Data Source Explorer** view provides a tree of all data sources in the environment and the comparison jobs associated with each. You can launch these jobs directly from Data Source Explorer, modify the connection properties of data sources, or create and edit configuration archives from this View.

- **Editors** are Workbench interface components typically used to access PowerSQL functionality. For example, the **SQL Editor** provides a means to view, edit, and save SQL code. Editors are largely differentiated from Views in that they operate on an individual level rather than a supportive one.

Session 2: Working with Data Source Explorer

Data Source Explorer provides a tree view of all data sources registered in PowerSQL. In addition, it breaks down the components of each data source and categorizes databases and corresponding database objects by object type and underlying SQL code. This feature provides you with a view of the contents of data sources in your enterprise in an easily navigated and cataloged interface.
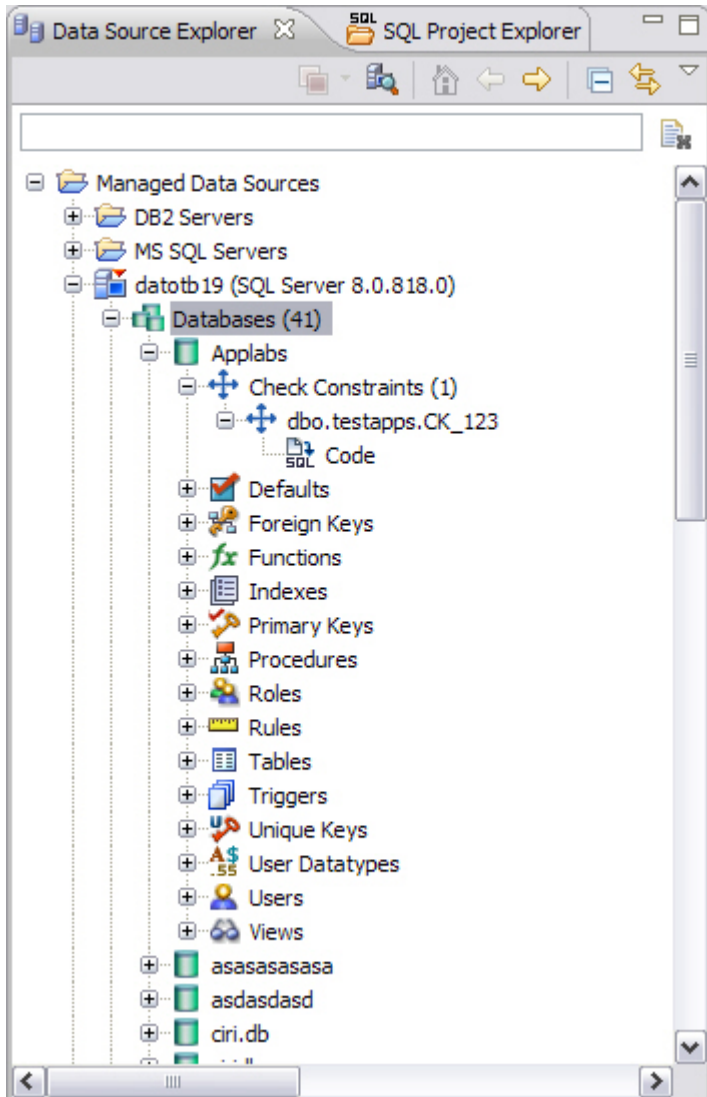

SQL Project Insight sorts databases and database objects by category within Data Source Explorer.

If data sources are particularly large or complex, or you are only developing specific objects, you can apply database object filters on the view in Data Source Explorer.

Adding Data Sources

In order to view and edit data source objects, you need to register data sources to be used as sources in the environment by providing connection information and other details to PowerSQL.

Data sources are registered and managed in **Data Source Explorer**. Each time you register a new data source you need to specify its connection information and organize it in the View, as needed. Once a data source has been registered, it remains stored in a catalog and does not need to be re-registered each time you open PowerSQL. It can be used in multiple jobs, archived, or otherwise "shared" with regards to the general functionality of the application.
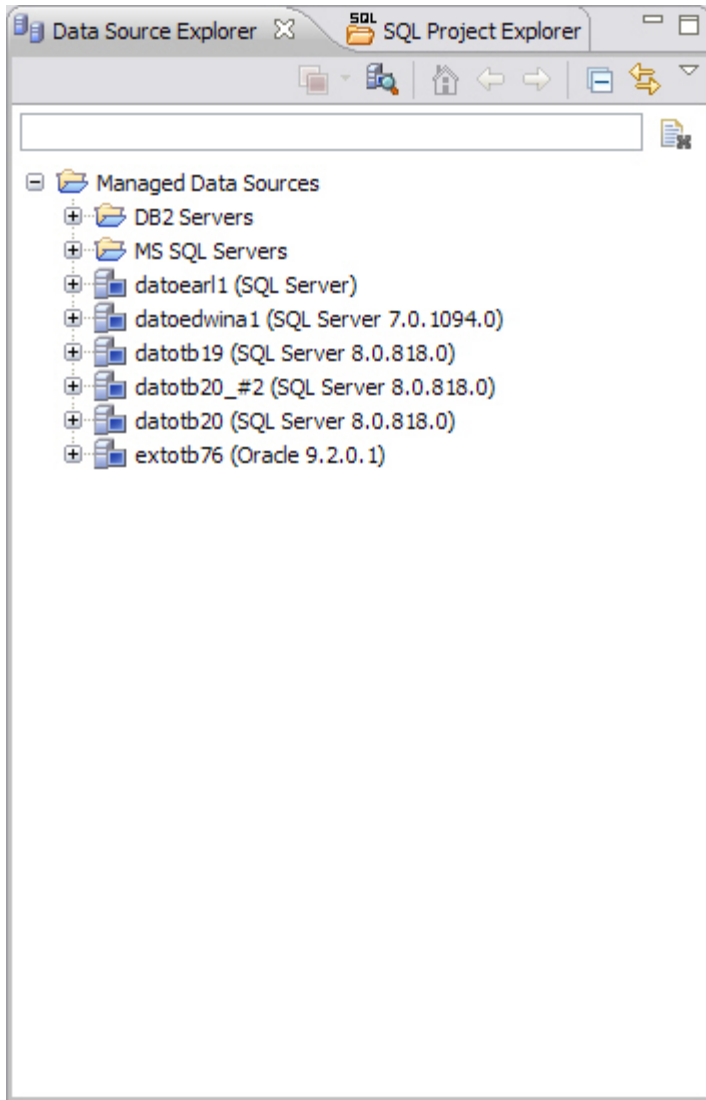
The Data Source Explorer View provides an organizational tree of registered data sources and the comparison jobs and archives associated with them.

To add a data source:

Highlight Data Source Explorer and choose **File > New > Data Source** from the Menu Bar. The Data Source Wizard appears.

Browsing Data Sources

In order to develop and maintain SQL code on data sources within your enterprise, you need to access database objects within the application environment. It is important to be able to view databases, database objects, and the underlying code in an organized manner, especially when maintaining a large system.

You use Data Source Explorer's tree structure to view and access databases, tables, and other objects on data sources, by expanding the nodes of each registered data source. When you create new SQL files, you can execute them on a specified data source, and these new objects automatically appear in the tree.
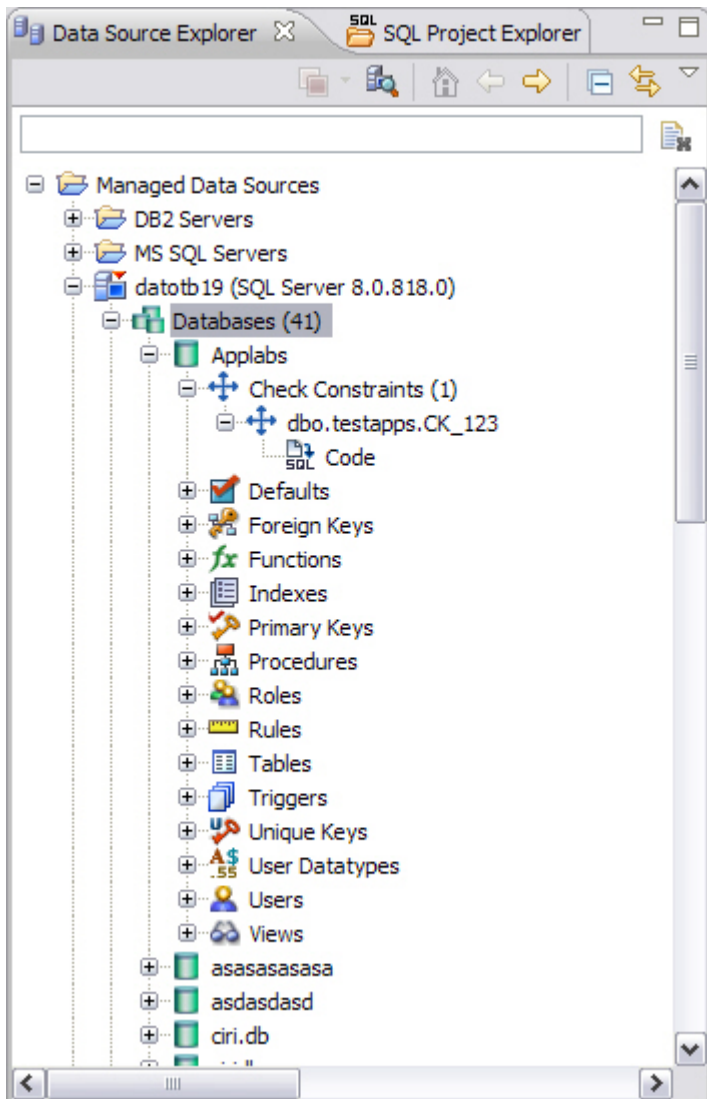
The Data Source Explorer tree provides a list of databases, database objects, and underlying code stored per individual registered data source.

All objects listed in Data Source Explorer are organized, in descending order, by data source, by database or login, by database object, by object type, by underlying SQL code. If you double-click an object, PowerSQL automatically extracts the code and places it in an editor.
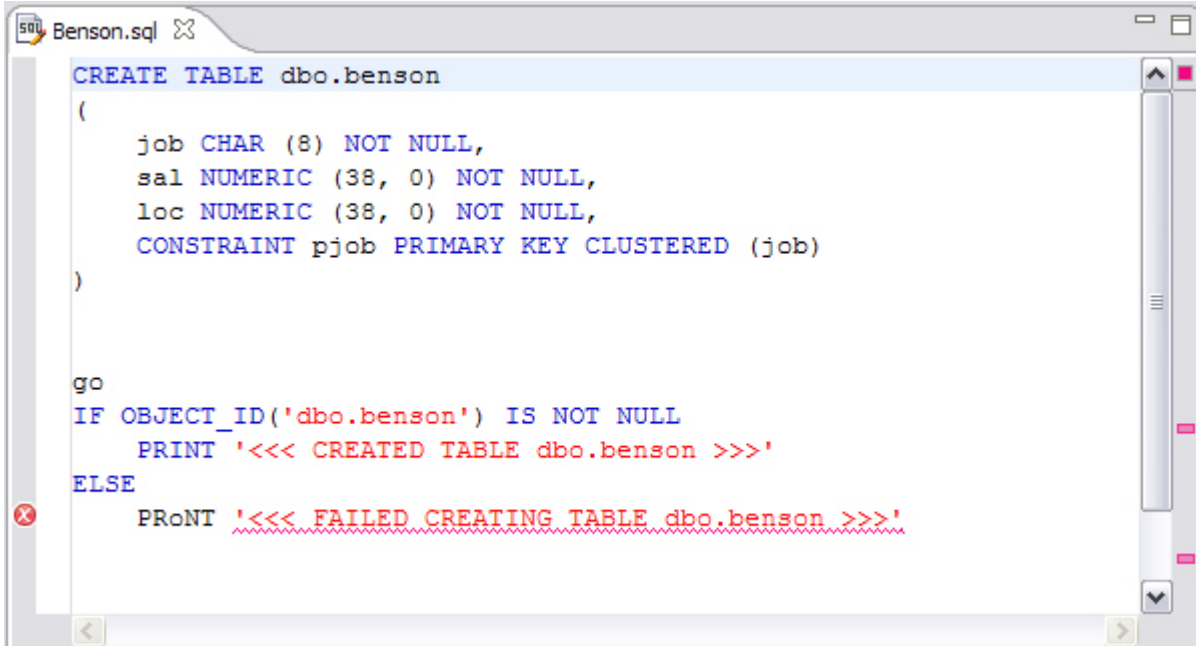
To browse a data source:

Expand the node of the data source whose databases, database objects and SQL code you want to view. If you want to view the code of a specified object, double-click the object to open the code in the editor.

Session 3: Working with SQL Code Assist

SQL Code Assist is an interface component that enables the development and formatting of SQL code for the purposes of creating and modifying database objects. It provides a front end application for the delivery of code through its object code extraction capabilities.

Code Assist provides a number of key features that assist in the coding process, ensuring greater accuracy in coding, faster development cycles, and a general increase in efficiency overall.

```
Benson.sql

    CREATE TABLE dbo.benson
    (
        job CHAR (8) NOT NULL,
        sal NUMERIC (38, 0) NOT NULL,
        loc NUMERIC (38, 0) NOT NULL,
        CONSTRAINT pjob PRIMARY KEY CLUSTERED (job)
    )


    go
    IF OBJECT_ID('dbo.benson') IS NOT NULL
        PRINT '<<< CREATED TABLE dbo.benson >>>'
    ELSE
        PRoNT '<<< FAILED CREATING TABLE dbo.benson >>>'
```

SQL Editor provides key features to ensure an increase in code accuracy and overall development efficiency.

The following key features are provided with SQL Code Assist:

- Code Extraction
- Code Highlighting
- Automatic Error Detection
- Code Complete
- Hyperlinks
- Code Formatting
- Code Folding
- Code Quality Checks

In order to access SQL Editor, you need to create a new file or edit existing code from Data Source Explorer.

Additionally, **SQL Project Explorer** provides a tree structure for all files created in PowerSQL. You can access files from here by double-clicking the file name you want to open as well.
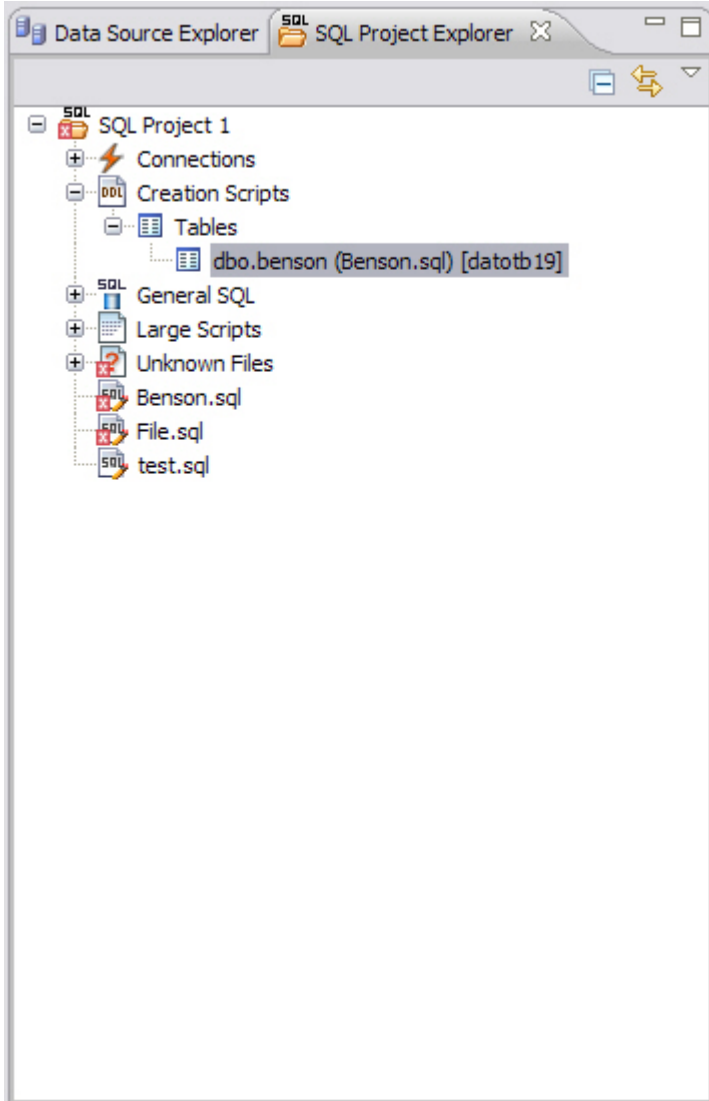
SQL Project Explorer provides a tree of all files developed and saved in PowerSQL.

To create a new file:

Choose **File > New > SQL File**.

A blank instance of SQL Editor appears in the Workbench. If you save this file, it is automatically added to the SQL Project Explorer.

To edit an existing file:

Use Data Source Explorer or Project Explorer to navigate to the code you want to modify and double-click it.

An instance of SQL Editor appears in the Workbench, populated with the extracted code of the specified object or SQL project file.

Code Extraction

SQL Editor provides the ability to extract the underlying SQL code of database objects registered in PowerSQL to provide a front end application for the development and modification of data sources in your enterprise.

To extract underlying SQL code:

- Navigate to a database object in **Data Source Explorer** and select **Extract** via the right-click menu.

  The object's underlying SQL code appears in SQL Editor and is ready for editing and further modification.
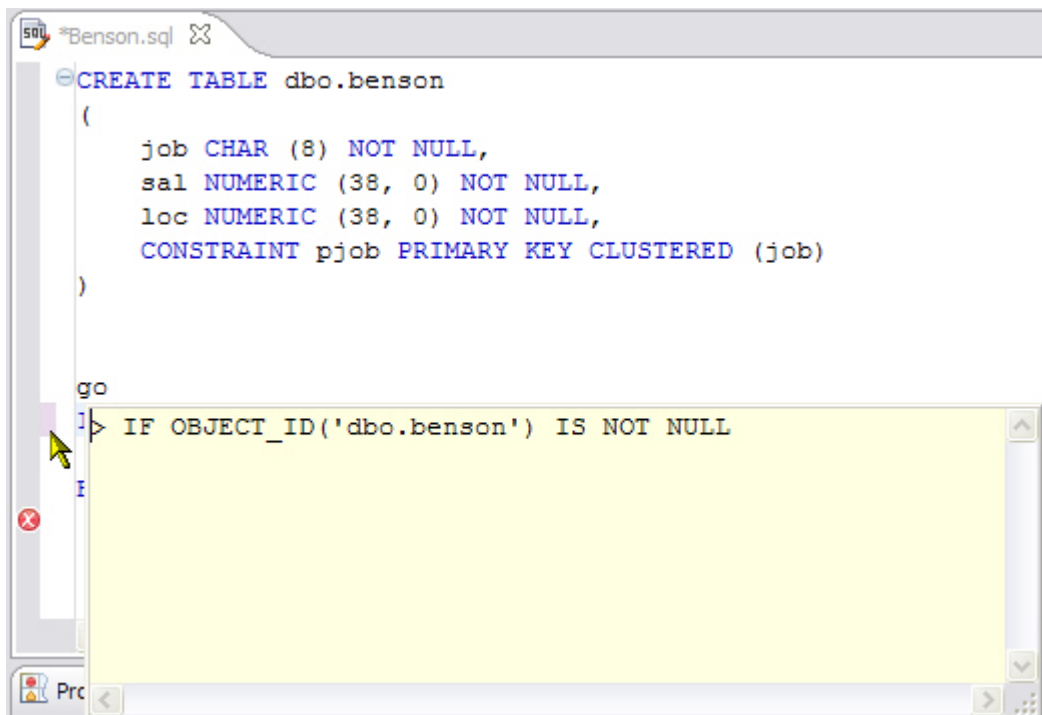
Code Highlighting

SQL Editor identifies commands and provides syntax highlighting changes that are automatically added to the code as you add lines, which enables you to clearly and quickly understand code when you read it in the interface.

The following syntax highlighting is automatically added to lines of code in SQL Editor:

Code	Formatting
Comments	Green italic font
SQL Commands	Dark blue font
Syntax Errors	Red underlined font
Coding Errors	Red font

- **Comments:** green italics
- **SQL Commands:** dark blue
- **Syntax Errors:** red underline
- **Coding Errors:** red

Additionally, SQL Editor provides a purple change bar in the left-hand column that indicates if a line of code has been modified from the original text. You can hover over this change bar to view the original code line. A red square icon in the right-hand column indicates that there are errors in the code line. You can hover over the icon to view the error count.

```
*Benson.sql
CREATE TABLE dbo.benson
(
    job CHAR (8) NOT NULL,
    sal NUMERIC (38, 0) NOT NULL,
    loc NUMERIC (38, 0) NOT NULL,
    CONSTRAINT pjob PRIMARY KEY CLUSTERED (job)
)


go
IF OBJECT_ID('dbo.benson') IS NOT NULL
```

The purple change bar indicates if a line of code has been changed from its original text. Hover your mouse over the change bar to view the original text.

Automatic Error Detection

The automatic error detection functionality of the editor highlights errors and typos in the code as you work in "real time".

Automatic error detection automatically identifies and analyzes SELECT, FROM, WHERE, GROUP BY, HAVING, and ORDER BY statements. If it detects any syntax errors while you type these statements, the line is automatically flagged by the error icon in the left-hand column of SQL Editor. You can hover your mouse over the icon to view any errors.
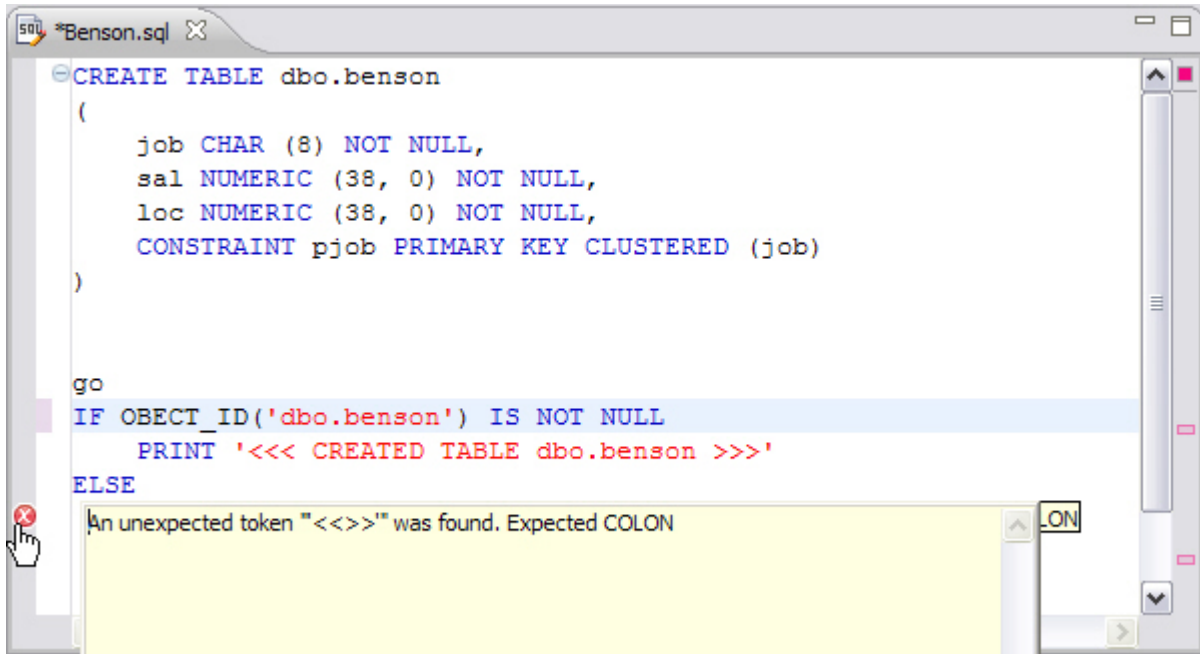
Syntax errors are automatically flagged by line as you work with code in SQL Editor. Hover the mouse over the error icon to view the specific error message.

Additionally, all semantic errors are recorded in the **Problems** view, an interface component that automatically logs errors and warnings as you work with files.
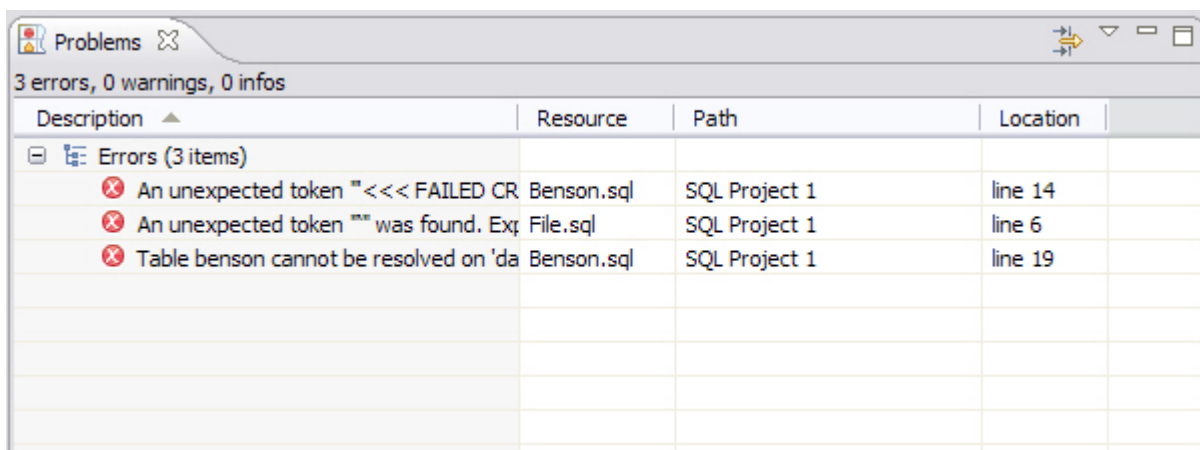
The Problems view logs errors and warnings as you work with files in SQL Editor.

You can double-click on a line in the Problems view and PowerSQL will automatically navigate you to that issue in SQL Editor.

Code Complete

SQL Editor provides suggestion capabilities for both DML statements and objects. It has the ability to look up object names in order to avoid errors when defining table names, columns, etc. in the development process.

This feature provides lists of object and code suggestions that will make the development process more efficient as you will not be forced to manually look up object names and other statement values.

SQL Editor provides code assist for SELECT, UPDATE, INSERT, and DELETE statements and object suggestion support for tables, alias tables, columns, alias columns, schemas, and catalogs.

To activate code assist:

1. Click the line on which you want to activate the code assist feature.

2. Press **CTRL + Spacebar** on your keyboard. Code assist analyzes the line and presents a list of suggestions as appropriate based on the elements of the statement.

Hyperlinks

Hyperlinks are used in SQL Editor to provide links to tables, columns, packages and other reference objects. When you select a hyperlinked object from a piece of code, a new editor opens and displays the source.

Additionally, hyperlinks can be used to link procedures or the function of a call statement, as well as function calls in DML statements.

To enable a hyperlink, hover your mouse over the object name and hold the **CTRL** key. It becomes underlined and changes color.

Code Formatting

Code formatting is automatically applied to a file as you develop it in SQL code. This enables you to set global formatting preferences one time, and then apply it to all code development, saving time and allowing for a more efficient code development process.

The code formatter can be accessed by selecting **CTRL + Shift + F** in the editor. All code is automatically formatted based on parameters specified on the **Code Formatter** node of the **Preferences** panel. (Select **Window > Preferences** in the Main Menu to access this panel.)
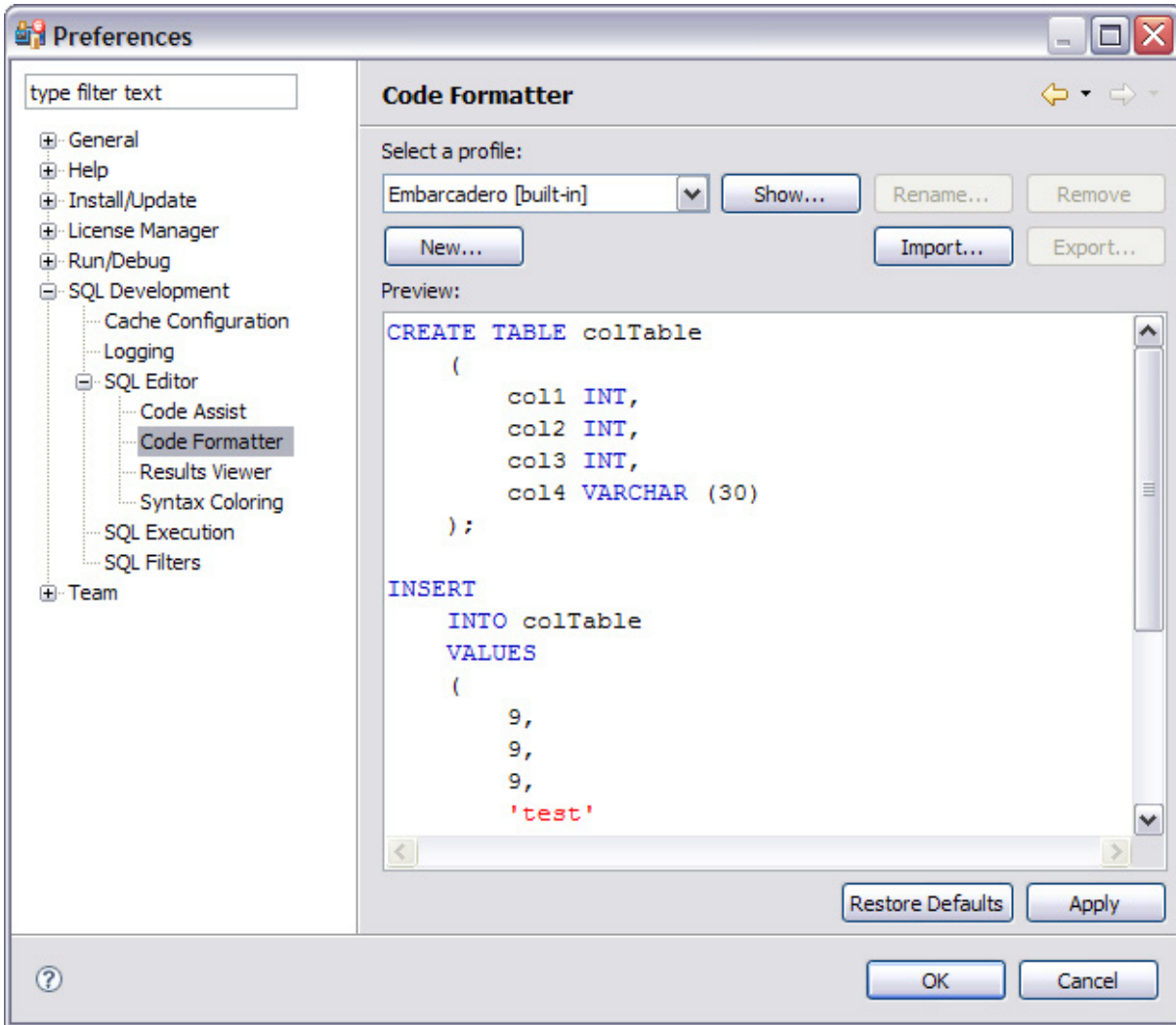
Code formatting parameters can be globally set and then applied to all development work in SQL Editor.

In addition to formatting code per individual file, you can also format an entire group of files from **Project Explorer**. Select the directory of files that you want to apply formatting to and execute the **Format** command from the right-click menu. The files will be automatically formatted based on the global preferences.

Code Folding

The code folding feature automatically sorts code into a tree-like outline structure in SQL Editor. This increases navigation and clarification capacities during the code development process. It ensures that the file will be easily understood should any future work be required on the code.

As you work in SQL Editor, collapsible nodes are automatically inserted into the appropriate lines of code. Statements can then be expanded or collapsed as needed, and this feature is especially useful when working on parts of particularly large or complicated files.

Code Quality Checks

On Oracle-based code, the code quality checking feature provides suggestions regarding improved code on a statement-by-statement basis. As you work in SQL editor, markers provides annotations that prevent and fix common mistakes in the code.

Notes regarding code quality suggestions appear in a window on any line of code where the editor detects an error, or otherwise detects that the code may not be as efficient as it might be. Code quality check annotations are activated by clicking the light bulb icon in the margin, or by selecting **Ctrl + I** on your keyboard.

The following common errors are detected by the code quality check function in the editor:

- Statement is missing valid JOIN criteria
- Invalid or missing outer join operator
- Transitivity issues
- Nested query in WHERE clause
- Wrong place for conditions in a HAVING clause
- Index suppressed by a function or an arithmetic operator
- Mismatched or incompatible column types
- Null column comparison

To activate code quality checks:

- Click the light bulb icon in the margin of the editor or select **Ctrl + I** on your keyboard.

  The editor suggestions appear in a window beneath the selected statement. When you click a suggested amendment, the affected code is automatically updated.

Session 4: Executing SQL Code

When you have finished developing or modifying code, you can then execute the file from within the PowerSQL environment, on the database of your choosing. This enables you to immediately execute code upon completion of its development. Alternatively, you can save files for execution at a later point in time.

In order to execute a file, you must first associate it with a target database. This is performed by using the drop down menus located in the **Toolbar**. When a SQL file is open in the Workbench, the menus are enabled. Select a data source and a corresponding database to associate the file with and then click the green arrow icon to execute the file.
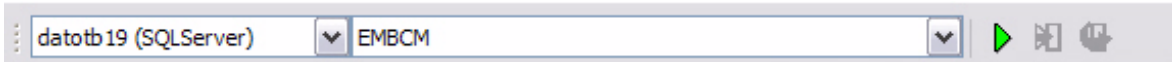
The pair of drop down menus indicate that the SQL file is associated with the dataotb19 data source and EMBCM database. When the green arrow icon on the right-hand side of the menus is selected, the file is executed on the specified data source and database.

Additionally, if you have turned off auto-committal in the **Preferences** panel (**Window > Preferences**) you can commit and execute transactions via the **Commit Transaction** and **Start Transaction** icons located beside the **Execute** icon.

To execute a file:

Open the file you want to run and ensure it is associated with the correct database, then click the **Execute** icon. PowerSQL executes the code on the database you specified.

To execute a transaction:

Open the transaction file you want to run and ensure it is associated with the correct database, then click the **Start Transaction** icon. PowerSQL executes the transaction on the database you specified.

To commit a transaction:

Open the transaction file you want to commit, ensure it is associated with the correct database, and click the **Commit Transaction** icon. PowerSQL commits the transaction on the database you specified.

Configuring SQL Execution Parameters

If you do not want to use the default execution options provided by PowerSQL, use the **SQL Session Options** dialog to modify the configuration parameters that determine how PowerSQL executes code. These options ensure that code is executed the way you want on a execution-per-execution basis, ensuring accuracy and flexibility when running new or modified code.
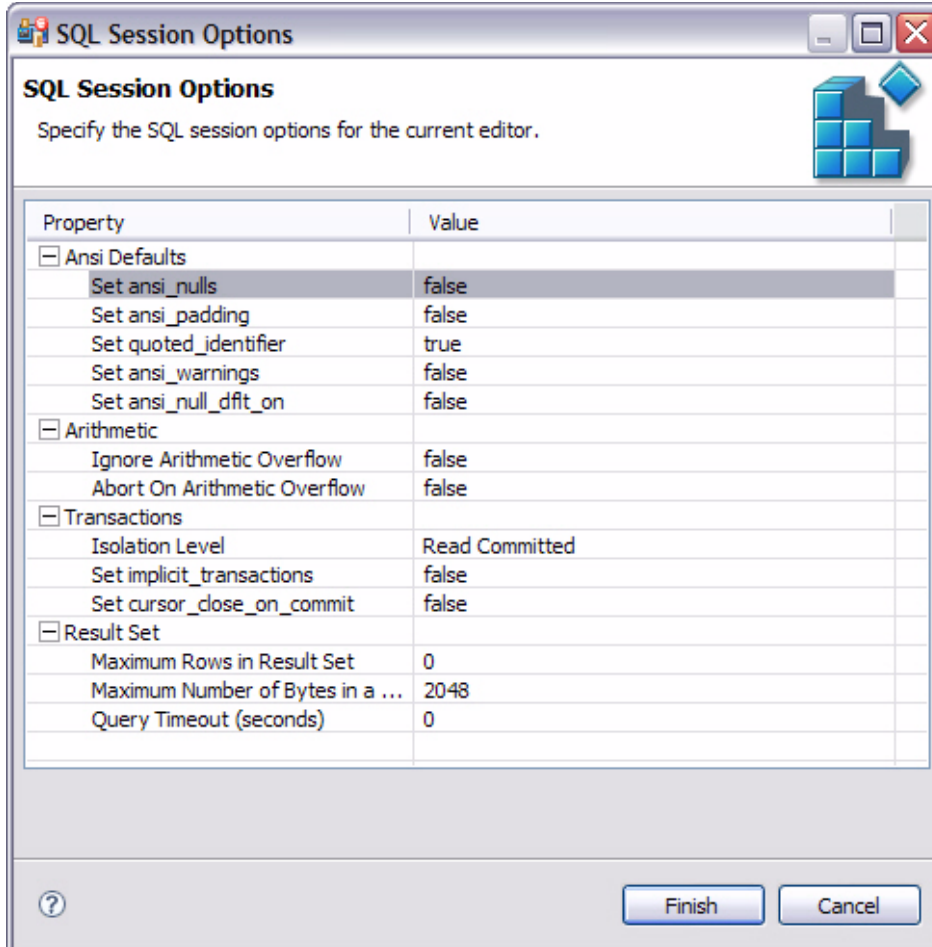
SQL Sessions Options provide you with the flexibility to adjust execution parameters on a session-by- session basis.

To modify SQL session options:

1. Click the SQL Session Options icon in the Toolbar. The **SQL Sessions Options** dialog appears.

2. Click on the individual parameters in the **Value** column to change the configuration of each property, as specified.

3. Click **Finish**. The session options are changed and PowerSQL executes the code as specified by your options.

Note: SQL Session Options are only applied to the currently-selected code, and are not retained across different files with regards to execution.

Session 5: Working with SQL Project Insight

SQL Project Explorer provides a tree view of all projects created in PowerSQL for the purpose of organizing and storing SQL development files. This provides a place to keep work in progress organized, as well as maintaining a common directory structure from which the development and execution of files can be implemented.
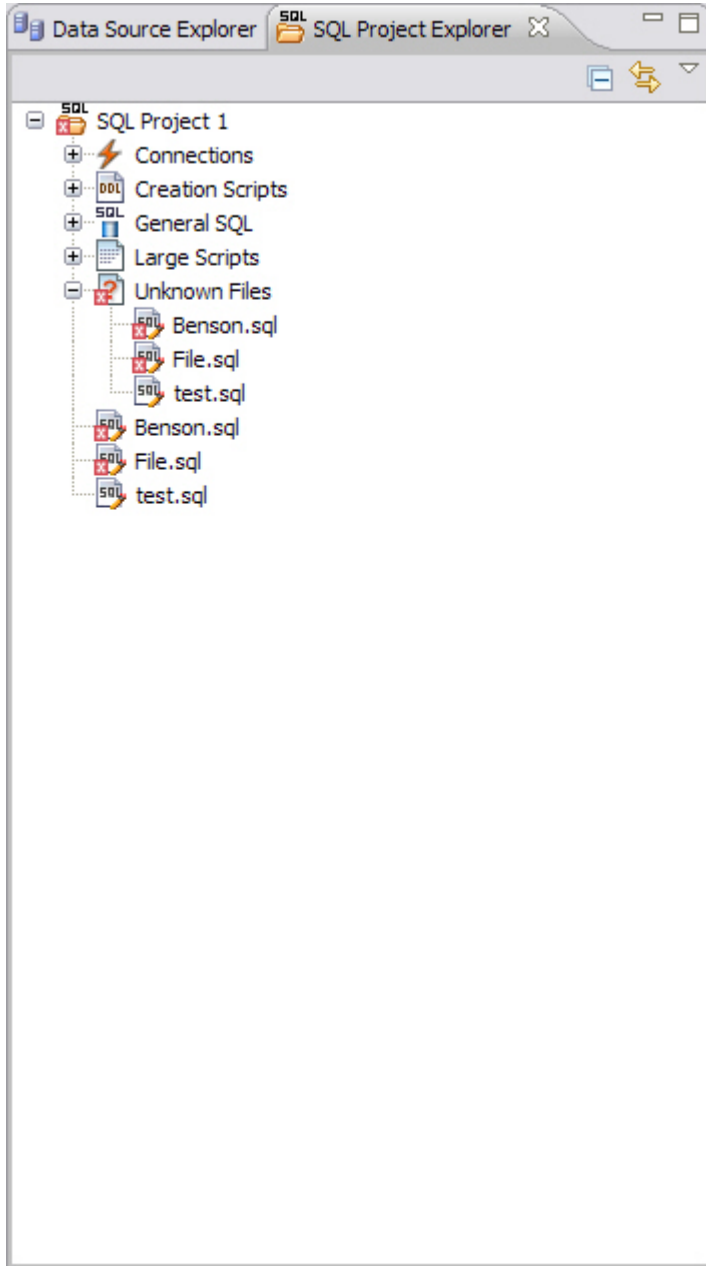
SQL Project Explorer provides a directory structure to organize and maintain SQL files.

When you save a file in SQL Editor, SQL Project Insight is able to determine the type of SQL file you created and automatically organizes it in the proper directory folder in SQL Project Explorer. Additionally, SQL Project Explorer contains a folder for all data source connections you have indicated when creating a file:

- **Connections** lists all data source connections of the files associated with the project.

- **Creation Scripts** contains DDL statements and statements that define database objects.

- **General SQL** is a category for all other SQL files not used in database object creation. This includes DML files, etc.

- **Large Scripts** contains all files larger than the currently indicated file size preference. This limit can be modified on the **Preferences** panel. (Select **Windows>Preferences** in the Menu Bar.)

Additionally, SQL Project Insight flags files that contain semantic or syntactic errors with a red X icon beside the name of the file in the tree. This enables you to quickly look through the files listed and find erroneous files without having to open each file in SQL Editor.

SQL Project Insight also features a code indexer that provides a preview look at code in each file. As with error detection, the indexer enables you to search through SQL files without having to open the files in the editor.

To create a new file:

1. Select **File > New > SQL Project** from the Main Menu.

   The **New Project Wizard** appears.

2. Enter the appropriate information in the fields provided by the wizard.

3. Click **Finish**.

   The new project icon appears in the **SQL Project Explorer** view under the name you specified. If you did not indicate a default location, the project appears in the appropriate directory when you open it in PowerSQL.

Once you have created and saved a file, it appears in the appropriate directory and node in **SQL Project Explorer**. If you specify a data source to which the file is associated, that data source name appears under the **Connections** node.

Additionally, the **Outline** view and **Quick Outline** function in SQL Editor displays the hierarchical structure of the SQL code. This provides easy navigation during the development process, especially for users who are not extremely familiar with SQL code.

The Quick Outline function displays the hierarchical structure of the code file currently on display in SQL Editor.

To open the Outline view:

- Select **Window > Show View > Outline** on the Menu Bar.

  The **Outline** view appears in the Workbench, displaying the hierarchy of the code open in SQL Editor.

To use Quick Outline:

- In SQL Editor, press **Ctrl + O**.

  The Quick Outline pane opens and displays a hierarchical view of the code open in SQL Editor.

Additional Evaluation Resources

Embarcadero Technologies Product Support

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

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

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

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

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