SQLEditor Manual

MalcolmHardie Solutions Ltd
Angus Hardie

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Chapter 1. About This Document

This is the SQLEditor manual.

Built using Docbook [http://www.docbook.org]

There is also a PDF Version available

Chapter 2. Introduction

SQLEditor For Mac OS X is a program to help you work with databases. Relational databases are the main type of database that SQLEditor supports, however other types can also be used.

SQLEditor allows you to create, import, view, edit and export database structures. You can use it to create diagrams of databases showing the logical layout of objects within the database. You can save images of databases to use on webpages or in documents. You can also import and view the structure of live databases via JDBC

This manual explains how to use SQLEditor for Mac OS X. It includes installation instructions, a guide to using SQLEditor, some reference section and some appendices giving additional information

Chapter 3. Requirements

General Requirements

- SQLEditor for Mac OS X requires Mac OS X 10.3.9 or better
- To use JDBC support you need a database with a JDBC driver

Java

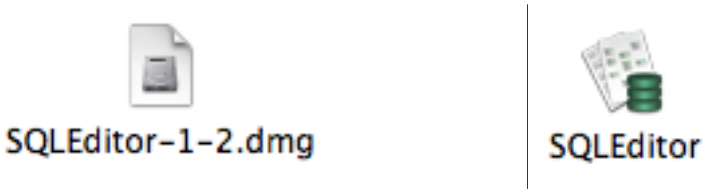
You are strongly recommended to install all Java updates that are available from Apple.

Mac OS X 10.2 (Jaguar)

SQLEditor does not support Mac OS X 10.2.8 after version 1.1.3.

Chapter 4. Installing SQLEditor

SQLEditor is distributed as a dmg disk image file.



1. Locate the disk image then double click it to mount it.
2. Drag the SQLEditor application to the Applications folder (or another location of your choice)

It is recomended that SQLEditor should be placed in the Applications folder (either System, User or Network).

Information on installing JDBC drivers is contained in the chapter on Database drivers. These should normally be installed in /Library/Java/Extensions/

Chapter 5. Getting Started

When you first load SQLEditor you will typically see an empty new document window, the inspector window and the object palette.

One of the first things to do when designing a database is to identify the tables you need and add them to the database.

There are usually several ways to do things in SQLEditor and you can use whichever seems easiest. To create a table you can click the add table toolbar button, drag the table icon from the palette or choose the add table item from the menu bar.

To add a to the table you need to click on the new table to select it. When you click on an object the Inspector panel will change to show details of the object. When you click on a table the Add Field menu item will become available and you add a field. You can also drag a field from the palette.

Chapter 6. Common Tasks

Add a table

1. choose Object -> Add Table

   The new table will be added to the canvas and the Inspector will display information about it.

2. Click on the Name field in the inspector and give the new table a name.

   You can also set other options at this stage

   ### Tip

   You can also drag a table object from the palette instead of using the menu.

Add a column to a table

1. Click on the table you want.

2. Choose Object # Add Field

   A new field will be added to the table representing the SQL table column. The Inspector will display information about the new column.

3. In the Inspector click on the name field and give the new column a name.

   ### Tip

   You can also drag a field object from the palette to the table or use the add field button in the table inspector

Add a comment to the document

1. Choose Object # add comment

2. In the inspector click on the comment input field to enter the text of the comment.

Export to SQL DDL Schema Text File

SQLEditor can export your database design to SQL Data description language / Schema Text in a number of different formats. You should select the export dialect of SQL that most closely matches the database system that you are using.

1. Identify the database system that you are using.

   For example MySQL, Postgres

2. Choose File # Export As SQL

3. Using the popup menu select the export dialect that you wish to use

   ### Tip

   If you have previously choosen a dialect for your document this may be selected automatically, however you can always change it if you wish

4. Choose a name for the export file
5. Click the Save button

Export selected objects

If you just want to export a few objects at a time you can use copy and paste.

1. Select the objects you want to export
2. Choose Edit # Copy
3. Paste the objects into another application

   If the other application accepts text then you should get the SQL representation of the object as text. If the other application supports SQLEditor object format then you will get a representation of the objects.

   ### Note

   The SQLEditor document's dialect is used when exporting objects in this way, you cannot change the dialect during the copying process.

Change export SQL dialect

The document dialect is the default dialect of SQL that is used when SQLEditor exports SQL code.

The document dialect is specific to each document and can be changed at any time using the following procedure.

1. Click the Export Tab
2. Choose File # Document Options
3. Use the Target For SQL popup menu to choose the dialect
4. Click the OK button to close the window

You can also change other SQL Export settings in this window.

Import SQL database description from a text file

To import SQL from a file use the following procedure.

1. Choose File # Import from File …
2. Choose the file you want to import
3. Click the Import button

   SQLEditor will attempt to import the file that you select. The Import Status window will appear giving details of any errors that may occur during import.

Chapter 7. Database Design Theory

Database Design

Designing a database can be a difficult thing to do well. There are pitfalls to catch out the unwary and performance or maintence problems can easily occur.

SQLEditor can't design your database for you, it takes judgement and thought to design a database well, which means that a human being is a better bet than a computer. However what SQLEditor can do is help you to design a better database.

SQLEditor shows a graphical view of your database. Each table is represented visually as a block containing fields such as table columns, indexes or other options. Connections between tables are indicated by lines which may have symbols or names attached to them.

What is a relational database?

A relational database is a database that is structured according to the relational model. This means that it follows certain rules and typically contains information ordered into tables which contain rows which in turn contain columns. By linking rows in one table to rows in another table different views of the data can be created.

Chapter 8. Reference

Description

SQLEditor is a standard multi-document Cocoa application. It has multiple document windows, an inspector window and some floating palettes.

This section of the manual describes each of the key parts of SQLEditor and explains how to use them.

The document window

The document window is the main window which contains the database structure. The database structure is drawn inside a scrollable area called the canvas. It can be scrolled using the scroll bars at the right and bottom. You can also scroll by holding down the Option key and draggig the canvas around

You can have more than one document window open at once. To switch between different windows either click on the window you want or use the window menu to choose a different window.

To select an object click on it. To move an object drag the title bar of the object.

The Inspector Window

The inspector window is initally positioned to the right of the document window. If an object is selected then the inspector will show details of the selected object. Any changes made will be immediately reflected in the object

The inspector can only inspect one object at a time. Selecting multiple objects causes the inspector to show Multiple Selection

The object palette

The object palette contains simple template objects that can be dragged to the document window.

Typically there are object templates for the three basic object types (tables, comments and fields/columns). To use a template object simply drag it to the document window's canvas. When this happens a new object will be created as close to the template as possible. The object name may be slightly altered depending on the objects currently in the document. Two objects in a document cannot have the same name, so SQLEditor will slightly rename the second object (usually be appending a number to the name). A warning triangle will appear next to the name in the inspector immediately after it has been changed.

For example, if there are two tables in the document, table1 and table2

And we change the name of the second table to table1

As soon as we hit return or leave the table name text box then the name will be altered and the warning triangle will appear.

Types of Object

SQLEditor supports a number of different types of objects. Additional object types may appear in future versions

Tables

The table object represents a table in a database. Tables can have various properties that can be edited using the inspector or by direct editing

Tables can be assigned to a category, which may be identified by a color.

To edit a table (or any object) using direct editing hit the return key. With tables the title can be edited directly

Fields

Fields in sqleditor represent columns within database tables. Fields have properties that can be edited using the inspector. They can also be moved between tables by dragging. Fields are always contained within tables except when being moved.

Fields support direct editing of the field name. Plus you can use the t key to set the field type. Comments

Comment objects are used to provide non structural information about a database. Information in comment objects will not normally be used by a database system, instead this information is for the benefit of human users

One variation on this is that comment objects can be used to define areas of the structure representing subsets of the complete structure. These subsets are not reflected in the database itself but may be useful for layout purposes or to indicate blocks of functionality. Use the Make Canvas Area button in the comment inspector to move it behind other objects for this purpose. Note that this button will lock the position so you can either set the size first, or use the button then unlock to resize before finally locking it again.

Connectors

Connector objects represent foreign key links between fields and tables

Clicking on a connector will cause the Inspector window to show the connector inspector panel which offers options for cardinality, information about source and destination fields and a button to delete the connector

Inspecting Objects

The inspector window will show an inspector panel for the currently selected object. This inspector panel is different for each kind of object and offers options and setting specific to that object.

Objects other than fields can be locked into position on the canvas by using the Position Locked in the inspector

Adding objects

There are several methods of adding objects to a database structure. The objects can dragged from the objects palette, the objects menu can be used to create the object or for fields a button within the parent table’s inspector. It is also possible to use a popup menu or copy and paste objects or sql script into the document.

Editing Objects

Objects can be selected by clicking on them. Note that selecting a field will also select the parent table.

When an table or comment object is selected then control handles will appear on all sides of the object. These control handles can be used to resize the object. To move the object the title bar can be dragged or the cursor keys used. Holding down shift causes the cursor key movement to be faster. Example Selected Objects

Field objects do not have control handles, but a drag handle appears when a field is selected. This drag handle can be used to move or copy a field from one table to another.To copy a field while dragging hold down the Option key while dragging. A selected field

Deleting objects

To delete an object select it and then choose edit#delete or hit the delete key

Copy and paste

You can use copy and paste on table and comment objects. If you copy an object and switch to another application then SQL code will be placed on the clipboard. This is a quick way to export table structures.

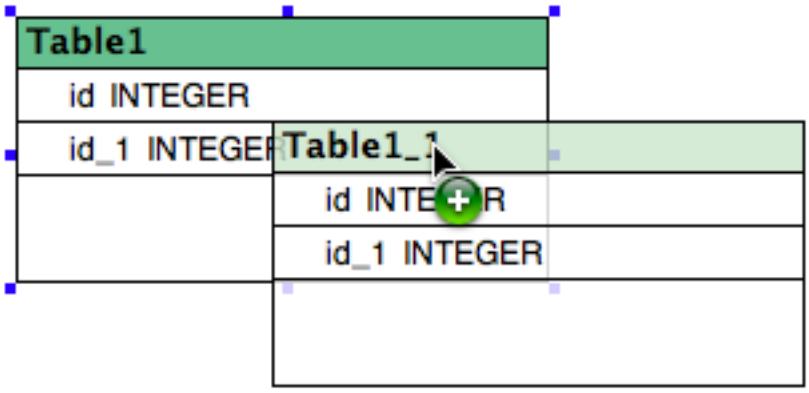
If you have sql code in another application you can paste it into SQLEditor and it will be imported into the current structure using the SQL importer

Dragging and Drop

Most objects in SQLEditor support dragging. Inside the canvas you can move objects by dragging.

If you hold down the option (alt) key then you can create a copy, or drag an object into another application or a different window.

You can use the objects palette to create new objects on the canvas by dragging the icon representing the object.



Foreign keys

Foreign keys are created by dragging from one field to another field. You must ensure that you do not start the drag within the drag handle area of the field. When the drag is complete release the mouse button and a foreign key link will be added.

Important

Not all databases support foreign keys and some only offer limited support. For example: MySQL requires that you use the INNODB table type if you want foreign key support.

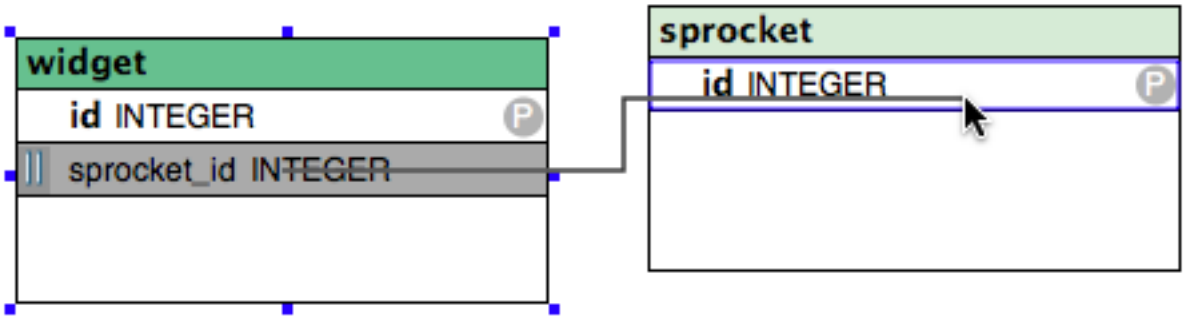
Foreign key links can be configured to draw in several different styles. See the section called “Preferences” for more details

Important

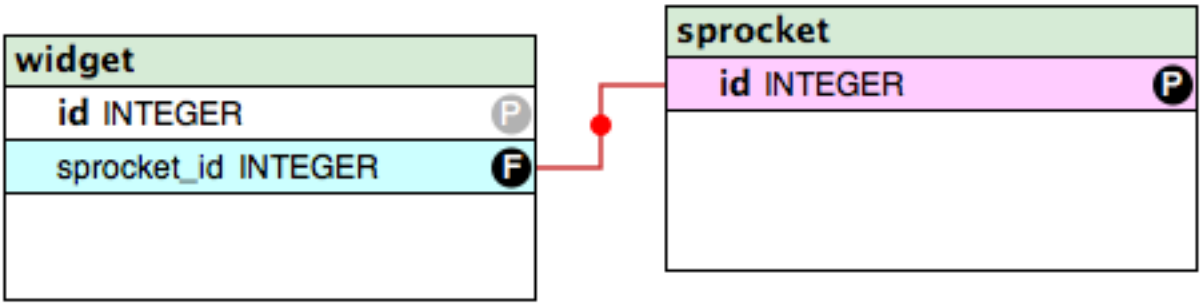
Note that if you create a foreign key relation, the referenced field must be a unique or primary key. SQLEditor will automatically set the field to be unique if necessary.

Example

In this example we want to create a foreign key on the widget table that references the primary key of the sprocket table.



Drag from a field on the widget table to the primary key of the sprocket table.

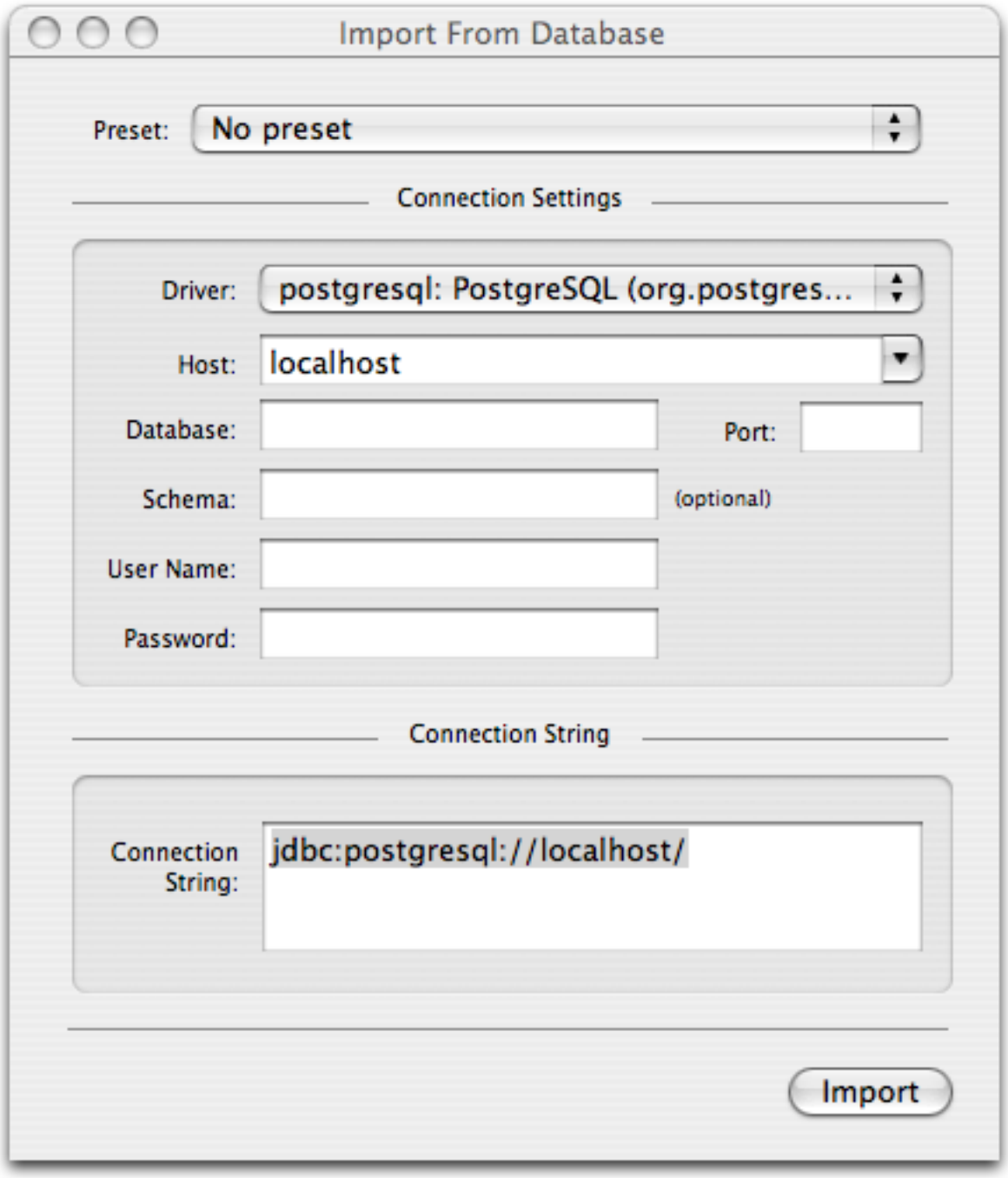


The new foreign key relation

JDBC Import

With the JDBC Import functionality you can import the design of an existing database.

1. To import a design choose File#Import From Database …



1. Enter the details of the connection and click import.

   The connection preset popup menu at the top of the window allows you to save connection settings

Saving connection settings

1. First enter all of the details required.
2. Select new connection from the preset popup menu.
3. Enter a name for the new connection

Using a preset connection

To use a preset connection simply select it from the popup menu. The settings will be loaded into the window.

Important

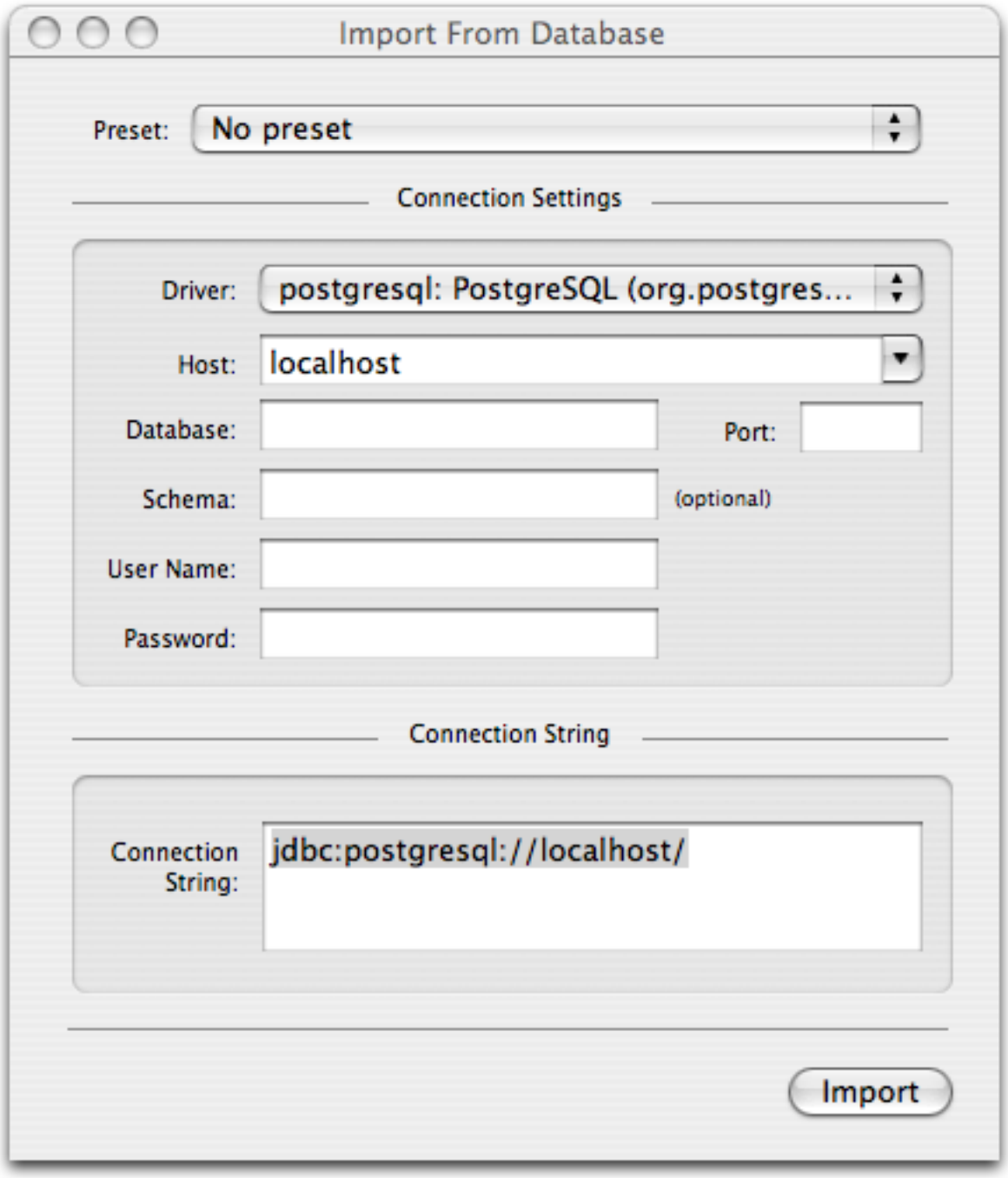
This will delete any settings currently in the import window.

See ??? for more information on JDBC drivers.

JDBC Export

With SQLEditor version 1.1 and later you can now export a database structure directly via JDBC. The procedure is identical to importing.

1. To export a design choose File#Export#Export to JDBC



1. Enter the details of the connection and click import.

   As with JDBC import you can use connection presets to store connection details

Chapter 9. Database Support

Updates and additional information

This appendix contains database specific information on how to connect SQLEditor to various database systems.

Please note that the information in this section may become outdated very quickly.

Please visit the SQLEditor Website [http://www.malcolmhardie.com/sqleditor/cocoa] for updates and additional information.

MySQL

MySQL is a popular open source database often used in web applications.

Choosing a driver

- The connector/J [http://www.mysql.com/products/connector/j/] product from MySQL.com is probably the best for most uses.
- If you want a driver that is licensed under different terms (LGPL) then there is also the older MM driver [http://mmmysql.sourceforge.net/].

  Note: this driver is no longer supported by its developers.

  You can if you wish install both drivers however it is recommended to install only one driver for each database/sub-protocol

Installing the MySQL JDBC Driver

1. Quit SQLEditor if it is currently running
2. Download and unpack the driver archive using stuffit or similar
3. Locate the file mysql-connector-java-3.1.8-bin.jar. [IMAGE mysql file]
4. Copy the file mysql-connector-java-3.1.8-bin.jar to the directory /Library/Java/Extensions/
5. Start SQLEditor
6. Show the preferences window using SQLEditor#Preferences and select the database tab. Then enter the values as follows:

Value	**MySQL Connector/J**	**MM driver**
Driver Name	MySQL	MySQL
classpath	com.mysql.jdbc.Driver	org.gjt.mm.mysql.Driver
subprotocol	mysql	mysql

1. Click the add button

Importing a database structure from MySQL

1. Choose File#Import From Database

2. Select the mysql database driver in the popup menu. Then enter the details of the connection into the fields.

   In this example picture we are loading the database test using a database server running on the local machine with a username of test and a password of test. All other options should be left empty. The connection string will auto-complete with the suggested database url. Unless it looks wrong you should probably use the suggested database url.

Value	Setting	
Hostname	localhost	the name of the machine that the database is running on (Use localhost if the database is on the same machine)
Database	test	The name of the database to connect to
Username	username	The username that you wish to connect using
Password	pass	The password to use (optional)

1. Click the import button and after a few moments the database structure will appear in new window

PostgreSQL

PostgreSQL [http://www.postgresql.org/] is a popular open source database that offers features not found in some other databases. The PostgreSQL JDBC Driver

- The PostgreSQL JDBC Driver [http://jdbc.postgresql.org/] is part of the postgres project and is recommended

Installing the PostgreSQL JDBC Driver

1. Quit SQLEditor if it is currently running
2. Download and unpack the driver archive using stuffit or similar
3. Locate the file postgresql.jar. [IMAGE postgres file]
4. Copy the file postgresql.jar to the directory /Library/Java/Extensions/
5. You may need to enable TCP/IP connection support in PostgreSQL if this is not already enabled.
6. Start SQLEditor
7. Show the preferences window using SQLEditor#Preferences and select the database tab. Then enter the values as follows:

Value	PostgreSQL JDBC Driver
Driver Name	PostgreSQL
classpath	org.postgresql.Driver
subprotocol	postgresql

- Click the add button

Importing a database structure from PostgreSQL

1. Choose File#Import From Database

2. Select the PostgreSQL database driver in the popup menu. Then enter the details of the connection into the fields.

   In this example picture we are loading the database test using a database server running on the local machine with a username of test and a password of test. All other options should be left empty. The connection string will auto-complete with the suggested database url. Unless it looks wrong you should probably use the suggested database url.

Value	Setting	
Hostname	localhost	the name of the machine that the database is running on (Use localhost if the database is on the same machine)
Database	test	The name of the database to connect to
Username	username	The username that you wish to connect using
Password	pass	The password to use (optional)

- Click the import button and after a few moments the database structure will appear in new window

Oracle

Oracle [http://www.oracle.com] is a widely used commercial database. These instructions are based on testing using Oracle 10g running on Mac OS X. But other platforms should be indentical and other versions should be similar.

This also assumes that Oracle is correctly configured to accept connections from JDBC applications. Configuring Oracle is outside the scope of this document

It also assumes Java 1.4 or better. You are strongly recommended to use SQLEditor with Java 1.4 or better.

Note that for best oracle support you should use version 1.0.2 of SQLEditor. This version includes an extra field to allow selection of schema within a database. If a schema is not specified then all of the tables within the database will be selected. This is not normally what is wanted

Oracle support is still being improved. Please submit reports of problems to support@malcolmhardie.com [mailto:support@malcolmhardie.com]

The Oracle JDBC Driver

- The Oracle JDBC Driver [http://www.oracle.com/technology/software/tech/java/sqlj_jdbc/index.html] is available for download from Oracle.

Installing the Oracle JDBC Driver

1. Quit SQLEditor if it is currently running
2. Download and unpack the driver archive using stuffit or similar
3. Locate the files ojdbc14.jar and nls_charset12.jar. [IMAGE oracle files]
4. Copy the files ojdbc14.jar and nls_charset12.jar to the directory /Library/Java/Extensions/
5. Start SQLEditor

6. Show the preferences window using SQLEditor#Preferences and select the database tab. Then enter the values as follows:

Value	**Oracle JDBC Driver**
Driver Name	Oracle
classpath	oracle.jdbc.driver.OracleDriver [OracleDriver.xml]
subprotocol	oracle:thin

1. Click the add button

Importing a database structure from Oracle

1. Choose File#Import From Database

2. Select the Oracle database driver in the popup menu. Then enter the details of the connection into the fields.

   In this example picture we are loading the database test using a database server running on the local machine with a username of test and a password of test. We have also specified a schema of TEST. The connection string will auto-complete with the suggested database url. Unless it looks wrong you should probably use the suggested database url.

Value	**Setting**	
Hostname	localhost	the name of the machine that the database is running on (Use localhost if the database is on the same machine)
Database	test	The name of the database to connect to, ‘test’ is an example
Schema	TEST	The name of the database schema to access (or leave empty to get all tables), ‘TEST’ is an example
Username	username	The username that you wish to connect using
Password	pass	The password to use (optional)

1. Click the import button and after a few moments the database structure will appear in new window

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