Mogwai ERDesigner NG

User Documentation

About Mogwai ERDesigner NG

The Mogwai ERDesigner NG is an entity relation modelling tool such as ERWin and co. The only difference is that it is Open Source and does not cost anything. It was designed to make database modelling as easy as it can be and to support the developer in the whole development process, from database design to schema and code generation. This tool was also designed to support a flexible plug in architecture, to extend the system simply by installing a new plug in. This way, everybody can implement new features and tools to make ERDesigner NG fit the requirements.

Mogwai ERDesigner NG has the following key features:

- is based on Java and therefore can run on Windows, Linux / Unix and MacOS
- has a powerful WYSIWYG editor for database schemas
- handles Tables, Indexes and Relations
- supports Subject Areas
- supports MySQL, MSSQL, Oracle and Postgres using JDBC
- generates SQL DDL scripts for schema generation
- has an integrated version control system
- generates migration scripts for schema changes
- stores it's model as XML files
- has an integrated reverse engineering module
- exports diagrams as GIF, PNG, JPEG and SVG files
- is based on GPL license
- has a good support by newsgroups and authors
- does not cost anything
- localisation is available in English and German

Mogwai ERDesigner NG is based on Mogwai ERDesigner. The core SQL API and the visual database editor were completely redesigned, bug fixed and enhanced to build the new Mogwai ERDesigner NG.

Support

Support is available using the project homepage and also using the provided task tracker from the SourceForge.net project site. Please submit help / feature requests or bugs to these trackers or to the project mailing lists also available using the website. Feel free to directly consult the project members for technical support and questions.

Since ERDesigner NG is Open Source, the project lives from user feedback, so annotations, questions and remarks are very welcome!

Project homepage:	http://mogwai.sourceforge.net
SF Project page:	http://sourceforge.net/projects/mogwai
Mailing list:	mogwaiusers@lists.sourceforge.net

Download and installation

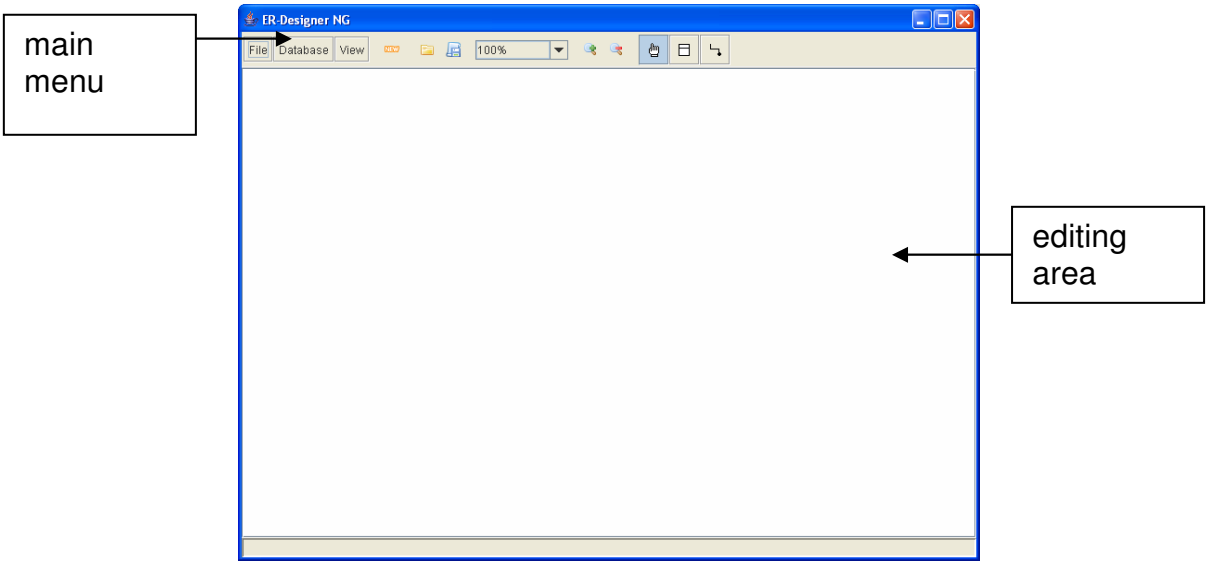
Download and installation is quite easy. Please consult the Sourceforge.net project homepage and select downloads. There, you will find the distribution package of Mogwai ERDesigner NG. You will find one version for Linux/Unix operating systems in tar.gz format, and one version for Windows operating systems in .zip format.

After downloading the distribution for your operating system, you have to extract it to your hard disc. After extraction, you will find a new directory named mogwai-erdesignerng. The current version number is also added to the directory name. In this directory, you will find the following files:

run.bat	Use this to start Mogwai ERDesigner NG on Windows systems
run.sh	Use this to start Mogwai ERDesigner NG on Unix systems

ERDesigner NG main screen

One you have started Mogwai ERDesigner NG, you will see a splash screen informing you that ERDesigner is loading. After this short loading process, you will see the ERDesigner NG main screen:



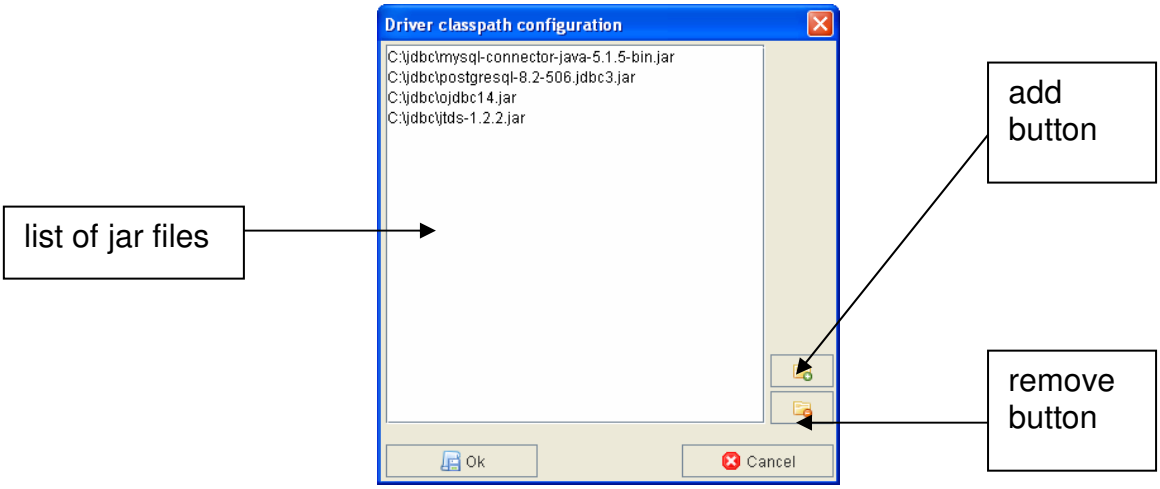
Heart of ERDesigner NG is the main menu. It provides the core functionalities to the user. The layout is as follows:

The functionalities are from left to right:

File menu	All functions related to saving, loading, creation and export of models
Database menu	All functions related to database connection and SQL generation
View menu	All functions related to zooming and graph layout
New button	Shortcut for creating a new model
Load button	Shortcut for loading a model
Save button	Shortcut for saving a model
Zoom box	Shortcut for setting the current zoom level
Zoom in button	Button for zooming in
Zoom out button	Button for zooming out
Hand button	Selection tool
Entity button	Editing tool for entities
Relation button	Editing tool for relations

Classpath configuration for JDBC drivers

Before you can use ERDesigner NG, you have to setup the JDBC driver classpath. ERDesigner NG does not come with included JDBC drivers, due to license issues. You need to say ERDesigner where to find the JDBC drivers. You do so by selecting Database -> Classpath from the main menu. The JDBC classpath editor dialog will be displayed:

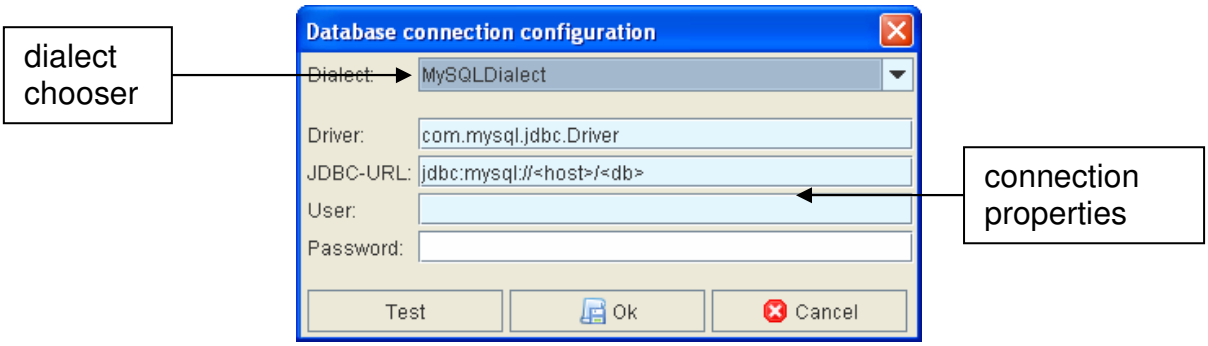


Using this dialog, you can add. jar files to the classpath or remove them from the classpath. You add a file to the classpath by clicking the add button. You can remove a file from the classpath by selecting the file and clicking the remove button.

Creating the first database model

After you have setup the JDBC classpath configuration, you can start to create your first ERDesigner model. Please select File -> New Model from the main menu. This will create an empty model.

Now, select Database -> DB Connection. The database connection editor dialog will be displayed:



ERDesigner NG supports a rich set of different database types. These types are distinguished by their dialect. For every database, a special dialect exists. This dialect helps ERDesigner NG to create the right SQL statements for the right database, as every database vendor interprets the SQL standard differently.

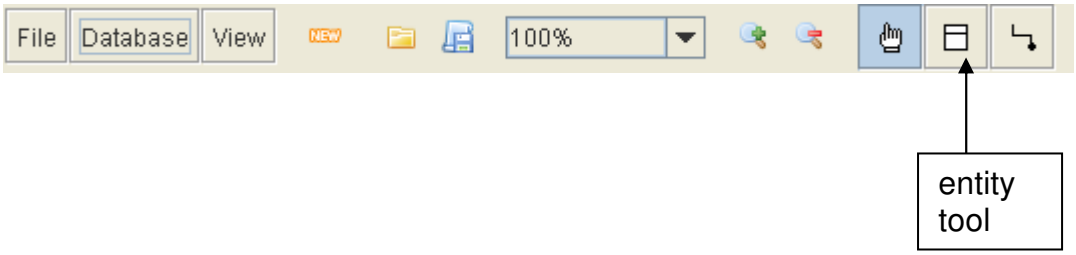
Please enter the database connection properties. When you are ready, you can test the connection settings by clicking the “Test” button. ERDesigner NG will try to create a database connection. If something goes wrong, an error will be displayed. If the database connection is setup well, ERDesigner NG will display an information box informing you that everything is alright. Additionally, the current database version will be displayed to inform you about the type of database you’ve made a connection to.

Note: You do not need a working database connection to model a diagram. If you do not have the right connection properties yet, please enter dummy values. But it is very important that you choose the right database dialect for your model! You cannot change the dialect one you have entities in your model!

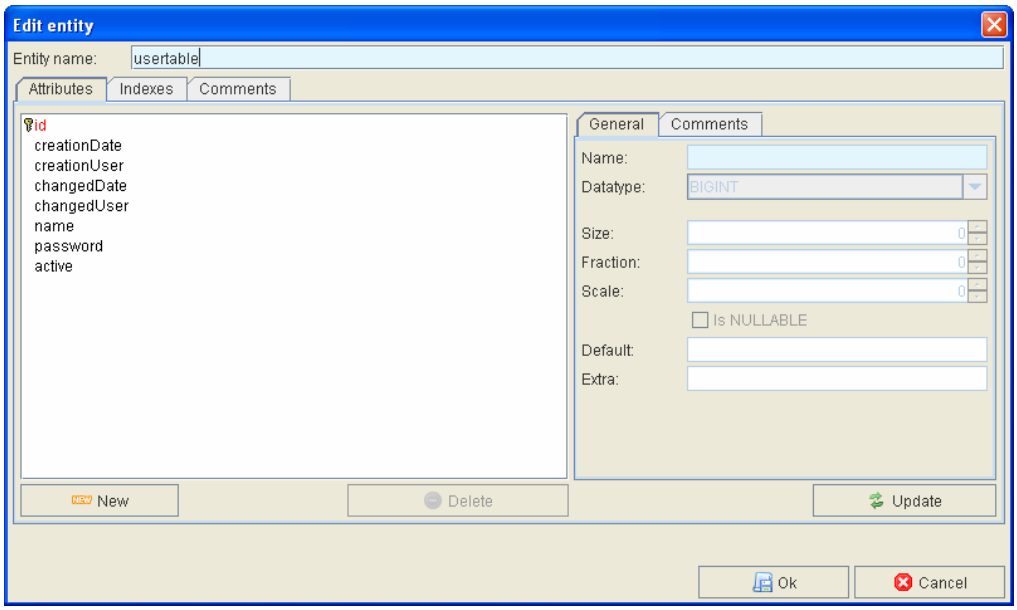
Adding entities

After you have setup the JDBC classpath and you have created a new database model and configured the database connection, you can start to add entities to the model.

To add an entity to the model, you have to select the entity tool from the main menu.



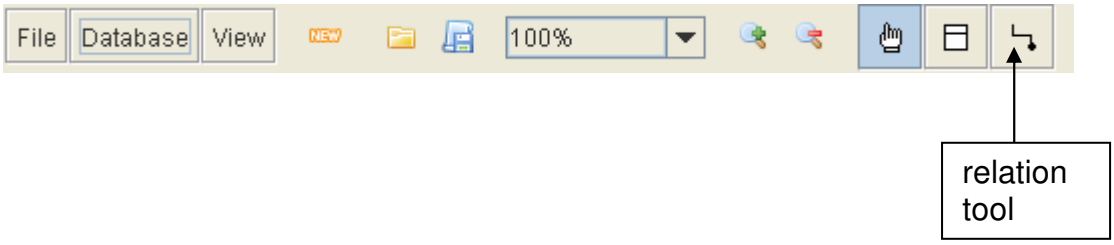
The entity tool allows you to add entities to the model. Now, you have to click into the editing area. The entity editor dialog will be displayed, allowing you to add attributes to the entity, add indexes to the entity, create a primary key, and finally to specify entity comments for documentation.



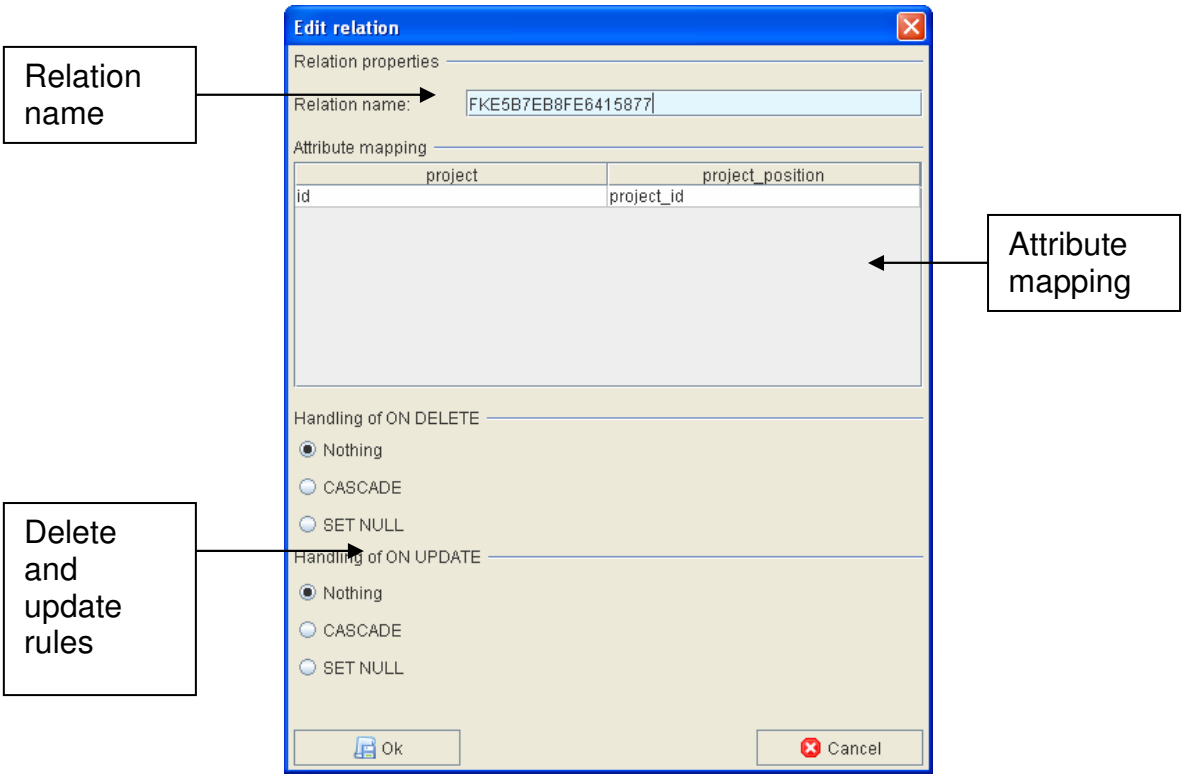
Attributes or indexes are added to the entity by clicking the New button and specifying the necessary parameters. They can be removed from the entity by selecting them from the list and clicking the Delete button. Attributes can be modified by selecting them from the list, modifying their parameters and clicking the update button.

Adding relations

To add a relation to the model, you need to select the relation tool from the main menu:



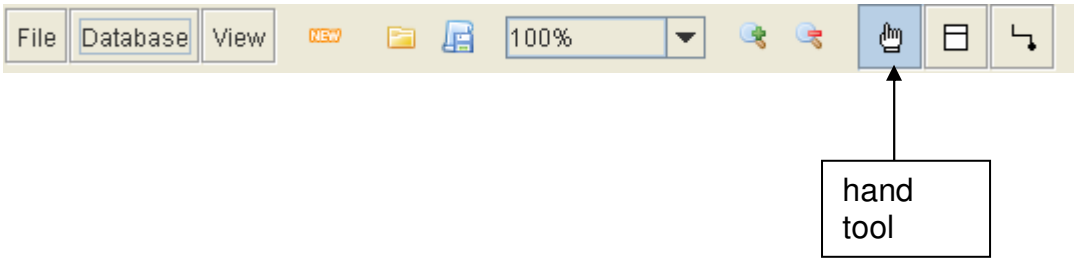
Now, you need to click on the importing entity, the entity where the foreign key should be created. Then, keep the mouse button pressed, and drag to the exporting entity, the entity where the referenced data exists. Now, release the mouse button. The relation editor dialog will be displayed:



In this dialog, you need to specify the unique relation name, and the attribute mapping fro the exporting entity to the importing entity. Finally, you need to specify the on delete and on update rules. After you have entered all parameters for the relation, click the Ok button, and the relation is added to the model.

Modifying existing model objects

To modify an existent model object, you need to select it. To select an object, you have to select the hand tool from the toolbar.



Now, click on the object you want to modify. It will get a blue border. Now, you can drag and drop if over the editing area to change its location. You can edit an existent object by double clicking it. The editing dialog will appear and you can change the object as you wish. You can also delete an object from the model. You do so by selecting the object, and to a right click on it. A context menu will appear. Here, you select “delete”. A confirmation dialog will be displayed, After you confirm the deletion with yes, the object will be permanently removed from the model.

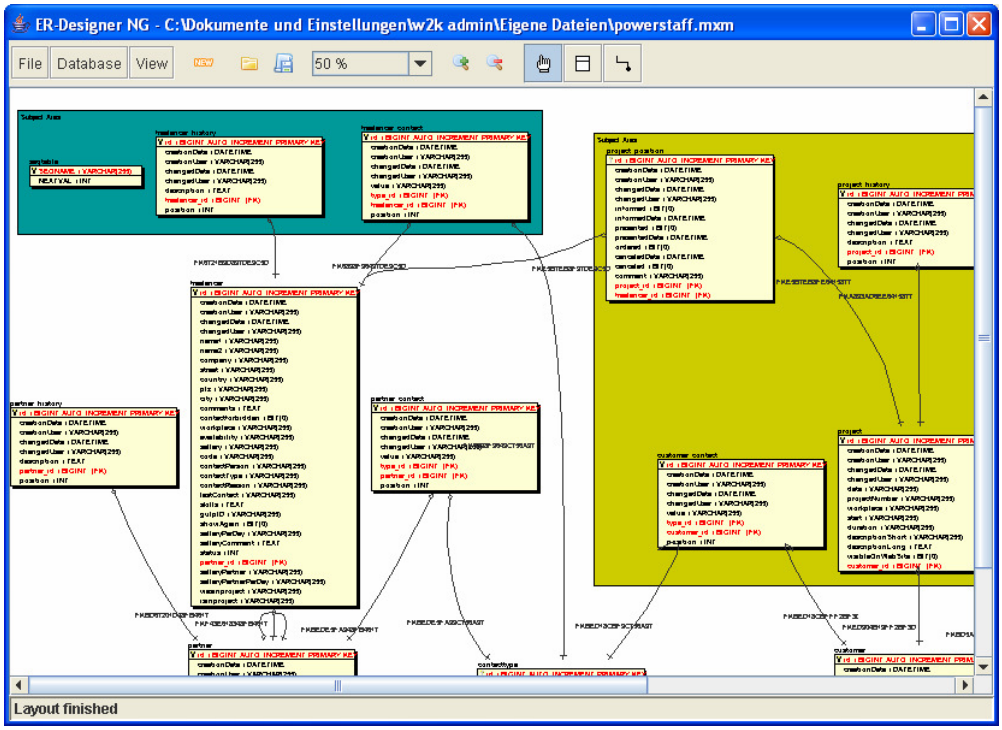
Additionally, you can select multiple objects by selecting the hand tool clicking the left mouse button, select an area from the editing area, and release the left mouse button. All objects within this area will be selected. You can also add or remove objects to and from the current selection by keeping the left shift key pressed and click with the left mouse button, or keep the left ctrl key pressed and click with the left mouse button.

Working with subject areas

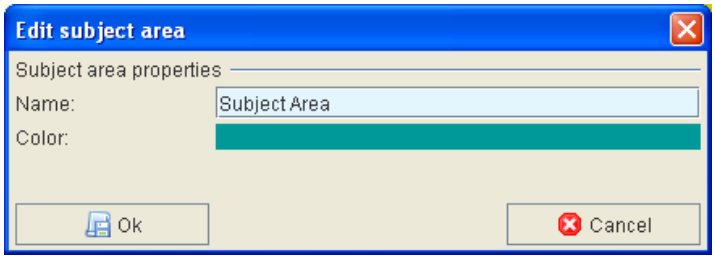
Logically related entities can be grouped to units. These units are called subject areas. Building a subject area has no affect on SQL generation. They are only to form the logical part of the model and to make your model look fancier.

To add a subject area to the model, you have to select the entities you want to add. To do so, use the hand tool for entity selection. After you have selected some entities, do a right click on the editing area. A context menu will be displayed. Here,

you have to select the “add to subject area” function. After clicking this menu item, the selected entities will be added to a new subject area. Please note that a entity can only be part of one subject area.



Entities can also be added to a subject area by dragging them into the area. They can be removed from a subject area by dragging them out of the area. If a subject area does not contain entities anymore, it will be deleted from the model. Subject areas can also be edited. You can edit a subject area by doing a double click on the subject area surface. The subject area editor will be displayed. Here, you can change the subject area properties and confirm your changes.

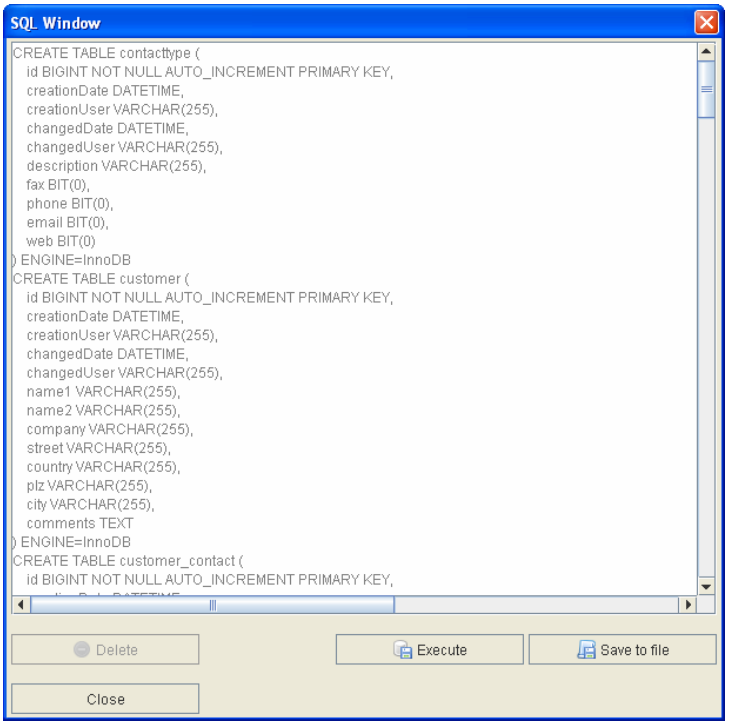


DDL script generation

Heart of Mogwai ERDesigner NG is the SQL DDL script generation module. Using this module, you can easily create the SQL statements for the current database

model. The SQL statements will be optimized for the current database dialect (the dialect you have chosen when you have setup the database connection).

To create a DDL script for the current model, select Database -> Create DDL for model from the main menu. The DDL SQL dialog will be displayed:



Now, you can save the generated statements to disc. Of course, you can also send them directly to the current database connection for execution. Statements you don't want to be executed can be removed. Creating a full functional database creation SQL file is quite easy with this functionality!

Exporting the diagram

The current database diagram can be exported in various output formats. Currently, ERDesigner NG supports the following formats:

- .MXM File : The core database model in XML notation (Mogwai format)
- .PNG file
- .BMP file
- .GIF file

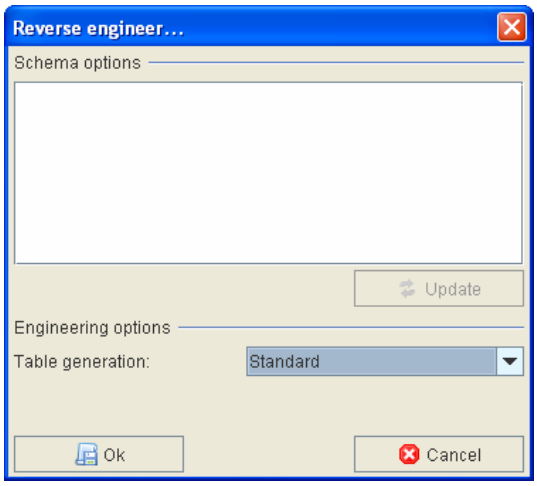
- .SVG file

For every export, there are two operating modes. On mode is to export the whole model to the destination format, and one mode to export every entity to a single file of the desired format.

You can start to export the current model to file by selecting File -> Export as. Now, you have to select the item corresponding to the export format, and finally, select “All in one file”, or “One file per table”. After you have clicked the menu item of your choice, the “Save as” dialog will appear. Here, you have to select the target directory in one file per table mode, or the target file name in all on one file mode. If you export the model in one file per table mode, the files will be named by their tables, e.g. if the table is named “DATA” and you export it as a .PNG file, the file will be named “DATA.png”.

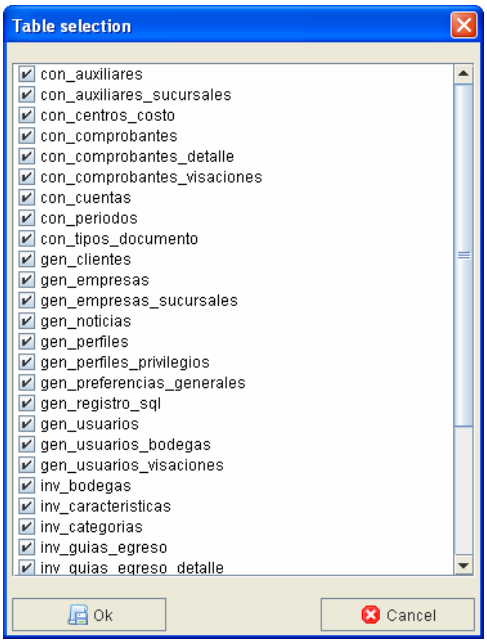
Reverse engineering existing databases

ERDesigner NG can also reverse engineer existing databases. To reverse engineer a database, you need a working database connection. Now, you have to select Database -> Reverse engineer from the main menu. The reverse engineering dialog will be displayed:



If the current database dialect supports schemas, you have to select a database schema you want to reverse engineer. Click the update button, and select a schema. If the current dialect does not support schemas, just select the standard table

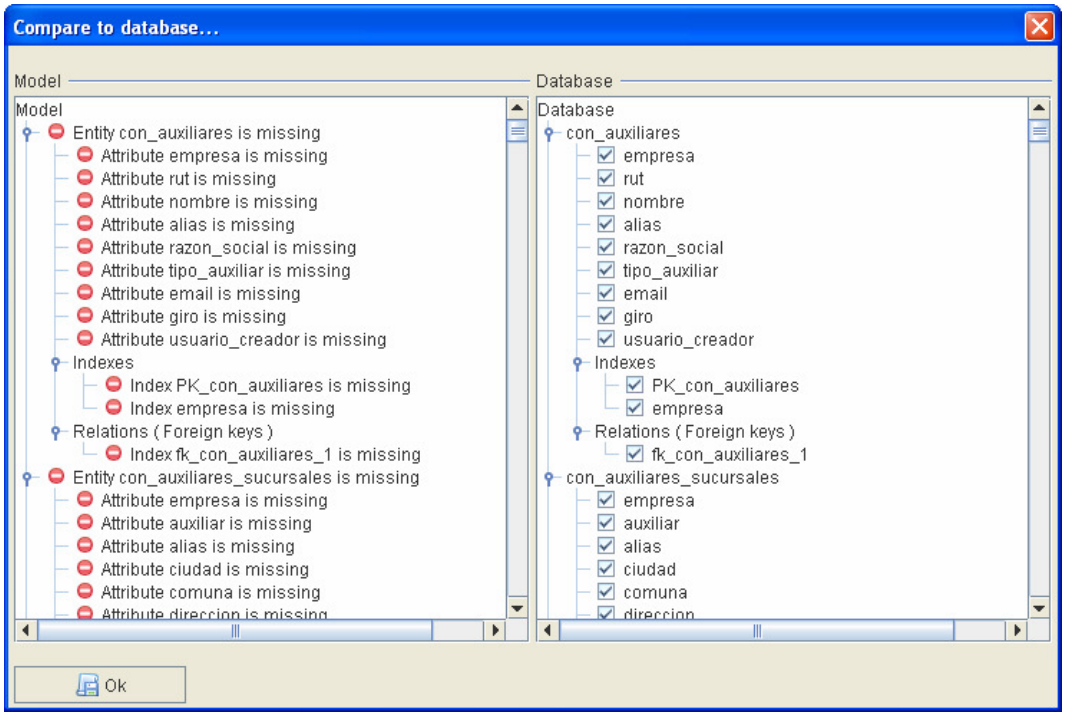
generation engineering method and click the ok button. Now, you have to select the tables you want to reverse engineer. The table selection dialog will be displayed:



By default, all available tables are selected. If you don't want to reverse engineer some tables, just deselect them. When you are ready, click the ok button, and the reverse engineering process will start. The reverse engineering process will run in three steps. The first step is to add the entities to the model. The second step is to add indexes and primary keys to the entities. The third and last step is to add the relations and foreign keys to the reverse engineered entities.

The complete compare functionality

ERDesigner NG has a build in complete compare functionality. Using this functionality, you can compare the current database model with an existing database. To compare the current database model, you need to specify the target connection using the database connection dialog. Of course, the target database dialect must match the database dialect used in the current model. Now, select Database -> Compare with database from the main menu. ERDesigner NG will display the reverse engineering dialog. Use this dialog as described in the previous chapter of this documentation. After the reverse engineering process, ERDesigner NG will display the complete compare dialog with the comparison results:

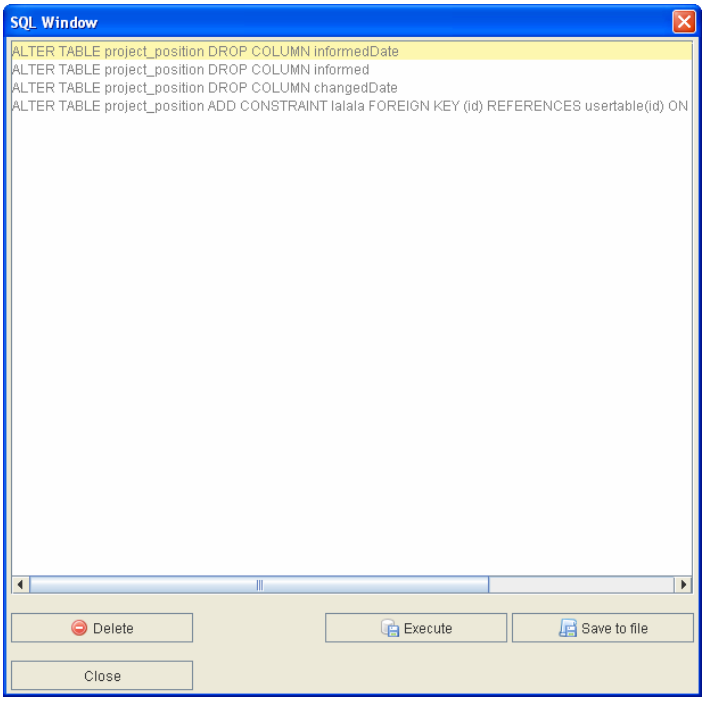


Now, you can see the differences between the model and the database. Missing or changed elements will be marked with a red icon. Using this functionality, you can easily see the difference between a model and a database!

Guide to the version control tracking system

ERDesigner NG has a build in version control tracking system. Every change you make to the database model is tracked, and corresponding SQL DDL statements are generated. These statements can be saved to disk or can be sent directly to the current database connection.

The version control tracking system has two operating modes. The first mode is the in time editing mode. Every change of the current model results in SQL statements. These statements can be seen by selecting Database -> Current db changes from the main menu. The SQL editor dialog will be displayed, and the current model changes are shown as SQL files:



Now, you can save the current changes to disk, or you can send them directly to the current database connection.

Note: The database changes SQL dialog will always show every change you have made since you loaded the model, or the last time you saved the model to disk. When you save the model to disk, the latest db change statements are deleted.

Well, the statements are not completely deleted. The version control tracking system has a second operating mode. Every time you save the model to disk, a migration SQL DDL script is generated to migrate an existing database from the state when it was loaded to the state when it is saved. And you can guess: the content of this migration file is the content of the current db changes dialog. So, the statements are saved to disk (with a timestamp appended to the model file name, and with the .SQL extension), and then they are deleted.

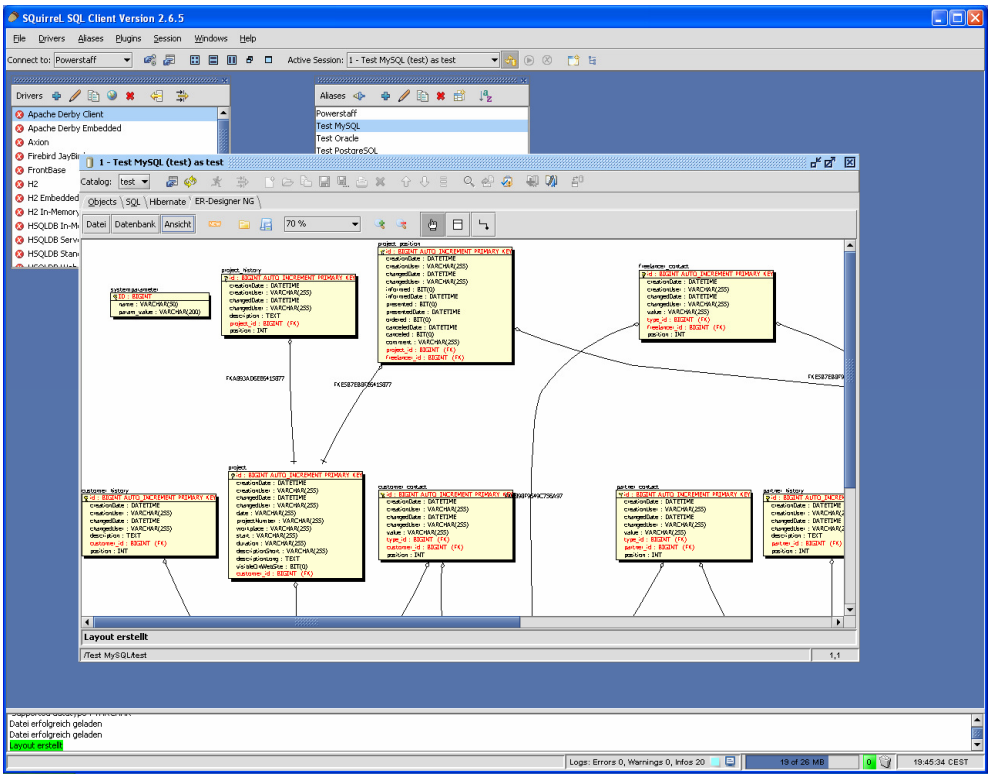
ERDesigner NG will also make a backup of an existing model before it is overwritten. Using these backup files, you can easily go back to a prior version of your model. And with the generated migration files, it is quite easy to migrate an existing database to another version!

The SQuirreL plugin

ERDesigner NG can also be run as a plugin in the SQuirreL tool. This tool is a very comfortable database administration and query tool, with a lot of other functionalities. You can download the current version of SQuirreL at

http://squirrel-sql.sourceforge.net

ERDesigner NG has the same functionality as it would run in standalone mode. But running it as a plugin in Squirrel, you have a lot more functionalities to administrate your database. SQuirreL is for free, so feel free to give it a try. Please download the ERDesigner NG SQuirreL version from the Mogwai project homepage, and consult the included installation documentation to update your SQuirreL installation with Mogwai ERDesigner NG!



The NetBeans plugin

ERDesigner NG can also be run in NetBeans! The installation for NetBeans is quite easy. You just have to visit the Mogwai NetBeans plugin homepage. Here, you find an update center. Point your NetBeans installation to this update center, and installation will run in just seconds. You can find the ERDesigner NG NetBeans homepage here:

http://plugins.netbeans.org/PluginPortal/faces/PluginDetailPage.jsp?pluginid=5762

Now, you have a powerful entity relationship editor within a powerful IDE. Quite cool!