



DBeaver

# DBeaver user guide

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# Installation

The installation process depends on the distribution type and your Operational System.

## Windows / MacOS Installer

The installer distribution is the recommended way to install DBeaver on Windows and MacOS X. It is the most lightweight method due to the advanced archiving technology that it uses and that is not available in the case of installation using ZIP archive. Besides this, the installer automatically upgrades DBeaver to the new version, if a previous version is already installed. To install DBeaver, run the installer executable and follow the instructions in its screens.

NOTE:

- The installer does not change any system settings or the Java installation.
- The included JDK will be accessible only for DBeaver.

## ZIP Archive

When installing DBeaver manually, without using an installer:

1. Install [Java](#).
2. Extract the contents of the archive.  
NOTE: Do not unzip the archive over a previous DBeaver version. If you already have any version of DBeaver extracted in the same location - remove it before unzipping the new version.  
NOTE: All configurations, scripts and other necessary data are stored in a separate location (usually in the user's home directory) so the program deinstallation does not affect them.
3. Run the **dbeaver** executable.

## Debian Package

To install DBeaver using a Debian package:

1. Run `sudo dpkg -i dbeaver-<version>.deb`.
2. Execute `dbeaver &`.

## RPM Package

To install DBeaver using RPM package:

1. Run `sudo rpm -ivh dbeaver-<version>.rpm`.
2. Execute `dbeaver &`.

NOTE: To upgrade DBeaver to the next version, use `sudo rpm -Uvh dbeaver-<version>.rpm` parameter.

## MacOS DMG

You can try DMG or ZIP archive if you cannot use PKG installer for some reason.

To install DBeaver on MacOS, just drag-and-drop the DMG archive to your disk.

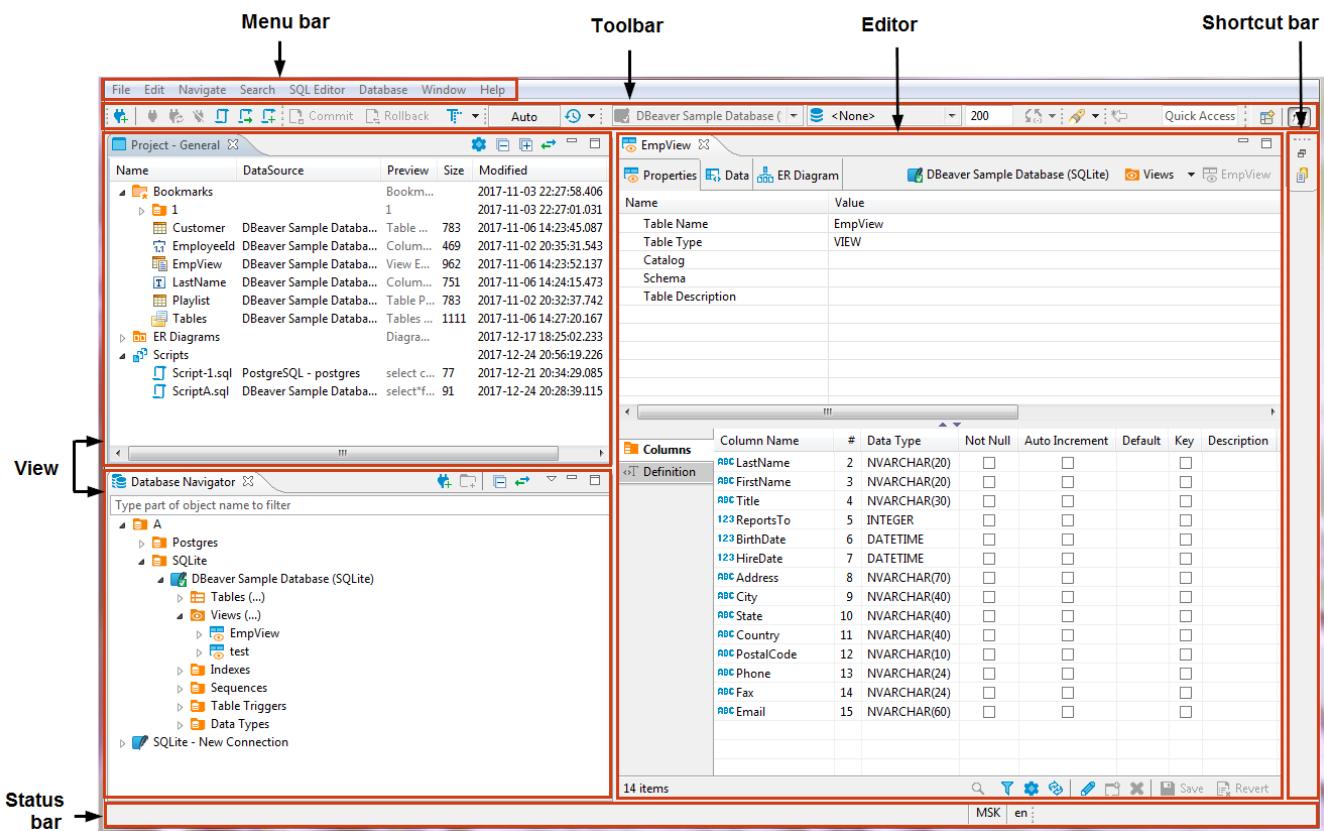
NOTE: DBeaver requires Java 1.8+ to be installed, so you need to install [JDK](#) prior to installing DBeaver.

You can also use [brew](#):

```
brew install Caskroom/cask/java
```

# Application Window Overview

The DBeaver window contains a menu bar, a toolbar, a shortcut bar, a workspace with one or more editors and views, and a status bar:



## Menu Bar

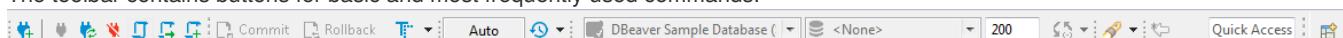
By default, the menu bar contains the following menus:

- **File** menu contains menu items for the creation of files, folders, projects, database connections, database projects, and ER diagrams as well as Import and Export items.
- **Edit** menu contains global commands like Cut, Copy, Paste, and Delete targeted at the active element.
- **Navigate** menu allows navigating through scripts and database objects.
- **Search** menu provides options to search among files, database objects and across data.
- **SQL Editor** menu is for opening SQL Editor and managing its appearance.
- **Database** menu allows managing database drivers, connections and transactions as well as reconnecting to and disconnecting from a database.
- **Window** menu includes items to manage the look of DBeaver window: show/hide and minimize/maximize views and editors, display bars, split editors, and manage other preferences.
- **Help** menu contains links to information and help resources, as well as menu items to check the version number and availability of updates.

You can customize the menu bar and the list of menu items to display, for this, go to **Window -> Customize Perspective -> Menu Visibility** tab.

## Toolbar

The toolbar contains buttons for basic and most frequently used commands:



Some of the buttons are enabled (colored), others are disabled (greyed). The sets of enabled and disabled buttons change depending on which editor is currently active in the workspace. Only enabled buttons are applicable to the active view or editor.

You can customize the toolbar, for this, go to **Window -> Customize Perspective -> Tool Bar Visibility** tab.

You can hide or show the toolbar in the application window. To do it, on the Window menu, click **Appearance -> Hide Toolbar / Show Toolbar**.

## Shortcut Bar

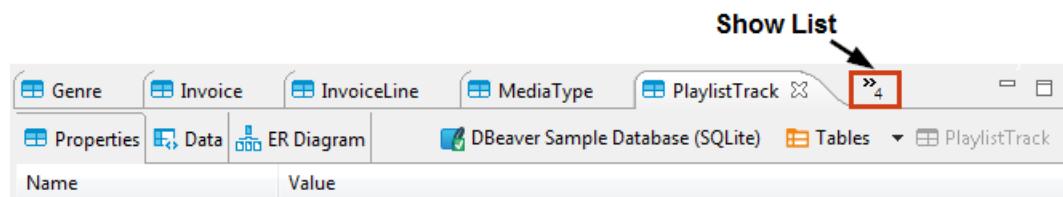
There are two shortcut bars - on the left and on the right side of the workspace zone. Shortcut bars host shortcuts of views and editors and appear if at least one view or editor is minimized, otherwise they are hidden.

## Workspace: Views and Editors

Views are windows within the workspace that provide presentations and ways to navigate the information. For more information about particular views, see [Views](#) article.

Editors are windows in which you can interact with the content of files and databases. For more information about particular editors, see [Editors](#) article.

Both views and editors can appear as separate windows or as tabs stacked with other views/editors in a tabbed window. The following image shows the title bar of a tabbed window. If tabs do not fit in the title bar of a tabbed window, they become hidden. To see the list of hidden tabs, click the Show List icon that also indicates their number:



There can be several views and editors simultaneously open in the workspace but only one of them can be active at a time.

You can change the layout of the workspace by opening and closing views, docking them in different positions in the workspace, collapsing them to the shortcut bar, or expanding them to occupy the whole workspace and restoring to the latest docked position.

## Changing Workspace Layout

You can move views and editors around the workspace and dock them in different positions:

- As a tab in a tabbed window
- As a separate window with a vertical or horizontal layout in any zone of the workspace

You can also swap locations of two views or editors.

To dock a view to a position in the workspace, press and hold the title bar of the view, then drag and drop it onto the desired position.

You can resize the view and editor windows. To resize, place the cursor to the border of the window to see it change to a double-ended arrow, then click and drag the border to the needed size.

To close a view or editor, click the Close button or right-click the title bar of the view / editor and then click one of the options on the context menu (they change depending on the configuration of windows):

- **Close** - to close the active window or tab in a tabbed window
- **Close Others** (for editors and views that appear as tabs in tabbed windows) - to close all tabs of the current tabbed window except the active tab
- **Close Tabs to the Right / Left** (also for tabbed windows) - to close all tabs of the current tabbed window that are located to the right / left of the active tab
- **Close All** - to close all tabs of a tabbed window (close the window)

## Maximizing, Minimizing and Restoring View and Editors

All views and editors have the Close, Minimize and Maximize buttons:



The Maximize button changes to the Restore button when a view or editor is maximized.

To maximize a view or editor to the size of the whole workspace, do one of the following:

- Click the Maximize button in the upper-right corner of the view.
- Double-click the title bar of the view or editor.
- On the Window menu, click **Appearance -> Maximize Active View or Editor**.

When one view is maximized, other views and editors appear as shortcuts on the shortcut bar.

To restore a maximized view or editor to its latest docked position, double-click its title bar or click the Restore button in its upper-right corner.

When you minimize a view, it wraps into a shortcut on the shortcut bar:



The shortcuts of views and editors may appear on the left or on the right shortcut bar depending on the latest docked position of the view or editor.

To minimize a view, do one of the following:

- Click the Minimize button in the upper-right corner of the view.
- On the Window menu, click **Appearance -> Minimize Active View or Editor**.

To restore a minimized view or editor to its previous position, click the Restore button on its shortcut in the shortcut bar. To restore a minimized view or editor to a new position, click the view / editor name button under the restore button.

# Views

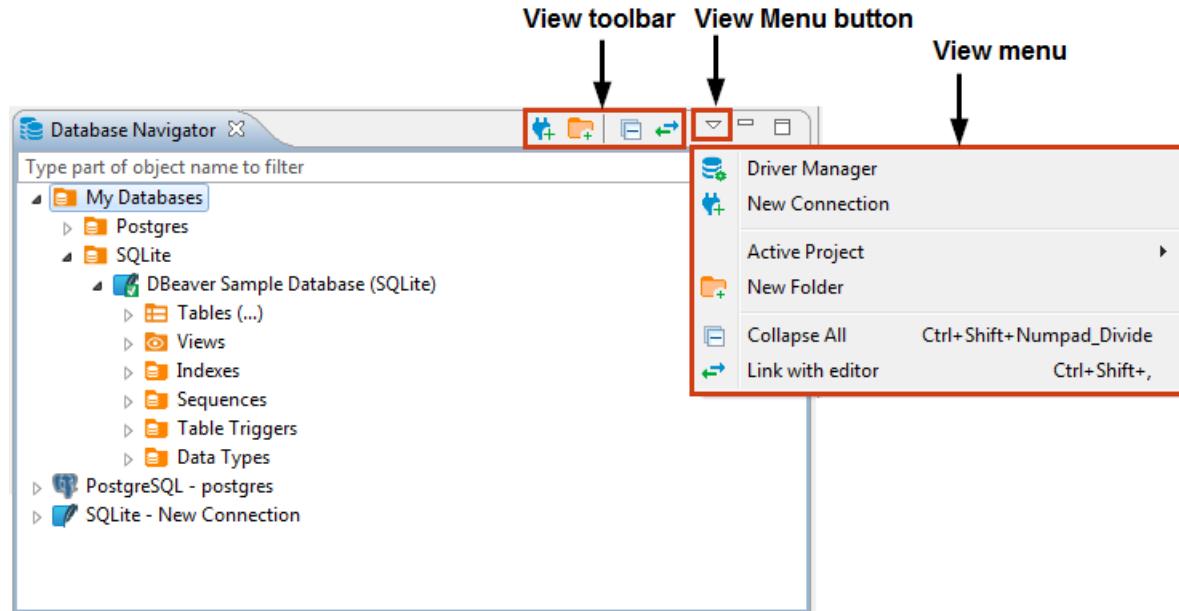
Views are windows within the workspace that provide presentations and ways to navigate the information. The main views in DBeaver are: [Database Navigator](#), [Projects](#) and [Project Explorer](#).

To open a view:

- On the Window menu, click **Show View** and then, on the submenu, click the name of the view. Click **Other** if the view is not visible on the submenu.
- For Database Navigator, Projects, and Project Explorer views, on the Window menu, just click the name of the view.

Some views open on demand, for example the [Search](#) view opens to show search results.

Views provide their own toolbar and menu:



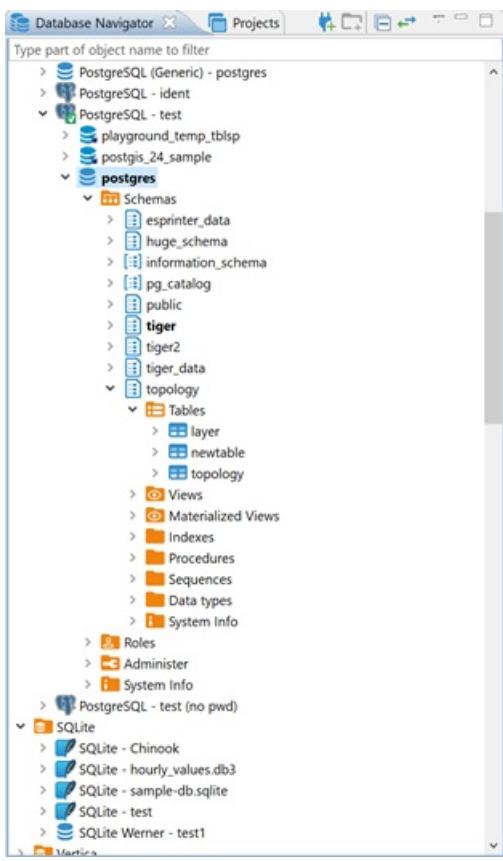
To open the view menu, click the View Menu button in the upper-right corner of the view's title bar, next to the Minimize button.

The toolbar contains buttons applicable to the objects displayed in the view. The set of enabled and disabled buttons depends on the object in focus.

Views also provide context menus for objects they display. To open a context menu for an object, right-click the object.

# Database Navigator

Database Navigator is the main view to work with the structure and content of databases. To open Database Navigator, on the Windows menu, click **Database Navigator**. For information on how to change the view layout, please see the [Application Window Overview](#) article.



Database Navigator contains a tree of objects, a toolbar and View menu which contain generic items. Each object in the tree has its own context menu. The tree contains the following objects:

- Folders -
- Database connections - and other (icons differ depending on the database type)
- Database objects - various depending on the database type, such as Tables , Views , Columns , Indexes , etc.

To open the view menu of Database Navigator, click the View Menu button ( ) in the upper-right corner of the window. For more information on where to find the view toolbar and menu, please see the [Views](#) article.

The menu contains the following items:

Icon	Menu item	Description
	<b>Driver Manager</b>	Opens the Driver Manager window that allows creating, editing and deleting drivers for databases. See <a href="#">Database Drivers</a> for information about managing database drivers.
	<b>New Connection</b>	Opens the Create new connection wizard. See <a href="#">Create Connection</a> for information about creating connections.
(empty)	<b>Active Project</b>	Displays a submenu which allows you to choose a project. See <a href="#">Projects</a> and <a href="#">Projects view</a> for information about projects.
	<b>New Folder</b>	Opens a dialog box for creating a new folder
	<b>Collapse All</b>	Collapses the tree to the root level
	<b>Link with editor</b>	Enabled when at least one editor is open, otherwise disabled - highlights the object in the tree that has its editor open

The toolbar is located in the title bar of the window. Its buttons duplicate the menu items, except for the **Active Project**.

To open the context menu for an object, right-click the object in the tree. The following table summarizes context menu items for all types of objects that may appear in the tree. Note that the presence or absence of context menu items for an object depends on the database and object types.

Menu item	Description
<b>Open folder</b>	Opens a folder in a separate view
<b>Create new connections / Create New Connection</b>	Opens the Create new connection wizard
<b>New Folder</b>	Opens a dialog box for creating a new folder
<b>Copy</b>	Copies an object to the clipboard
<b>Paste</b>	Inserts the copied object into a selected folder - most convenient for copy-pasting connections
<b>Delete</b>	Deletes an object <b>WARNING!</b> The Delete menu item removes the object not only from the tree but from the database itself or the file system, and this action is irreversible.
<b>Rename</b>	Opens the Rename [object] dialog box
<b>Properties</b>	Opens the Properties for [object] window which allows viewing and modifying the object's properties
<b>Refresh</b>	Depending on the object, refreshes the object itself, or its parent, or its subnodes – mostly used for refreshing tables and schemes
<b>Connect</b>	Attempts to connect to the database
<b>Invalidate/Reconnect</b>	Checks the status of connection, if it is broken, attempts to reconnect
<b>Disconnect</b>	Disconnects from the database
<b>SQL Editor</b>	Opens a new SQL editor for the connection
<b>Recent SQL Editor</b>	Opens the most recently opened SQL editor
<b>Edit Connection</b>	Opens the Connection Configuration window that allows configuring connection settings
<b>View [objects]</b>	- For objects that DBeaver can create and delete, opens the object in a separate editor - For objects that DBeaver cannot create and delete, opens the object in a separate viewer
<b>Edit [object]</b>	- For objects that DBeaver can create and delete, opens the object in a separate editor - For objects that DBeaver cannot create and delete, opens the object in a separate viewer
<b>Create new [object]</b>	Opens an editor in which you can specify properties and save the new object
<b>Filter</b>	Opens a submenu of one or more filtering options (depending on the object): - Hide [object] - Show only [object] - Configure [objects] filter - Toggle filter - Clear filter See <a href="#">Filters</a> for information.
<b>Copy Advanced Info</b>	Copies the full name of an object
<b>Read Data in SQL Console</b>	Opens an SQL console displaying the object's data
<b>Compare</b>	- Appears only if you select several objects of the same level - Opens the Compare objects wizard which guides you through the steps to generate a comparison report for the selected objects
<b>Generate SQL</b>	Opens a submenu on which you can select the type of SQL query to generate: - SELECT - INSERT - UPDATE - DELETE - MERGE - DDL Clicking one of the items (for example INSERT) generates a relevant query in a separate window.

Menu item	Description
Export Table Data	Opens the Data Transfer wizard that helps you select a format and export table data
Import Table Data	Opens a window with existing database connections in which you can select a table to import data from
Tools	Opens a submenu that provides tools for database backup and restore, vacuum, etc.

For information on how to filter database objects in Database Navigator, please see the [Filter Database Objects](#) article.

# Filter Database Objects

In [Database Navigator](#) and [Database Object Editor](#) you can filter database objects to include or exclude some of them from the view. You can filter schemas, tables, views and procedures. A dots sign  next to the node's name indicates that a filter is applied to its sub-nodes:  [Tables \(...\)](#)

There are several ways in which you can filter objects. One of the ways is to filter objects by names of tables and views using the filter field above the tree of objects:



To filter objects by the name of a table and view, type the name in the field. The tree dynamically updates to show tables / views with that name. To reset the filter, click the Clear icon  on the right end of the field.

Another way to filter objects is to use the **Filter** item on the context menu of a single object. To filter objects using the **Filter** menu, right-click the object, then click **Filter** on the context menu, and then click one of the items on the submenu:

Filter submenu item	Description
<b>Hide '[object name]'</b>	Hides the current object while displaying the other ones
<b>Show only '[object name]'</b>	Shows the current object while hiding the other ones
<b>Toggle filter</b>	Inverts the filtering – shows hidden objects and vice versa
<b>Clear filter</b>	Removes the filtering to display all objects
<b>Configure [objects] filter</b>	Appears only for folder or parent nodes of database objects - like 'Tables', 'Indexes', etc. Allows creating a complex filter with multiple filtering criteria, see <a href="#">Configure Filters</a> .

A third way of filtering is to use the **Filter** item on the context menu on several objects:

1. Select several objects of the same type using Ctrl or Shift keys.
2. Right-click the selection, then click **Filter**, and then choose one of the options on the submenu:

Filter submenu item	Description
<b>Hide N objects</b>	Hides the selected objects while displaying the rest
<b>Show only selected objects</b>	Shows the selected objects while hiding the rest

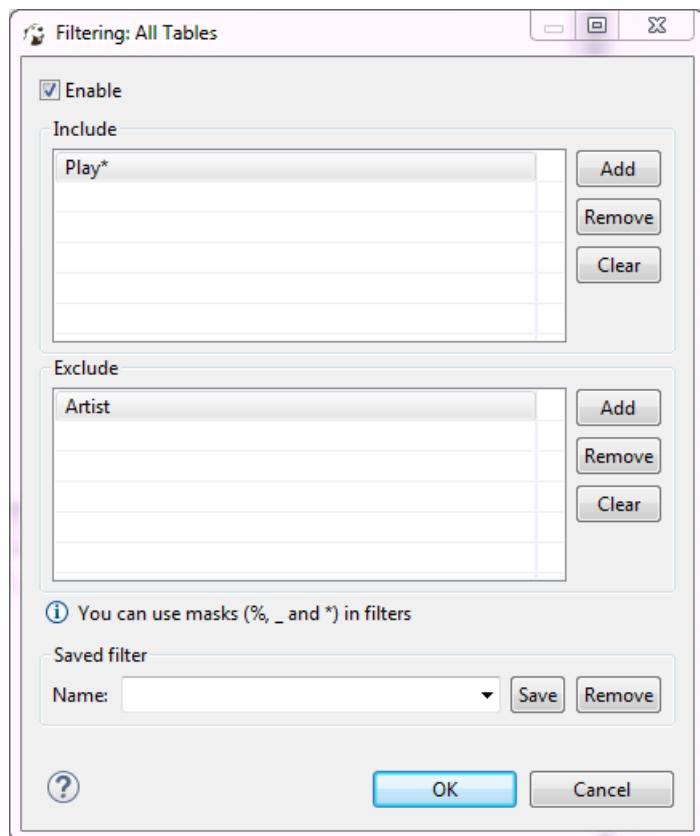
To reset such filters, right-click the parent (folder) node displaying the dots sign , and then click **Filter -> Clear filter**.

# Configure Filters

You can configure custom filters to filter database objects in the [Database Navigator](#) and [Database Object Editor](#).

To configure a custom filter:

1. In the Database Navigator, right-click the object and on the context menu click **Filter -> Configure [objects] filter**. In the Database Object editor, in the toolbar of the **Properties** tab, click the Filter settings button (T). The Filtering window opens.

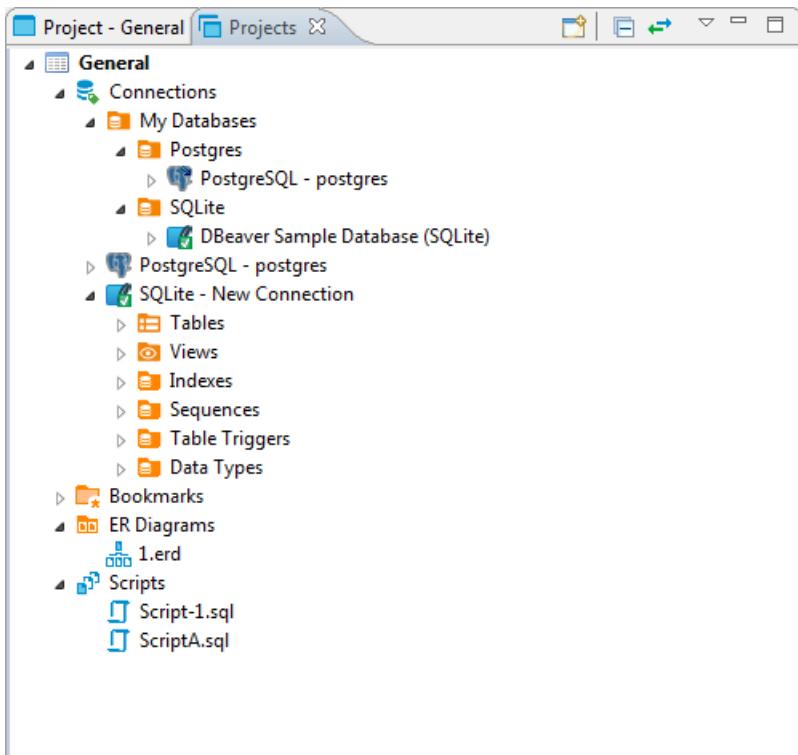


2. Select the **Enable** checkbox to activate the fields of the window.
3. If you want the filter to apply to all objects of a certain type, for example to all schemas, click **Show global filter**. Otherwise, the filter will apply only to the current object. NOTE: Once you apply the global filter, you cannot revert back to the local filter in the same window. To create a local filter, reopen the Filtering window, see Step 1.
4. For objects that you want to show, click **Add** next to the **Include** field and then, in the field itself, enter the name or combination of symbols to search. For objects that you want to hide, click **Add** next to the **Exclude** field and then, in the field itself, enter the name or combination of symbols to search. NOTE: You can use masks with % and \_ to replace one or more symbols and \_\_\_ to replace one symbol in the search combination.
5. To remove one filtering combination, click the combination in the field and then click **Remove**. To remove all combinations from either of the fields, click **Clear** next to the field.
6. Once you set all filtering criteria, you can save a filter to use for other objects. To save the filter, in the Saved filter area, in the **Name** field, enter the filter's name and click **Save**.
7. You can also remove any of the saved filters. To remove a filter, in the **Name** drop-down list, click the filter name and then click **Remove**.
8. Click **OK** to apply the filtering criteria. Otherwise, click **Cancel**.

# Projects View

You might need to classify and group database connections into projects. Projects store objects related not to a particular database but to all database connections. These are usually files stored on the file system.

The Projects view displays all projects created in the system and provides tools to manage them. To open the Projects view, on the **Window** menu, click **Projects** (or use **ALT+W+P** shortcut).



For information on how to change the view layout, please see the [Application Window Overview](#) article.

The projects are organized into a tree and all have the same high-level structure:

- **Connections** – repeat the content of the Database Navigator view for this project. You can perform the same actions over the objects of the databases as in Database Navigator.
- **Bookmarks** – contains bookmarks – shortcuts to database objects, see ...
- **ER Diagrams** - contains ER diagrams that you can drag-and-drop here from other folders
- **Scripts** – contains scripts that you can drag-and-drop here from other folders

The Projects view provides a toolbar and View menu which contain generic items. Each object in the tree has its own context menu.

To open the view menu of the Projects view, click the View Menu button (⊖) in the upper-right corner of the window. The view menu contains the following items:

Icon	Item	Description
	Create Project	Opens the Create Project wizard
	Refresh Projects	Refreshes the projects tree to display changes caused by creating modifying or deleting projects
	Collapse All	Collapses the tree to the root level
	Link with editor	- Enabled when at least one editor is open, otherwise disabled - Highlights the object in the tree that has its editor open

The toolbar is located in the title bar of the window, its buttons duplicate the view menu items except for the **Refresh Projects** one.

To open the context menu for an object in the tree, right-click the object. For information about context menu items of all objects under the **Connections** node of the tree, please see [Database Navigator](#). The context menus of other nodes in the tree contain some basic items for copy-pasting, renaming, deleting objects, managing their properties, creating folders, etc.

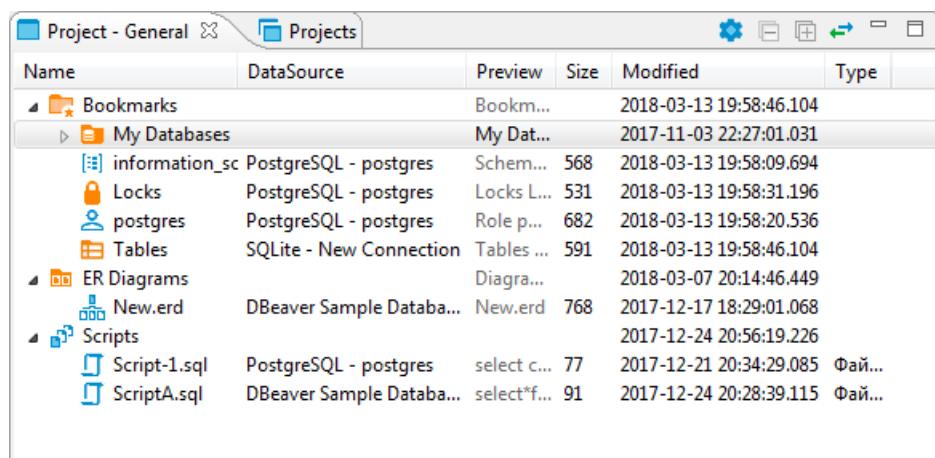
- The **Set Active Project** menu item (for a project root node) makes the project active, that is visible in the Database Navigator.

- The **Link File (SQL Script)** and **Link Folder** menu items allow creating links to files and folders in the file system.

For information about managing projects, please see [Projects](#) article.

# Project Explorer

The Project Explorer view displays detailed contents of the currently active project. To open the Project Explorer, click **Window -> Project Explorer**.



For information on how to change the view layout, please see the [Application Window Overview](#) article.

The title of the Project Explorer includes the name of the project: Project – [Project name]. **General** is a project that initially exists in the system by default.

The Project Explorer displays the content of a project with metadata. The content includes: **Bookmarks**, **ER Diagrams**, and **Scripts**. The metadata appears in columns which you can hide or show.

The Project Explorer view provides a toolbar that contains the following buttons:

Button	Name	Description
	<b>Configure columns visibility</b>	Opens a dialog box in which you can select columns to display in the view
	<b>Collapse All</b>	Collapses the tree to the root level
	<b>Expand All</b>	Expands the tree nodes
	<b>Link with editor</b>	- Enabled when at least one editor is open, otherwise disabled - Highlights the object in the tree that has its editor open

To sort the metadata in the table by a certain column, click the column header.

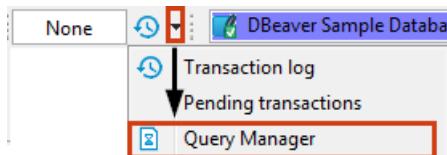
# Query Manager

Query Manager is a view that shows the history of all SQL queries that DBeaver has executed during the current session.

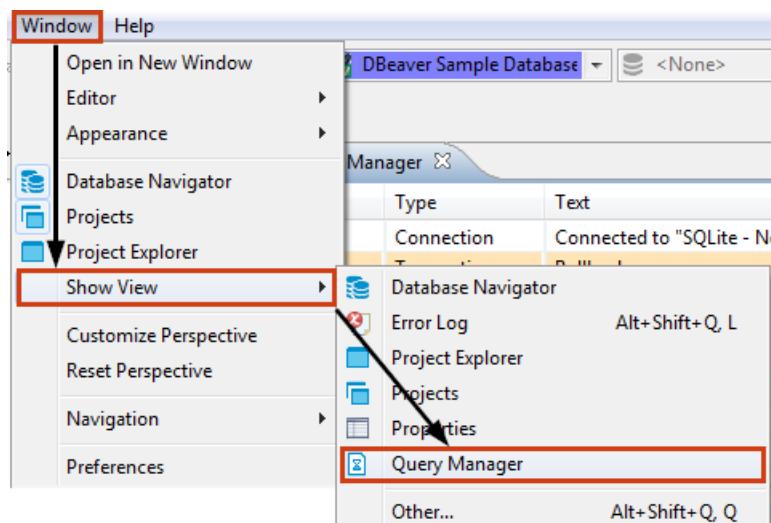
NOTE: DBeaver EE version persists all executed queries in the internal database so execution history is available after the program restart.

To open the Query Manager, do one of the following:

- Click the arrow next to the **Transaction Log** button in the toolbar and then click **Query Manager** on the dropdown menu:



- On the **Window** menu, click **Show View -> Query Manager**:



The Query Manager logs all queries together with their execution statistics (execution time, duration, number of fetched/updated rows, errors, etc.):

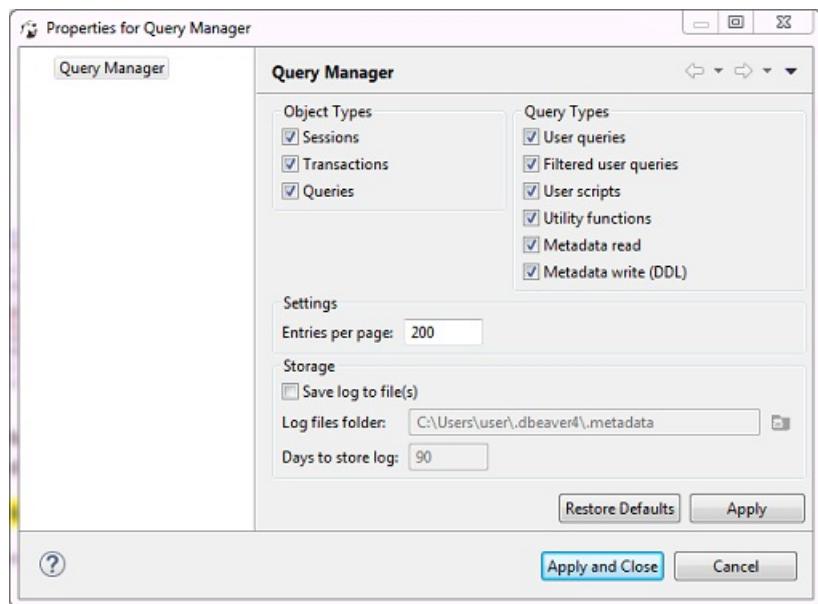
Time	Type	Text	Duration	Rows
18:36:34	Connection	Connected to "SQLite - New Connection"		
18:17:59	Transaction	Rollback	1 min 46 sec	
18:19:31	SQL / USER	select#2 + 2	10 ms	1
18:19:29	SQL / USER	select#1*from#1Customer	20 ms	59
18:19:20	SQL / USER	select#1*from#1Artist	20 ms	200
18:16:45	Transaction	Commit	1 min 57 sec	
18:17:09	Transaction	Commit	0 min 49 sec	
18:17:27	SQL / USER	select#2 + 2	4 ms	1
18:17:22	SQL / META	-- Load imported keys [null, null, Customer]	20 ms	1
18:17:22	SQL / META	-- Load primary keys [null, null, Employee]	1 ms	1
18:17:22	SQL / META	-- Load columns [null, null, Employee, %]	4 ms	15
18:17:22	SQL / META	-- Load tables [null, null, Employee, null]	0 ms	1
18:17:22	SQL / META	-- Load indexes [null, null, Customer]	1 ms	2
18:17:22	SQL / META	-- Load columns [null, null, Customer, %]	0 ms	13
18:17:22	SQL / META	-- Load tables [null, null, Customer, null]	0 ms	1
18:17:22	SQL / USER	select#1*from#1Customer	10 ms	59
18:17:17	SQL / META	-- Load imported keys [null, null, Artist]	0 ms	0
18:17:17	SQL / META	-- Load indexes [null, null, Artist]	14 ms	1
18:17:17	SQL / META	-- Load columns [null, null, Artist, %]	1 ms	2
18:17:17	SQL / META	-- Load tables [null, null, Artist, null]	2 ms	1
18:17:17	SQL / USER	select#1*from#1Artist	20 ms	200
18:17:09	SQL / META	-- Load schemas	0 ms	0
18:17:09	SQL / META	-- Load catalogs	0 ms	0
18:17:09	Transaction	Commit	0 min 0 sec	
18:17:09	Connection	Connected to "DBeaver Sample Database (SQLite)"		
18:17:06	SQL / USER	select count(*) from pg_catalog.table_to_xml	280 ms	

You can modify the look of the Query Manager by filtering queries and setting the number of entries displayed per page as well as you can specify some storage settings, see the 'Query Manager Properties' section below.

To erase all entries from the Query Manager, click the **Clear query manager log** button ( ) in the view's toolbar.

## Query Manager Properties

To manage the look of the Query Manager, filter the entries, and modify storage settings, click the **Set query manager filter** button (T) in the view's toolbar. The Properties for Query Manager window opens:

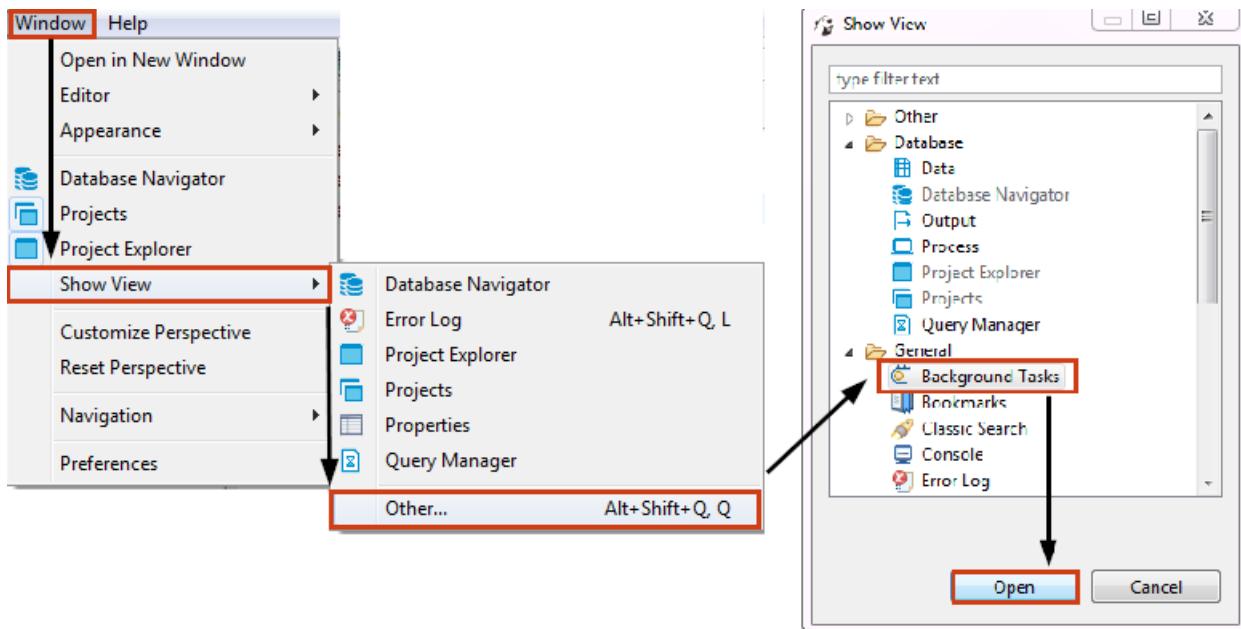


- To filter entries by object type, select or clear the checkboxes in the **Object Types** section. To filter entries by query type, select or clear the checkboxes in the **Query Types** section.
- To change the number of entries displayed per page, enter the new number in the **Entries per page** field.
- To set DBeaver to save the query log in a file, select the **Save log to file(s)** checkbox and then specify the file location in the **Log files folder** field.

After you make all necessary changes to the settings, click **Apply** to apply the changes and keep the window open or click **Apply and Close** to apply the changes and close the window. To discard all changes and return to the previous state, click **Restore Defaults**.

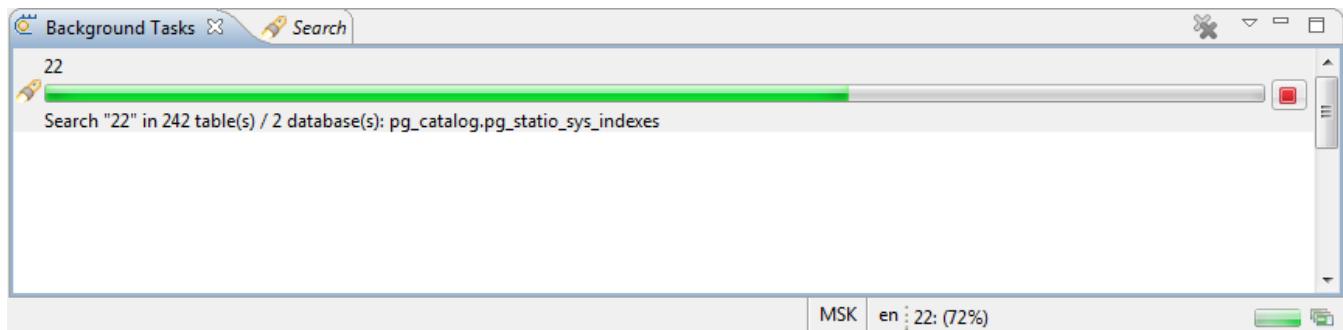
# Background Tasks

You can open the Background view from the main menu - click **Window -> Show View -> Other**, then in the Show View window, expand the **General** folder, click **Background Tasks** and then click **Open**:



You can also open the Background Tasks view from some other views or editors using a special button, for example from the [Search](#) view.

The Background Tasks view shows the progress of such background tasks as search, SQL query execution, etc. The view shows data when background tasks take some noticeable time and is useful when you want to track the progress of lengthy operations. If you open this view at a short task, the view will be empty.



You can cancel the task in progress - click the **Cancel Operation** button (  ).

# Database Object Editor

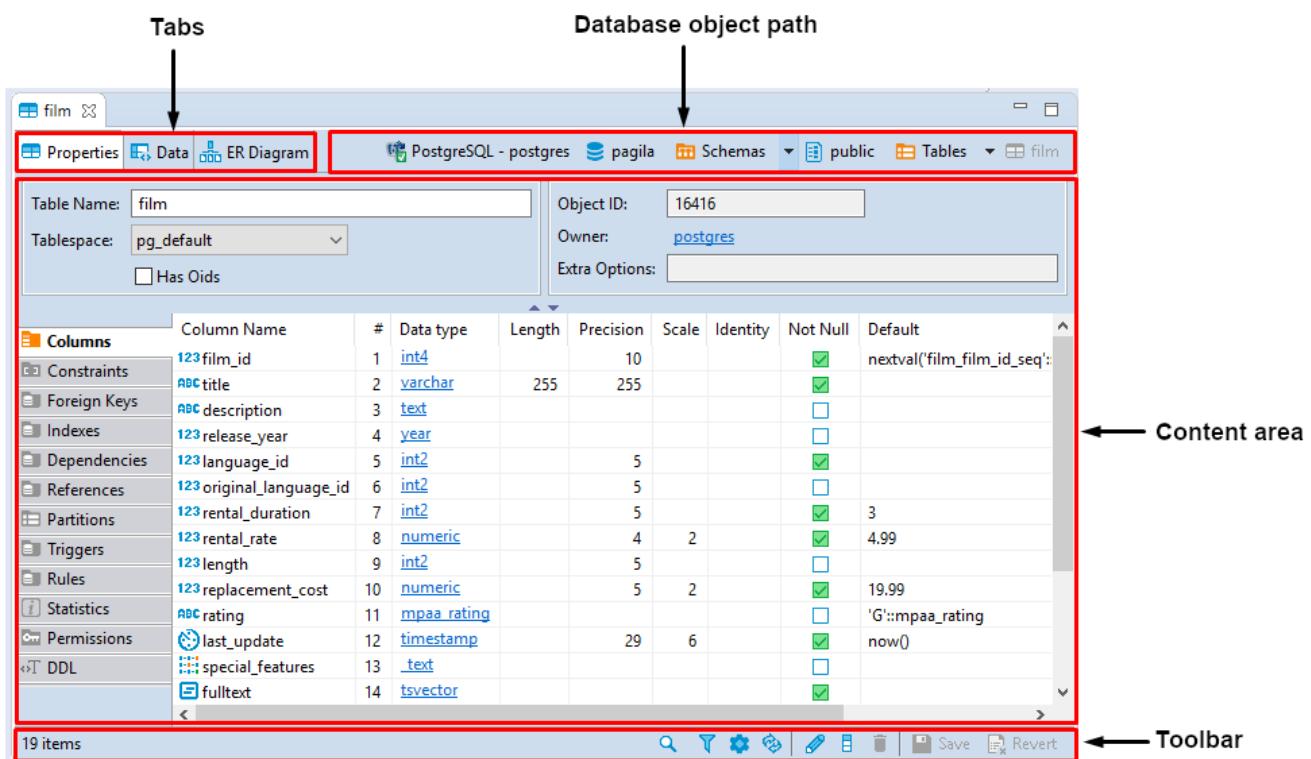
The Database object, or metadata, editor is available for multiple database objects such as tables, views and schemas. To open the metadata editor for an object, in the [Database Navigator](#) or in the [Projects](#) view:

- Double-click the database object
- Click the database object and press **Enter** or **F4**

The editor has three tabs:

- **Properties** tab appears for all objects, contains properties of the database object and its sub-entities, see further in this article
- **Data** tab appears for tables and views and represents the [Data Editor](#)
- **ER Diagram** tab appears for tables and schemas and displays ERD (Entity Relation Diagrams), see [ER Diagrams](#) and [Database Structure Diagrams](#)

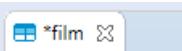
The tabs have the following common parts:



The object's path shows the chain of all its parent entities. The entities are clickable: clicking an entity in the path, depending on its nature, either shows its children or opens an editor or a settings window.

The toolbar contains different tools on each of the three tabs.

An asterisk appears in the title of an editor if it contains unsaved changes:



The Database Object editor supports the **Ctrl+Z** (undo) function.

# Properties Editor

The Properties tab of the [Database Object Editor](#) provides tools to view and edit the database object's properties.

The content area of the Properties tab falls into two parts: the top pane displays properties of the current database object itself while the bottom pane contains properties of the object's sub-entities or some complex properties like DDL (an SQL description of the current database object).

Properties of sub-entities appear in side tabbed editors – to open such an editor, click the tabs on the left side of the area:

The screenshot shows the Database Object Editor with the 'actor' table selected. The top pane displays general properties for the table, including its name, tablespace, and a list of columns. The bottom pane shows detailed properties for each column, such as data type, length, and constraints. A sidebar on the left lists other sub-entities like Constraints, Foreign Keys, and Indexes. A toolbar at the bottom provides various editing tools like search, filter, and save.

Column Name	#	Data type	Length	Precision	Scale	Identity	Not Null	Default	Collation	Comment
123 actor_id	1	int4		10			<input checked="" type="checkbox"/>	nextval('actor_actor_id_seq'::regc...		qwe
abc first_name	2	varchar	45	45			<input checked="" type="checkbox"/>			default
abc last_name	3	varchar	45	45			<input checked="" type="checkbox"/>			default
last_update	4	timestamp		29	6		<input checked="" type="checkbox"/>	now()		1234
data_name	7	date		13			<input type="checkbox"/>			
time_name	8	time		15	6		<input type="checkbox"/>			
abc Column1	9	varchar	100	100			<input type="checkbox"/>			default

The toolbar at the bottom of the editor provides the following tools for the majority of sub-entities except for some specific ones like Permissions (in PostgreSQL) or SQL based views (DDL and Source):

Button	Name	Description
	Search items	Displays a search field next to the button: <ul style="list-style-type: none"><li>- Type in the search combination - the content updates dynamically</li><li>- To remove the filter, click the cross icon next to the search field</li></ul>
	Filter settings	Opens the Filtering window which allows setting a custom filter, see <a href="#">Configure Filters</a>
	Configure columns	Opens the Configure columns dialog box in which you can select the columns to display or hide in the current view
	Refresh the selected items	Depending on the database type, refreshes either the current item or its parent or the whole database object – reloading data from the database
	View	Opens an editor/viewer for the item currently in focus
	Create new [items]	Creates a new item of the same type as currently displayed in the open view, for example, a column
	Delete database object	Deletes the item currently in focus
	Save the current contents	<ul style="list-style-type: none"><li>- Same as the <b>Save</b> button on the application main toolbar</li><li>- Same as <b>Ctrl+S</b></li><li>- Opens the <b>Persist Changes</b> window that allows saving changes in the currently open sub-entity</li></ul> <p>NOTE: DBeaver recommends saving work after each change.</p>

Button	Name	Description
 Revert	Revert to the last saved state	Reverts all changes made to the whole database object to the last saved state

Items in the tabbed editors have context menus which provide the same commands as those in the [Database Navigator](#). To open a context menu for an item, right-click the item.

## SQL Script Editors

SQL script editors (**DDL** and **Source**) of the Properties tab contain SQL script that you can either view or modify. The toolbar of the DDL and Source tabs provides the following tools:

Button	Name	Description
 Load form file		- Allows selecting a file from the file system - Disabled if the SQL code is read-only
 Save to file		Allows saving the current SQL code to a file
 Open in SQL console		Opens the SQL code in an SQL Editor

You can select parts of the SQL code and apply generic commands such as copy-paste or SQL-specific commands like formatting – using the context menu. To open the context menu, right-click the SQL code. See [SQL Editor](#) for information about SQL-specific commands.

NOTE: **SQL Assist**, **SQL Template**, and **SQL Context Information** menu items on the context menu are disabled if the SQL script is read-only.

# Data Editor

The Data editor appears:

- As the **Data** tab of the [Database Object Editor](#) available only for tables and views.
- As the **Results** tab when you run a custom SQL query in [SQL Editor](#)

The Data editor allows viewing and editing the data of a database table or view. The central part of the Data editor is the data table. The editor also provides two toolbars and a filter field:



To learn how many rows the data table contains, click the **Calculate total row count** button in the bottom toolbar. The number of rows appears in a status field next to the button: 8,715

To learn about ways to navigate data in the data table, see [Navigation](#) article.

The top toolbar contains the following buttons:

Button	Name	Description
	<b>Apply filter criteria</b>	Applies filter criteria entered in the filter field above the data table, see <a href="#">Data Filters</a> article for more information
	<b>Remove all filters/orderings</b>	Removes all filters and orderings applied to the data
	<b>Save filter settings for current object</b>	Saves the current filter settings for the database object to apply next time when you reopen it in the editor, see details in <a href="#">Data Filters</a> article
	<b>Custom Filters</b>	Opens the Result Set Order/Filter Settings window, see <a href="#">Data Appearance</a> article for more information
	<b>Configure auto-refresh</b>	Allows configuring data auto-refresh settings, see <a href="#">Data Refresh</a> article for details
	Forward and backward - history navigation buttons	Navigate forward and backward in the Data Editor history, see <i>History</i> section of <a href="#">Navigation</a> article for more information. The buttons are equivalent to pressing the key combinations: <b>Alt+Left</b> (backward) and <b>Alt+right</b> (forward).

The side bar contains the following tabs:

Button	Name	Description
	<b>Grid</b>	Switches to grid view of data

Button	Name	Description
 Text	Text	Switches to plain text view of data
 Chart	Chart	Switches to chart view. For more details on charts, see <a href="#">Managing Charts</a> article.
 Record	Record	<ul style="list-style-type: none"> <li>- Same as pressing <b>Tab</b></li> <li>- Switches the positions of rows and columns so that columns appear as rows, and rows hide in one <b>Value</b> column, see details in the <i>Table vs. Record Views</i> section of <a href="#">Data Appearance</a> article.</li> </ul>

The bottom toolbar provides the following buttons:

Button	Name	Description
 Save	Save	Saves all unsaved changes to the data such as adding, duplicating, deleting rows, inline editing of values, see <a href="#">Data Viewing and Editing</a> article for information
 Cancel	Cancel	Discards all unsaved changes to the data
 Script	Script	Opens the Preview Changes window in which you can see changes that you have made to the data, see details in <a href="#">Data Viewing and Editing</a> article
 Edit cell value in separate dialog/editor	Edit cell value in separate dialog/editor	Opens the cell in focus for editing in a separate editor or dialog box, see details in <i>Cell Editor</i> section of <a href="#">Data Viewing and Editing</a> article
 Add new row	Add new row	Adds a new empty row below the current row, see details in <i>Adding, Copying and Deleting Rows</i> section of <a href="#">Data Viewing and Editing</a> article
 Duplicate current row	Duplicate current row	Copies the current rows and pastes the copy below the current row, see details in <i>Adding, Copying and Deleting Rows</i> section of <a href="#">Data Viewing and Editing</a> article
 Delete current row	Delete current row	Colors the rows in focus in red to mark them for deletion, see details in <i>Adding, Copying and Deleting Rows</i> section of <a href="#">Data Viewing and Editing</a> article
 Move to first row	Move to first row	Moves the focus (highlighting) from the current to the first row of the table
 Move to previous row	Move to previous row	Moves the focus (highlighting) from the current to the previous row of the table
 Move to next row	Move to next row	Moves the focus (highlighting) from the current to the next row of the table
 Move to last row	Move to last row	Moves the focus (highlighting) from the current to the last row of the table
 Fetch next page of results	Fetch next page of results	Fetches the next portion of data (next N rows) making it ready for display, see <i>Scrolling Results Page</i> section of <a href="#">Navigation</a> article for more information
 Fetch all rows	Fetch all rows	Fetches the whole result set making it ready for display, see <i>Scrolling Results Page</i> section of <a href="#">Navigation</a> article for more information
 Panels	Panels	Opens panels on the right side of the Data Editor, see <a href="#">Panels</a> for information
 Configure	Configure	Opens a dropdown menu with settings
 JSON	JSON	<ul style="list-style-type: none"> <li>- Available in EE version only for MongoDB documents and JSON tables</li> <li>- Switches to JSON view of data</li> </ul>
 XML	XML	<ul style="list-style-type: none"> <li>- Available in EE version only for XML tables</li> <li>- Switches to XML view of data</li> </ul>
 Generate Mock Data	Generate Mock Data	Opens the Mock Data Generator window, see TBD for details
 Rows count details	Rows count details	Opens the Status details dialog box showing the timing details of fetching table rows
 Calculate total row count	Calculate total row count	Calculates the total number of rows in the table

Every cell in the data table has a context menu – right-click the cell to open the menu. The context menu provides the following items:

Menu Item	Description
<b>Cut</b>	Cuts the content of the current cell or column to the clipboard

Menu Item	Description
<b>Copy</b>	Copies the content of the current cell or column to the clipboard
<b>Advanced Copy</b>	Opens advanced copy submenu that allows copying data with preset formatting parameters
<b>Paste</b>	Pastes the copied content to the cells in focus
<b>Advanced Paste</b>	Pastes several values delimited with a tabulation or line break
<b>Delete</b>	Deletes the row that has the cell in focus NOTE: In fact, when users click <b>Delete</b> , the system only highlights the row red while the actual deletion happens when users click <b>Save</b> .
<b>Edit cell</b>	- For CLOB/BLOB data format, opens the contents of the cell in a new tab - For all formats except CLOB/BLOB, opens a properties window for the cell
<b>Inline edit</b>	- Same as double-click on a cell - Makes the cell editable
<b>Set to NULL</b>	Sets the value of selected cells to NULL
<b>Hide column</b>	Hides the column currently in focus, see the Managing Display of Columns in Data Table section further in this article
<b>Save to file...</b>	- Appears only for columns with BLOB/CLOB data - Opens the standard Save As window that allows saving data contained in the cell to a file
<b>Load from file...</b>	- Appears only for columns with BLOB/CLOB data - Opens a standard window for opening files
<b>Order/Filter</b>	Displays a submenu that allows selecting filter criteria for the data. The submenu contains the most common filters that can be applied to the cell in focus – see details in <a href="#">Data Filters article</a> . By default, DBeaver filters data by sending a request to the server (the Server-side results ordering checkbox selected). To filter data on the client side using DBeaver's internal algorithm, clear the checkbox.
<b>View/Format</b>	Opens a submenu that provides tools for formatting and modifying the view of data, see <a href="#">Data View and Format</a>
<b>Navigate</b>	Opens a submenu that helps users navigate throughout the data table, see <a href="#">Navigation</a>
<b>Layout</b>	Changes the layout of data, see the <i>Table vs. Record Views</i> section of the <a href="#">Data View and Format</a> article
<b>Export Resultset</b>	Opens the Data Transfer wizard that guides you through the steps to select a format and export data NOTE: The system exports the whole result set including records that are not visible in the screen and preserves all applied data filters and ordering.
<b>Generate SQL</b>	Opens a submenu on which you can select the type of SQL query to generate
<b>Refresh</b>	Refreshes the whole results set including all items that are not visible in the screen

For more information about using the Data Editor, please see the subsections of this article - open them via the contents tree on the right.

# Navigation

## Scrolling Results Page

If the result set has many rows, you can scroll the results page. To learn how many rows the data table contains, click the **Calculate total row count** button in the bottom toolbar. The number of rows appears in a status field next to the button: 8,715. Alternatively, you can right-click a cell in the table and then click **Navigate -> Row Count** on the context menu.

By default, DBeaver limits the number of rows fetched to **200** (you can change this value in the main toolbar or in preferences). The maximum number of rows that DBeaver fetches to display in the Data tab is specified in the Maximum result-set size field in the main toolbar: 200

Once you scroll to the last row of the current result portion, DBeaver fetches the next portion (next N rows). You can disable this behavior in preferences. You can also manually fetch the next portion of data equal to the maximum result set size. To do so, click the **Fetch next page of results** button () in the bottom toolbar or right-click the table and click **Navigate -> Fetch next page** on the context menu.

The number of rows fetched is visible in the status field under the data table:

500 row(s) fetched - 0ms

To see the details, click the details button in the status field.

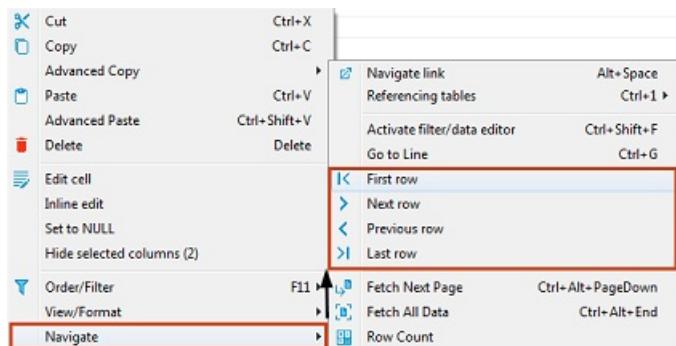
To fetch the whole result set, click the **Fetch all rows** button () in the bottom toolbar or right-click the table and click **Navigate -> Fetch All Data** on the context menu.

NOTE: Be careful when fetching the whole result set. If it is huge, it might cause program hangup or out-of-memory errors.

You can navigate through the result set using standard shortcuts **Home**, **End**, **PgUp**, **PgDown**, **Ctrl+Home**, **Ctrl+End**.

## Data Rows

To jump to the first or last row or move one row forward or backward, use the navigation buttons in the bottom toolbar or on the context menu:



To jump to a specific line, right-click anywhere in the table and click **Navigate -> Go to Line** on the context menu. Then in the Go to Row dialog box, enter the row number and click **OK**.

## History

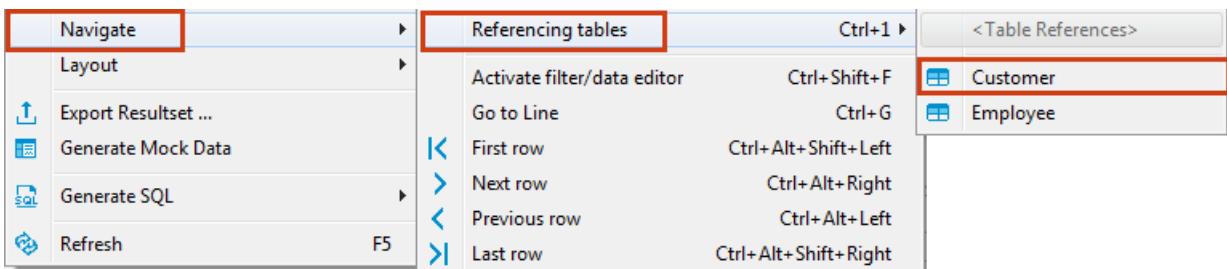
DBeaver remembers the history of such actions as applying filters to data, opening reference tables or other tables via links. You can navigate among such tables and filtered views:

- Use the forward and backward buttons in the top toolbar:
- Click **Ctrl+Left** or **Ctrl+Right**

Hovering over these buttons displays the names of the tables or filtered views saved in the history.

## Navigate Foreign Keys / Referencing Tables

You can navigate by foreign keys or to referencing tables – those that reference the current table. To open a referencing table, press **Ctrl+1** or right-click the cell and click **Navigate->Referencing tables->[table name]**:



The referencing table opens in the same editor. To navigate back and forth between the initial and referencing tables, use the history navigation buttons ( ) in the top toolbar of the editor. In order to open referencing table in a new window use **Ctrl+Shift+F1** shortcut to show menu.

## Navigation Links

---

In the data editor, you can navigate to linked tables – the ones that the current table references. To open a linked table, click the Navigate link icon in a cell that contains it:

	123 AlbumId	abc Title	123 ArtistId
7	7 Facelift		5
8	8 Warner 25 Anos		6
9	9 Plays Metallica By Four Cel		7

Another way is to right-click such a cell and click **Navigate -> Navigate link** on the context menu. The linked table opens in the same editor, filtered by the cell value:

Artist	ArtistId = 6
	123 ArtistId  abc Name

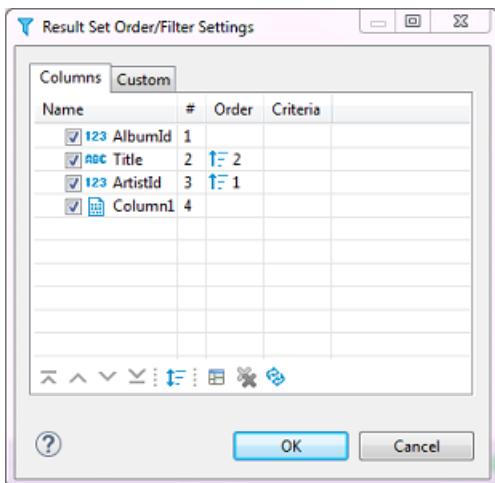
NOTE: The table name in green above the table indicates which table is currently open in the editor.

To navigate back and forth between the initial and linked tables, use the history navigation buttons ( ) in the top toolbar of the editor.

You can open a linked table in a separate editor. To do so, simultaneously hold the **Ctrl** key and click the Navigate link icon () in the cell.

# Data View and Format

The main tool for managing the appearance of the data table is the Result Set Order/Filter Settings window.

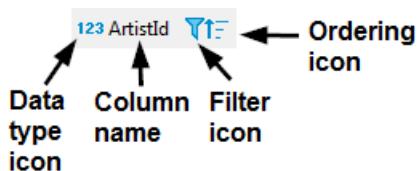


To open this window, click the Custom Filters button () in the top toolbar of the editor or click the Configure button () and then click **Order/Filter** on the dropdown menu.

The Result Set Order/Filter Settings window provides tools to:

- Order data inside columns
- Manage the display of columns in the table
- Manage the order of columns in the table
- Filter data in the table using an SQL expression, see ... below

Another tool for managing data appearance are column headers. In the data table, every column header contains three elements each having its own function: Data (column) type icon, column name, filter icon, and ordering icon.



- Simply clicking the column name or column type icon highlights the whole column.
- You can click the column type icon and then drag and drop the column to a different position in the table.
- You can click the column name and then drag the cursor right or left to highlight multiple columns.
- Clicking the ordering icon allows ordering the data in the column in ascending or descending order - see 'Ordering Data in Columns' section further in this article
- Clicking the filter icon allows filtering the data by a cell value, see [TBA]

## Ordering Data in Columns

You can order data in columns in one of the ways:

1. Click the ordering icon (?) in the header of the column.



The icon has three states:

- Clicking once establishes ascending order ()
- Clicking a second time changes the order to descending ()
- Clicking a third time removes the ordering from the column ()

To order data by several columns, go column by column, setting the order with the Ordering icon, starting from the column by which you want to order data first.

2. Click the Custom Filters button (T) in the top toolbar of the editor to open the Result Set Order/Filter Settings window (see above):
  - a) Next to the column by which you want to order data in the first turn, set the ascending or descending order using the same three-state principle as described above.
  - b) Set the ordering in other columns by which you want to sort data in the second, third, etc. turn. The **Order** column indicates the order in which the sorting will happen.

NOTE: The number (#) column indicates the initial order of columns.

Columns		
Name	#	Order
123 AlbumId	1	
123 ArtistId	3	↑ ↓ 2
Column1	4	↑ ↓ 1

c) To easily move the ordering setting from column to column, you can use the Move up/down/to top/to bottom/ buttons:



To reset the data ordering to its initial state, click the Reset button (R) in the same window.

Also, to remove all ordering settings, click the Remove All Filters/Orderings button (Tx) in the top toolbar of the Data Editor.

## Managing Display of Columns in Data Table

To hide a single column, right-click the column or any cell in it and click **View/Format -> Hide column** on the context menu. To unhide a hidden column, open the Result Set Order/Filter Settings window (see the image at the beginning of in this article) and select the checkbox next to the column name or click the Reset button (R).

To display or hide columns in the data table, in the Result Set Order/Filter Settings window:

1. Select the checkboxes next to the columns that you want to see in the table and clear the checkboxes next to those that you want to hide.

Columns		
Name	#	Order
123 AlbumId	1	
abc Title	2	
123 ArtistId	3	
Column1	4	↑ ↓ 1

2. Use the Show All (A) and Show None (X) buttons at the bottom of the window.

## Sorting Columns in Data Table

You can modify the order of columns in the data table in two ways:

1. Click the icon in the column header and drag-and-drop the column to a new position.
2. To sort column alphabetically, in the Result Set Order/Filter Settings window (open by clicking the Custom Filters button (T) in the top toolbar of the editor), click the Sort button (T↓↑).
3. In the Result Set Order/Filter Settings window, click the column to set focus to it and then move it using the navigation buttons: (A ↑ ↓ X)

## Grid vs. Plain Text Views

You can switch between two data presentations in SE version and four presentations in EE version. Pressing **CTRL+~** switches available presentations in turn.

- To see data in a grid view, similar to Excel spreadsheet, click the **Grid** button (Grid) in the bottom toolbar of the editor.
- To switch to the plain text view, click **Text** (Text) in the bottom toolbar.
- To switch to JSON view (available in EE version only for MongoDB documents and JSON tables), click **JSON** in the toolbar.
- To switch to XML view (available in EE version only for XML tables), click **XML** in the toolbar.

## Table vs. Record Views

The table view is a standard table (Excel-like) in which columns are vertical and rows are horizontal. This view is the default one. If you click the **Record** button in the bottom toolbar of the editor (  Record), or press **Tab**, or right-click a cell and then click **Layout -> Record** on the context menu, the rows and columns switch positions – columns appear as rows, and rows hide in one **Value** column which now shows only one row of data, and column headers shift from the top of the table to its left side:

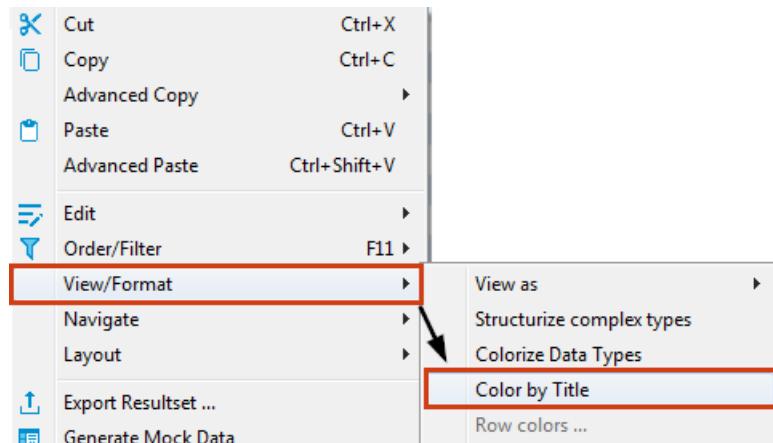
	Value
123 AlbumId	22
ABC Title	Sozinho Remix Ao Vivo
123 ArtistId	16
Column1	[NULL]

The Record view is useful if the table contains a big number of columns. To navigate from row to row of data, use the navigation buttons in the bottom toolbar of the editor: 

To return back to the standard table view, click the **Record** button again.

## Rows Coloring

In the data editor, you can color all rows that have the same value as a particular cell of a certain column. To do so, right-click the cell and click **View/Format -> Color by {column name}** on the context menu:



Then choose the color in the palette window that appears and click **OK**. The current row and all other rows that contain the same value change their color to the one you selected:

	123 AlbumId	ABC Title	123 ArtistId	Column1
3	3	Restless and Wild	2	[NULL]
4	4	Let There Be Rock	1	ewqewq
5	5	Big Ones	3	[NULL]

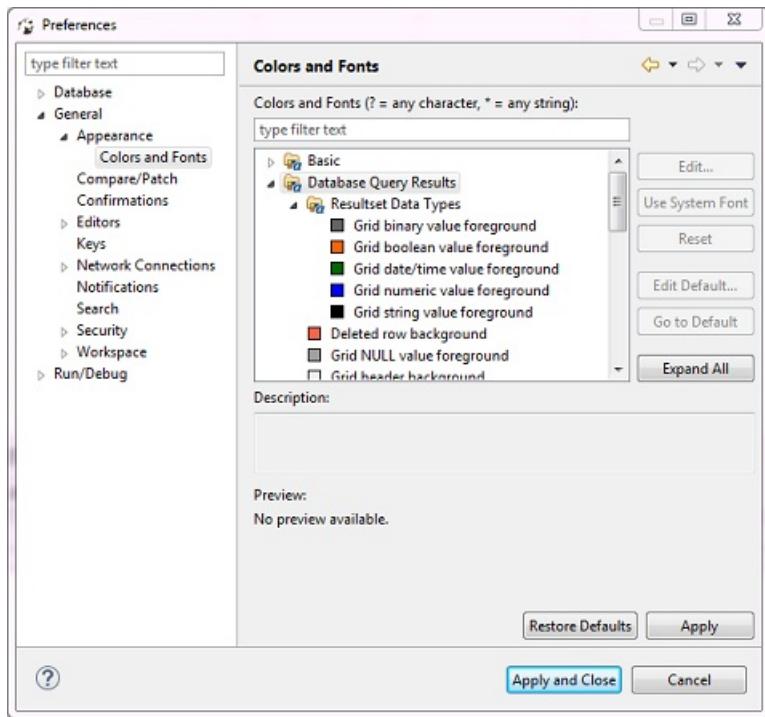
To remove the coloring by a particular column, right-click the cell again and click **View/Format -> Reset color by [column name]** on the context menu. To remove coloring from all rows, right-click anywhere in the table and, on the context menu, click **View/Format -> Reset all colors**.

## Coloring by Data Types

Besides coloring rows by a value, you can colorize values in columns by data types. To do so, right-click any cell in the table and, on the context menu, click **View/Format -> Colorize Data Types**. Values in cells are colored in different colors according to preferences currently set:

film   Enter a SQL expression to filter results (use Ctrl+Space)									
	123 rental_rate	123 length	123 replacement_cost	rating	last_update	special_features		fulltext	
1	0.99	86	20.99	PG	2007-09-10 17:46:03	(Deleted Scenes,Behind the Scenes)		'academi':1	
2	4.99	48	12.99	G	2007-09-10 17:46:03	(Trailers,Deleted Scenes)		'ace':1 'adn	
3	2.99	50	18.99	NC-17	2007-09-10 17:46:03	(Trailers,Deleted Scenes)		'adapt':1 'a	
4	2.99	117	26.99	G	2007-09-10 17:46:03	(Commentaries,Behind the Scenes)		'affair':1 'ch	
5	2.99	130	22.99	G	2007-09-10 17:46:03	(Deleted Scenes)		'african':1 '	
6	2.99	169	17.99	PG	2007-09-10 17:46:03	(Deleted Scenes)		'agent':1 'ai	
7	4.99	67	28.99	PG-13	2007-09-10 17:46:03	(Trailers,Deleted Scenes)		'airlan':1 '	

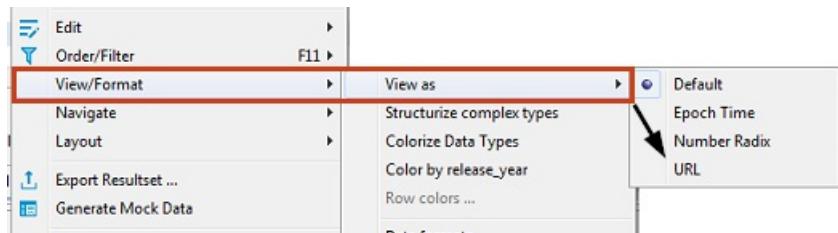
You can change the color preferences in the Preferences window: click **Window -> Preferences** on the main menu. Then, in the window, in the navigation pane on the left, expand **General** and then **Appearance**, and then click **Colors and Fonts**:



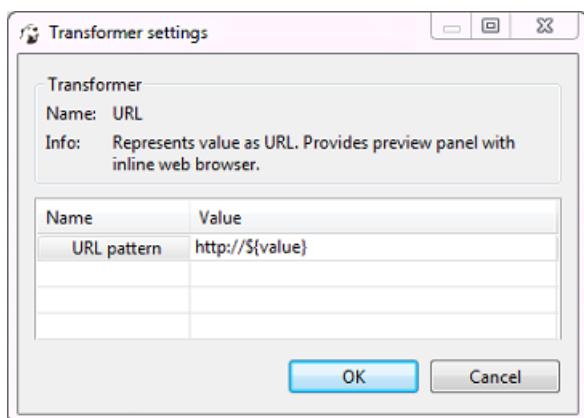
To remove coloring by data types, on the context menu, click **View/Format -> Colorize Data Types** again.

## Transforming Data Presentation

For string and numeric data types, DBeaver provides tools to transform the data presentation into a number of formats, such as URL and Binary for strings and Epoch Time, Number Radix, etc. for numbers. To change the data presentation in a certain column, right-click a cell in the column, then, on the context menu, click **View/Format -> View as** and then click the presentation type name:



The Transformer settings window opens showing the value in the chosen format. Click **OK** to apply the change:



The values in the column appear in the new format.

NOTE: For URL format, the resulting cell provides a link to the URL in a browser window.

To roll back the changes to the default format, right-click any cell in the column, and on the context menu, click **View/Format -> View as -> Default**.

## Structurizing Complex Data Types

For complex data types (that themselves represent a structure), such as objects, structures and arrays, DBeaver provides a tool for breaking them into columns:

Properties Data ER Diagram

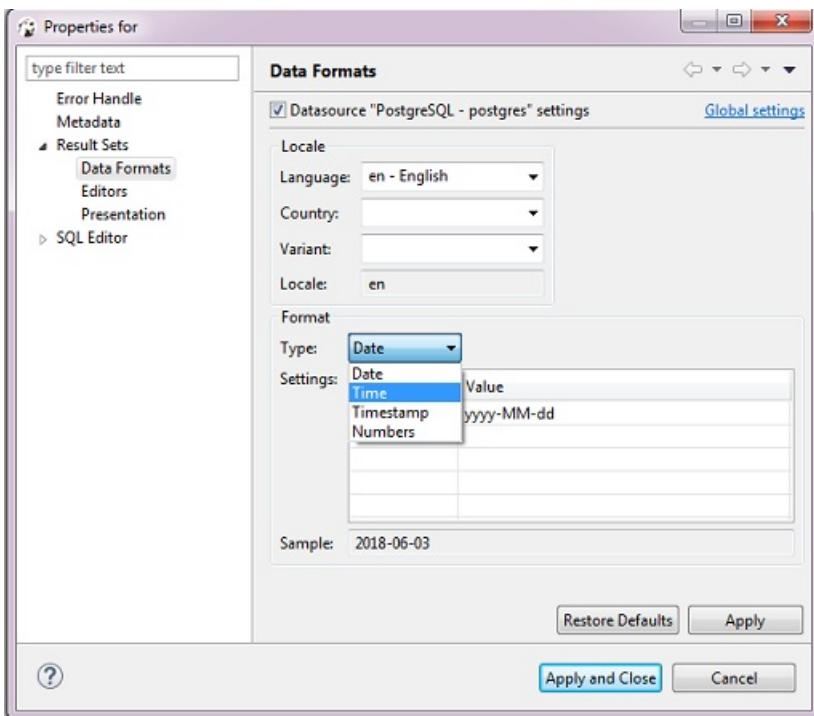
restaurants | Enter a SQL expression to filter results (use Ctrl+Space)

	<b>ABC borough</b>	<b>ABC cuisine</b>	<b>grades</b>	<b>name</b>	<b>restaurant_id</b>			
	<b>ABC zipcode</b>		<b>date</b>	<b>ABC grade</b>	<b>123 score</b>			
1	10462	Bronx	Bakery	2014-03-03 04:00:00	A	2	Morris Park Bake Shop	30075445
2	11225	Brooklyn	Hamburgers	2014-12-30 03:00:00	A	8	Wendy'S	30112340
3	10019	Manhattan	Irish	2014-09-06 04:00:00	A	2	Dj Reynolds Pub And Restaurant	30191841
4	11224	Brooklyn	American	2014-06-10 04:00:00	A	5	Riviera Caterer	40356018

To do so, right-click a cell in the column and, on the context menu, click **View/Format -> Visualize complex columns**.

## Configuring Numeric and Time Data Formats

You can specify the exact format of Time, Timestamp, Date, and Number data used in the currently open database or globally. To specify a format, right-click any cell in the table and, on the context menu, click **View/Format -> Data formats**. The Properties window opens displaying the **Data Formats** page:



To configure the format for the current database only, select the **Datasource "[Connection name]" settings** checkbox. To configure the settings globally, to all databases that you have in DBeaver, click **Global settings**.

You can specify the locale for the data format in the **Locale** area, then, in the **Type** dropdown list, click the name of the data type and then, in the **Settings** table, click the required format.

To apply the changes and make them visible in the table, click **Apply and Close** and then refresh the window (**F5**).

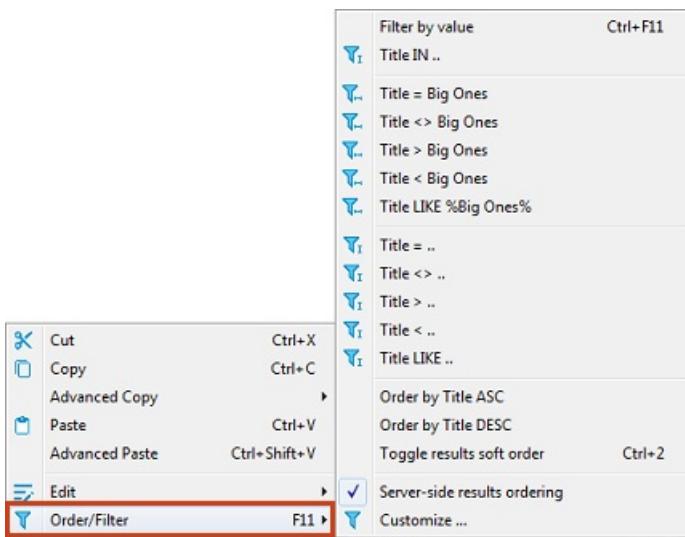
# Data Filters

You can apply custom filters to any table contents or query results. There are several ways in which you can filter data in the table.

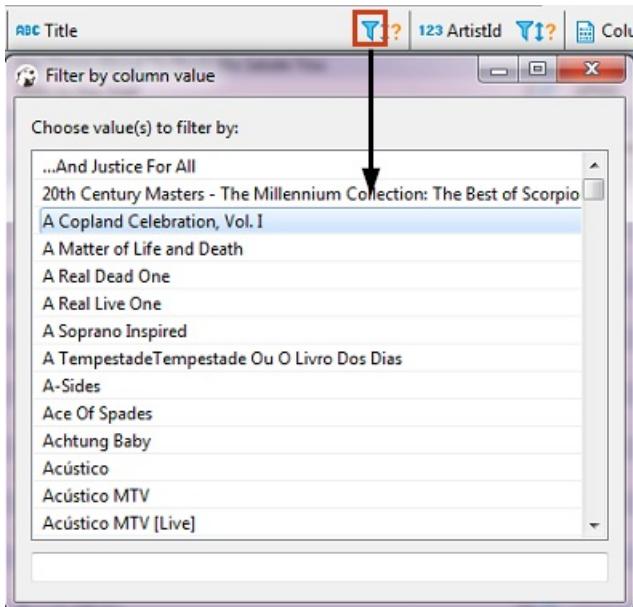
One of the ways is to use the filter field above the table next to the top toolbar. To filter data, enter an SQL expression into the field and click the Apply filter criteria button ( next to the field or press **Enter**.

Album	Title="Big Ones"	AlbumId	Title	ArtistId	Column1
1	5 Big Ones	3	[NULL]		

You can apply ready-to-use SQL expressions or SQL expression templates via the context menu. To select a ready SQL expression or a template, press **F11** or right-click the cell, then click **Order/Filter** on the context menu and then click one of the expressions.



The third way is to filter data by a cell value using the filter icon in the column header. To filter data this way, click the filter icon in the column header and then double-click the cell value in the Filter by column value dialog box:



The data updates dynamically. To remove a filter, click the Remove All Filters/Orderings button ( in the top toolbar of the editor.

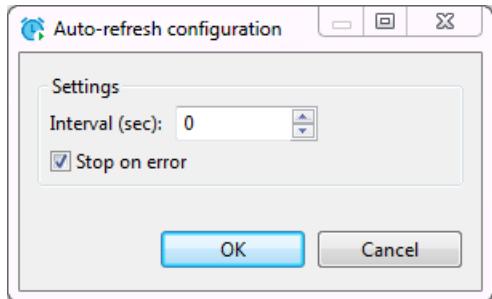
You can save the current filter settings for the database object to apply next time when you reopen it in the editor. To save the current filter settings, click the Save filter settings for current object button ( in the top toolbar.

# Data Refresh

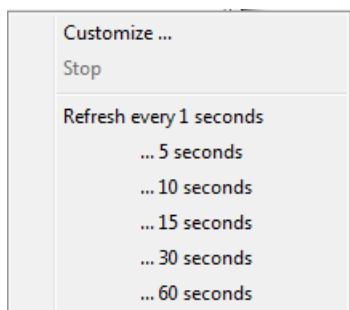
Refresh is necessary if the database contains changes made by other users working on it simultaneously with you and you want to see them in your DBeaver window. To refresh data manually, right-click anywhere in the data table and click **Refresh** on the context menu or press **F5**.

You can also schedule auto-refresh to happen on a regular basis. To auto-refresh the database on schedule:

1. Click the Configure auto-refresh button (  ) on the top toolbar of the editor. The Auto-refresh configuration dialog box opens:



- a) Set **Interval** in seconds.  
b) Select the **Stop on error** checkbox if you want the refresh to stop when it encounters an error or clear it, if the refresh should ignore errors.  
c) Click **OK**.
2. Alternatively, click the arrow next to the Configure auto-refresh button (  ) to open the auto-refresh menu:



On the menu, you can click one of the preset options or click **Customize** to open the Auto-refresh configuration dialog box, see option 1.

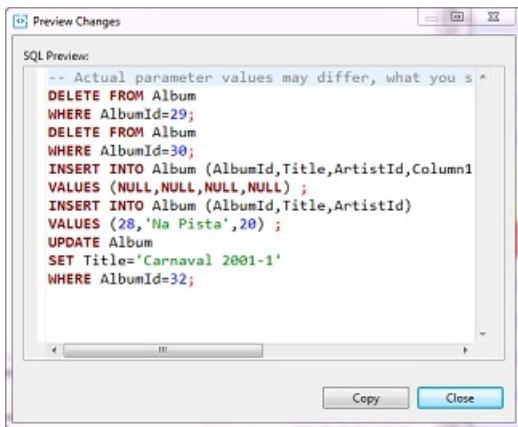
When you perform either of the two alternative options above, the system starts refreshing the data as scheduled and the Configure auto-refresh button changes to **Stop auto-refresh** button (  ). To stop the auto-refresh, click the **Stop auto-refresh** button or click the arrow next to it and click **Stop** on the auto-refresh menu.

# Data Viewing and Editing

You can do inline editing (see the *Inline Editing* section below) as well as open the content of a cell in a separate editor (see the *Cell Editor* section below).

When you make any changes to the data and save them using steps described in this section, the changes apply to the database itself. Prior to saving the changes, you can preview the SQL script that the system sends to the database to apply the changes there. To see the SQL script, after making changes and before saving or discarding them, click the **Script** button (  Script ) in the bottom toolbar.

The Preview Changes window opens, in which you can only view the SQL script and copy it, if necessary:



## Inline Editing

Inline editing is when you modify the content right in the cell. To edit a cell inline, in the table do one of the following:

- Double-click the cell.
- Click the cell to set focus to it and press **Enter**.
- Right-click the cell and click **Inline edit** on the context menu.

The cell becomes editable, now you can change its value.

To set the cell value to NULL, right-click the cell and click **Set to NULL** on the context menu.

To save the changes, click the **Save** button (  Save ) in the bottom toolbar. To discard the changes, click the **Cancel** button (  Cancel ) in the bottom toolbar.

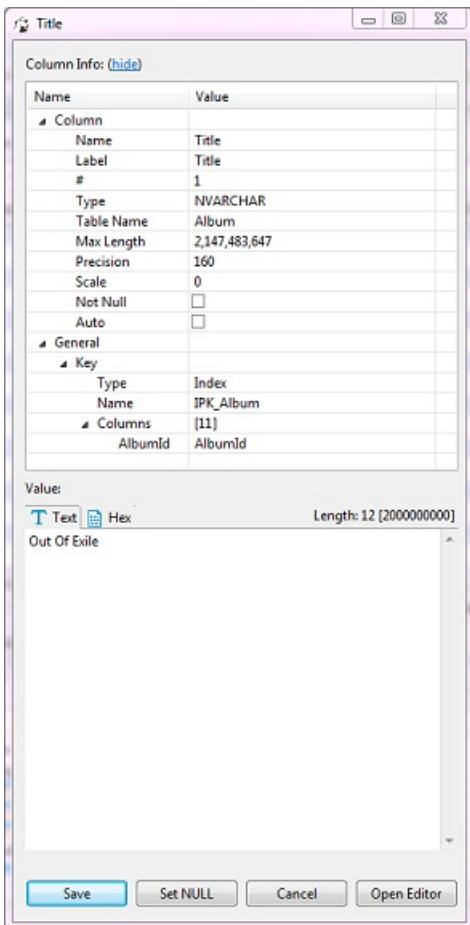
NOTE: Both the **Save** and **Cancel** buttons become editable only when you make changes in a cell and then jump to another cell.

## Cell Editor

To edit data in a cell using a separate editor, do one of the following:

- Right-click the cell and click **Edit cell** on the context menu.
- Click the cell to set focus to it and press **Shift+Enter** or click the **Edit cell value in separate dialog/editor** button (  ) in the bottom toolbar.

For cells of CLOB/BLOB data format, this action opens the contents of the cell in a new tab. For all other formats except CLOB/BLOB, this action opens a properties window for the cell:



The window displays properties of the column in the **Column Info** section and provides the **Value** section where you can modify the value of the cell. Edit the value as required and click **Save**. To set the value to NULL, click **Set NULL**. To continue editing the cell in a separate editor (tab), click **Open Editor**.

NOTE: DBeaver has full support of CLOB/BLOB data types. You can view values, edit them and save back to the database. You can open CLOB/BLOB value in a separate editor (press **Shift+Enter** on a selected cell). You can save/load LOB value to/from regular files. DBeaver can recognize that some BLOB column keeps images (gif, png, jpeg, bmp). In this case DBeaver shows LOB contents as image. It is convenient to open value view panel (press **F7**) and browse images.

## Adding, Copying and Deleting Rows

You can add an empty row below the row in focus. To add an empty row, click the **Add new row** button (**+  
E**) in the bottom toolbar. Use inline editing or open cell values in a separate editor to populate them with data (see the sections above).

You can copy any row or several rows currently in focus. To copy rows, highlight one or more rows and click the **Duplicate current row** button (**C<sub>6</sub>**) in the bottom toolbar. The duplicate rows appear below the rows in focus.

To delete a row or rows, set focus to the rows and click the **Delete current row** button (**E**) in the bottom toolbar. The rows are colored red, which means that they are marked for deletion and will be deleted when you save the changes.

To save any of such changes, click the **Save** button (**Save**) in the bottom toolbar. To discard the changes, click the **Cancel** button (**Cancel**) in the bottom toolbar.

## Copying/Pasting Cells

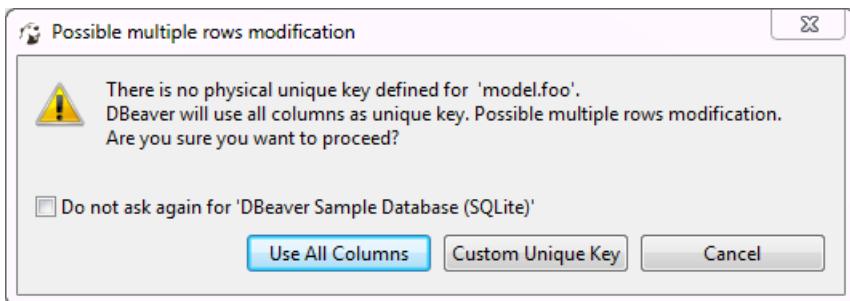
To copy the content of one or several cells to the clipboard in TAB-delimited format, press **Ctrl+C** or right-click the cell or cell selection and click **Copy** on the context menu. Then you can paste the copied selection into some spreadsheet editor (similar to Excel).

DBeaver provides the advanced copy option that allows configuring additional copy settings (copy with column names/row numbers, configure delimiter and choose value format). To copy cells with additional settings, press **Ctrl+Shift+C** or right click the cell(s) and click **Advanced Copy** on the context menu.

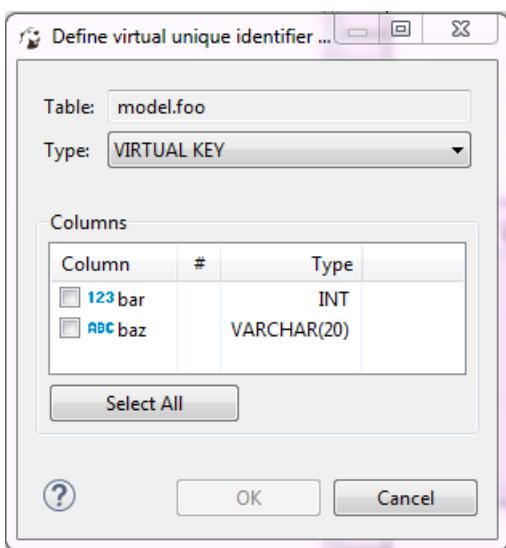
Pressing **Ctrl+V** on a cell pastes the copied content into the cell applying appropriate data type conversion. The **Advanced Paste** option on the context menu or pressing **Ctrl+Shift+V** pastes several cells.

## Defining Virtual Keys

To be able to persist column value changes, a table must have some unique key (primary key or unique index). Some databases (Oracle, DB2, PostgreSQL) support a special virtual unique column that DBeaver can use to save changes. In other cases, you can define a virtual key – a set of columns that forms a unique combination of values. When you try to save changes in a table without a unique key, DBeaver displays the following error message:



To use all columns as the virtual key, click **Use All Columns**. To create a custom key, click **Custom Unique Key**. Alternatively, to create a custom unique key, you can click the **Configure** (⚙️) button in the bottom toolbar and then click **Define virtual unique key** on the Configure menu. The Define virtual unique identifier window opens:



To define the key, select some of the columns or click **Select All** and then click **OK**. To remove a unique key from a table, click the **Configure** button in the bottom toolbar and then click **Clear virtual unique key**.

# Panels

Panels provide additional space in the [Data editor](#) in which you can manipulate with data. The panels are handy if you work with complex types (structures, arrays), or long text data, or BLOBs. Panels appear as tabs in an additional pane in the right part of the Data tab:

The screenshot shows the DBeaver Data editor interface. On the left, there's a table named 'film' with columns: film\_id, title, and description. The table contains 27 rows of movie titles and their descriptions. On the right, a panel titled 'Panels' is open, showing three tabs: Calc, Grouping, Metadata, and Value. The 'Value' tab is selected and displays a table of statistics for the 'film\_id' column. The statistics include:

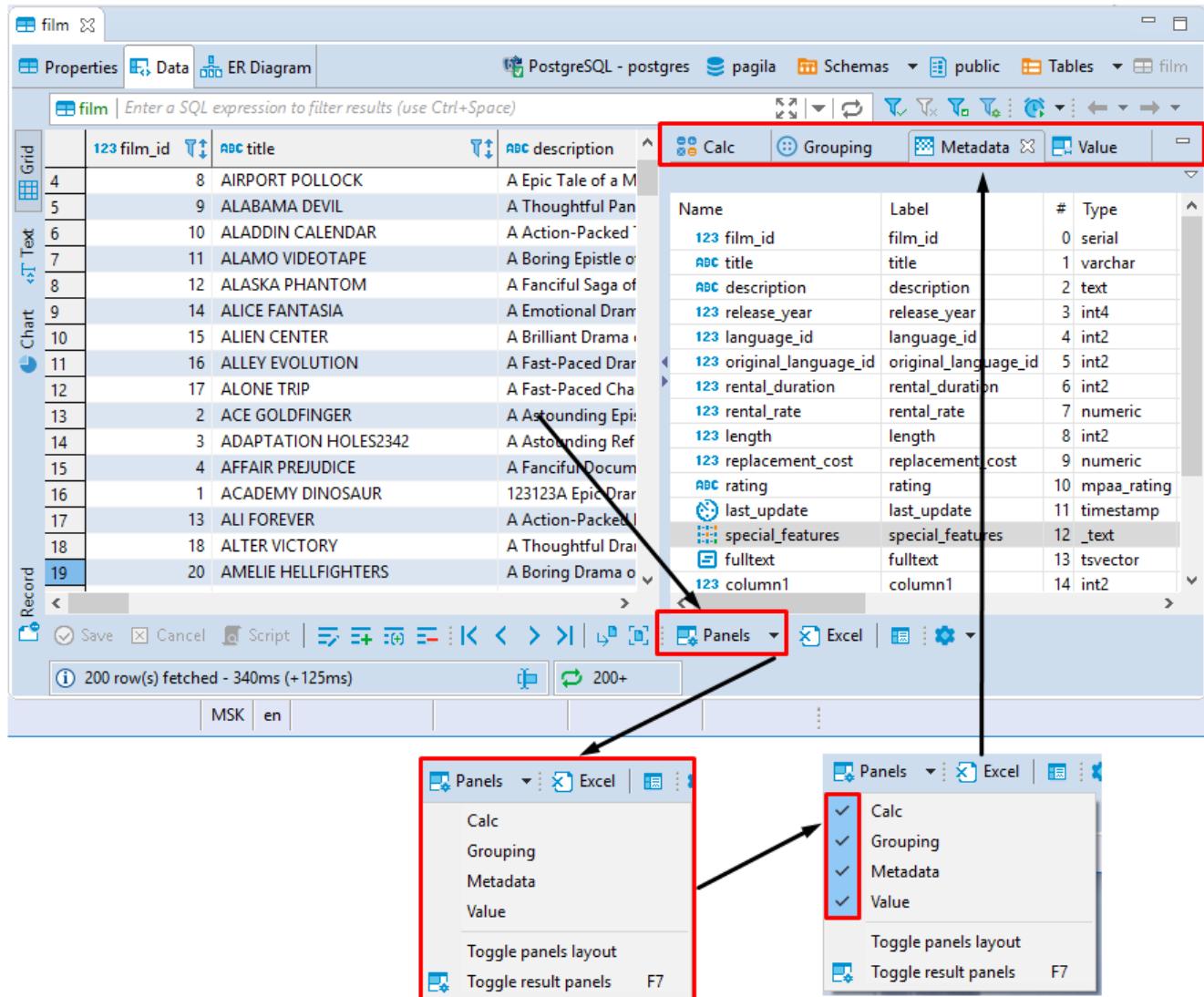
Function	Value
Count	1
Count Distinct	1
Average	

At the bottom of the interface, there's a toolbar with various icons and a status bar indicating "200 row(s) fetched - 340ms (+125ms)".

This additional pane appears only when you open one of the four panels:

- Calc
- Grouping
- Metadata
- Value viewer (default)

To open panels, click **Panels** in the bottom toolbar. By default, the Value viewer panel opens. Alternatively, you can open the Value panel by pressing **F7** on a cell. To open the other panels, click the down arrow next to the **Panels** button and click the name of the panel on the menu:

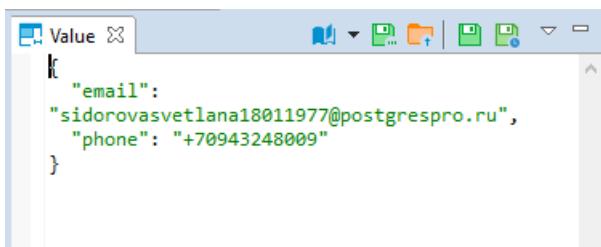


Panels also open if you try to inline-edit a cell with a complex data type.

To close panels, click the **Panels** button again or click the standard Close (cross) icon in the upper right corner of each panel. You can also show and hide panels by clicking the **Configure** button ( in the bottom toolbar and then **Toggle result panels** on the Configure dropdown menu.

## Value Viewer

The Value viewer panel displays just one value that is currently in focus and allows editing it.



The toolbar of Value panel contains the following buttons:

Button	Name	Description
	Content viewer settings	Opens a menu with a set of options for content view change.
	Save to file...	Allows saving the content to a local file. <b>NOTE:</b> This button is only available for XML, JSON and Binary content.

Button	Name	Description
	Load from file...	Allows uploading data from a local file. <b>NOTE:</b> This button is only available for XML,JSON and Binary content.
	Apply cell value	Displays in the data table the changes made in the Value viewer. <b>NOTE:</b> This button does not save changes made to the database. To save the changes in the database, you need to use the <b>Save</b> button in the bottom toolbar of the <a href="#">Data Editor</a> ..
	Auto-apply value	Enables automatic display of changes made in the Value viewer in the data table. When auto-saving is enabled, the changes appear in the data table at the same time when they are made in the Value viewer. <b>NOTE:</b> This button does not save changes made to the database. To save the changes in the database, you need to use the <b>Save</b> button in the bottom toolbar of the <a href="#">Data Editor</a> .

## Metadata Panel

The Metadata panel displays metadata for each cell in the row containing the cell currently in focus. You can just view the metadata.

Name	Label	#	Type	Catalog Name	Schema Name	Table Name	Max Length	Precision	Scale	JDBC Type	Not Null	Auto
123 film_id	film_id	0	serial	pagila	public	film	11	10	0	INTEGER	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
ABC title	title	1	varchar	pagila	public	film	255	255	0	VARCHAR	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ABC description	description	2	text	pagila	public	film	2,147,483,647	2,147,483,647	0	VARCHAR	<input type="checkbox"/>	<input type="checkbox"/>
123 release_year	release_year	3	int4	pagila	public	film	11	10	0	INTEGER	<input type="checkbox"/>	<input type="checkbox"/>
123 language_id	language_id	4	int2	pagila	public	film	6	5	0	SMALLINT	<input checked="" type="checkbox"/>	<input type="checkbox"/>
123 original_language_id	original_language_id	5	int2	pagila	public	film	6	5	0	SMALLINT	<input type="checkbox"/>	<input type="checkbox"/>
123 rental_duration	rental_duration	6	int2	pagila	public	film	6	5	0	SMALLINT	<input checked="" type="checkbox"/>	<input type="checkbox"/>
123 rental_rate	rental_rate	7	numeric	pagila	public	film	6	4	2	NUMERIC	<input checked="" type="checkbox"/>	<input type="checkbox"/>
123 length	length	8	int2	pagila	public	film	6	5	0	SMALLINT	<input type="checkbox"/>	<input type="checkbox"/>
123 replacement_cost	replacement_cost	9	numeric	pagila	public	film	7	5	2	NUMERIC	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ABC rating	rating	10	mpaa_rating	pagila	public	film	2,147,483,647	2,147,483,647	0	OTHER	<input type="checkbox"/>	<input type="checkbox"/>
⌚ last_update	last_update	11	timestamp	pagila	public	film	29	29	6	TIMESTAMP	<input checked="" type="checkbox"/>	<input type="checkbox"/>
✳️ special_features	special_features	12	_text	pagila	public	film	2,147,483,647	2,147,483,647	0	ARRAY	<input type="checkbox"/>	<input type="checkbox"/>
✉ fulltext	fulltext	13	tvector	pagila	public	film	2,147,483,647	2,147,483,647	0	OTHER	<input checked="" type="checkbox"/>	<input type="checkbox"/>
123 column1	column1	14	int2	pagila	public	film	6	5	0	SMALLINT	<input type="checkbox"/>	<input type="checkbox"/>
✓ column2	column2	15	bool	pagila	public	film	1	1	0	BOOLEAN	<input type="checkbox"/>	<input type="checkbox"/>
⌚ time_name	time_name	16	time	pagila	public	film	15	15	6	TIME	<input type="checkbox"/>	<input type="checkbox"/>
⌚ date_name	date_name	17	date	pagila	public	film	13	13	0	DATE	<input type="checkbox"/>	<input type="checkbox"/>
⌚ dateTime_name	dateTime_name	18	timestamp	pagila	public	film	29	29	6	TIMESTAMP	<input type="checkbox"/>	<input type="checkbox"/>

## Calc Panel

The Calc panel is useful for getting basic statistics across data in several columns and rows:

The screenshot shows the DBeaver interface with the 'film' table selected. The 'Calc' panel on the right shows the following statistics for the selected rows:

Function	Value
Count	200
Count Distinct	21
Maximum	29.99
Average	20.305

You can select several columns and rows in standard ways - by pressing and holding the left mouse button or by clicking cells while holding the **Ctrl** or **Shift** keys. The panel updates dynamically to shows statistics for the selected data.

To see data grouped by columns, click the Group by columns button ( ). To remove the grouping by columns and see summary values for all columns, click the same button again.

By default, the panel applies and displays results for two functions – **Count** and **Count Distinct**. To add other functions, click the **Add function** ( ) button in the toolbar of the panel or right-click one of the rows in the Aggregate panel and click **Add function** on the context menu and then click the name of the function. The following functions are available:

- Sum
- Average
- Minimum
- Maximum
- Median
- Mode

To remove an individual function, click the function and then click **Remove function** ( ) in the toolbar of the panel, or right-click the function and click **Remove function** on the context menu. To remove all functions, click **Reset** ( ) in the toolbar or on the context menu.

You can copy the value of a particular function to the clipboard - right-click the row and click **Copy Value** on the context menu. You can also copy all functions with their values - right-click in the table and click **Copy All** on the context menu.

## Grouping Panel

The Grouping panel provides tools to calculate statistics based on a table of a custom SQL query. It uses GROUP BY queries to extract unique values for COUNT (default), SUM, AVG, MIN, MAX and other analytics functions displaying the results in dedicated columns.

To obtain the grouping results for one or more columns of a data table, open the Grouping panel, then, in the results table, put the cursor onto the data type icon of the table header so that the cursor turns into a hand pointer ( ), and drag-n-drop the column(s) onto the panel:

The screenshot shows the DBeaver interface with the 'film' table selected. In the main grid, the columns are 'film\_id', 'title', and 'description'. The 'film\_id' column is highlighted with a blue selection bar. A black arrow points from this selection bar to the 'Grouping' panel on the right. The 'Grouping' panel has a title 'Grouping' and contains a single row with the 'film\_id' column. Below the panel, the text 'No Groupings' is displayed, along with instructions: 'Drag-and-drop results column(s) here to create grouping' and 'Press CONTROL to configure grouping settings'.

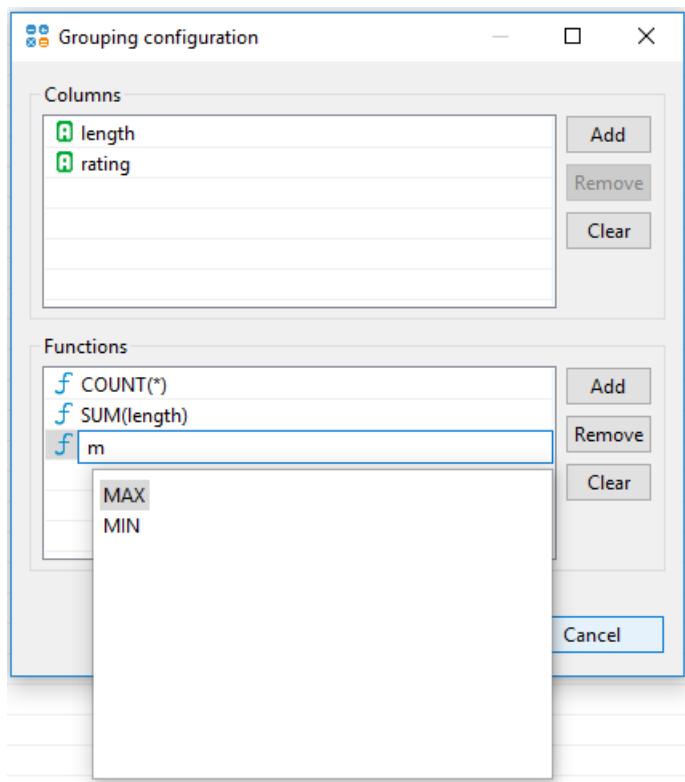
If you add several columns to the panel, DBeaver groups data in the order in which the columns go and calculates statistics based on the grouping.

The screenshot shows the 'Grouping' panel with four columns: 'length', 'rating', 'count', and 'sum'. The 'length' and 'rating' columns are grouped together, while 'count' and 'sum' are grouped together. The data rows show various movie ratings and their counts and sums.

	length	rating	count	sum
1	95	R	1	95
2	124	G	1	124
3	50	PG-13	2	100
4	119	R	2	238
5	75	G	2	150
6	142	PG-13	1	142
7	106	PG	3	318
8	162	R	1	162
9	129	PG	1	129
10	181	G	2	362
11	151	R	1	151
12	89	PG-13	2	178
13	160	PG-13	1	160

By default, the COUNT function is used. You can add other functions as well. To add a function:

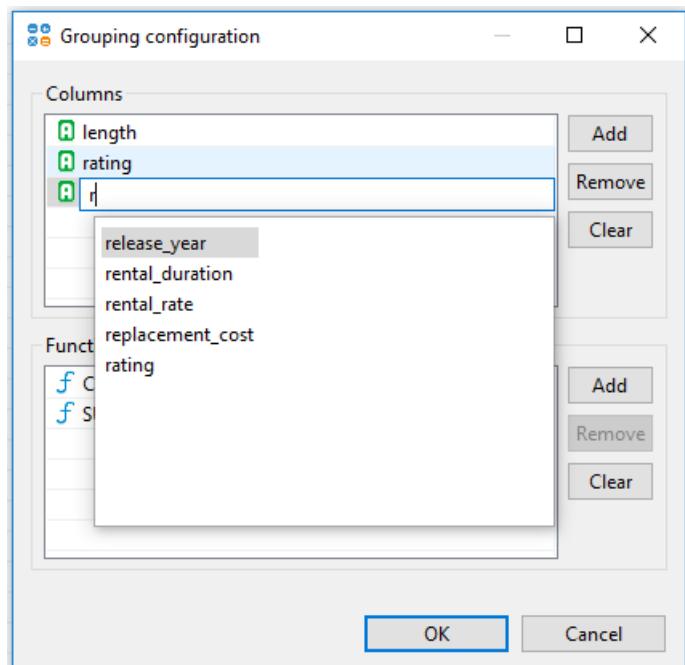
1. Click the **Edit grouping columns** button in the panel's toolbar.
2. In the Grouping Configuration window, in the **Functions** area, click **Add**, then type the function into the new row:
  - You can use auto-complete options DBeaver provides.
  - You need to indicate the column name in brackets. COUNT is the only function that supports `*` instead of column name.
3. Click **OK**:



To remove a function, in the same Grouping Configuration window, click the function and click **Remove** and then **OK**. To remove all functions, click **Clear** and then **OK**.

You can also add or remove columns using the same Grouping Configuration window. To add a column:

1. Click the **Edit grouping columns** button in the panel's toolbar.
2. In the Grouping Configuration window, in the **Columns** area, click **Add**, then type the column name into the new row (you can use auto-complete options DBeaver provides), and then click **OK**:



For MySQL/MariaDB databases you can also add a column with an expression - the expression will be calculated in the resulting column:

The screenshot illustrates the process of removing a grouping column. On the left, the 'Grouping configuration' window shows a 'Columns' list with three items: 'rating', 'length', and 'length+20'. The 'length+20' item is selected and highlighted with a red border. On the right, the 'Grouping' panel displays a table with several rows. The columns are labeled 'ABC rating', 'length', '?column?', and 'count'. The row for 'length+20' has been removed, leaving a gap in the data.

	ABC rating	length	?column?	count
1	PG		68	88
2	PG-13		181	201
3	PG-13		162	182
4	R		172	192
5	G		102	122
6	R		143	163
7	G		110	130

To remove a column, in the Grouping Configuration window, in the **Columns** area, click the column name, then **Remove** and **OK**. To remove all columns, click **Clear** and **OK**.

Another way to remove a column is to click the column and then the **Remove grouping column** button (✖) in the panel's toolbar.

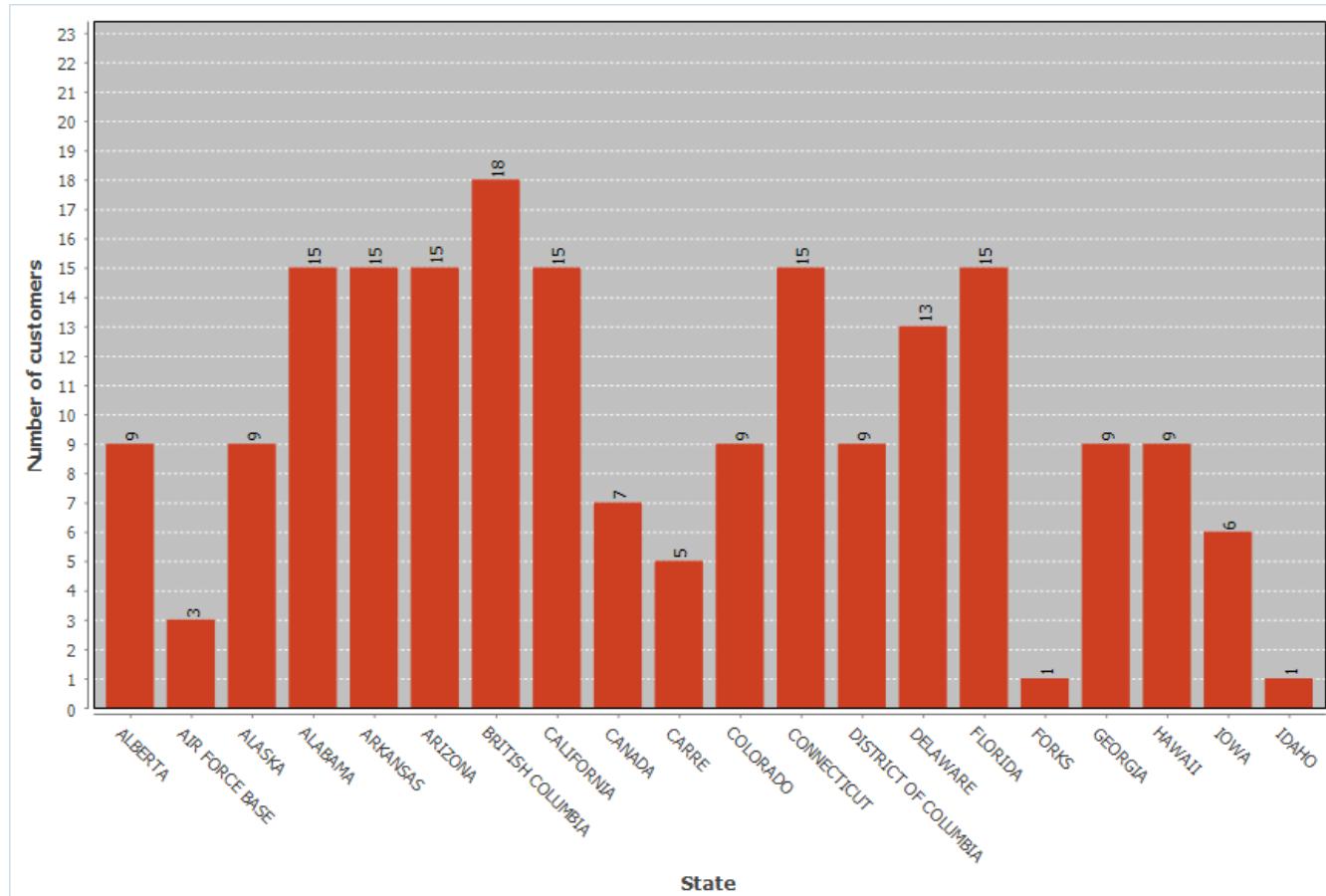
Clicking the **Clear grouping** button (✖) removes all results from the Grouping panel.

# Managing Charts

Note: This functionality is available only in [Enterprise Edition](#).

The default grid view of query resulting data is not very much impressive, especially to business analysts and other end users. The **Charts** feature lets you quickly and easily turn your SELECT queries' output into a colorized bar chart.

Note: Analytical Charts present only in DBeaver [Enterprise Edition](#)



You can easily visualize your data by creating a chart bar both in **SQL Editor** and **Data Editor**.

## Creating Charts In SQL Editor

Visual representation of vast data permits the analytical reasoning process to become faster and more focused. Charts make it easy for analysts to perceive salient aspects of their data quickly.

To build a bar chart in the **SQL Editor**, press the **Charts** button  in the left vertical toolbar of the query results area.

\*<PostgreSQL - postgres> Script-5

```
select c.first_name || ' ' || c.last_name,sum(amount) from payment p
join customer c on c.customer_id=p.customer_id
join address a on a.address_id=c.address_id
join city on a.city_id=city.city_id
join country on city.country_id=country.country_id
where c.store_id=1 and country.country = 'India'
group by 1
order by 2 desc
limit 10
```

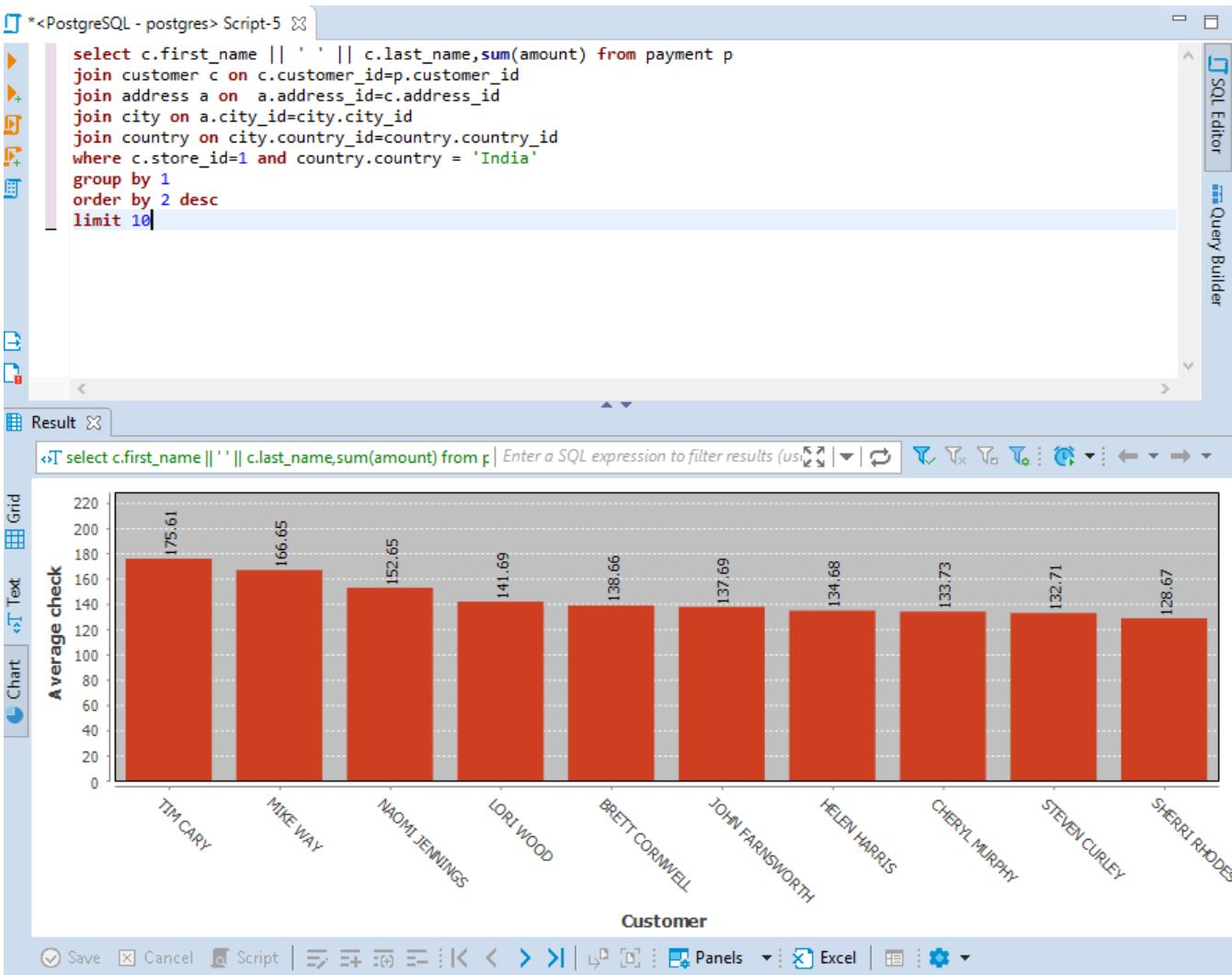
Result

	ABC ?column?	123 sum
1	TIM CARY	175.61
2	MIKE WAY	166.65
3	NAOMI JENNINGS	152.65
4	LORI WOOD	141.69
5	BRETT CORNWELL	138.66
6	JOHN FARNSWORTH	137.69
7	HELEN HARRIS	134.68
8	CHERYL MURPHY	133.73
9	STEVEN CURLEY	132.71
10	SHERRI RHODES	128.67

Save Cancel Script Panels Excel 10

10 row(s) fetched - 105ms

A bar chart will be created.

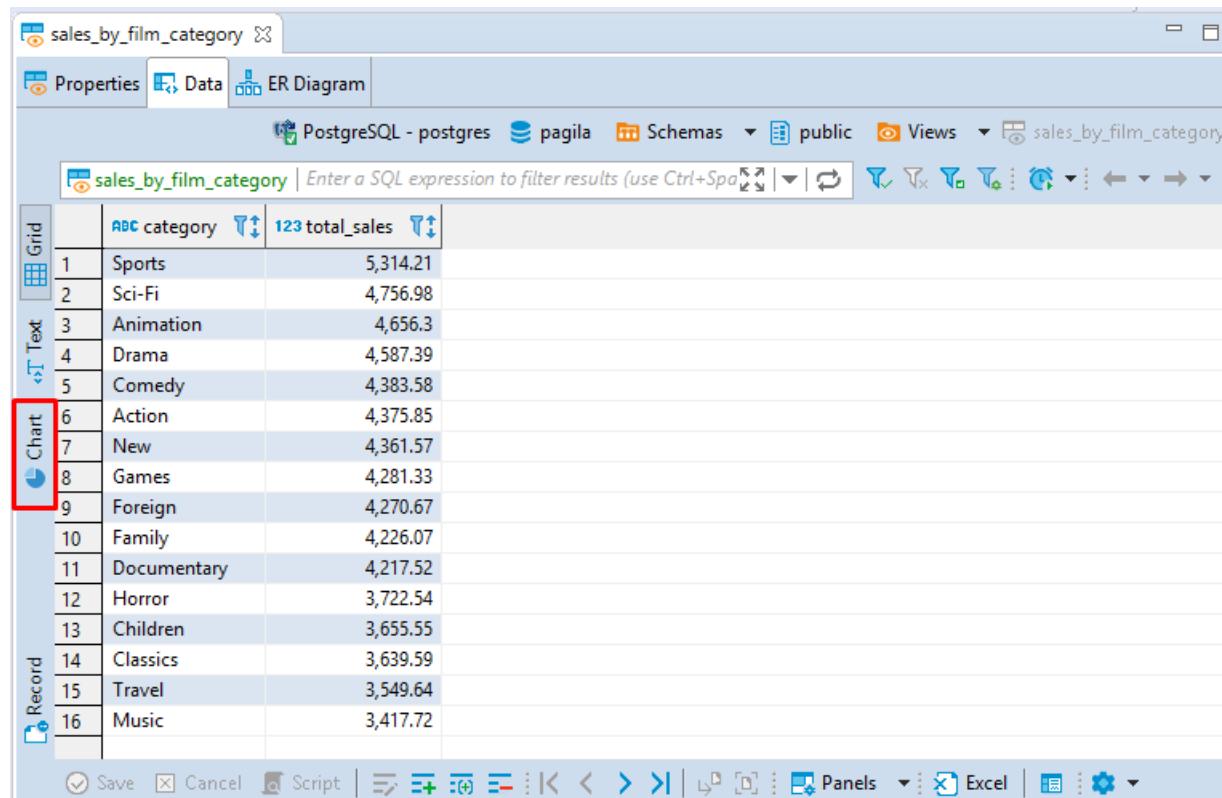


## Creating Charts In Data Editor

Charts can be very helpful for visualizing structured analytical data stored as **Views**, for example.

You can also create a chart for any table but you have to structure its data by sorting and applying various filters to its columns first. All the structural changes you make will then affect the chart you build, this way you can adjust the chart representation to the desired one.

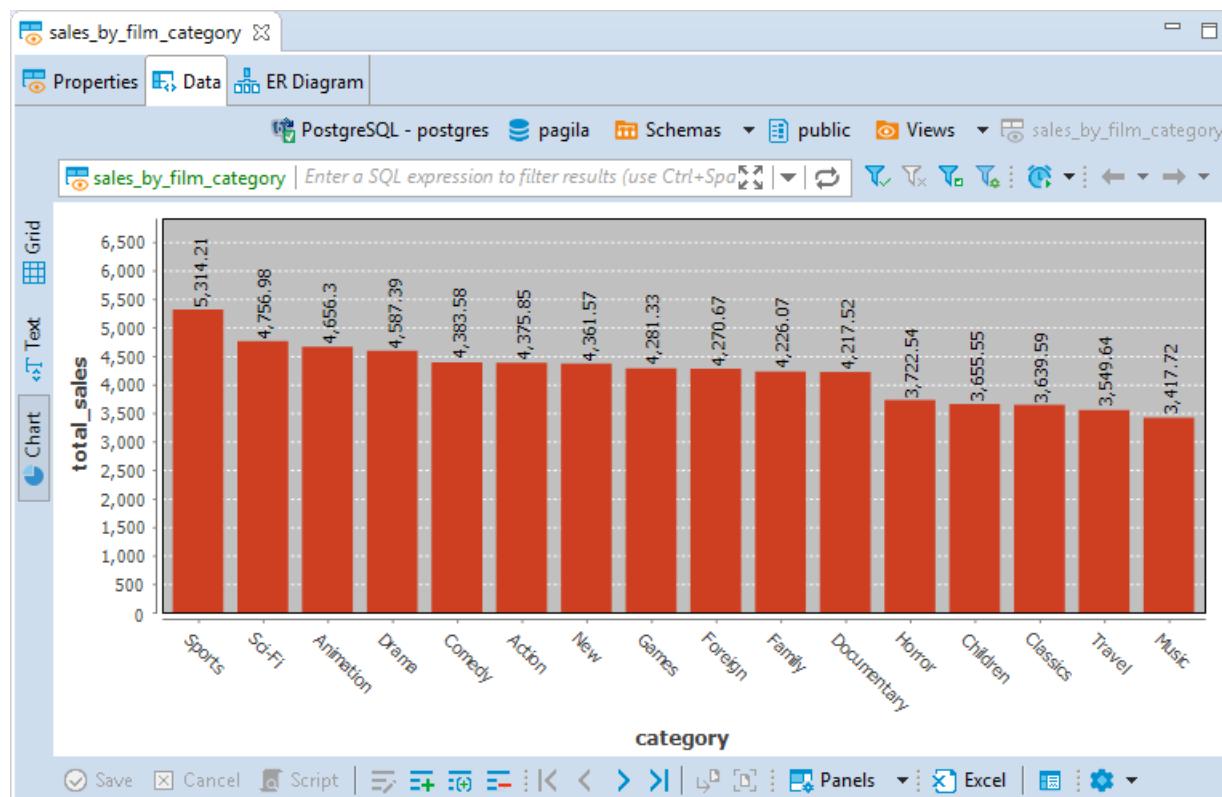
To build a chart in the **Data Editor**, press the **Charts** button  in the left vertical toolbar.



The screenshot shows the DBeaver Data Editor interface for a table named "sales\_by\_film\_category". The table contains 16 rows of data with columns "ABC category" and "total\_sales". The "Chart" button in the left toolbar is highlighted with a red box. The table data is as follows:

	ABC category	total_sales
1	Sports	5,314.21
2	Sci-Fi	4,756.98
3	Animation	4,656.3
4	Drama	4,587.39
5	Comedy	4,383.58
6	Action	4,375.85
7	New	4,361.57
8	Games	4,281.33
9	Foreign	4,270.67
10	Family	4,226.07
11	Documentary	4,217.52
12	Horror	3,722.54
13	Children	3,655.55
14	Classics	3,639.59
15	Travel	3,549.64
16	Music	3,417.72

A bar chart will be created.

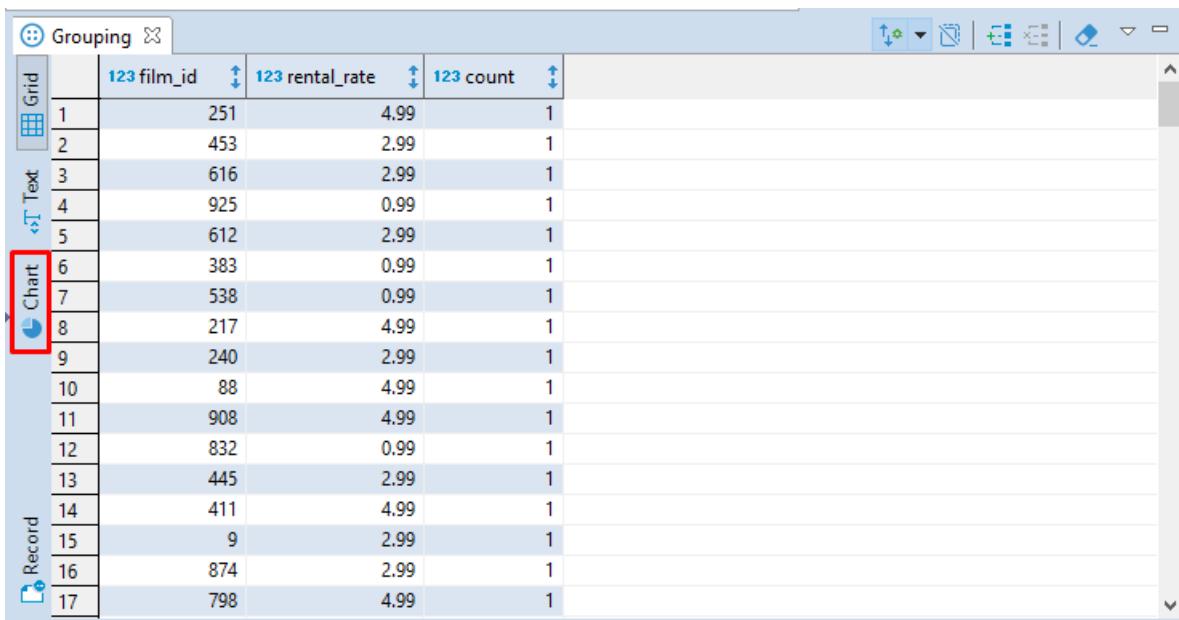


Note, that by default, the data for axis Y is taken from the first column of the table containing numeric values.

## Creating Charts In Grouping Panel

Such analytical tool as the **Grouping Panel** also supports the **Charts** feature. In a chart built for a table containing the grouping results for one or more columns of a data table, you can easily change axes X and axes Y source data by switching the columns in the **Charts Editor**.

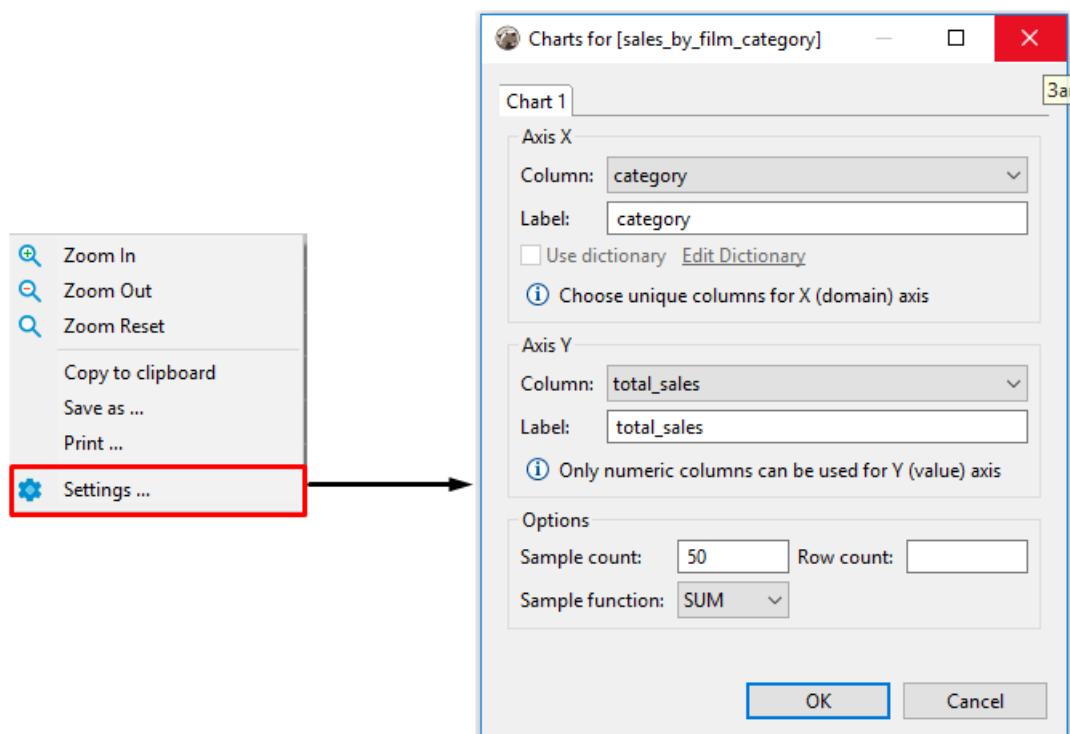
To build a chart in **Grouping Panel**, press the **Charts** button  in the left vertical toolbar.



	123 film_id	123 rental_rate	123 count
1	251	4.99	1
2	453	2.99	1
3	616	2.99	1
4	925	0.99	1
5	612	2.99	1
6	383	0.99	1
7	538	0.99	1
8	217	4.99	1
9	240	2.99	1
10	88	4.99	1
11	908	4.99	1
12	832	0.99	1
13	445	2.99	1
14	411	4.99	1
15	9	2.99	1
16	874	2.99	1
17	798	4.99	1

## Editing Chart Settings

To edit chart settings select the **Charts...** option in the chart's context menu and the **Chart Editor** will appear.



The following chart settings can be adjusted:

### Setting Axis X

1. In the **Column** drop down list of available columns select a column whose data will be used on axis X of the bar chart. Make sure you choose unique columns for X axis.
2. Define a user-friendly axis name in the **Label** text field.

### Setting Axis Y

1. In the **Column** drop down list of available columns select a column whose data will be used on axis Y of the bar chart. **Note**, that only columns containing numeric data can be used for axis Y.
2. Define a user-friendly axis name in the **Label** text field.

## Setting Other Options

You can also set the following chart options:

- Sample count - maximum number of columns used for building a chart;
- Row count - maximum number of rows used for building a chart;
- Sample function - an aggregate function where the values of multiple rows are grouped together to form a single summary value displayed on axis Y.

The following sample functions are supported:

Name	Description
AVG	Average value
SUM	The sum of all values
FIRST	The first value
LAST	The last value
COUNT	Total count of all values

## Copying to clipboard

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You can copy a chart to clipboard by selecting the **Copy to clipboard** option in the chart's context menu.

## Exporting Charts

---

You can export a chart into PNG format by selecting the **Save as...** option in the chart's context menu.

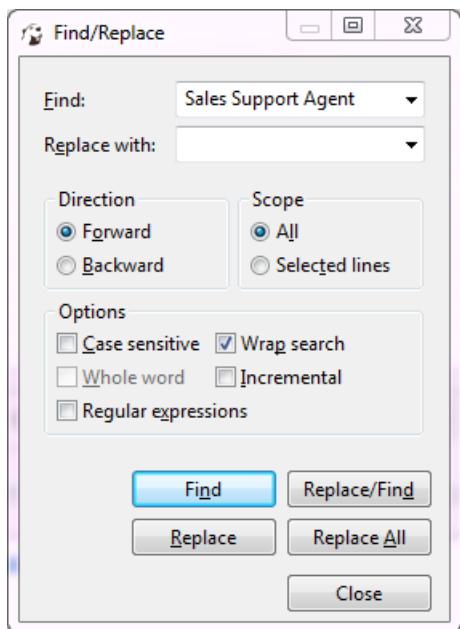
## Printing Charts

---

You can print a chart by selecting the **Print...** option in the chart's context menu.

# Data Search

To search for data in the result set, press **CTRL+F**. The standard Find/Replace search dialog box opens:

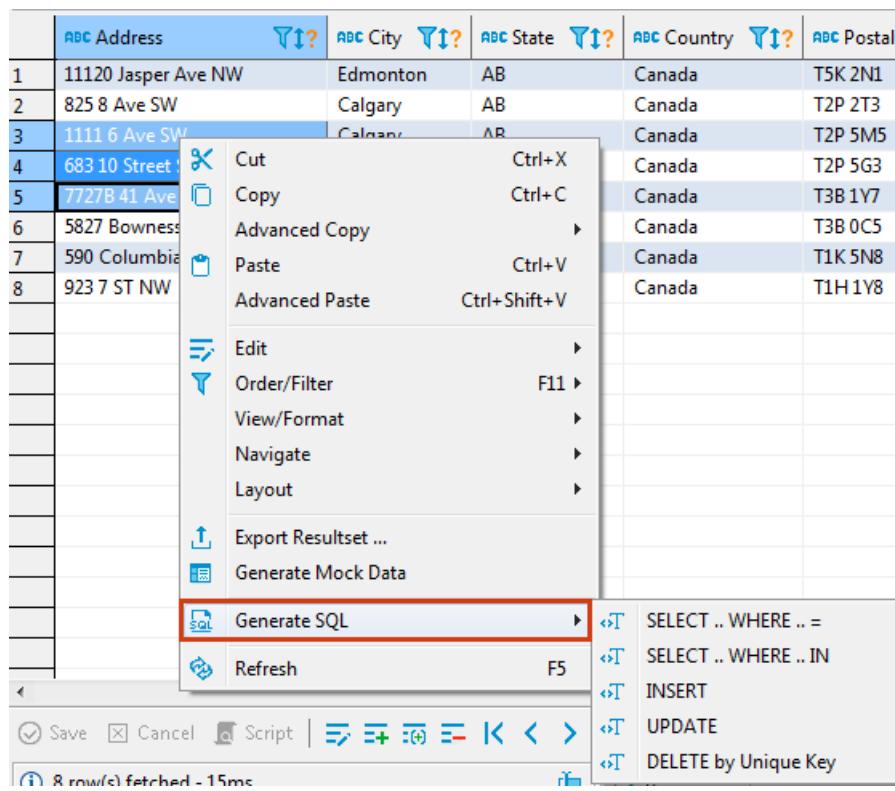


You can also use the Find and Replace feature.

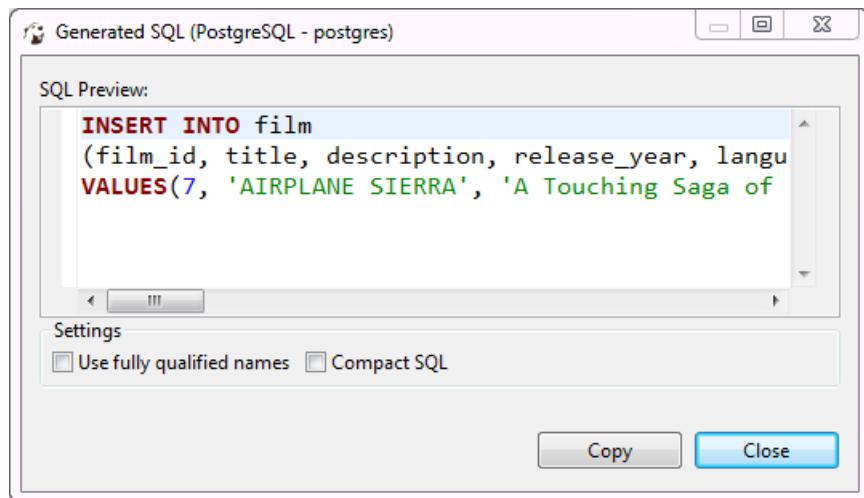
NOTE: The system searches only in already fetched rows.

# SQL Generation

You can generate SQL statements (SELECT/INSERT/UPDATE/DELETE) based on selected rows. To generate SQL, right-click the selected rows and click **Generate SQL** and then one of the SQL commands on the context menu:

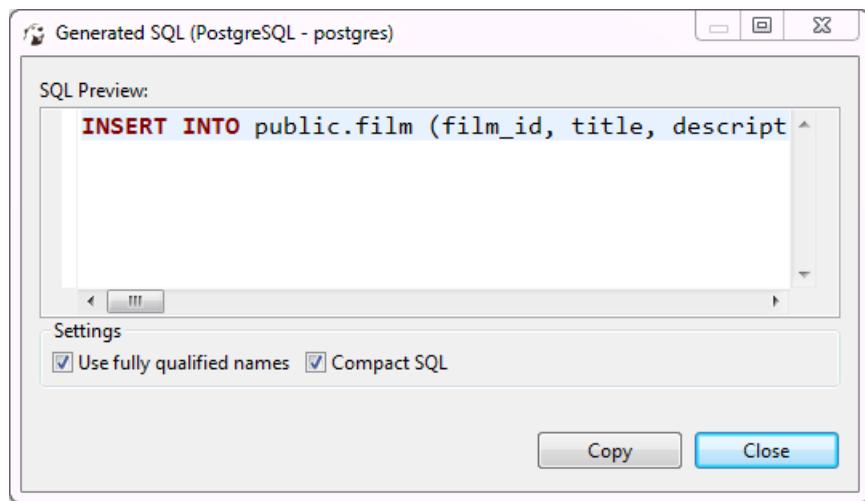


The SQL result opens in a separate window where you can view and copy it:



To use table names in the format '[schema name].[table name]', select the **Use fully qualified names** checkbox.

To wrap the SQL query into one line, select the **Compact SQL** checkbox:



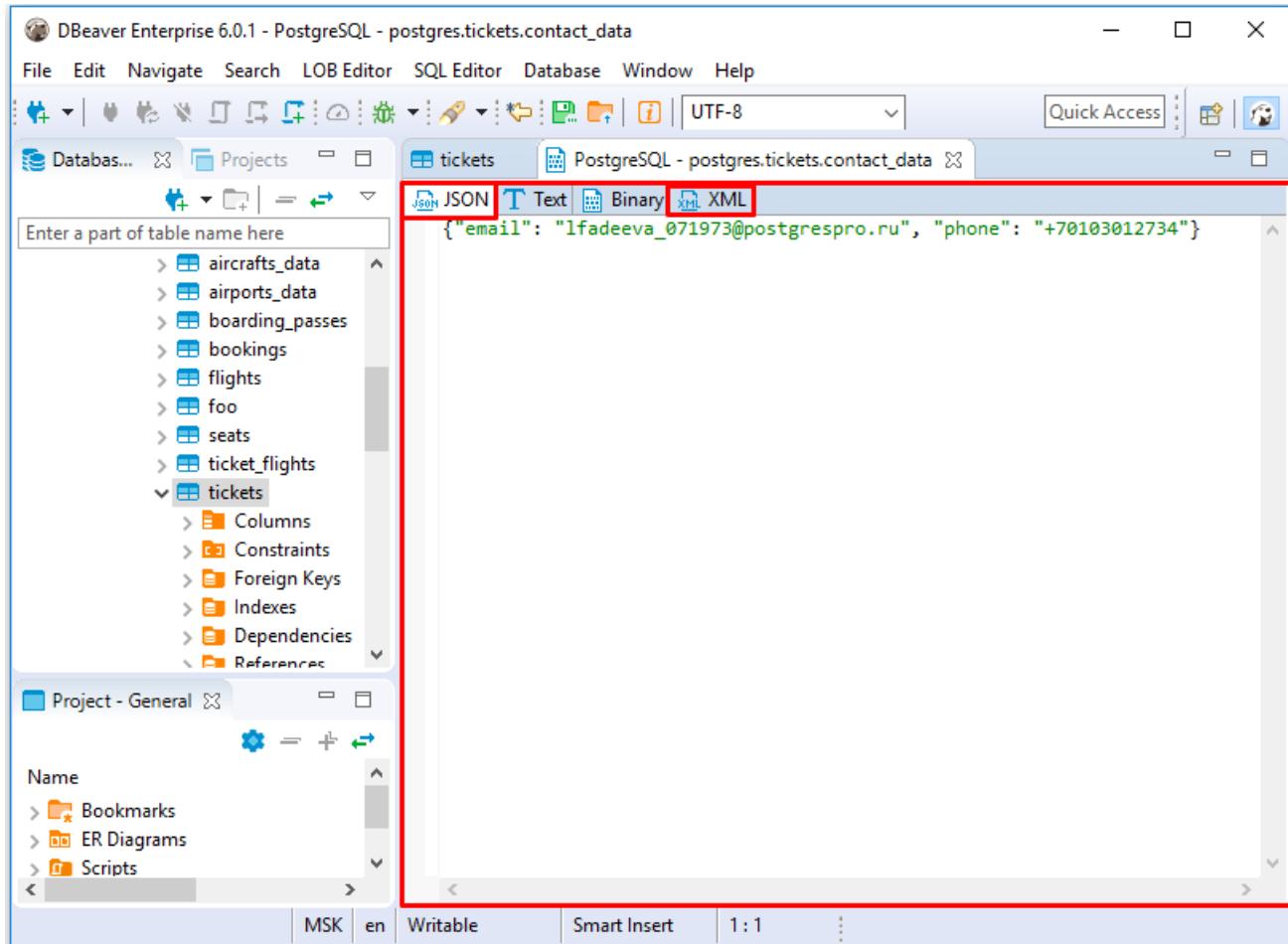
# Working with XML and JSON

DBeaver supports XML and JSON column types (in relational databases) by using standard JDBC interfaces. This feature was added in JDBC4 so you will need JDBC4 compliant driver for your database.

In the Data Editor, you can edit XML/JSON data right in the table cells, however, a big amount of data may require a larger editor, you may want to save XML/JSON scripts to a local file or upload this type of data from a local file.

To open the full-size XML/JSON editor click the cell containing data in XML/JSON format and press **Shift + Enter**.

By default the editor opens on JSON tab, open XML tab to modify XML data.

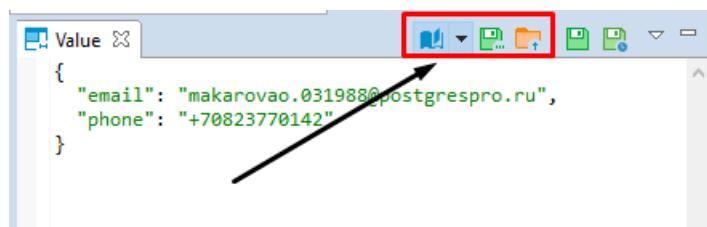


To auto-format XML/JSON script press **Ctrl + Shift + F** keyboard buttons.



Use **Ctrl + S** keyboard shortcut to save the changes made.

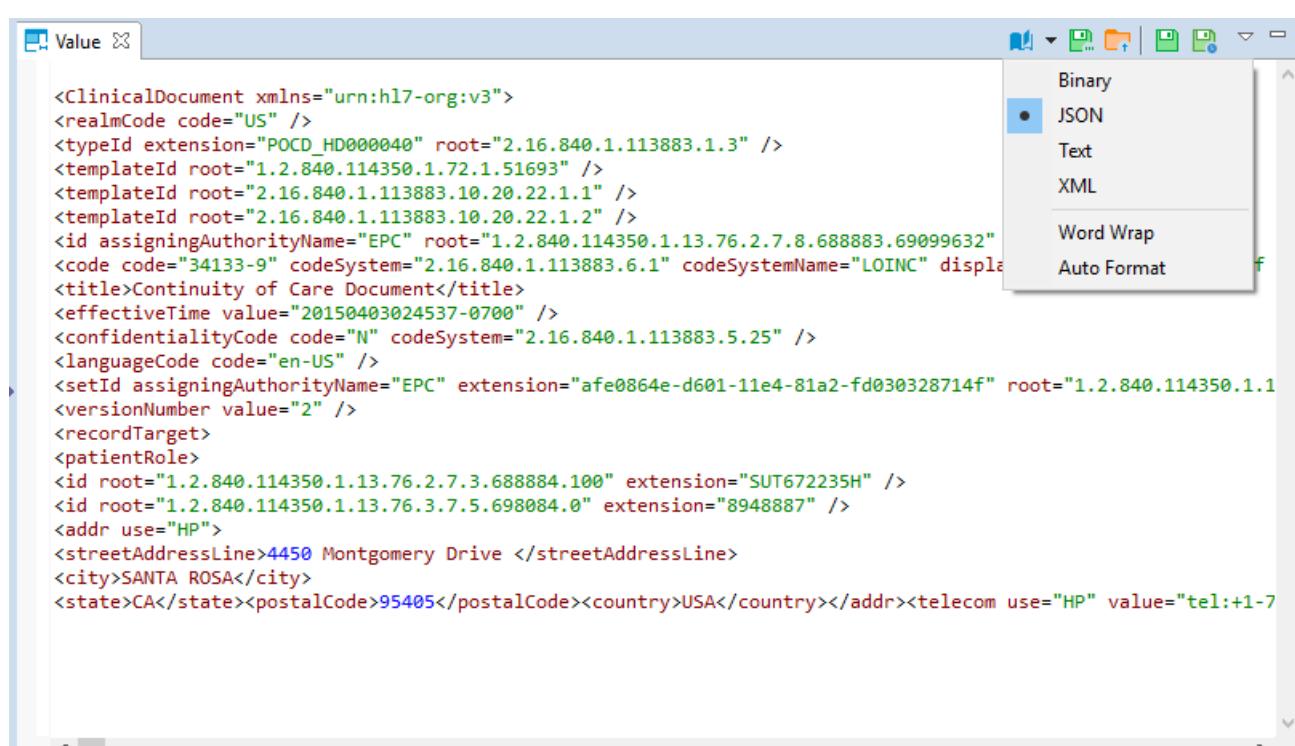
You can also edit XML/JSON content, save it locally and upload it from a local file with the help of **Value** panel toolbar.



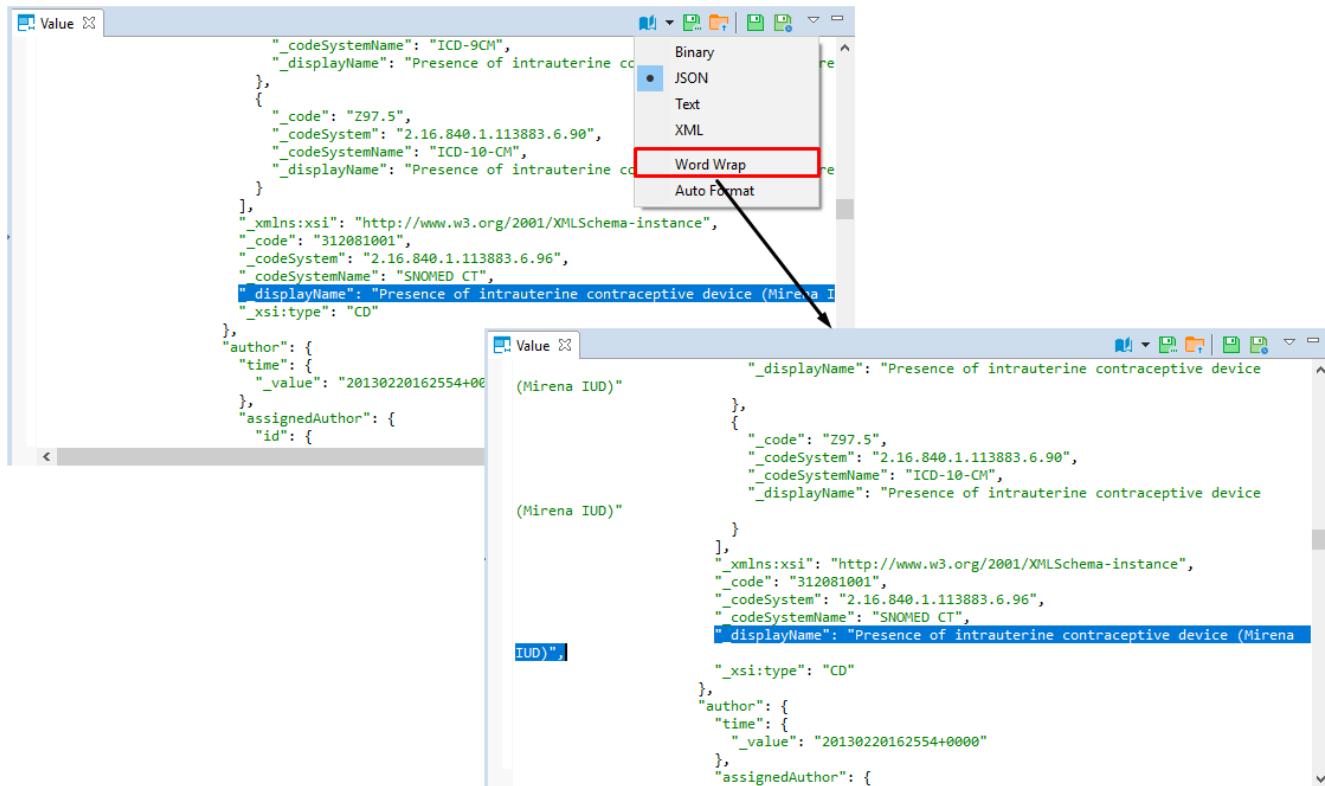
To upload data from a local file, press the **Load from file...** button .

To save the content to a local file, press the **Save to file...** button .

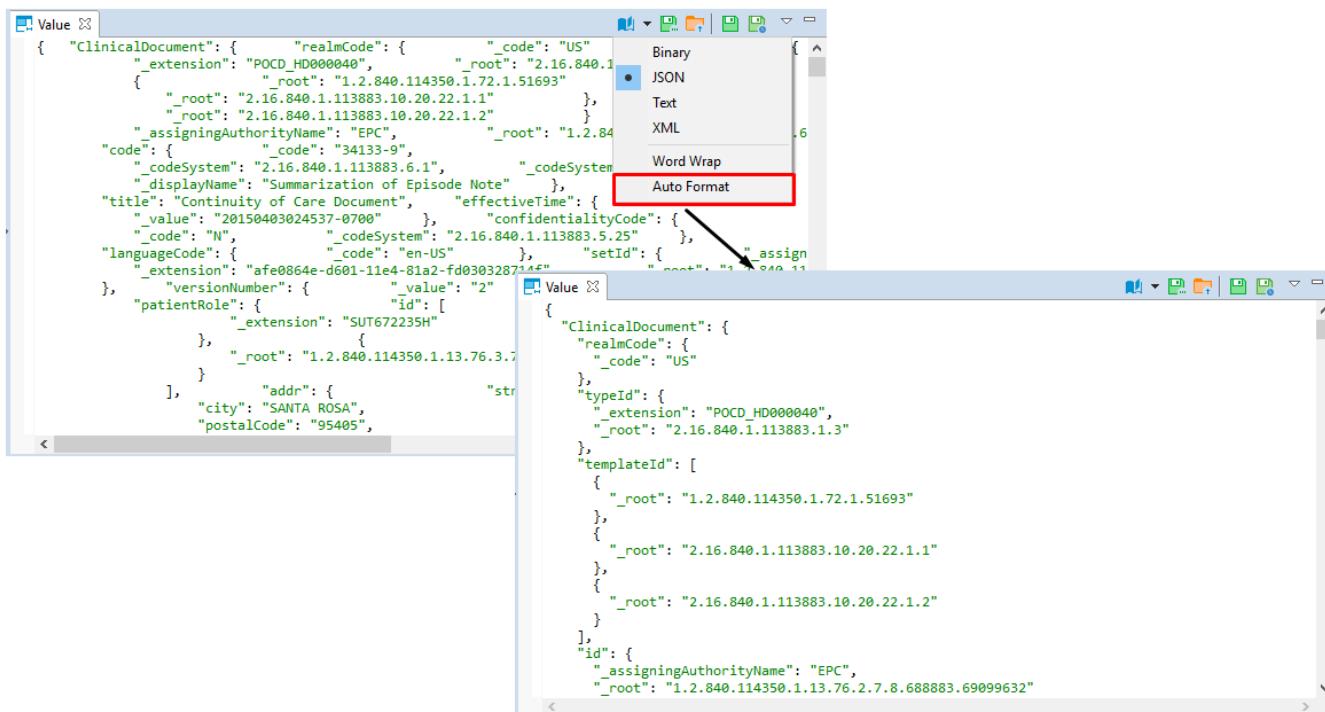
To switch between the formats, press the **Content viewer settings** button  and select the format.



Use **Word Wrap** feature that wraps the text within a screen.



Use **Auto Format** feature to automatically change the appearance of XML/JSON script (fix spaces around operators / commas, fix indentation, etc) and make it more readable.

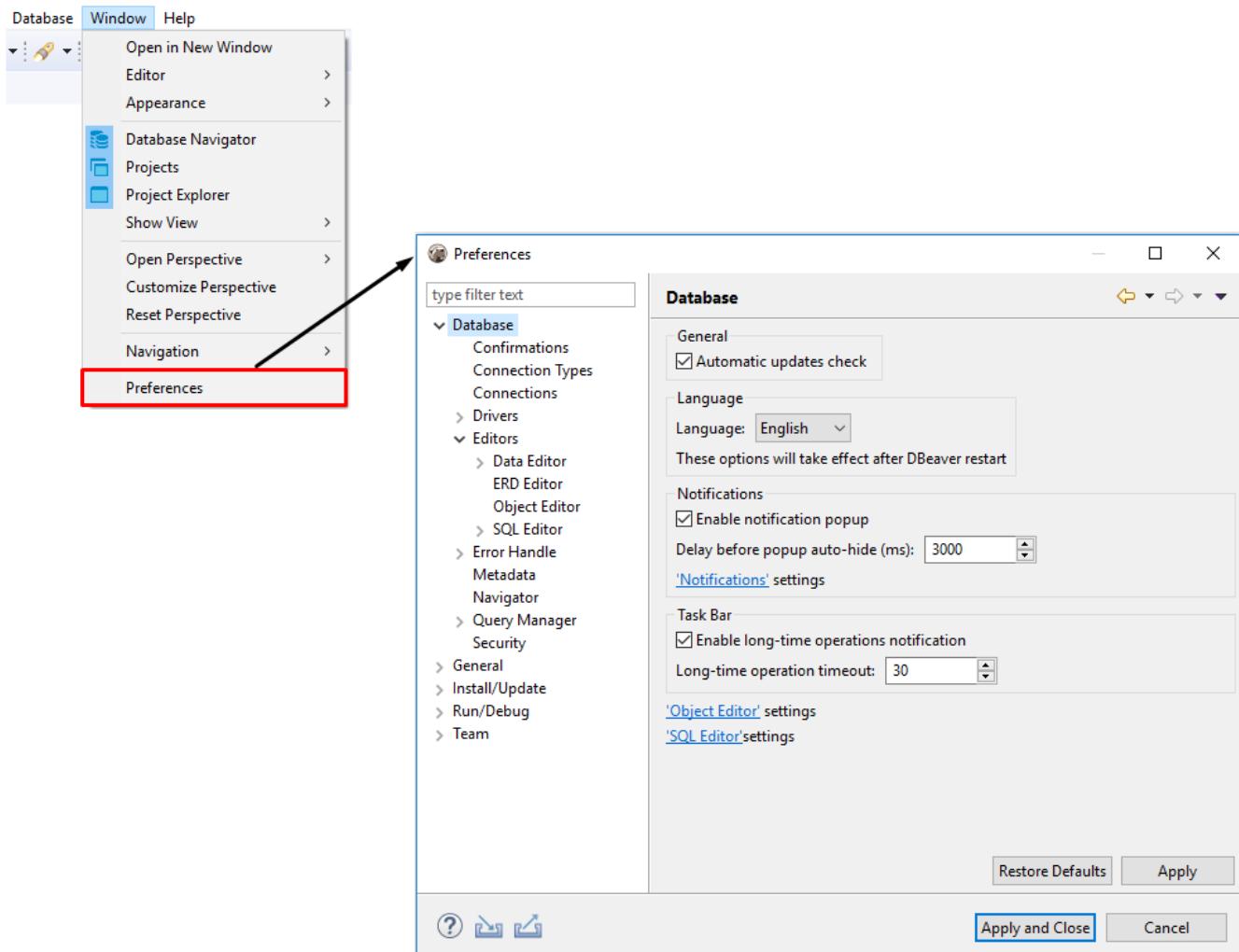


To learn more about **Value** panel, see [Panels](#).

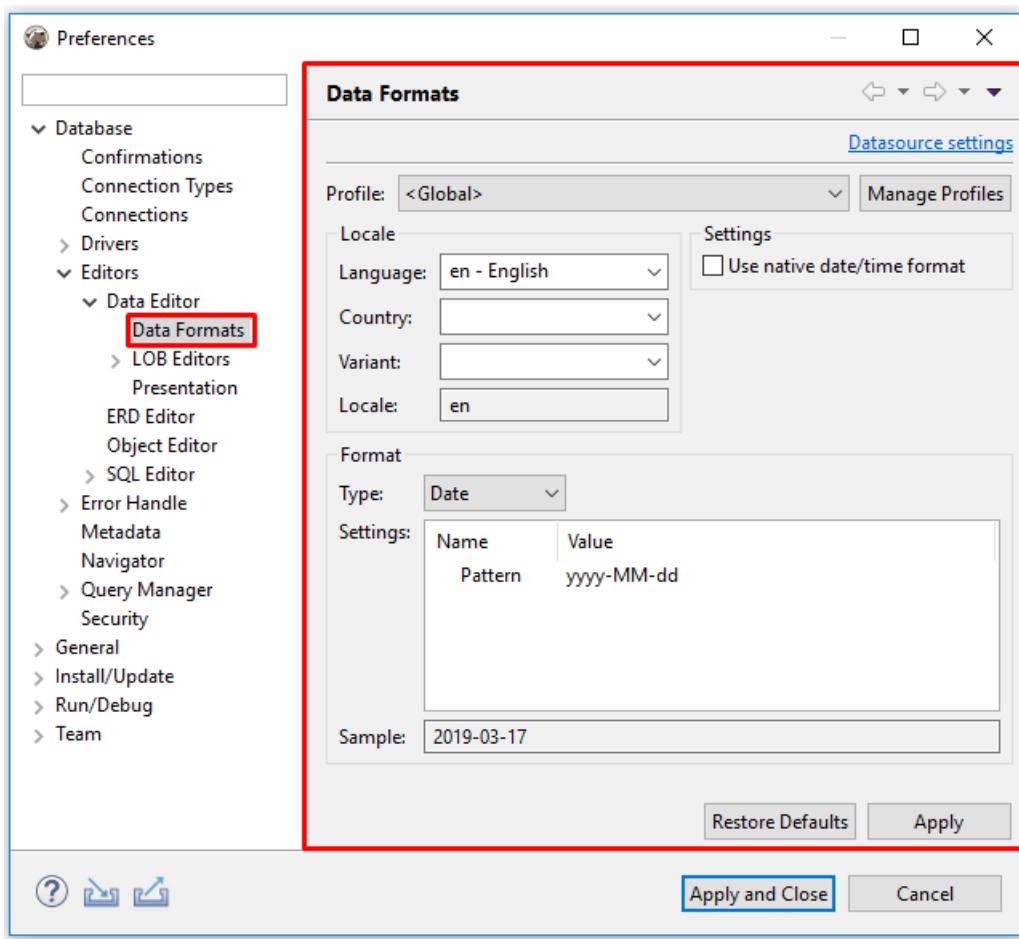
# Managing Data Formats

The DBeaver formatting functions allow you to set up database locale and change datasource format settings. This feature can be very useful on database migration, for example.

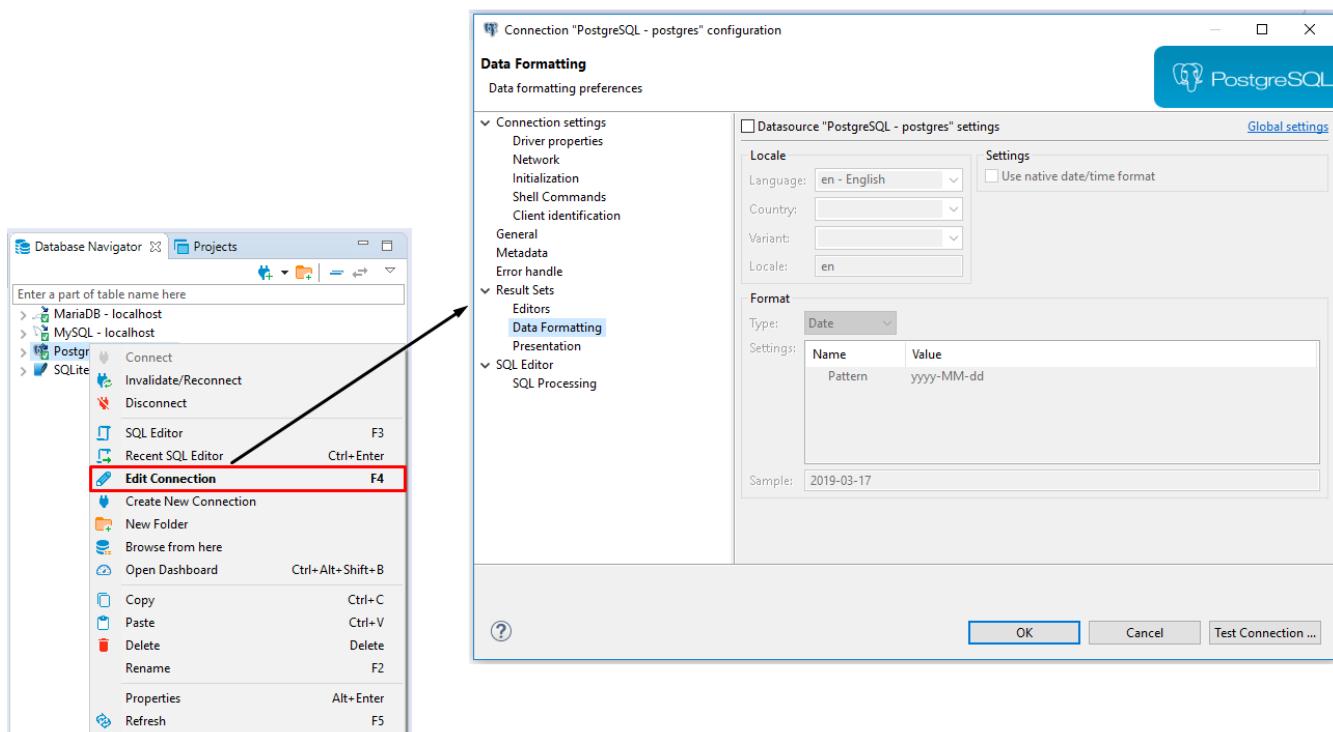
To change data format settings use option Window -> Preferences in main menu.



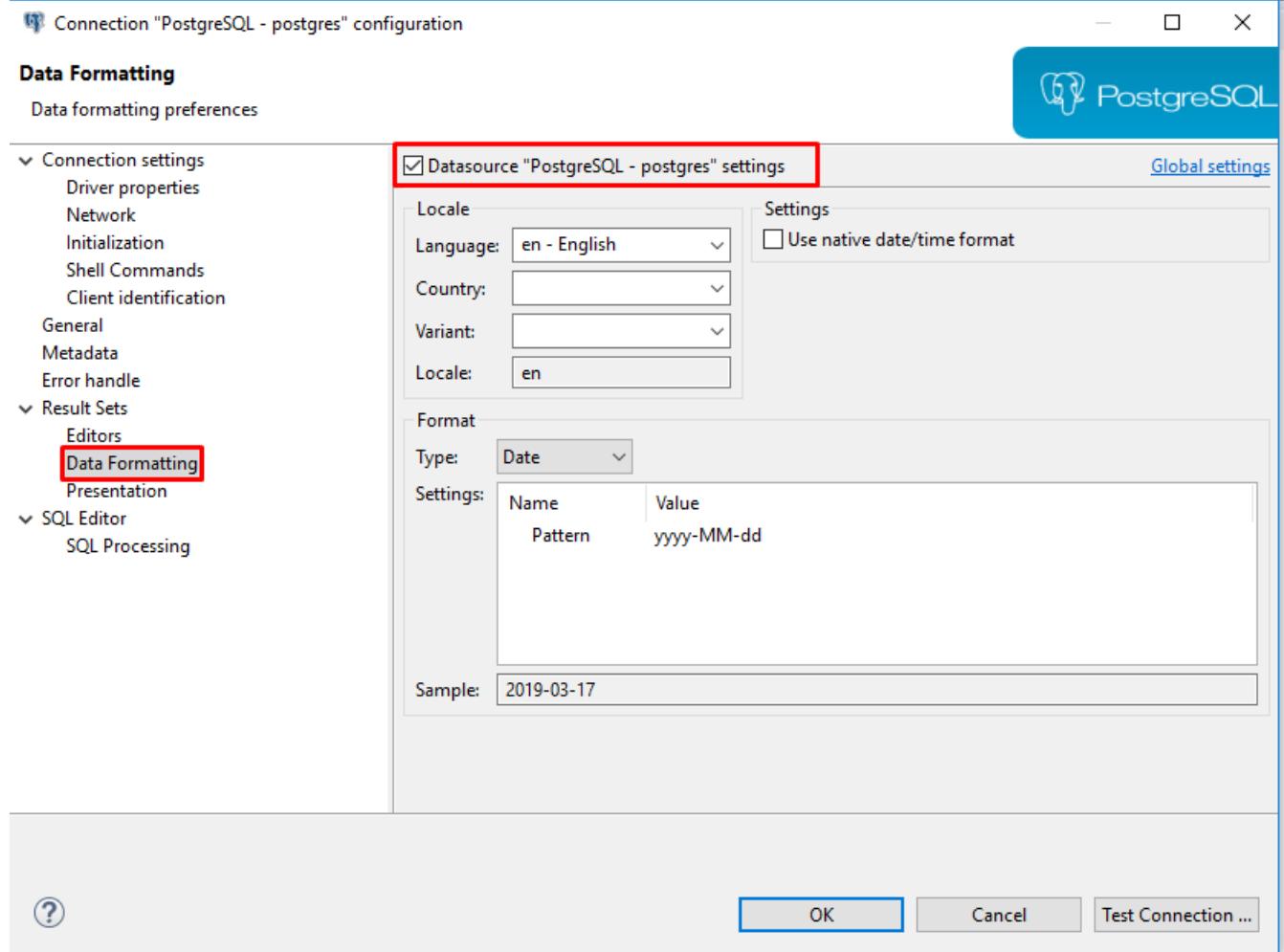
In the Preferences dialog box go to Database -> Editors -> DataEditor -> Data Formats.



Or, in the Database Navigator right-click a connection and select **Edit Connection** menu option.



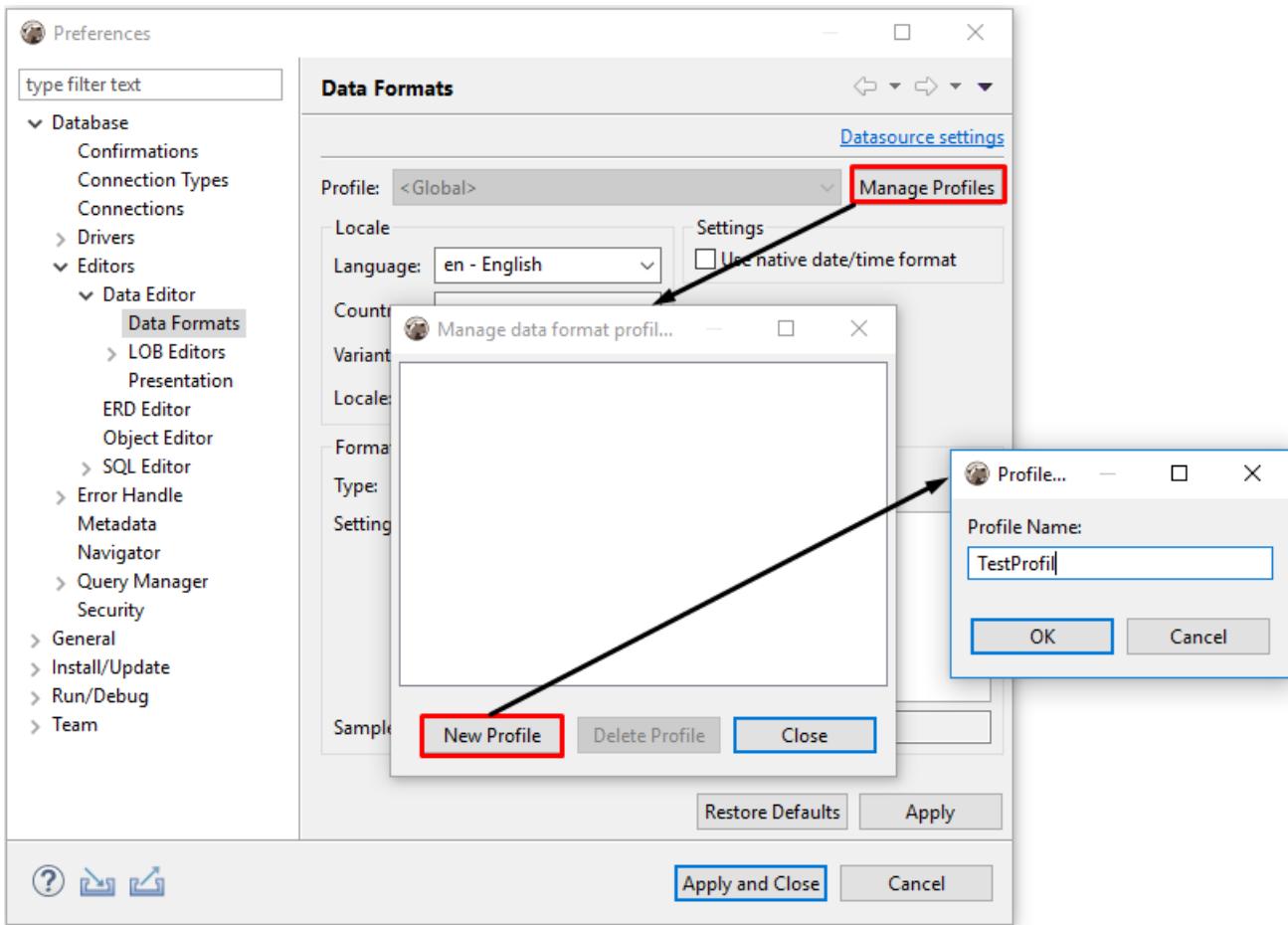
In the right area of the opened **Data formatting preferences** dialog window go to Result Sets -> Data Formatting and select the **Datasource settings** check box in the left area to customize the data format settings.



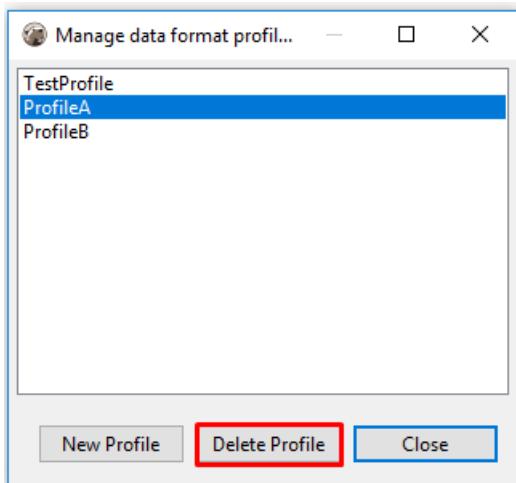
## Data Format Profiles

Data format profiles allow you to apply a set of data format preferences to the whole current project by one click.

To create a data format profile press the **Manage Profiles** button. In the opened dialog window press button **New Profile**, define the name and press **Create**.



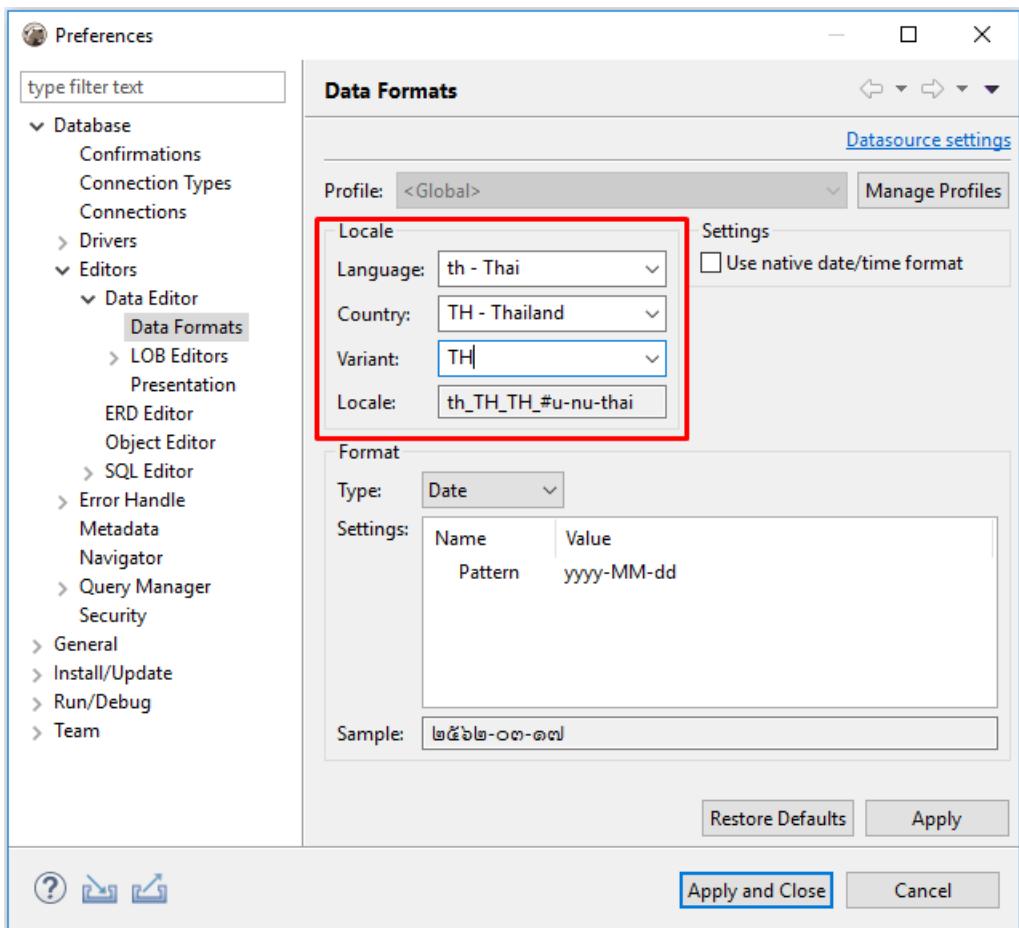
To delete a data format profile press the **Manage Profiles** button, then in the opened dialog window select the profile you want to delete and press the button **Delete Profile**.



## Changing Data Formats

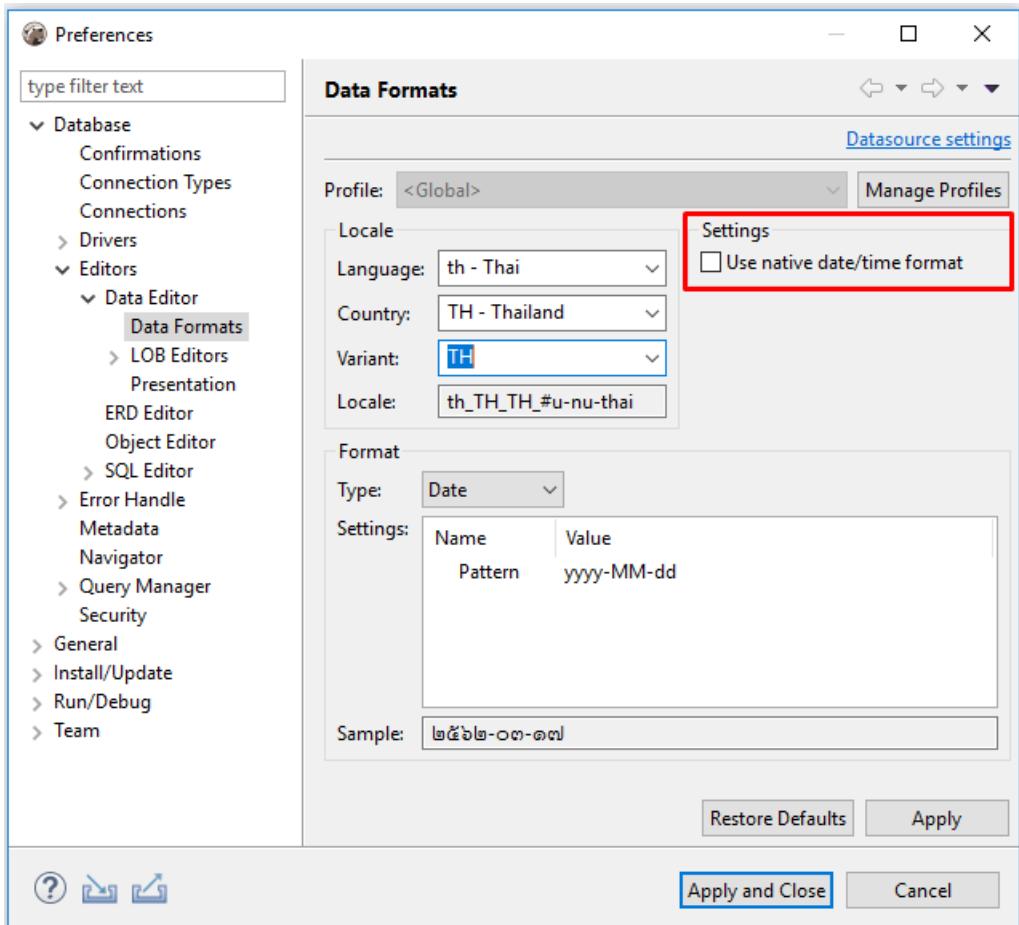
The following groups of data format settings can be adjusted:

### Locale



To define this setting select a language, country and variant if available.

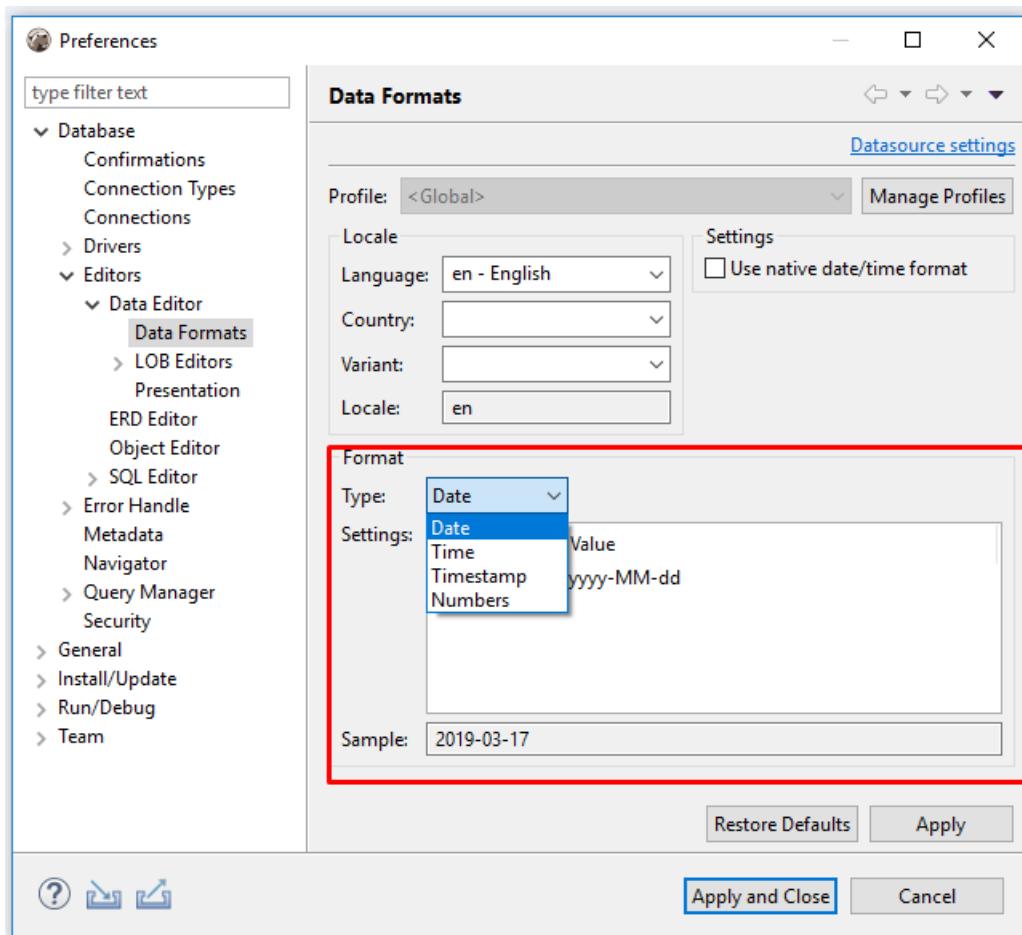
## Native Date/Time Mode



Select **Use native date/time format** check-box and the data format originally built-in to the datasource will be used.

You can change the format of the following data types:

## Data Type Format



The format of the following data types can be customized:

- Date
- Time
- Timestamp
- Numbers

### Date

The default value for this data type is *yyyy-MM-dd*.

### Time

The default value for this data type is *HH:mm:ss*

### Timestamp

The default value for this data type is *yyyy-MM-dd HH:mm:ss*

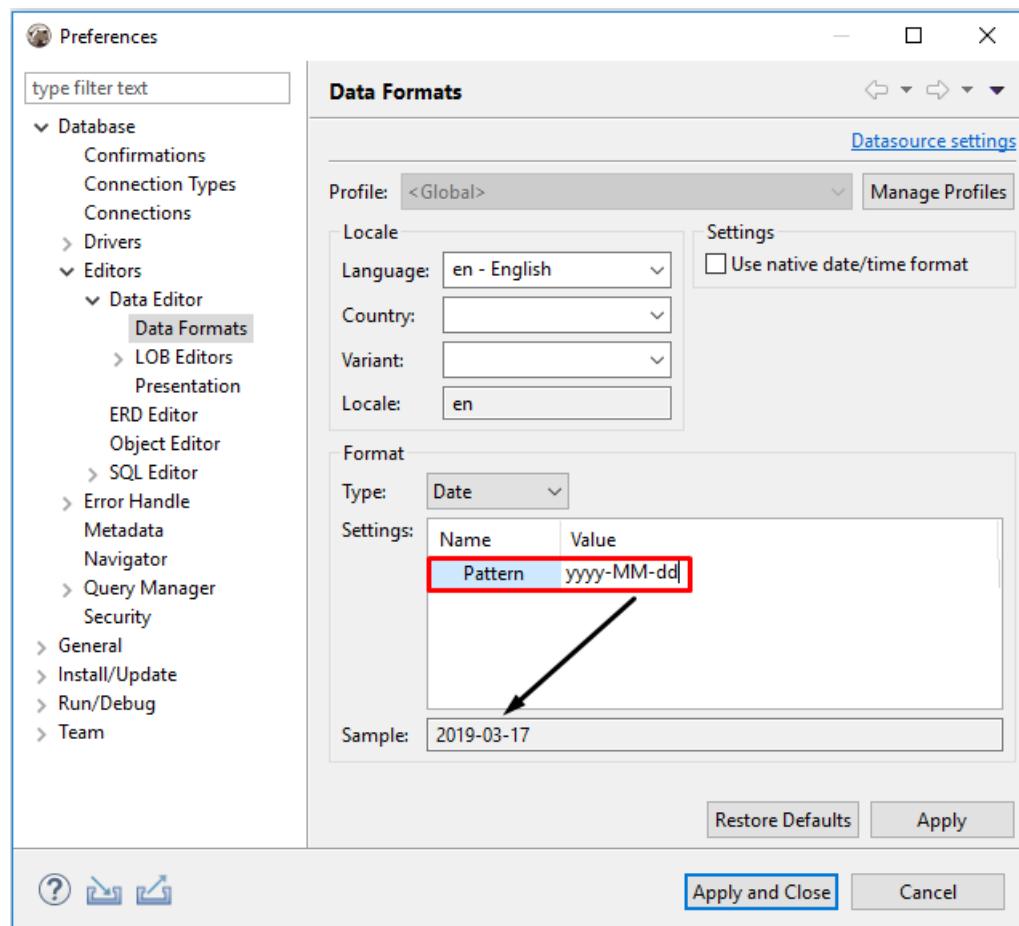
### Numbers

The following parameters can be configured from this type of data:

- **Use Grouping** - Long numbers can be hard to read if they have too many digits. For example, the factorial of 30 is 33 digits long! Select this check-box to enable Grouping mode, in which digits are displayed in clumps of 3 or 4 (depending on the current radix) separated by commas.
- **Maximum integer digits** - Defines the maximum number of digits to the left of the decimal point.
- **Minimum integer digits** - Defines the minimum number of digits to the left of the decimal point.
- **Maximum fraction digits** - Defines the maximum number of digits to the right of the decimal point.

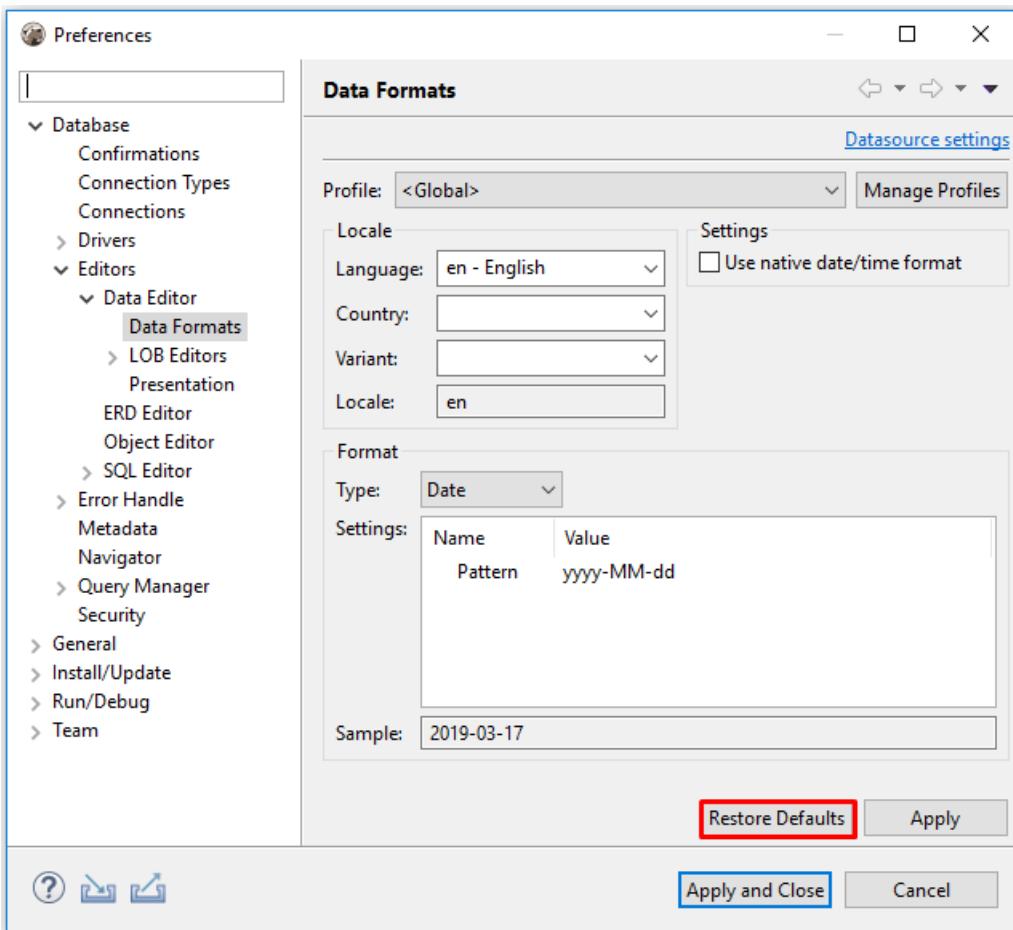
- **Minimum fraction digits** - Defines the minimum number of digits to the right of the decimal point.
- **Use data type scale for fraction digits** - Some numeric columns or parameters may have a predefined scale, that is the maximum number of digits to the right of the decimal point. Select this check-box if you want the predefined precision to be used.
- **Rounding mode** - Specifies a rounding behavior for numerical operations capable of discarding precision. Each rounding mode indicates how the least significant returned digit of a rounded result is to be calculated. To learn more, please refer to [Oracle documentation](#).

To change the data type format, change the value displayed in the **Pattern** area, save the changes made by pressing the **Apply** button and observe the expected result in the **Sample** field.



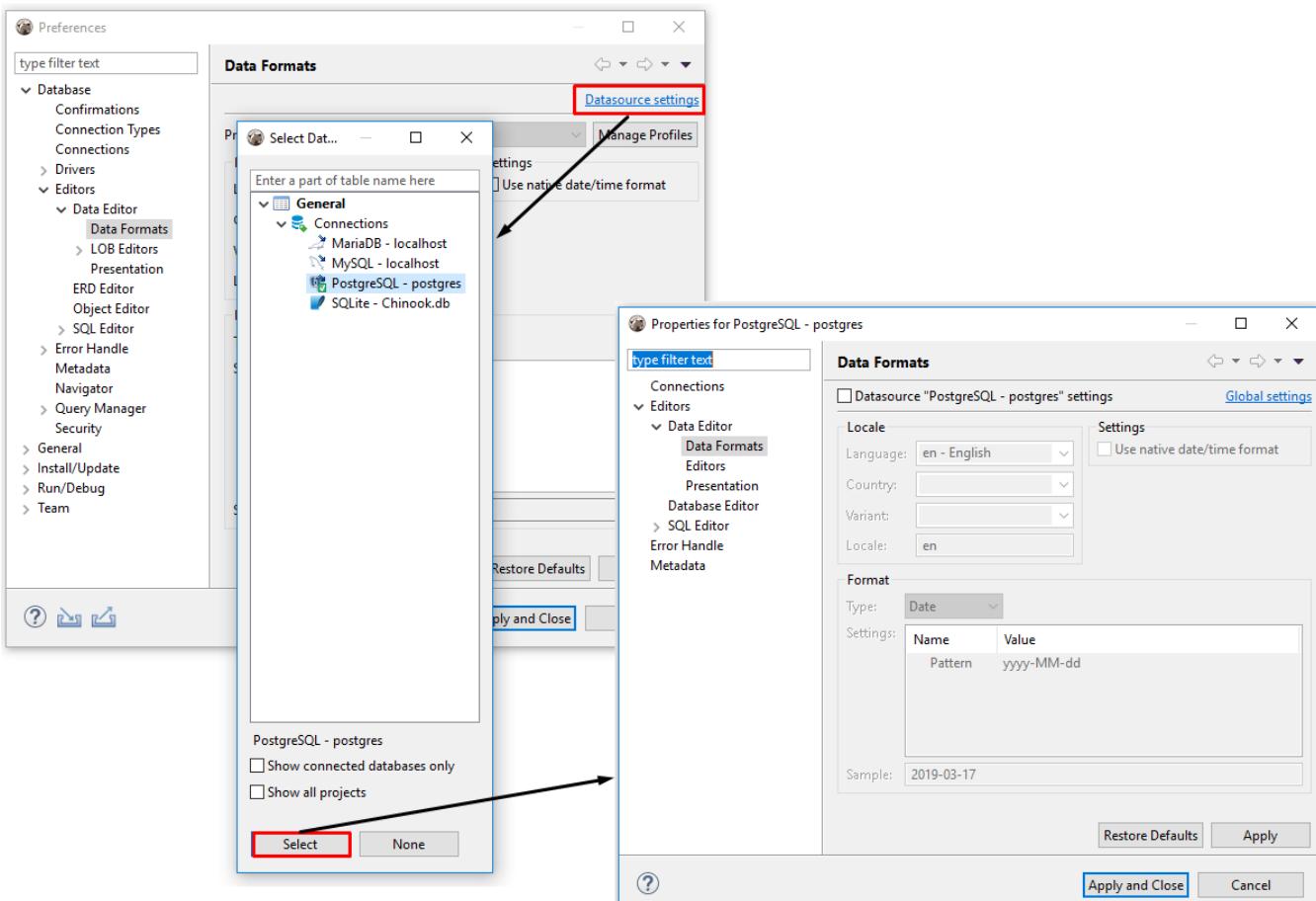
## Restoring Default Data Formats

To restore the default data format settings, press the **Restore Defaults** button.



## Datasource Settings

Press **Datasource settings** link to change data format settings for a particular datasource, then adjust the settings in the opened dialog box.



To save changes made press **Apply**.

# SQL Editor

You can create multiple SQL scripts for a single connection. Every script opens in its own SQL editor. To open an SQL editor for some connection:

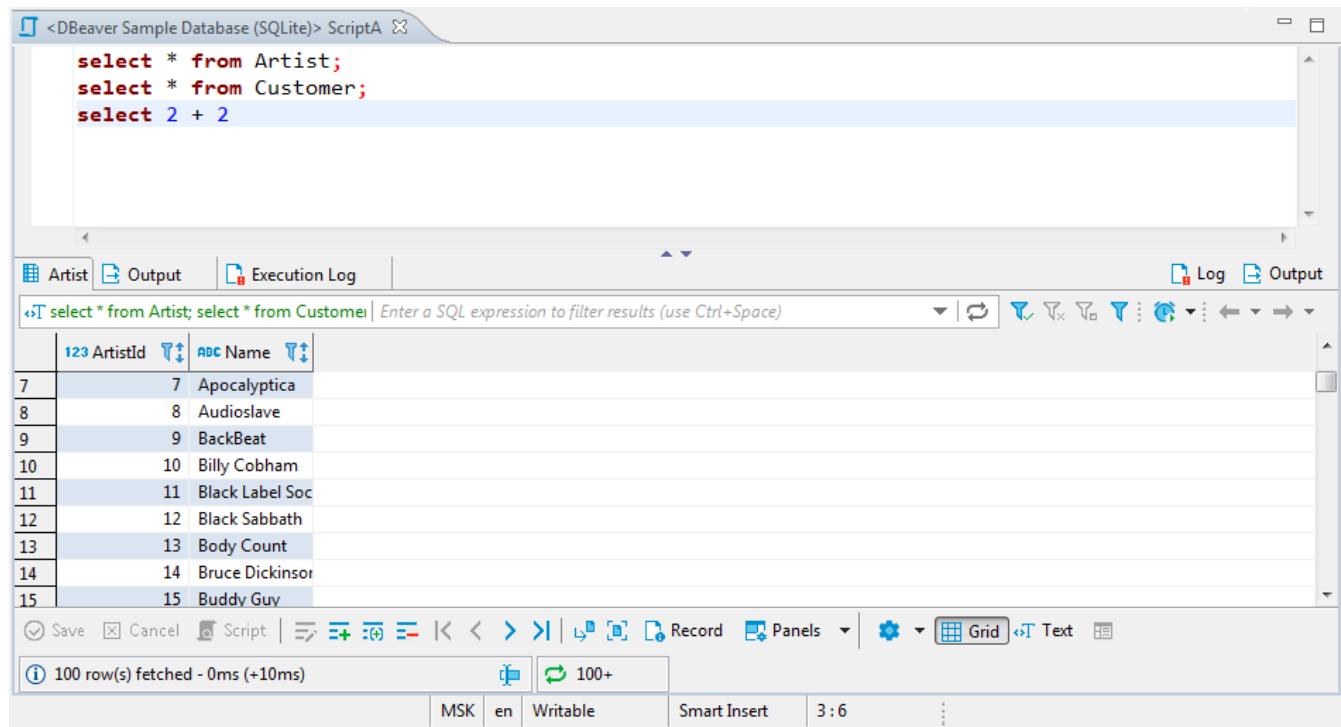
- Click this connection in the [Database Navigator](#) view and press **F3** or click **SQL Editor -> SQL Editor** on the main menu. Alternatively, you click **SQL Editor** on the context menu of this connection. DBeaver opens the Choose SQL script editor with saved SQL scripts linked to this connection. Click the SQL script to open it in a separate tab.
- Click **Recent SQL Editor** on the context menu for this connection or on the main menu (**SQL Editor -> Recent SQL Editor**). This opens the latest used SQL editor. You can also open the most recent SQL editor using **Ctrl+Enter** shortcut in the Database Navigator view.
- If you need to create a new SQL script, on the main menu, click **SQL Editor -> New SQL Editor** or press **F3** and then click **New Script** in the Choose SQL Script window.

DBeaver uses SQL syntax highlighting which depends on the database associated with the script. Different databases have different sets of reserved keywords and system functions.

NOTE: SQL Editor for a connection is different from SQL console for a table or view (right-click the table and click **Read data in SQL console**) in that, unlike the console, it can save scripts and changes to them.

You can see all your saved SQL scripts in the [Project Explorer](#) view in the **Scripts** folder.

The SQL editor includes the script panel at the top and results panel at the bottom:



You can open SQL editor preferences by pressing **Alt+Enter**.

## Results Panel

The results panel displays tabs with results in various formats. The tabs resulting from script execution represent instances of the [Data Editor](#). You can create, edit and execute SQL scripts in the script panel and then see the results in the result tabs.

The results panel provides **Output** and **Log** views of results.

The execution **Log** tab contains all queries executed in the current SQL editor:

Time	Type	Text	Duration	Rows	Result
Jun-12 20:0...	SQL / User	select 2 + 2!select 1 from Customer	0 ms		[1] [SQLITE_ERRO...
Jun-12 19:0...	SQL / Meta	-- Load tables [null, null, %, null]	0 ms	14	Success
Jun-12 19:0...	SQL / Meta	-- Load schemas	0 ms	0	Success
Jun-12 19:0...	SQL / Meta	-- Load catalogs	16 ms	0	Success
Jun-12 19:0...	Transaction	Commit	0 min 0 sec		
Jun-12 19:0...	Connection	Connected to "DBeaver Sample Database (SQLite)"	42 min 57 sec		

The **Output** tab contains all server-side database messages/warnings generated by a database when you execute queries. This feature is supported only by a few database engines (Oracle, SQL Server and some other ones).

## Layout Adjustment

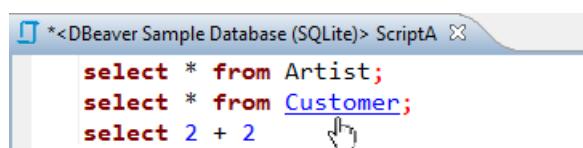
You can modify the layout of the SQL Editor by showing/hiding the results panel and changing the horizontal/vertical position of the panes.

- To toggle (hide/show) the results panel, press **CTRL+6** or right-click anywhere in the script pane and, on the context menu, click **Layout -> Toggle results panel**.
- To maximize the results panel, press **CTRL+Shift+6**, or double-click the results tab name, or right-click anywhere in the script panel and, on the context menu, click **Layout -> Maximize results panel**.
- To switch between the script panel and the results pane, press **Alt+6** or right-click anywhere in the script panel and, on the context menu, click **Layout -> Switch active panel**.

To position both panels horizontally, right-click anywhere in the script panel and, on the context menu, click **Layout -> Horizontal**. To position both panels vertically, right-click anywhere in the script panel and, on the context menu, click **Layout -> Vertical**.

## Hyperlinks

You can press and hold **Ctrl** and at the same time move the mouse over SQL text. If DBeaver recognizes some identifier as a table/view name, it presents it as a hyperlink. You can click the hyperlink to open this object's editor:



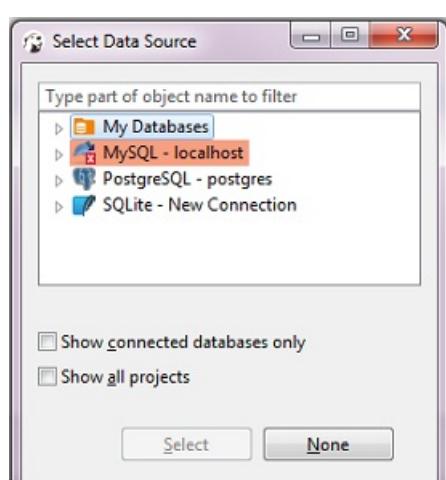
## Active Database/Schema Selection

You can change the connection associated with the current SQL editor or change the active database/schema, at the same time retaining the SQL text.

To change the connection, press **Ctrl+9** or click the **Active datasource** box on DBeaver's main toolbar:



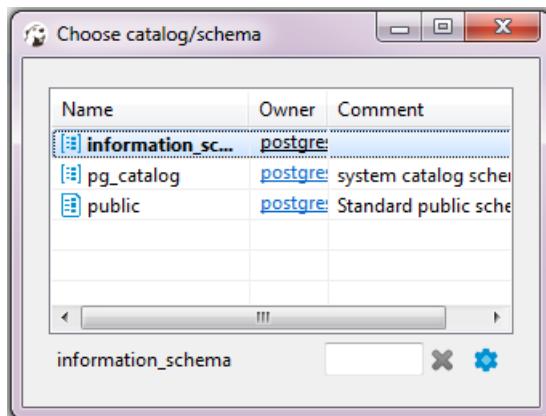
The Select Data Source dialog box opens. In the tree of connections, click the required connection and then click **Select**. To disassociate the SQL Editor with any connection, click **None**:



To change the active schema, press **Ctrl+0** or click the **Active Catalog/Schema** box in DBeaver's main toolbar:



The Choose catalog/schema dialog box opens. In the list of schemas, double-click the required schema:



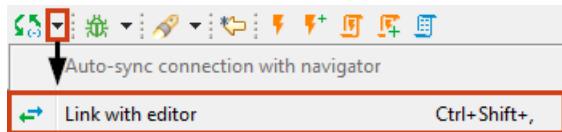
If there are many schemas and they do not fit in the dialog box use the search field to find the schema you need:

To configure the set of columns to be visible for each schema in the dialog box, click the **Configure columns** button (.

You can easily associate the SQL Editor with the connection that is currently in focus in the Database Navigator (the focus can be on any object of the connection - a table, a folder, etc.) - click the **Set connection from navigator** button in DBeaver's main toolbar:



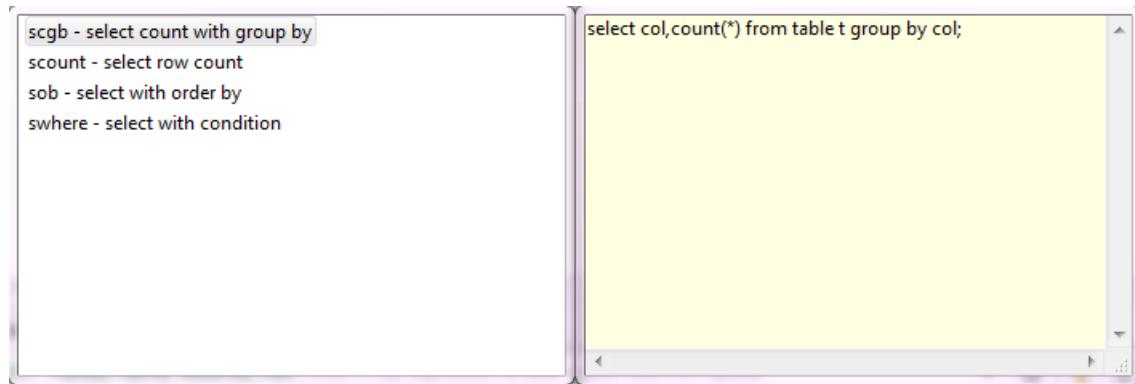
The reverse action is also possible: you can set the focus of the Database Navigator to the active connection of the SQL Editor - press **Ctrl+Shift+,**, or click the arrow next to the **Set connection from navigator** button in DBeaver's main toolbar and then click **Link with editor**:



# SQL Templates

Templates allow you to insert frequently used SQL statements into an SQL script.

To see available templates, press **Ctrl+Alt+Space** or right-click the line in the script pane and click **SQL Template** on the context menu. A box appears with a list of available templates:



To apply a template, in the SQL Editor, in the script pane:

- Type the template name and press **Tab**
- Right-click the line where you want to insert a template expression, click **SQL Template** on the context menu, and then, in the list of templates, double-click the required template name.  
The template SQL statement appears in the script.

To edit/add/remove templates, click **Configure** (gear icon) in the bottom toolbar, then click **Preferences -> SQL Editor -> Templates**. For more information about managing templates, please visit [Eclipse Website](#).

## Standard Eclipse templates:

	Variable	Description
	\${cursor}	Specifies the cursor position when the template edit mode is left. This is useful when the cursor should jump to different place than to the end of the template upon leaving the template edit mode.
	\${year}	Takes the current year value
	\${date}	Takes the current date value
	\${time}	Takes the current time value
	\${dollar}	Takes the dollar sign \$. Alternatively, two dollar signs can be used: \$\$.
	\${user}	Takes the user name
	\${word_selection}	Takes the content of the current text selection
	\${line_selection}	Takes content of all currently selected lines

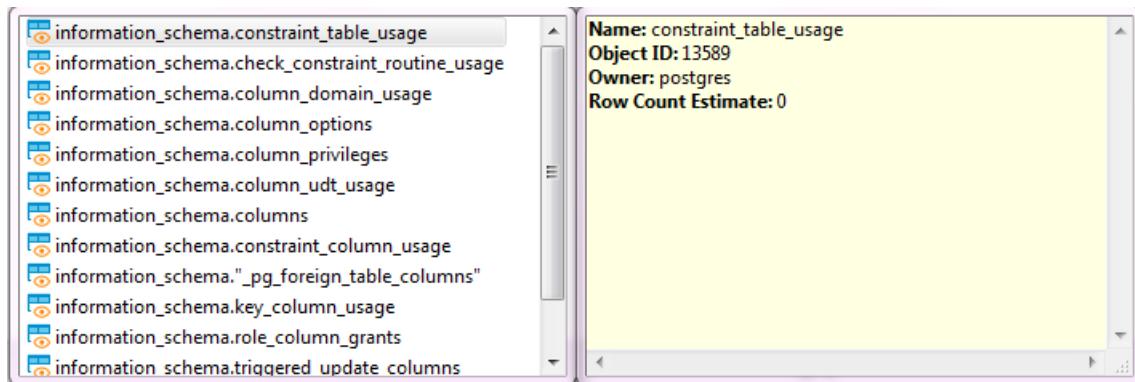
## DBeaver-specific templates:

	Variable	Description
	\${schema}	Takes the current schema name
	\${catalog}	Takes the catalog name
	\${table}	Takes the current table name (from the active catalog/schema)
	\${column}	Takes the column name (from the current table)

# SQL Assist and Auto-Complete

The SQL Assist feature provides auto-completion of database object names and SQL commands and other keywords in queries.

To perform some object name auto-complete, press **ctrl+Space** or right-click the required place in the query and click **SQL Assist** on the context menu. DBeaver searches for potentially suitable objects in already loaded database metadata and in the database system tables.

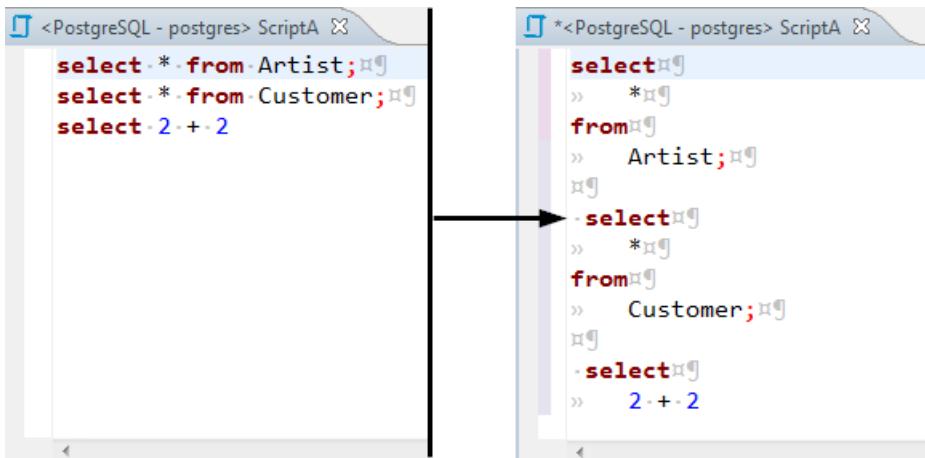


When you start typing an SQL keyword in a statement, DBeaver offers auto-complete options as well.

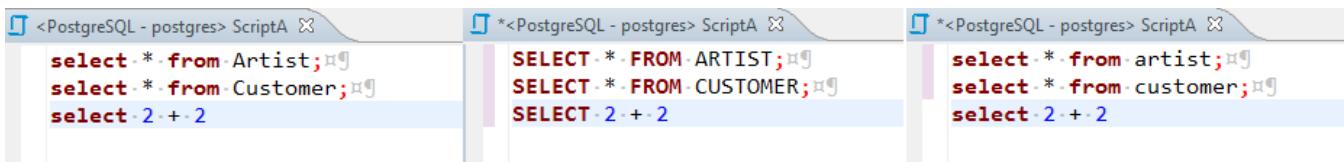
Another auto-complete function is search for completion only within already entered identifiers - press **Ctrl+Shift+Space**.

# SQL Formatting

To format SQL text, select it and press **Ctrl+Shift+F** or right-click the selected text and click **Format -> Format SQL** on the context menu.

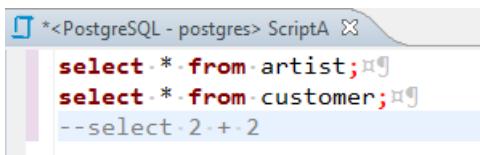


To format a script to upper or lower case, highlight the SQL text, then right-click it and click **Format -> To Upper Case / To Lower Case**, respectively, on the context menu.



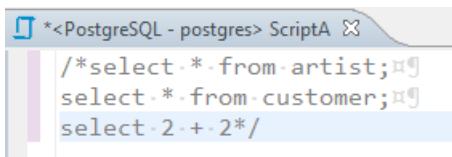
To comment out an SQL line, press **Ctrl+/** or right-click the line and click **Format -> Toggle Line Comment** on the context menu.

To uncomment a commented line, manually remove the commenting syntax, or press the same button combination, or right-click the line and click the same item on the context menu.



To comment out a block of text, select the text, then press **Ctrl+Shift+/** or right-click it and click **Format -> Toggle Block**

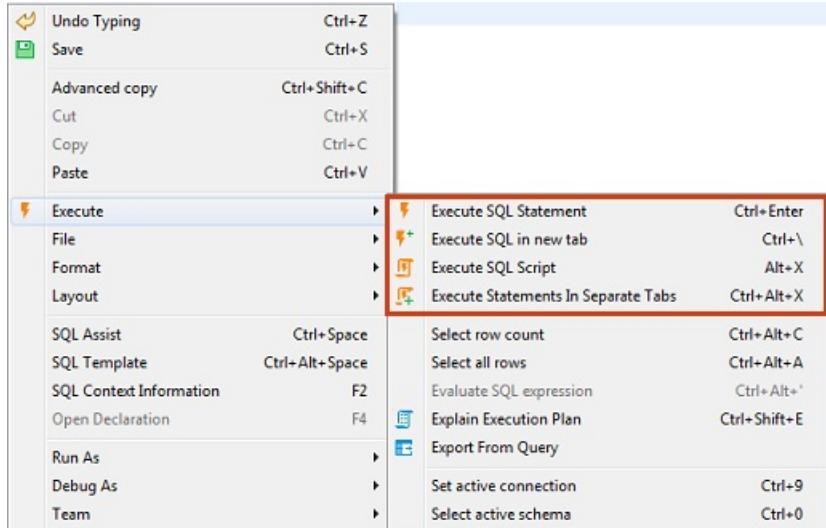
**Comment** on the context menu. To uncomment a commented block of text, either manually remove the commenting syntax or select the same block of text, right-click it and click the same item on the context menu or press the same button combination.



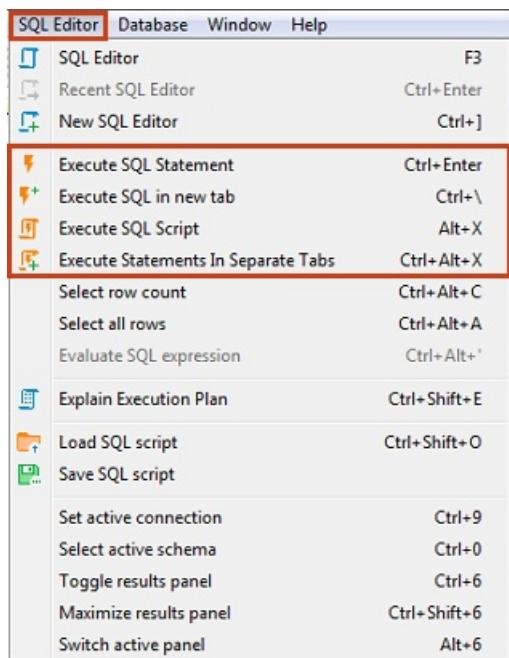
# SQL Execution

You can execute one query, a highlighted portion of a script, or a whole script. You can execute them using:

- Shortcut key combinations (see details further in this article)
- Tools in the main toolbar: 
- Context menu (right-click the query):



- DBeaver main menu:



To execute a query under cursor or selected text, press **Ctrl+Enter** or right-click the query and click **Execute -> Execute SQL Statement** on the context menu. You can do the same using the main toolbar or main menu: **SQL Editor -> Execute SQL Statement**. This executes the SQL query under cursor or selected text and fills the results pane with the query results.

To execute a query under cursor in a separate tab, press **CTRL+\** or right-click the query and click **Execute -> Execute SQL in new tab** on the context menu. The same can be done using the main toolbar or the main menu: **SQL Editor -> Execute SQL in new tab**. This executes the SQL query under cursor or selected text and creates a new results tab.

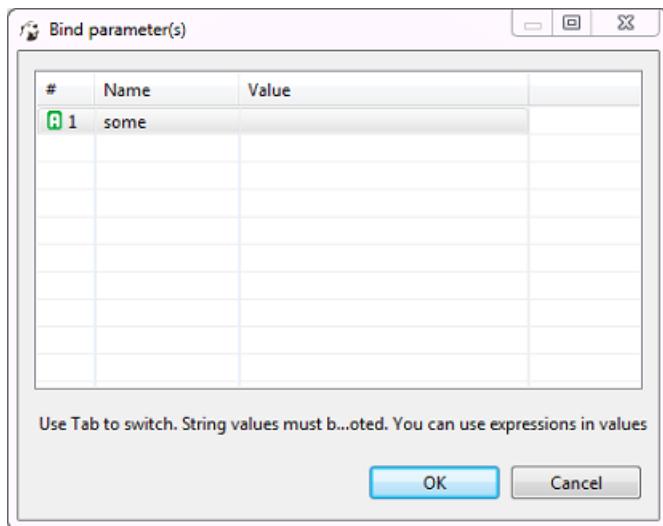
To execute the whole script, press **Alt+X** or click **Execute -> Execute SQL Script** on the context menu or **SQL Editor -> Execute SQL Script** on the main menu or in the main toolbar. This executes all queries in the current editor (or selected queries) as a script. DBeaver parses queries one by one using a statement delimiter (";" by default) and executes them consecutively. You can configure the script execution behavior in the SQL editor preferences (Right-click the script and click **Preferences** on the context menu).

To execute a script opening each query results in a separate tab, press **Ctrl+Alt+Shift+X** or click **Execute -> Execute Statements In Separate Tabs** on the context menu or **SQL Editor -> Execute Statements In Separate Tabs** on the main menu or in the main toolbar. The executes all queries in the script, but opens multiple result tabs. Each script query is executed in a separate thread (that

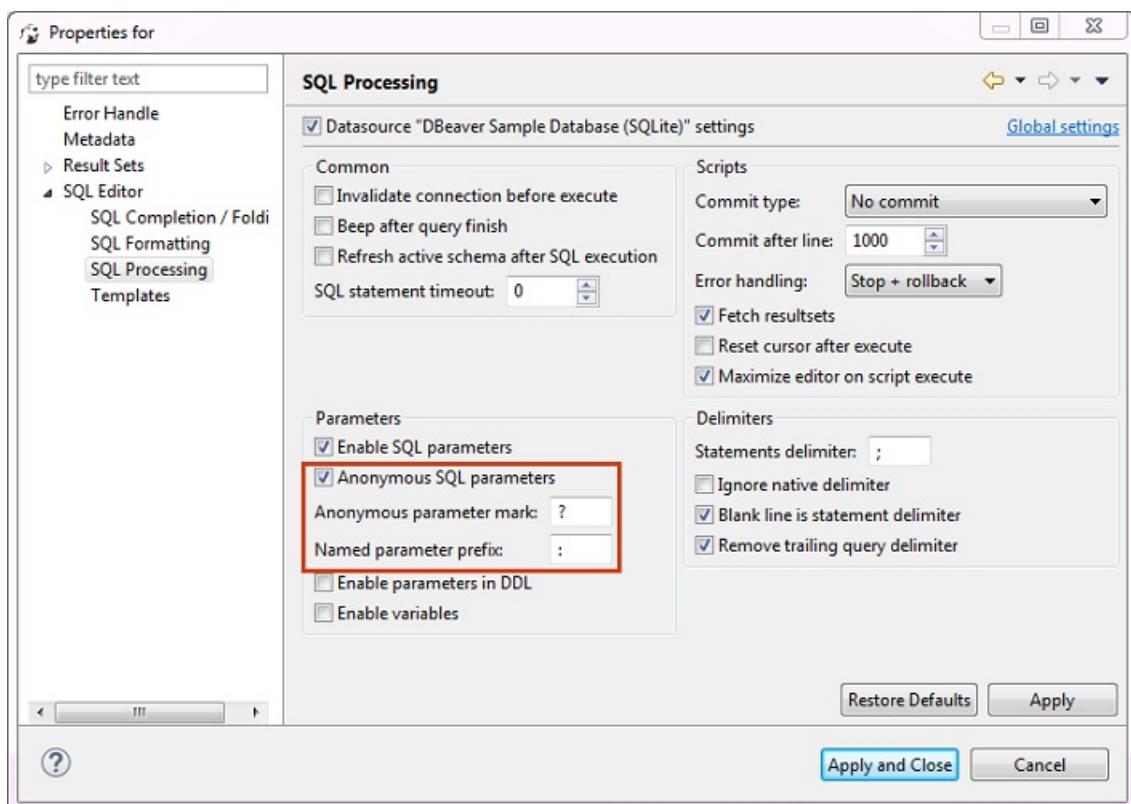
is, all queries are executed simultaneously). NOTE: Be careful with this feature. If you execute a huge script with a large number of queries, it might cause unexpected problems.

## Dynamic Parameter Bindings

You can use dynamic parameters in your SQL queries. The parameter format is :name. When you execute a query which contains dynamic parameters, DBeaver displays a dialog box in which you can fill the parameter values:



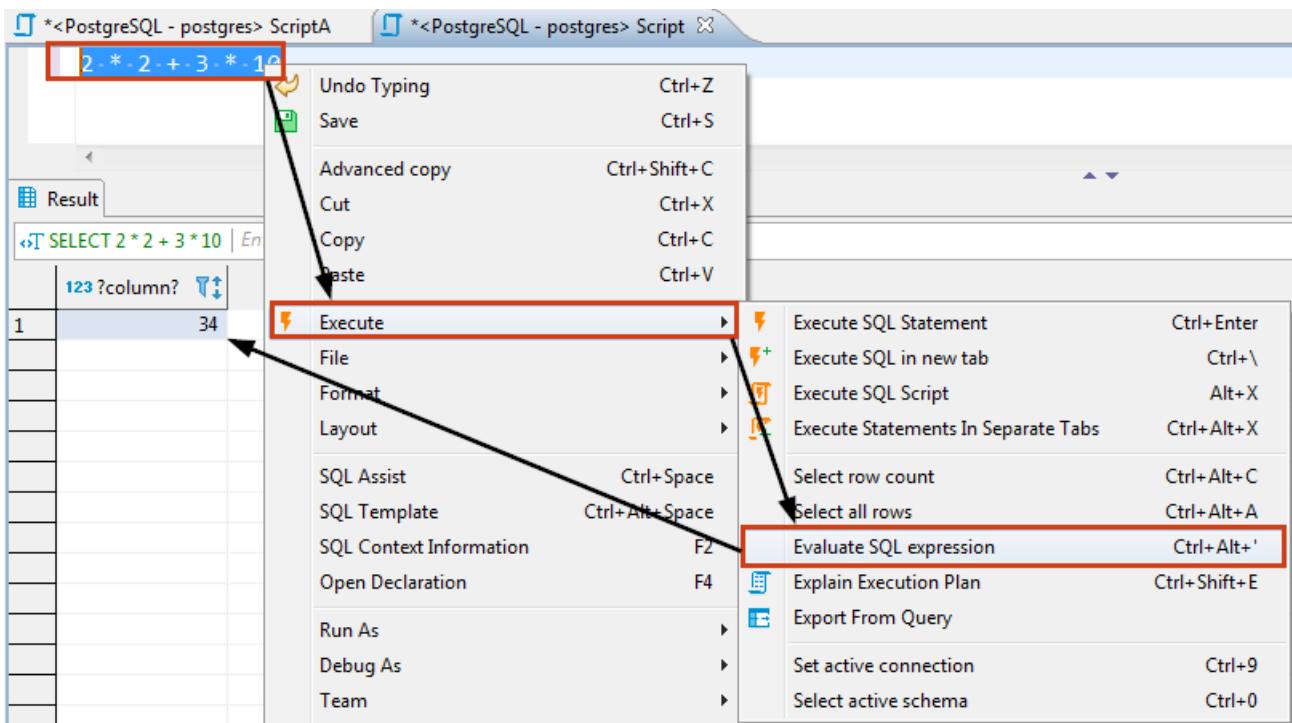
You can also use anonymous parameters (?), but you will need to enable them in SQL editor preferences:



You can open SQL editor preferences by pressing **Alt+Enter**.

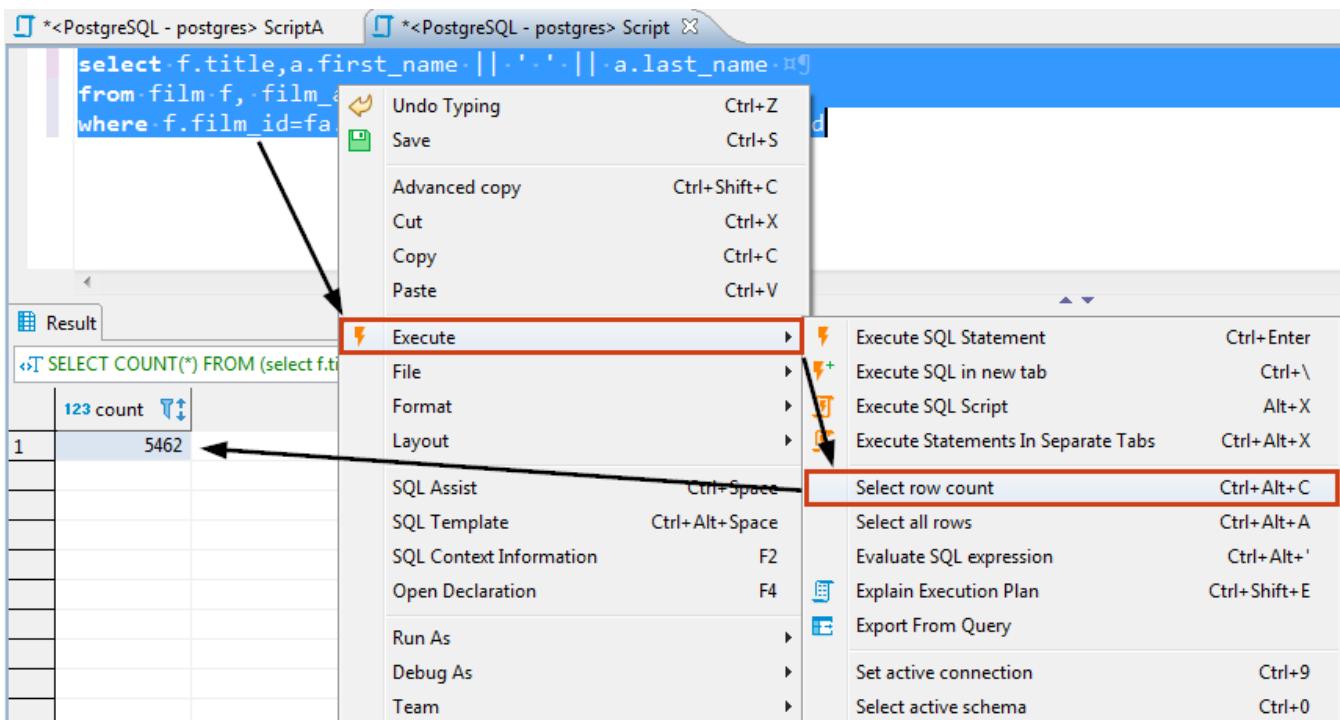
## SQL Expression Evaluation

To evaluate an SQL expression, right-click the expression and click **Execute -> Evaluate SQL expression** on the context menu. This command basically performs a query of **SELECT [expression] FROM DUAL** type:



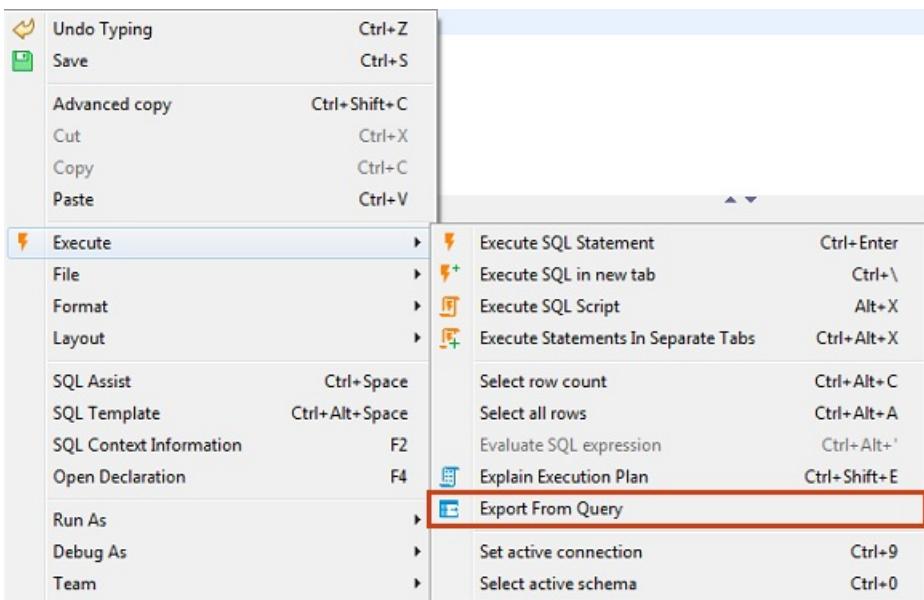
## Row Count

If you want to know how many rows an SQL query will produce, you need to apply the Row Count feature – highlight and right-click the SQL text and then click **Execute** -> **Select row count** on the context menu:

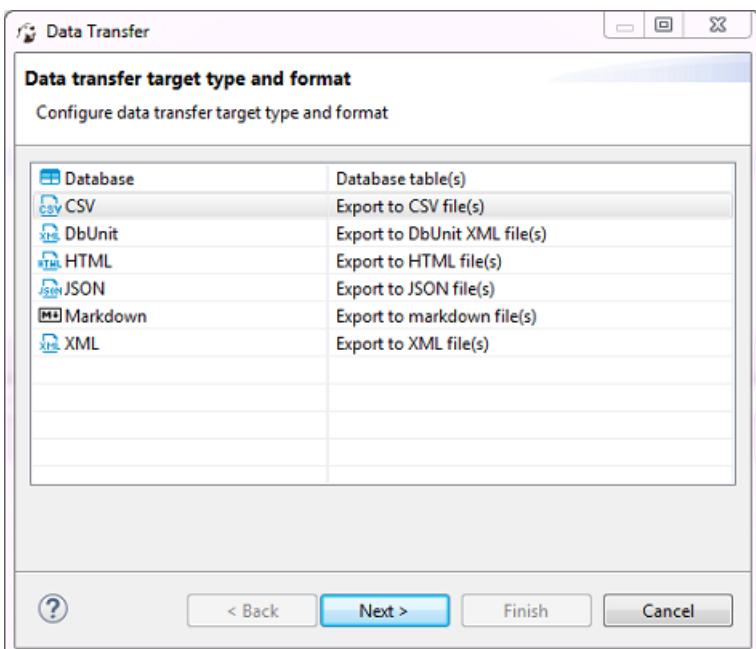


## Query Export

It might be useful to export a query if you have a very long-running query and you do not need to see its results in the results panel. You can directly export the current query results to a file/table by right-clicking the query and then clicking **Execute** -> **Export From Query** on the context menu:



The Data transfer wizard opens. Go through its steps to complete the export of the query.



## Client-side commands

You can use special commands in SQL scripts.

These commands are executed on DBeaver side, not on server-side.

Name	Description
@set var = value	Sets default value for SQL parameter
@echo text	Prints string into server output viewer
@include file	Includes script file from file system

## Miscellaneous

- To select the current query row count, press `Ctrl+Alt+Shift+C`.
- To open the definition of the database object currently in focus (under cursor) in a viewer/editor, press `F4`.

# Query Execution Plan

## Execution Plan

### Simple plan view

If a database driver supports execution plan visualization, you can see the execution plan of the current query (under cursor) by pressing **Ctrl+Shift+E** or clicking **Explain execution plan** on the context menu or in the main toolbar: The execution plan command generates a tree of query execution as one of the result tabs and is convenient in estimating if the query/script is quick/optimal enough:

Node Type	Entity	Cost	Rows	Time	Condition	Name	Value
Hash Join		87.25 - 336...	5462	7.889		General	
Hash Join		77.50 - 231...	5462	3.855		Node Type	Seq Scan
Seq Scan	film_act...	0.00 - 84.62	5462	1.027		Entity	film as f
Hash		65.00 - 65.00	1000	0.593		Cost	0.00 - 65.00
Seq Scan	film as f	0.00 - 65.00	1000	0.341		Rows	1000
Hash		6.00 - 6.00	300	0.171		Time	0.341
Seq Scan	actor as a	0.00 - 6.00	300	0.075		Condition	

```
select f.title,a.first_name || '' '' || a.last_name
from film f, film_actor fa, actor a
where f.film_id=fa.film_id and fa.actor_id=a.actor_id
```

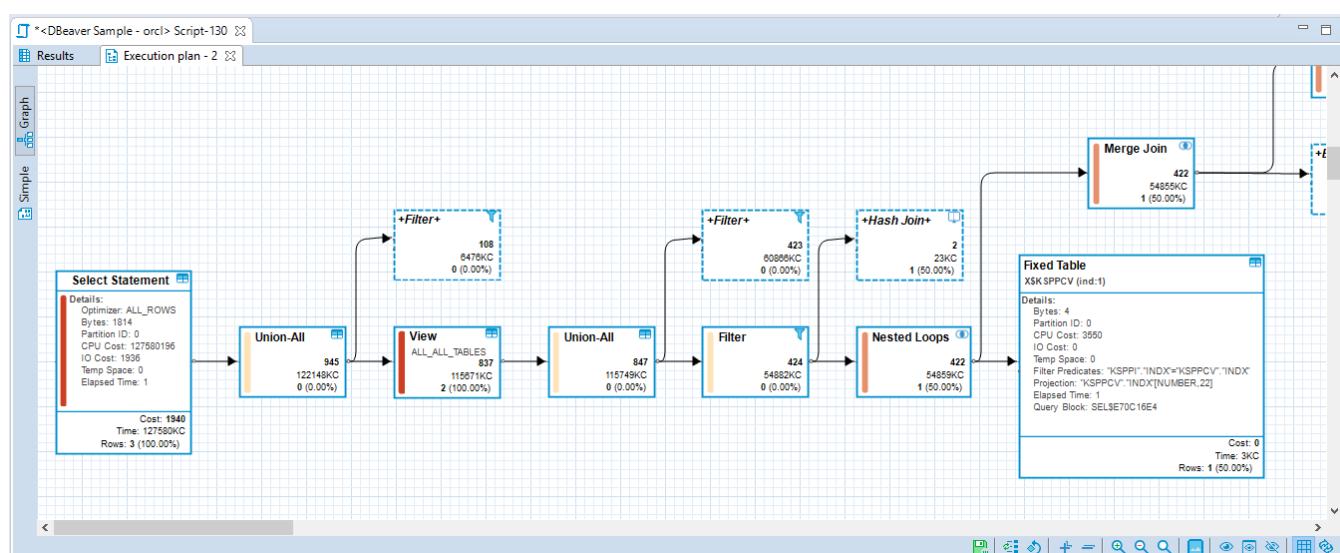
Type: Seq Scan; Rel: film as f ; Cost: 0.00 - 65.00

You can click the rows of the execution plan to see their details (statistics) in the panels below and to the right of the plan. To reevaluate the plan, click the **Reevaluate** button (). To see the source script on which the plan is based, click the **View Source** button ().

### Advanced plan view

In DBeaver [Enterprise Edition](#) you can use advanced (graph) execution plan visualization.

This visualization shows most expensive (cost-based) plan nodes. You can hide all irrelevant nodes, see node details, use horizontal or vertical pln layout, export it to image or save as json to pass plan information to a colleague.



# Visual Query Builder

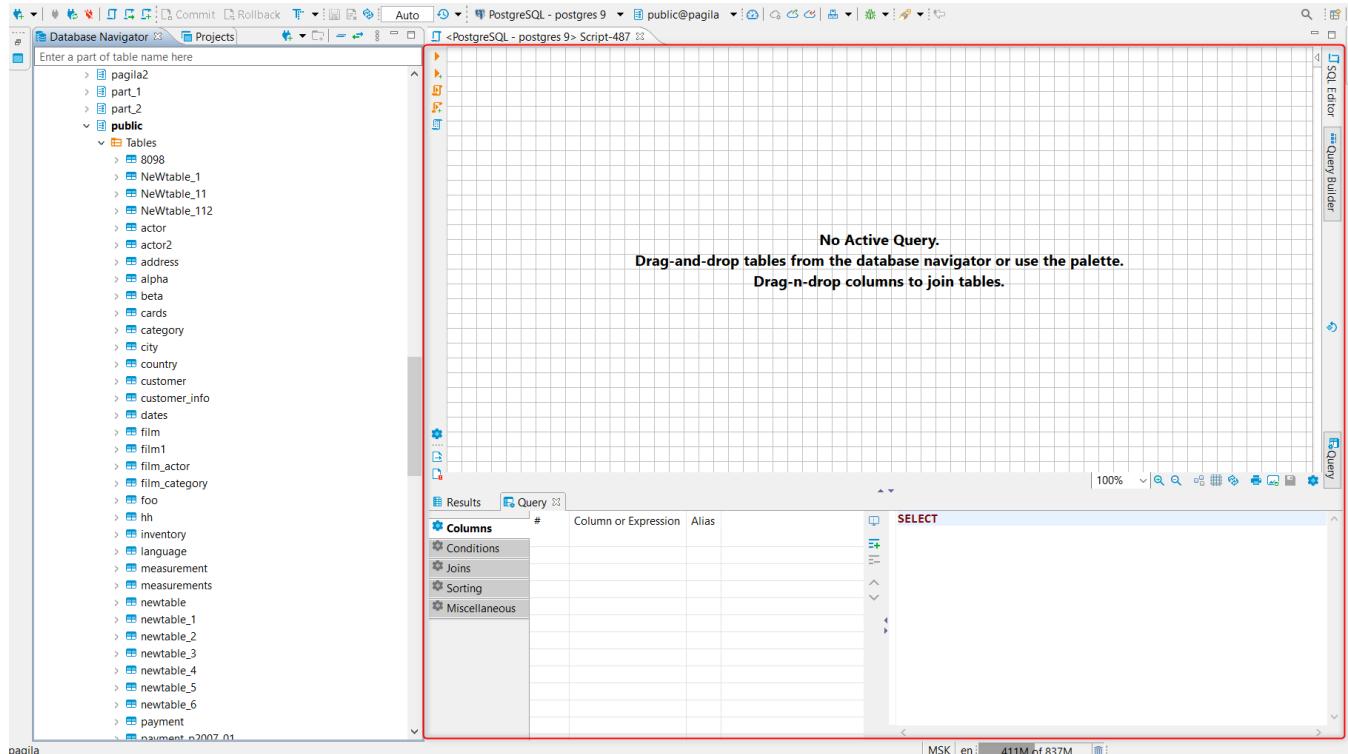
Note: This functionality is available only in [Enterprise Edition](#).

**Query Builder** is a user-friendly visualization tool that will help you make sense of your complex database designs. It can be useful when you need to understand the various relationships between different tables. Also, it can be helpful for those who are not much familiar with SQL scripting or if you don't want to insert script commands manually. The tool creates SQL scripts automatically based on visual schema you create.

\*Note: Visual Query Builder presents only in DBeaver [Enterprise Edition](#)

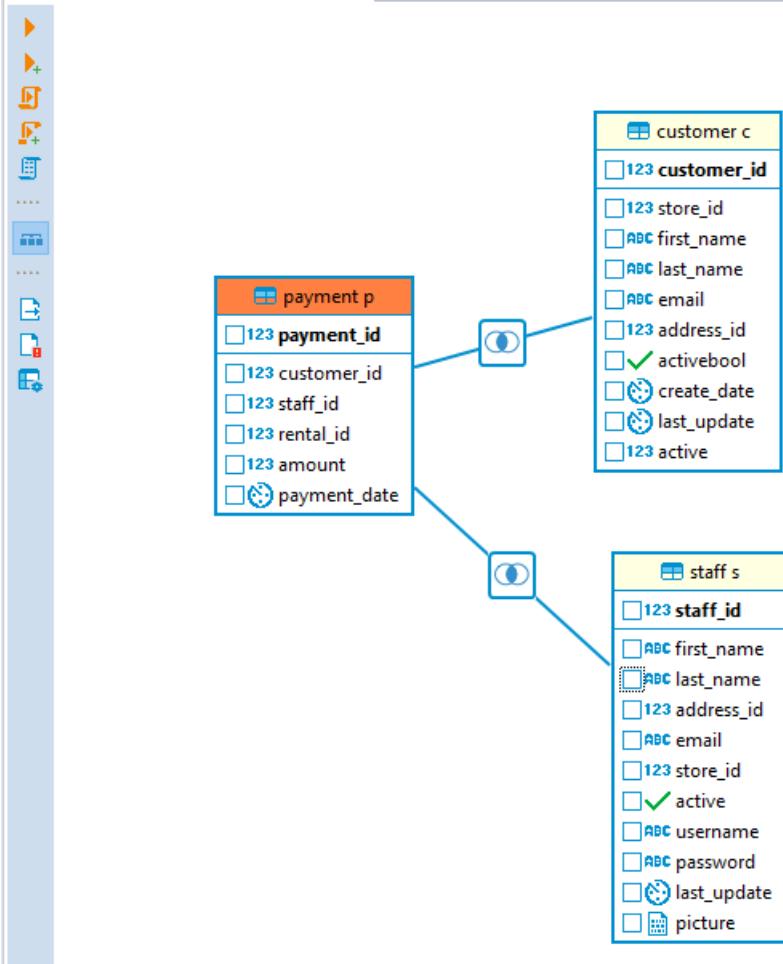
## Opening Visual Query Builder

To open **Visual Query Builder** click the **Open Query Builder** button  in the **SQL Editor** tool bar. The **Visual Query Builder** will appear on the right.

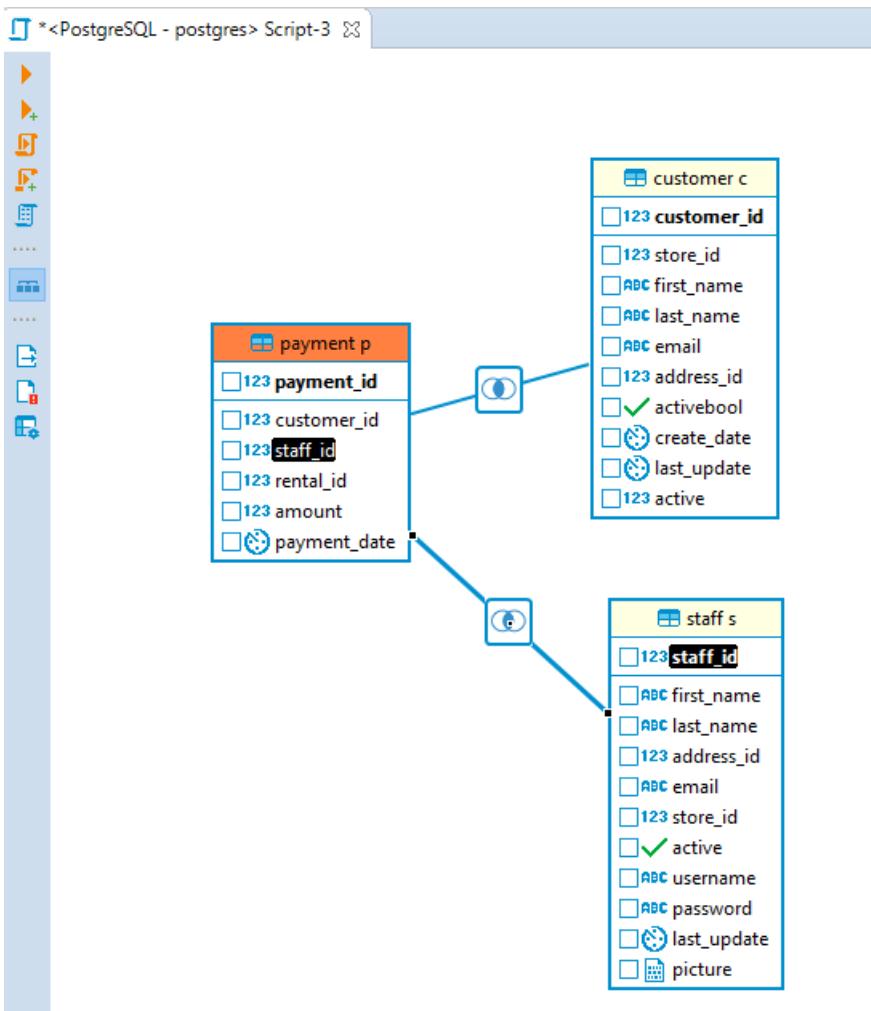


## Creating Visual Query

Start creating a query from selecting query data source: drag-and-drop tables you want to work with from the **Database Navigator** pane into the **Visual Query Builder** area. All the connections existing between the tables will be shown automatically.



To create a new join between the tables press the left mouse button when the cursor is over the column of one table, holding the right mouse button pressed drag the cursor to the column of another table and release the right mouse button. The connection between the selected columns of the tables will be created visually and in the SQL script a new join will be added.



To remove a join between the tables click on it. The connection will be highlighted. Then, press **Delete** or use the **Delete** option in the context menu. The visual connection will be removed and the corresponding join will be automatically removed from the SQL script area.

To build a SELECT query you need to select columns in the tables you added. To select a column click the check-box next to its name - the column will be added to the **Columns** tab of the **Query Settings Editor** and SELECT query will be added to the SQL script area automatically.

## Adjusting Query Settings

Visual Query Builder also allows setting query conditions and adjust representation of query results by means of **Query Settings Editor**.

To open **Query Settings Editor** use **Visual builder query settings** button in the vertical tool bar on the left.

**Query Settings** window contains five tabs described below.

### Columns

The screenshot shows the 'Query Settings' editor window. On the left, there's a sidebar with tabs: 'customer(+)', 'Query Settings', 'Columns' (which is selected), 'Conditions', 'Joins', 'Sorting', and 'Miscellaneous'. The main area has two panes. The left pane shows a table with columns: '#', 'Column or Expression', and 'Alias'. The rows are: c.first\_name (Customer\_First\_Name), c.last\_name (Customer\_Last\_Name), s.first\_name (Staff\_First\_Name), s.last\_name (Staff\_Last\_Name), and p.amount (Payment\_Amount). The right pane shows the generated SQL code:

```

select
    c.first_name as Customer_First_Name,
    c.last_name as Customer_Last_Name,
    s.first_name as Staff_First_Name,
    s.last_name as Staff_Last_Name,
    p.amount as Payment_Amount
from
    public.payment p
inner join public.customer c on
    p.customer_id = c.customer_id
inner join public.staff s on

```

Columns tab of the **Query Settings Editor** contains all the columns you added by selecting column names in **Visual Builder** main window. In this tab you can add and remove columns using **Add** and **Remove** buttons correspondingly.

To add a column, press **Add** button and a new instance will be added to the table. Click on the first cell in **Column or Expression**

column and select a column from the list of available columns displayed in the dropdown list appeared.

The screenshot shows the 'Query Settings' dialog with the 'Results' tab selected. On the left, there's a sidebar with tabs: 'Columns', 'Conditions', 'Joins', 'Sorting', and 'Miscellaneous'. The 'Columns' tab is active. In the main area, there's a table with three columns: '#', 'Column or Expression', and 'Alias'. The first row has '#1 p.amount' and 'p.amount' in the 'Column or Expression' column. A dropdown menu is open over the 'p.amount' cell, listing several options: '1 p.amount', '2 p.amount', '3 p.payment\_date', '4 c.\*', '5 c.customer\_id', 'c.store\_id', 'c.first\_name', 'c.last\_name', 'c.email', 'c.address\_id', 'c.activebool', 'c.create\_date', 'c.last\_update', 'c.active', '5.\*', and 's.staff\_id'. To the right of the table are several icons: a copy icon, a plus sign, a minus sign, and up/down arrows for sorting.

To remove a column, click on the row containing its name and press the **Remove** button on the right.

To change the display order of columns in the result table use **Move Up/Down** buttons .

You can also define a user-friendly name of the column to be displayed in the result table. To set a user-friendly name click on a cell in **Alias** column and insert the name. The change will be immediately displayed in the SQL script area.

This screenshot is similar to the previous one, but the 'Alias' column for the first row ('p.amount') now contains the text 'how much'. The rest of the table and the sidebar are identical.

## Conditions

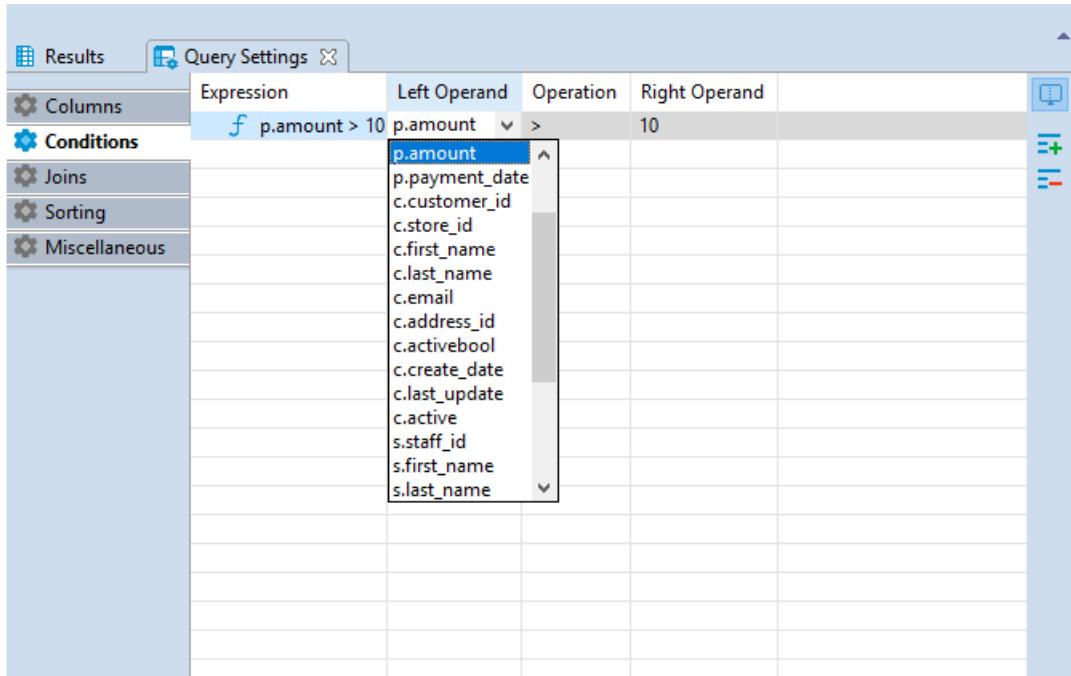
**Conditions** tab is used for managing query conditional expressions.

The screenshot shows the 'Query Settings' dialog with the 'Conditions' tab selected. On the left, there's a sidebar with tabs: 'customer(+)', 'Columns', 'Conditions', 'Joins', 'Sorting', and 'Miscellaneous'. The 'Conditions' tab is active. In the main area, there's a table with four columns: 'Expression', 'Left Operand', 'Operation', and 'Right Operand'. The first row has 'f.p.am p.amount > 10'. To the right of the table is a large text area displaying the generated SQL script:

```
s.first_name as Staff_First_Name,  
s.last_name as Staff_Last_Name,  
p.amount as Payment_Amount  
from  
    public.payment p  
< inner join public.customer c on  
        p.customer_id = c.customer_id  
< inner join public.staff s on  
        p.staff_id = s.staff_id  
where  
    p.amount > 10
```

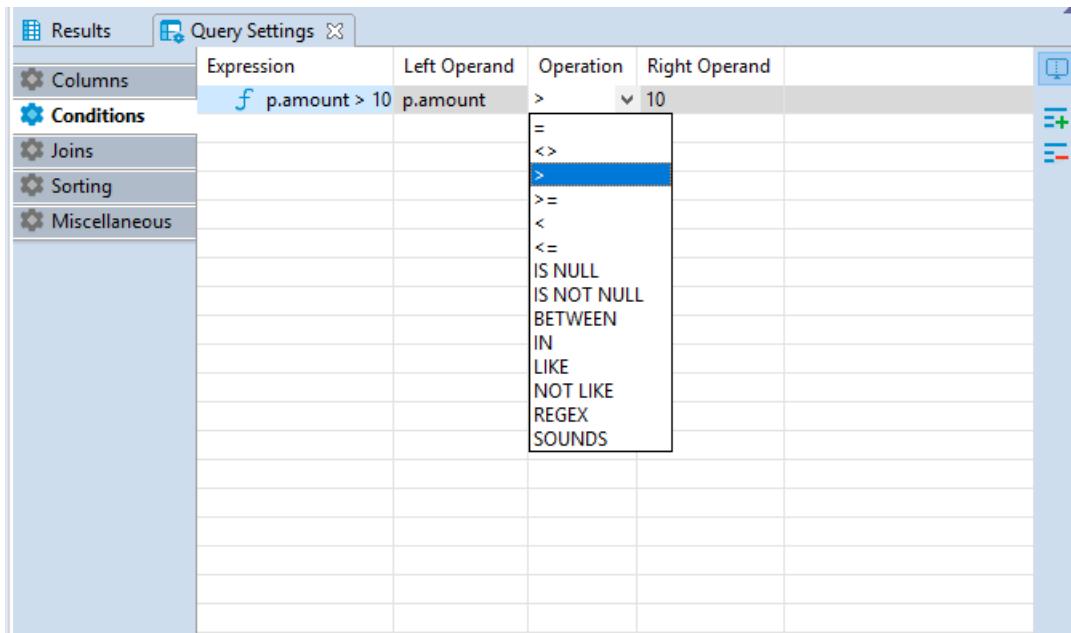
To add a new conditional expression use the **Add** button  on the right - a new instance will be added and the default conditional expression WHERE will be added to the SQL script area automatically. This default conditional expression can be then adjusted to the one you need:

- **Left Operand** setting defines the left operand of the conditional expression. To set the left operand, click the cell in the **Left Operand** column and a drop down list of all available columns will be displayed. Select a column you want to use as the left operand in your conditional expression or insert a digit.



The screenshot shows the DBeaver Query Settings dialog with the 'Conditions' tab selected. In the 'Expression' field, there is a placeholder 'f p.amount > 10'. The 'Left Operand' field contains 'p.amount'. A dropdown menu is open over the 'Left Operand' field, listing various columns from the current database schema: p.amount, p.payment\_date, c.customer\_id, c.store\_id, c.first\_name, c.last\_name, c.email, c.address\_id, c.activebool, c.create\_date, c.last\_update, c.active, s.staff\_id, s.first\_name, and s.last\_name. The 'p.amount' option is highlighted in blue.

- **Operation** setting defines the comparison rule between the left and the right operands of the conditional expression. To set a comparison rule, click the cell in the **Operation** column and select the rule you need from the drop down list appeared.



The screenshot shows the DBeaver Query Settings dialog with the 'Conditions' tab selected. In the 'Expression' field, there is a placeholder 'f p.amount > 10'. The 'Left Operand' field contains 'p.amount'. The 'Operation' field currently has a dropdown arrow icon. A dropdown menu is open over the 'Operation' field, listing various comparison operators and functions: =, <>, >, >=, <, <=, IS NULL, IS NOT NULL, BETWEEN, IN, LIKE, NOT LIKE, REGEX, and SOUNDS. The '>' operator is highlighted in blue.

- **Right Operand** setting defines the right operand of the conditional expression. To set the right operand, click the cell in the **Right Operand** column and a drop down list of all available columns will be displayed. Select a column you want to use as the left operand in your conditional expression or insert a digit.

The screenshot shows the 'Query Settings' tab in the Visual Query Builder. On the left, there's a sidebar with tabs: 'Results', 'Query Settings' (selected), 'Columns', 'Conditions', 'Joins', 'Sorting', and 'Miscellaneous'. In the main area, there's a table with columns: 'Expression', 'Left Operand', 'Operation', and 'Right Operand'. The 'Expression' cell contains the condition `p.amount > p.amount`. The 'Left Operand' cell has a dropdown menu open, showing various columns from the 'p' table: `p.amount`, `p.payment_date`, `c.customer_id`, `c.store_id`, `c.first_name`, `c.last_name`, `c.email`, `c.address_id`, `c.activebool`, `c.create_date`, `c.last_update`, `c.active`, `s.staff_id`, `s.first_name`, and `s.last_name`. The 'Operation' cell contains the operator `>`. The 'Right Operand' cell contains the value `10`.

To remove a conditional expression, click on the row containing the expression and press the **Remove** button on the right.

## Joins

All the joins existing between the tables in **Visual Query Builder** main window are displayed in the **Joins** tab of **Query Settings Editor**.

The screenshot shows the 'Query Settings' tab in the Visual Query Builder. On the left, there's a sidebar with tabs: 'customer(+)', 'Query Settings' (selected), 'Columns', 'Conditions', 'Joins' (selected), 'Sorting', and 'Miscellaneous'. In the main area, there's a table with columns: 'Table / Conditions', 'Type', and 'Alias'. There are two entries: 'public.customer' with Type 'Inner' and Alias 'c', and 'public.staff' with Type 'Inner' and Alias 's'. To the right of the table, the generated SQL query is shown:

```

    p.amount as Payment_Amount
  from
    public.payment p
  inner join public.customer c on
    p.customer_id = c.customer_id
  inner join public.staff s on
    p.staff_id = s.staff_id
  where
    p.amount > 10
  order by
    p.amount desc
  
```

Joins cannot be added or removed by means of **Query Settings Editor**, however, the following join settings can be adjusted here:

- **Type** - defines the type of the join. Click the cell in the **Type** column - a drop down with available join types will be displayed. Select the required option from the list by clicking on it.

The screenshot shows the 'Query Settings' tab in the Visual Query Builder. On the left, there's a sidebar with tabs: 'Results', 'Query Settings' (selected), 'Columns', 'Conditions', 'Joins' (selected), 'Sorting', and 'Miscellaneous'. In the main area, there's a table with columns: 'Table / Conditions', 'Type', and 'Alias'. The 'Type' column for the 'public.customer' entry has a dropdown menu open, showing options: Simple, Inner (selected), Left, Right, and Full.

- **Alias** - defines a user friendly name of the join. To define this setting click on the cell in **Alias** column and input the name.

## Sorting

In **Sorting** tab you can set the order of rows in the result table.

```

    p.amount as Payment_Amount
  from
    public.payment p
  inner join public.customer c on
    p.customer_id = c.customer_id
  inner join public.staff s on
    p.staff_id = s.staff_id
  where
    p.amount > 10
  order by
    p.amount desc
  
```

To add a new sorting condition press the **Add** button on the right and the default conditional expression ORDER BY will be added to the SQL script area automatically. This default conditional expression can be then adjusted to the one you need:

- Once a new condition is added, click the first cell in **Conditions or Expressions** column and a drop down list of all available columns will appear. Select the required column by clicking on its name.

- In **Order** column you can define whether the rows of the selected column should be sorted in ascending or descending order in the result table. To set the order, click the cell in **Order** column and select the required option from. The order by command will be added to the script.

The screenshot shows the DBeaver Visual Query Builder interface. On the left, there's a vertical toolbar with tabs: Results, Query Settings, Columns, Conditions, Joins, Sorting, and Miscellaneous. The Sorting tab is currently active. In the main area, there's a table-like structure with columns for '#', 'Column or Expression', and 'Order'. The first row has '# 1', 'p.amount', and 'Descending' selected. To the right of this table are buttons for adding (+) and removing (-) conditions, and arrows for reordering. The background of the main area is light blue.

To remove a condition use the **Remove** button on the right.

## Miscellaneous

In **Miscellaneous** tab it is possible to autosave on SQL-editor switch by selecting the **Autosave on SQL-editor switch** check-box.

This screenshot shows the DBeaver Visual Query Builder with the Miscellaneous tab selected. On the left, there's a vertical toolbar with tabs: customer(+), Query Settings, Columns, Conditions, Joins, Sorting, and Miscellaneous. The Miscellaneous tab is active. In the main area, there's a table with a single row: 'Name' (Auto-save on SQL editor switch) and 'Value' (checkbox checked). To the right of the table is a large text area containing a SQL query:

```
p.amount as Payment_Amount
from
  public.payment p
inner join public.customer c on
  p.customer_id = c.customer_id
inner join public.staff s on
  p.staff_id = s.staff_id
where
  p.amount > 10
order by
  p.amount desc
```

## Executing Visual Query

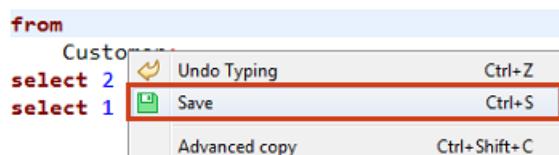
To execute a query, use **Execute SQL statement** button to get the results in the same tab or **Execute SQL statement in new tab** button to get the results in a new tab. Both buttons are located in the **Visual Query Builder** vertical toolbar.

# Script Management

## Saving Scripts

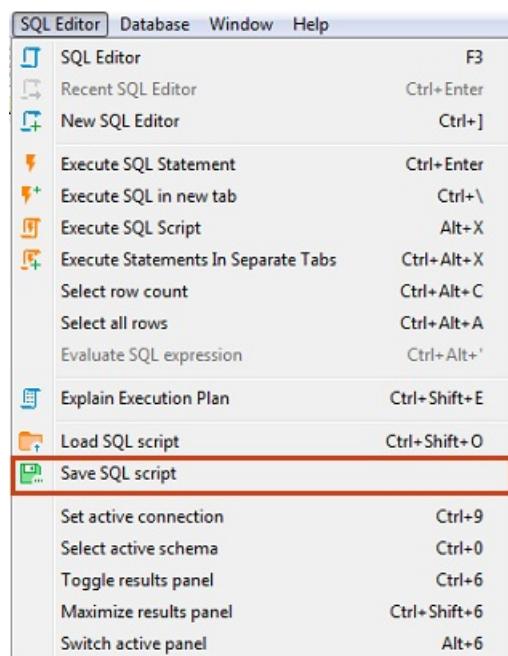
You can save scripts to a predefined space in the currently active project or somewhere in the file system.

To save a script to the current project space, just press **Ctrl+S** or right-click the script and click **Save** on the context menu:



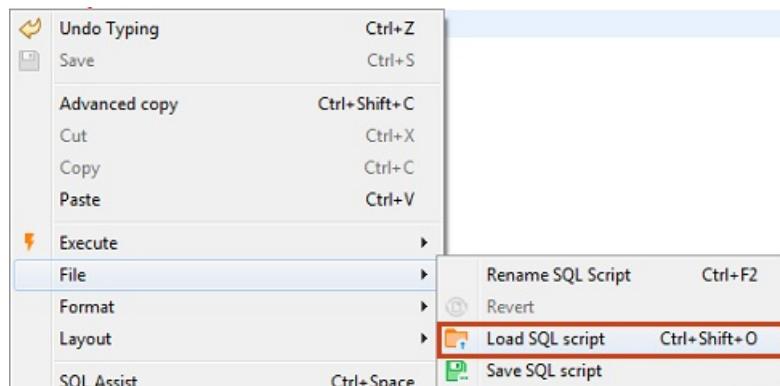
You can find the script saved this way in the [Project Explorer](#) view in the **Scripts** folder.

To save a script to the file system, right-click the script, click **File -> Export SQL script** on the context menu and then select the folder in the file system. You can also, click **SQL Editor -> Export SQL script** on the main menu:



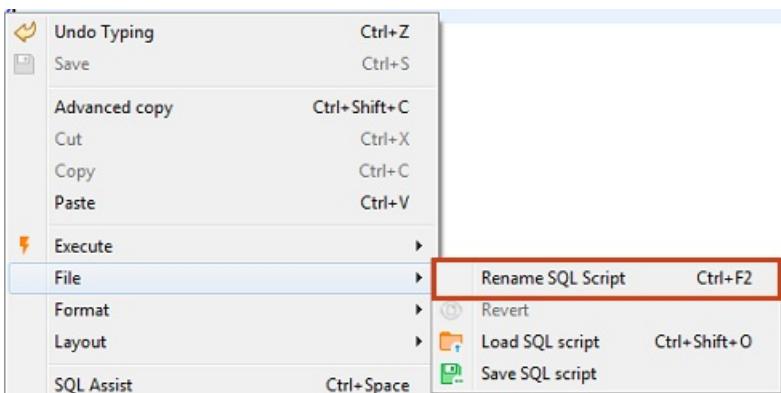
## Loading Scripts

To load a script stored in the file system to the SQL Editor, press **CTRL+SHIFT+O**, or click **SQL Editor -> Load SQL script** on the main menu, or right-click the script panel and click **File -> Load SQL script** on the context menu:

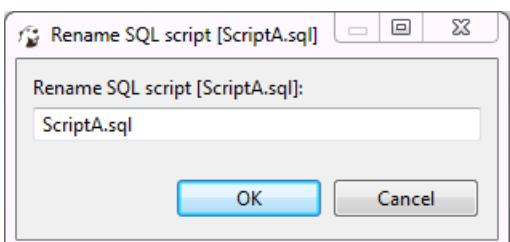


## Renaming Scripts

To rename a script, right-click anywhere in the script panel, click **File -> Rename SQL Script** on the context menu or press **CTRL+F2**:



Then enter the new name in the Rename SQL script dialog box and click **OK**:



## Reverting Changes

If you want to revert all changes made to the current SQL script and return it to its initial state (reload from disk), right-click anywhere in the script panel and click **File -> Revert** on the context menu.

## SQL Console

In some cases you might want to execute a query and do not save it in a script. For example when you read table data using "Read data in SQL console" or open procedure/function source from DDL editor. SQL console doesn't have an associated .sql file. Its contents will be lost when you close it.

# Client Side Commands

DBeaver supports the following commands:

Command	Database	Description
@set var = value	All	Sets a script variable. You can use expressions as a value. Variables can be used as SQL queries input parameters.
@unset var	All	Unsets a script variable.
@echo message	All	Prints message to output log. You can use a macro in message (for example \${var}).
@include fileName	All	- Executes a specified file name, - Can be used in scripts, - Opens a new SQL console with the specified file and processes SQL queries as in a regular SQL editor.
source fileName	MySQL	The same as @include but in MySQL CLI syntax
define var = value	Exasol	The same as @set but in Exasol EXAPlus syntax.

# PostgreSQL Debugger

## Prerequisites for Debugging

In order to implement interactive debugging of PL/SQL procedures on a Postgres server you need to use plugin\_debugger. Plugin\_debugger is a typical interactive debugger delivered as an extension and requiring a shared library preload in Postgres to operate the shared\_preload\_libraries parameter in settings. The debugger is developed and maintained by the community. Its source code is available for examination and improvement.

The debugger provides the required server API for debugging PL/SQL procedures with:

- Breakpoint management;
- Step-by-step tracing;
- Variable acquisition and management.

## Installation

---

As the first step, you need to install the **plugin\_debugger** extension in your PostgreSQL database. It is free and open source. You can download the source code [here](#). And you can find the installation README file [here](#).

To install the debugger plugin:

1. Copy this directory to **contrib/** in your PostgreSQL source tree.
2. Run **make; make install**.
3. Edit your **postgresql.conf** file and modify the **shared\_preload\_libraries** config option to look like the following:  
**shared\_preload\_libraries = '\$libdir/plugin\_debugger'**.
4. Restart PostgreSQL for the new setting to take effect.
5. Run the following command in the database or databases that you wish to debug functions in:  
**CREATE EXTENSION pldbgapi;**  
NOTE: On server versions older than 9.1, instead of running the command, you need to run the **pldbgapi--1.0.sql** script directly using psql.

If you use binary builds from pgdg, you can use repository for your Linux distribution. For more information, please see [Official Postgres page] (<https://www.postgresql.org/download/>).

After installing the plugin on the database server, you need to install the debug plugin from either a marketplace or P2 repository, see this [article](#) for more information.

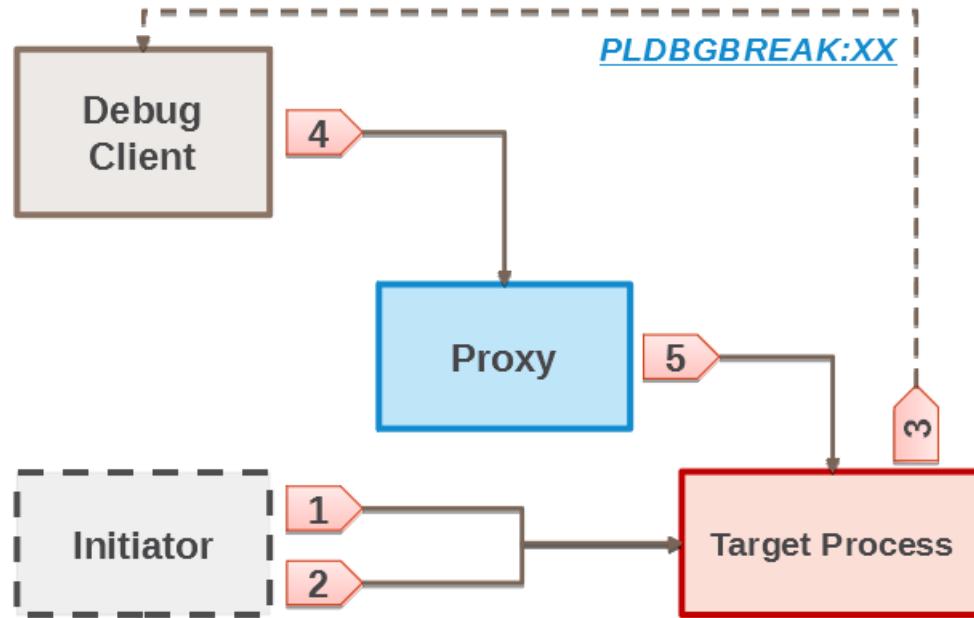
You can find a detailed DBeaverCE Debug plugin installation guide from Jkiss P2 repository [here](#).

## How to start debug with local breakpoint

For local breakpoints, stop will be done only for server process launched by the initiator. All other processes will run procedure/function as usual. When you create or run a previously defined debugging session in DBeaver with local breakpoint, the following steps take place:

1. DBeaver creates initiator session and local breakpoint.
2. DBeaver runs procedure\function (with parameters specified) selected for debugging in the initiator session.
3. The server process reaches breakpoint and displays NOTICE to initiator, in which the PORT is reported for PLDBGBREAK:XX debugging. Then the process opens the socket and becomes blocked, waiting for PROXY connection. If Debug Client cannot get PORT name from the process being debugged, an error message appears.
4. Debug Client creates a session, then tries to establish connection with the debugged process, using PORT from step 3 provided by the initiator. The connection is established via API call **attach\_to\_port**. If the connection cannot be established, the **Error rcv port number** message appears.
5. PROXY receives PORT from the client, then establishes connection to the process, and returns the session identifier to the client. After that, using the identifier, one can:
  - Send debugging commands to the process;
  - Receive responses from the process;

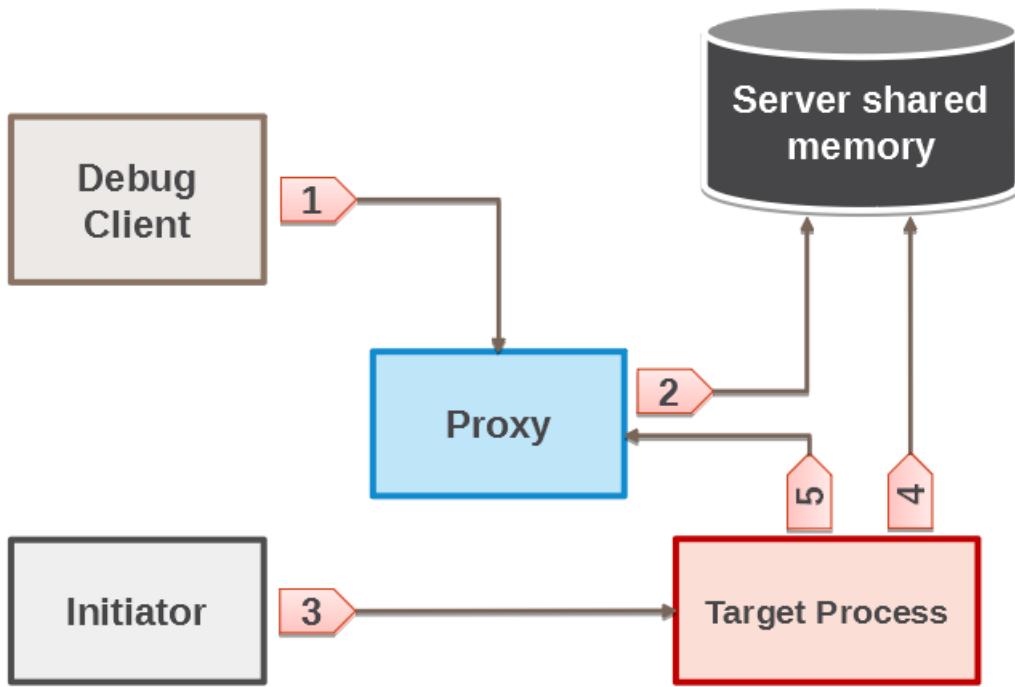
- Translate responses to the client.



## How to start debug with global breakpoint

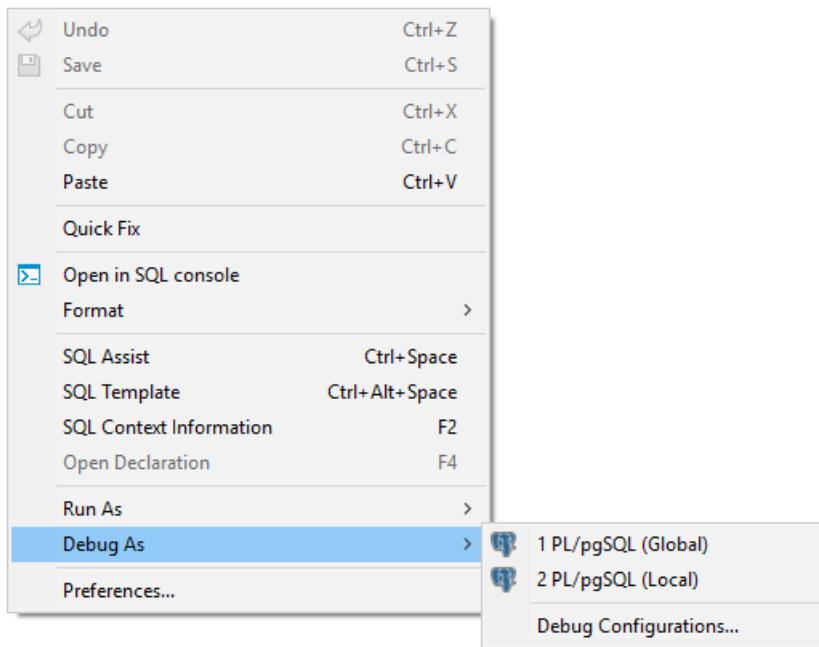
Whenever the breakpoint is global, stop will be done for any server process launched by anyone. No modifications or additional calls from the debugged process are required. When you create a session with a global breakpoint, the following steps take place:

1. The client creates a session and then establishes a connection with PROXY (receiving session). After that, the client creates a global breakpoint for the selected function, and then becomes blocked via the `pldbg_wait_for_target` API call waiting for the server process.
2. PROXY receives the global control point from the client and adds global control point to the shared memory, if the point of this type has not been added before.
3. The initiator creates a connection and runs the selected procedure.
4. On each executed line, the target process checks if the global breakpoint with corresponding conditions exists, and becomes blocked if the breakpoint exists and conditions are met.
5. The target process establishes a connection with PROXY and reports that the breakpoint is reached.
6. Afterwards, the process becomes blocked and waits for PROXY (client) commands. The process will be implementing commands unless the procedure finishes or an exception is thrown.



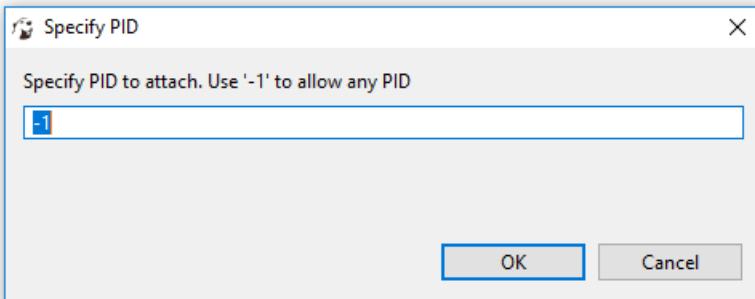
## Running debugger in DBeaver interface

If you have successfully installed the debugger plugin, and the plugin is up and running, you can start Debug from procedure source page by right-clicking the procedure source text - a context menu appears:



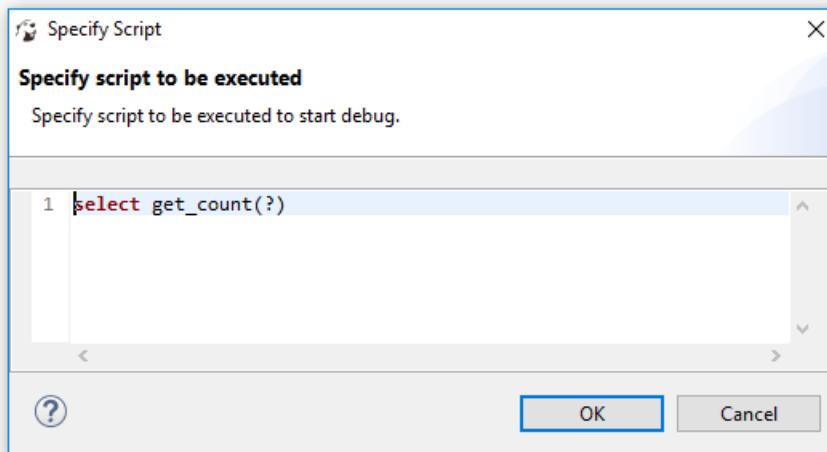
You need to choose the type of your debug session: Local or Global.

For a **Global** session, you need to specify the target process PID filter (enter **-1** value for any process):



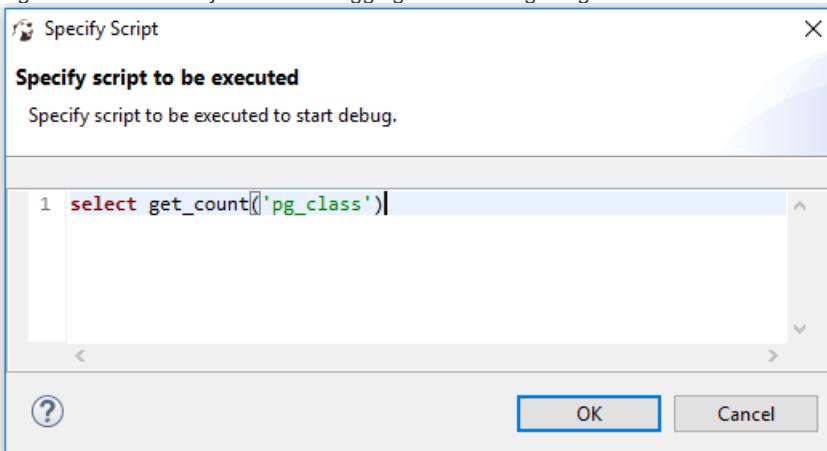
After running a Global session, you need to wait for any (or specified PID) process to call your procedure.

For a **Local** session, you need to specify the executable SQL sentence for starting the target process:



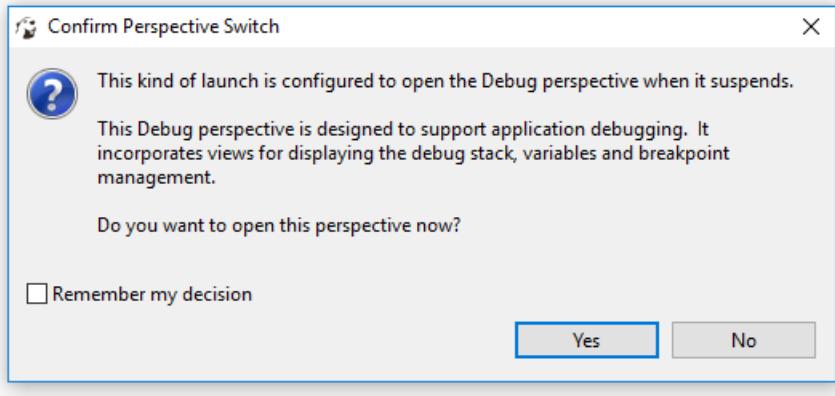
In the script editor window, you can see the **select get\_count(?)** text that is just a specification of how DBeaver must call your function(procedure) for debug.

DBeaver is not intended to know about the values of the variables in the procedure being debugged. You need to set the values for call arguments BEFORE you start debugging. Your settings might look as follows:



If you run debugging now, DBeaver creates a separate connection to the database server, tries to execute the given SQL sentence **select get\_count('pg\_class')** in this connection, and attaches the debug session to the running SQL context.

After successfully attaching to the target server process, the platform prompts you to switch to the debug perspective:



After you click **OK**, the debug toolset (perspective) opens:

File Edit Navigate Search Test SQL Editor Run Database Window Help

Postgres 10(postgres) - get\_count(public) [PL/pgSQL]

Debug

Variables

Name	Value
tablename	pg_class
cmd	NULL
retval	NULL

Properties

Source

```

1 CREATE OR REPLACE FUNCTION public.get_count(tabname text)
2 RETURNS bigint
3 LANGUAGE plpgsql
4 STABLE
5 AS $function$
6 DECLARE
7     cmd text;
8     retval bigint;
9 BEGIN
10     cmd := 'SELECT COUNT(*) FROM ' ||
11             quote_ident(tabname);
12
13     EXECUTE cmd INTO retval;
14     RETURN retval;
15 END;
$function$
```

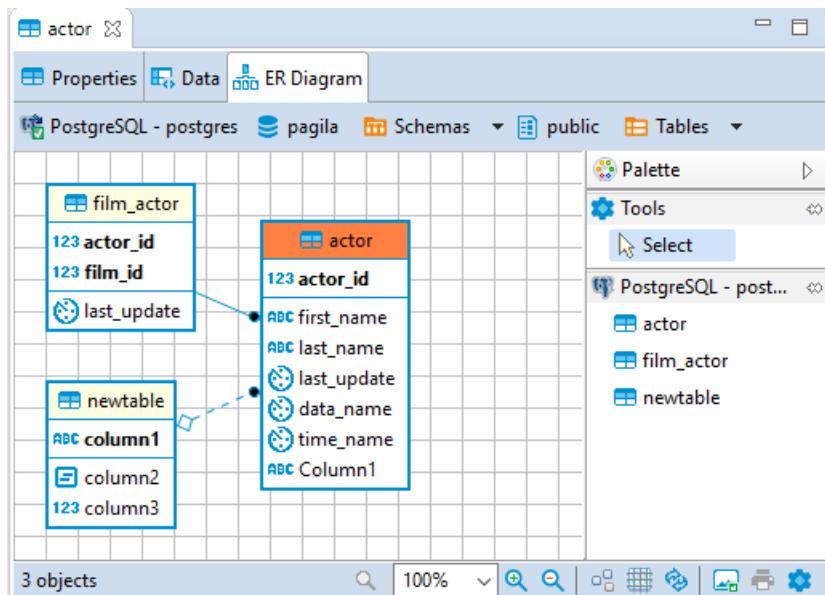
Console

No consoles to display at this time.

MSK | en\_US | Local attached to 26384

# ER Diagrams

ER diagrams appear on the rightmost tab of the [Database Object Editor](#):



Entity Relation Diagrams (ERD) are graphic presentations of database entities and relations between them. DBeaver allows viewing diagrams of existing tables and whole database schemas, see [Database Structure Diagrams](#), as well as create custom diagrams, see [Custom Diagrams](#).

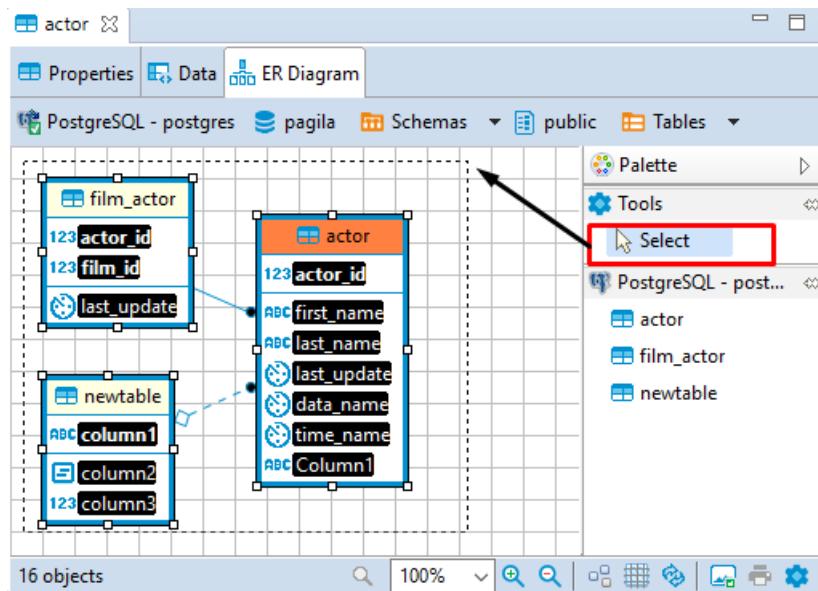
By default DBeaver uses [IDEF1X](#) notation.

Both types of diagrams provide the same tools to adjust their view and structure. They can be printed and exported to image file formats.

## Selection of Elements in Diagrams

You can use one of the two tools to select elements in diagrams:

- Select – supports both, single and multi-select modes. To select a single element (table, connection, entity inside a table) in a diagram, just click that element. To select multiple elements, similar to using the Marquee tool, click outside the first element and draw until all elements you need are in focus:



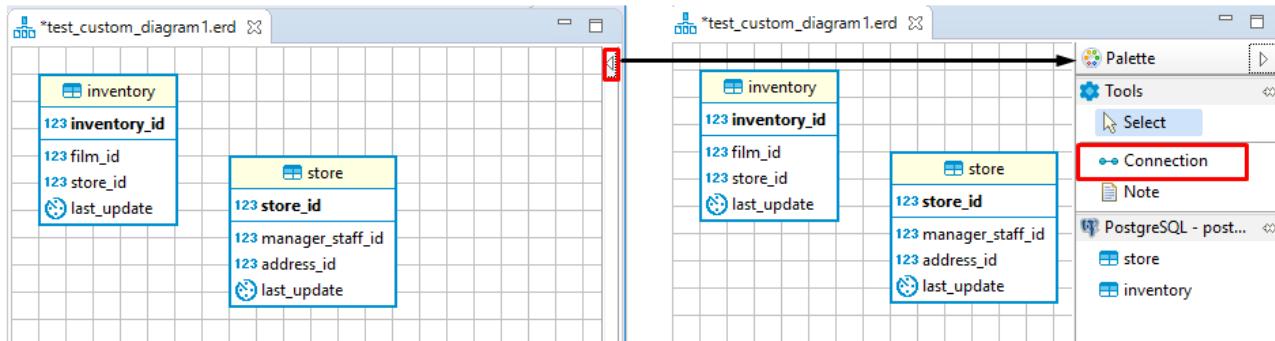
## Structure Adjustment

NOTE: All changes to existing database schemas cannot be saved and are intended for exploration purposes only.  
You can do the following structure changes in diagrams.

- Add new tables to a diagram by drag-n-dropping them onto the diagram field from the [Database Navigator](#).
- Rearrange tables in the diagram by dragging them all over the space. You can select several tables and drag them to a new

location.

- Auto-arrange tables into a compact view after manual rearrangements: click the **Arrange Diagram** (grid icon) in the toolbar or on the context menu (right-click anywhere on the diagram tab).
- (Available for **Custom Diagrams** only) - connect tables with a connector: click the **Show Palette** button (grid icon) in the upper-left corner of the diagram tab and then, in the Palette panel, click **Connection**:



Now click the tables that you want to connect with each other in turn one by one, and then to stop the connection line double-clicking the last table.

- (Available for **Custom Diagrams** only) - remove tables and connections: right-click the table or connection and click **Delete** on the context menu or just click the table or connection and press **Delete**.

## View Adjustment

You can adjust the view of any diagram in the following ways:

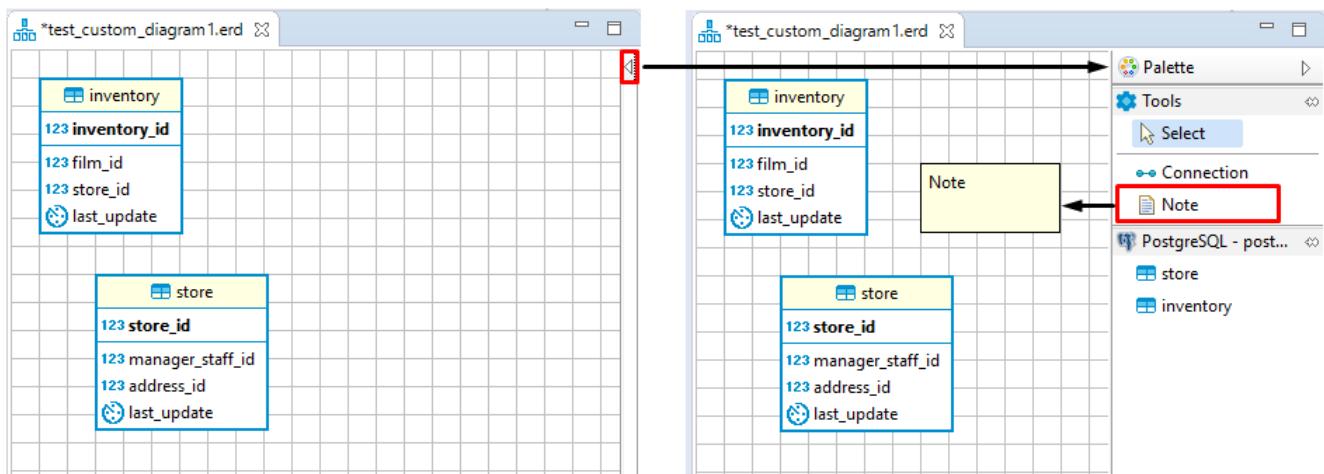
- Enable/disable the diagram grid: Click **Toggle Grid** (grid icon) in the toolbar.
- Modify attributes visibility: Right-click the diagram and, on the context menu, click **Show Attributes** and then one of the options:
  - All** - all attributes
  - Any keys** - primary and foreign keys
  - Primary key** - only primary keys
  - None** - no attributes
- Modify attributes presentation: Right-click the diagram and, on the context menu, click **View Styles** and then one of the options:
  - Show Icons**
  - Show Data Types**
  - Show Nullability**
  - Show Comments**
  - Show Fully qualified names**
- Change the color of entities/notes: Right-click the header of the entity or comment and then click **Set color** on the context menu. Then you can select the color and click **OK**.
- For elements located in front of/behind others, bring an element to front or send to back: Right-click the element and then click **Bring to front** / **Send to back** on the context menu.
- Zoom the diagram in/out: Click the **Zoom In**/**Zoom Out** buttons or choose the scaling value in the dropdown list in the toolbar:  
100% A set of zoom control icons typically found in software toolbars, including arrows for zooming in and out, a magnifying glass for search, and a refresh symbol.

## Refresh

To see changes made to the database schema by other users, you might need to refresh the diagram: click **Refresh Diagram** (refresh icon) in the toolbar.

## Notes

You can create notes only in [Custom Diagrams](#). To create a note, click the **Show Palette** button (▷) in the upper-left corner of the diagram tab, then, in the Palette panel, click **Note** and then click anywhere in the diagram tab. Now you can double-click **Note** box to enter the note text:



## Search in Diagram Entities

To search among entities of a diagram, click the **Search items** button (🔍) in the toolbar, then type in the search combination. The entities that contain the search combination are highlighted in the diagram. To remove the filter, click the cross icon next to the search field.

## Diagram Export

You can export (save) a diagram as an image (PNG, GIF, BMP formats) or as a file in GraphML format. To export a diagram, click **Save diagram in external format** (💾) in the toolbar.

## Diagram Printing

To print a diagram, press **CTRL+P** or click **Print Diagram** (🖨) in the toolbar.

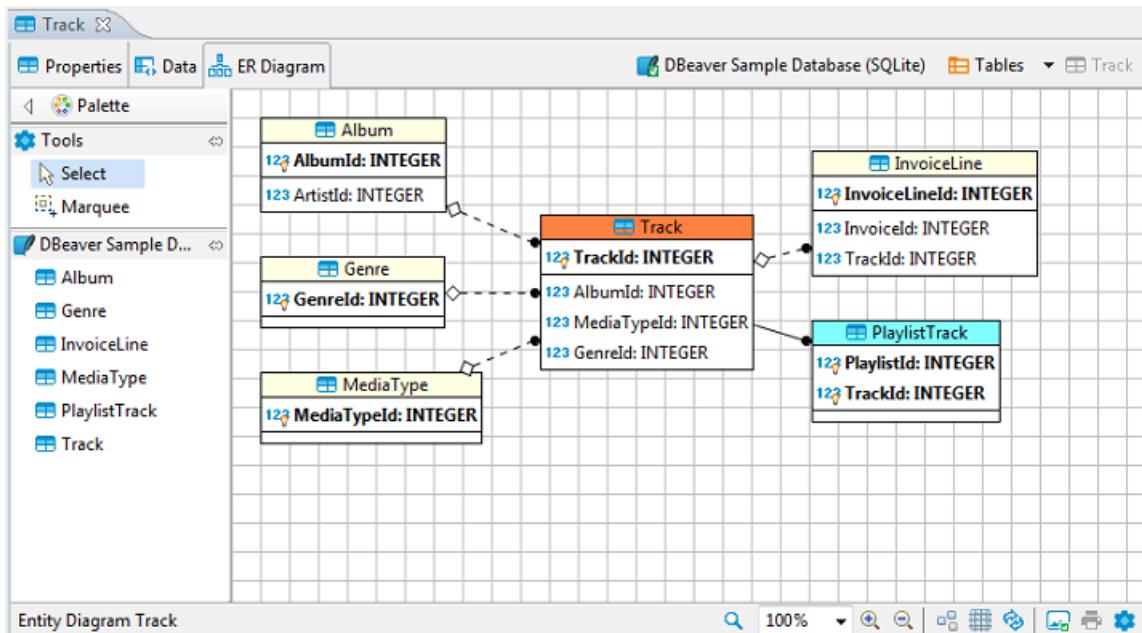
## Settings

To modify the diagram settings, click **Configuration** (⚙) in the toolbar.

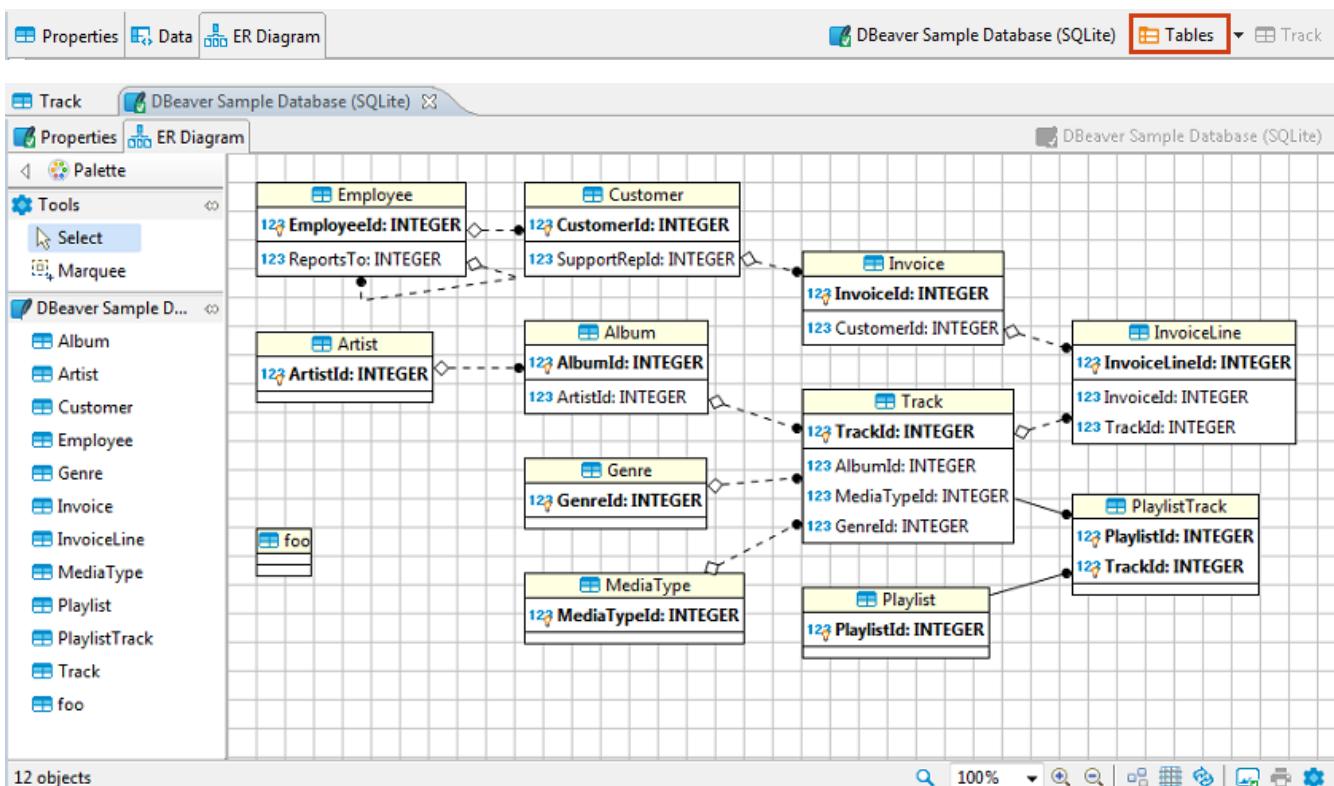
# Database Structure Diagrams

You can view a database structure in the standard ER (Entity Relation Diagram) form. ER diagrams are available for all tables and schemas (databases).

ER diagram for a table shows the table itself and its relations with other tables inside the schema. To view the ER diagram for a table or view, double-click the table or view in the [Database Navigator](#) and then, in the [Database Object Editor](#), switch to the **ER Diagram** tab:



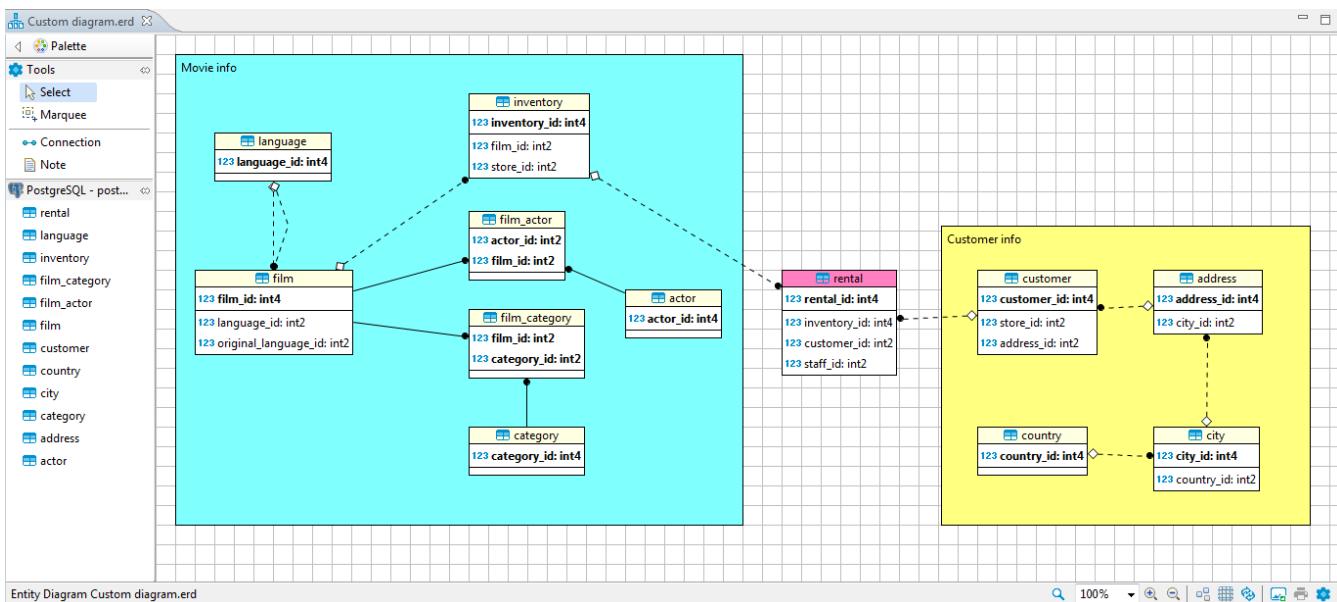
To view the ER diagram for a full database schema, double-click the schema name in the Database Navigator or the previous node in the path (usually - **Tables**):



NOTE: Table and schema diagrams are read-only. You can rearrange the layout, drag-n-drop elements inside a diagram but you cannot save the changes state or delete/add anything. This is because the diagrams represent the actual state of databases.

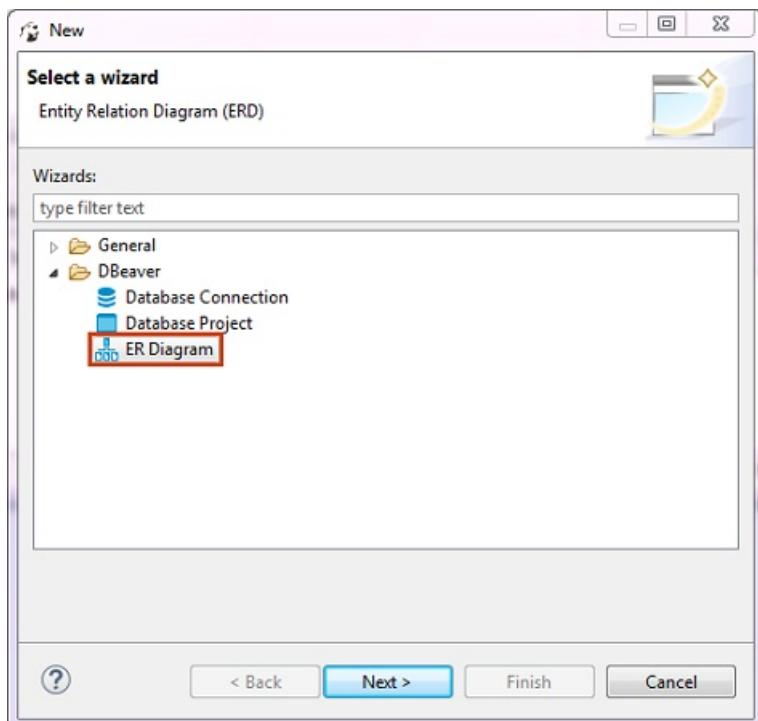
# Custom Diagrams

You can create custom ER diagrams that can contain any tables, relations and notes.  
However, even custom diagrams may contain only real existing database entities (tables).

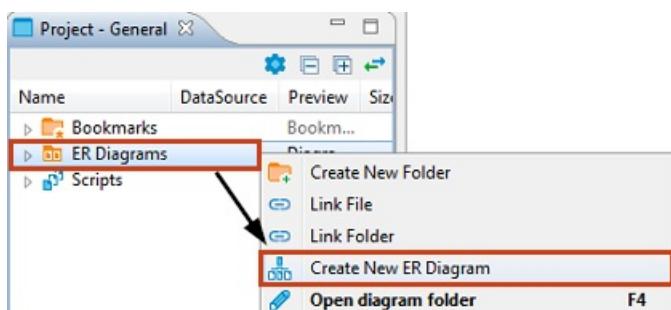


You can create a custom diagram in one of the ways:

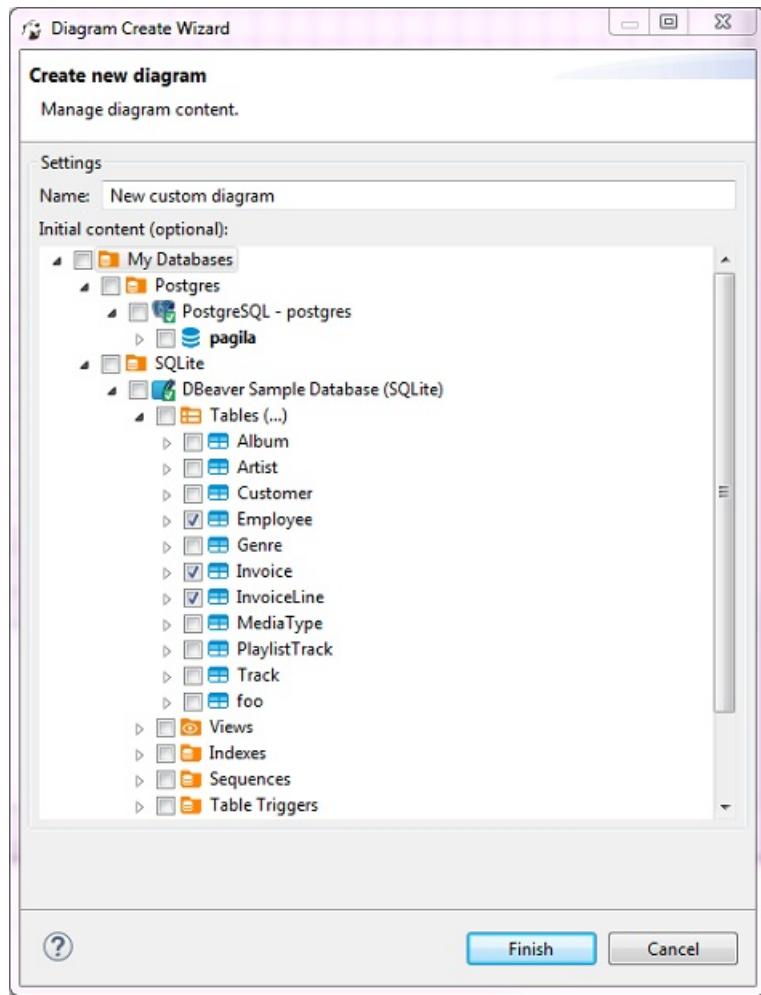
1. On the DBeaver main menu, click **File -> New**. Then in the new diagram wizard, click **DBeaver -> ER Diagram**, and then **Next**:



2. In the **Project Explorer** view, right-click the **ER Diagrams** node and then click **Create New ER Diagram** on the context menu.



In both cases, in the Diagram Create Wizard, specify the diagram name and (optionally) choose initial diagram contents (set of tables):



The new diagram appears in a separate editor. Now you can drag-n-drop any number of tables onto it. You can add tables from different connections and even different database type (for example, combine Oracle and MySQL tables in one and the same diagram).

You can also add notes and custom relations (associations) using the ERD palette on the left side of diagram tab, see details in [ER Diagrams](#) article. For example, to create a diagram similar to the one shown at the beginning of this article, you need to:

1. Add required tables and relationships between them and move them around to create a well-shaped structure (see *Structure Adjustment* section of the [ER Diagrams](#) article).
2. Add notes (see the *Notes* section of the [ER Diagrams](#) article).
3. Stretch the notes to cover the intended tables, then send the notes to back, and then set color to the tables and notes (see the *View Adjustment* section of the [ER Diagrams](#) article).

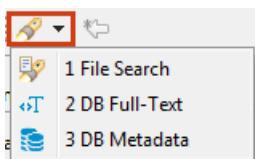
Undo/redo functions are fully supported in diagram editing.

# Search

DBeaver provides:

- [File search](#) (search among file contents)
- [Database full-text search](#)
- [Database metadata search](#)

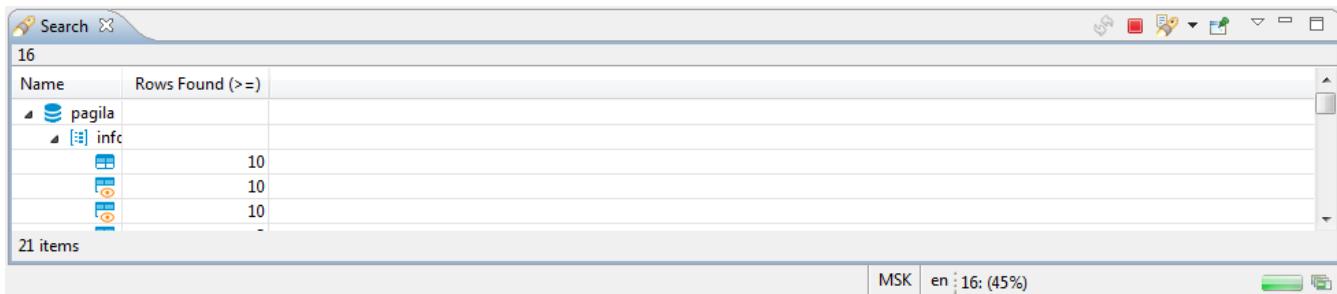
To use search, click the Search button in the main toolbar:



Please see dedicated articles for information about search of different types. This article describes common features of the three search types.

## Search View

Search results for any of the search types appear in a separate Search view. The following image shows the Search view for the database full text search:



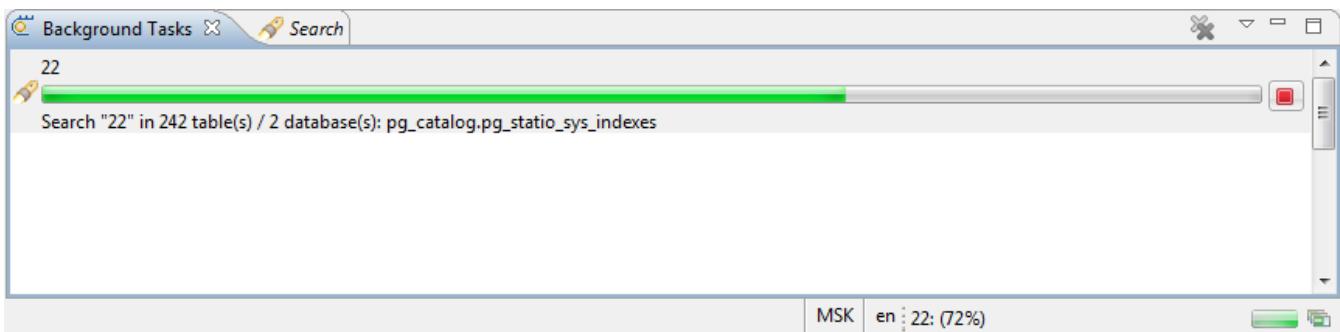
The view contains a toolbar that provides common tools for all types of search as well as specific tools for the File Search type. The following are common tools:

Button	Name	Description
	<b>Run the Current Search Again</b>	Repeats the search the results of which are displayed in the Search view
	<b>Cancel Current Search</b>	- Active state (red) indicates that the search is still in progress and appears if the search takes some time to complete. Clicking the button in this state stops the current search. - Inactive state (grey) indicates that the search is complete. The button in this state is non-actionable.
	<b>Show Previous Searches</b>	- Clicking the button itself opens the Previous Searches window. - Clicking the arrow next to the button opens a dropdown menu. See the <i>Search History</i> section further in this article.
	<b>Pin the Search View</b>	Ties the current search results to the Search view. If you click this button, the current results stay in the view while the results of the next search appear in a new Search view. Otherwise, every new search replaces the previous results with new results.

For information about specific tools of File search, see the [File Search](#) article.

If the search is short, the results appear almost instantly. But if it takes some time, the Search view indicates the progress in the following ways:

- The **Cancel Current Search** button in the toolbar has the Active state (
- The progress bar appears in the bottom-right corner of the view indicating the process:
- The button to show the search progress in a separate view () appears in the bottom-right corner of the view next to the search progress bar. Clicking the button opens the Background Tasks view:

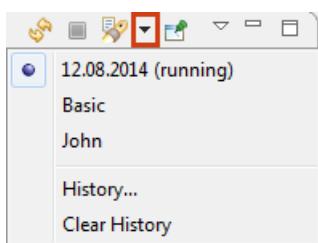


## Search History

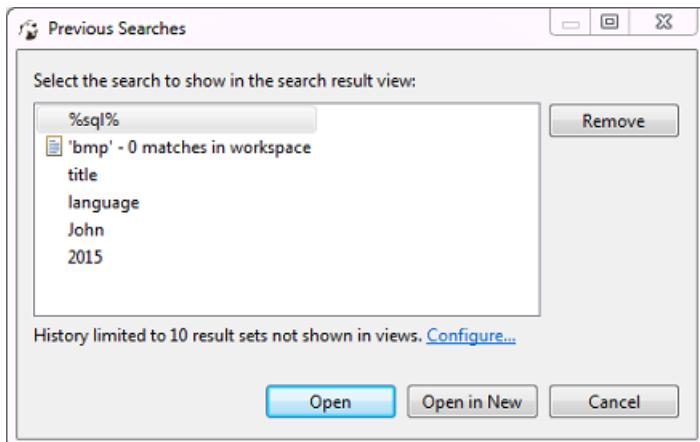
DBeaver stores the history of search queries made during the current session. You can reopen the Search view with results of a previous search query. You can also remove individual queries and clear the history. To manage the search history, use the **Show Previous Searches** button in the toolbar ( ).

To open the results of a previous search query, do one of the following:

- Click the arrow next to the **Show Previous Searches** button in the toolbar and then click the query in the dropdown list:



- Click the **Show Previous Searches** button itself or the arrow next to it and then **History** on the dropdown menu to open the Previous Searches window. Then, in the window, click the query and then either **Open** to open it in the active Search view or **Open in New** to open it in a new view:



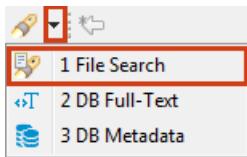
To remove one or more previous search queries:

- Click the **Show Previous Searches** button in the toolbar or click the arrow next to it and then **History** on the dropdown menu. The Previous Searches window opens.
- Click the query to remove or select several of them by clicking and simultaneously holding the **Ctrl** key.
- Click **Remove**.

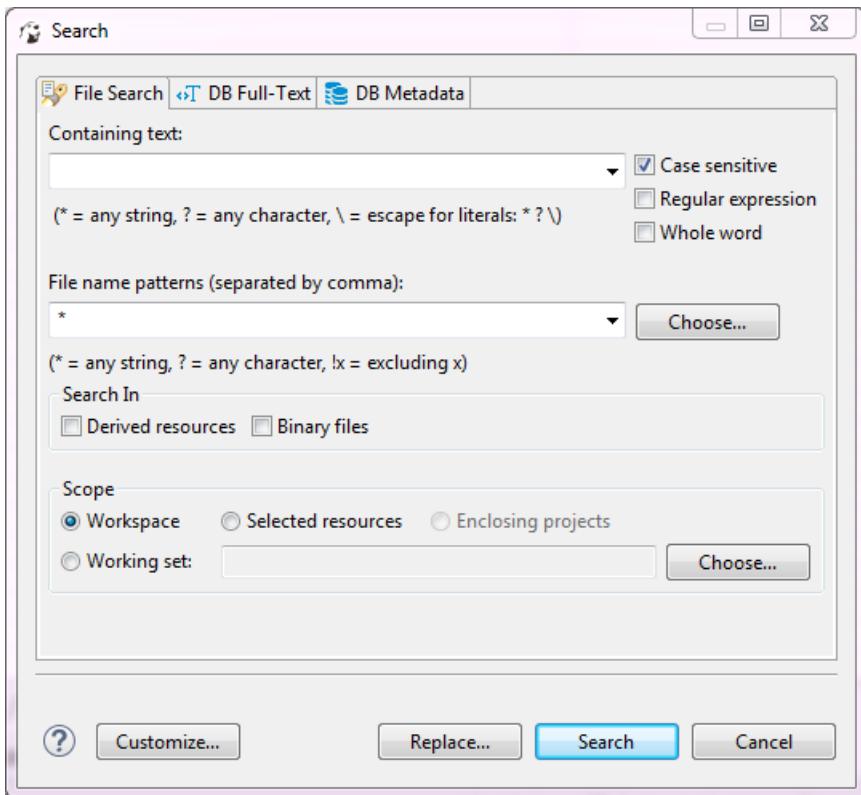
To clear the history by removing all previous queries, click the arrow next to the **Show Previous Searches** button in the toolbar and then click **Clear History** on the dropdown menu.

# File Search

To search file contents for a string, click the Search button in the main toolbar or the arrow next to the Search button and then **File Search** on the dropdown menu:

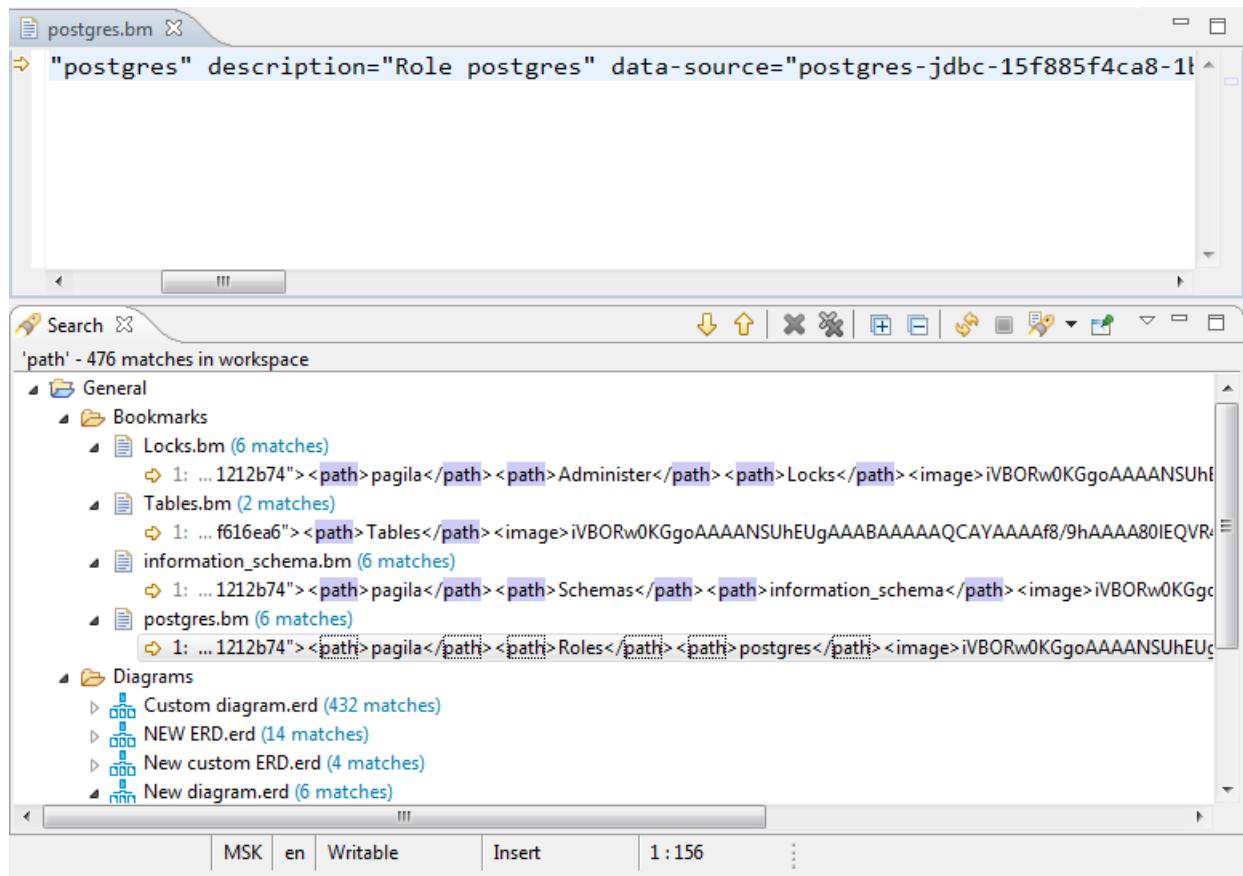


The Search window opens displaying the File Search tab:



You can apply case sensitive search, search by regular expressions, search among particular file types (**File name patterns** field), and use the find and replace function.

After you click **Search**, the results appear in a [Search view](#). The results represent a tree or list of files with the search combination highlighted:



The toolbar of the Search view for File search provides more tools in addition to those available for all search types:

Button	Name	Description
	<b>Show Next / Previous Match</b>	Open the file in a separate viewer and move the highlight to the next/previous match, respectively
	<b>Remove Selected Matches</b>	Removes selected row (row in focus) of the results
	<b>Remove All Matches</b>	Removes all results in the view
	<b>Expand/Collapse All</b>	Expand/collapse the tree of results

The view also provides a view menu (click the **View Menu** button ( ) in the upper-right corner of the view) that contains the following items:

Menu item	Description
<b>Show as List</b>	Presents the results in the form of list
<b>Show as Tree</b>	Presents the results in the form of tree
<b>Filters</b>	Opens Search Filters dialog box
<b>Preferences</b>	Opens the Preferences window on the Search page

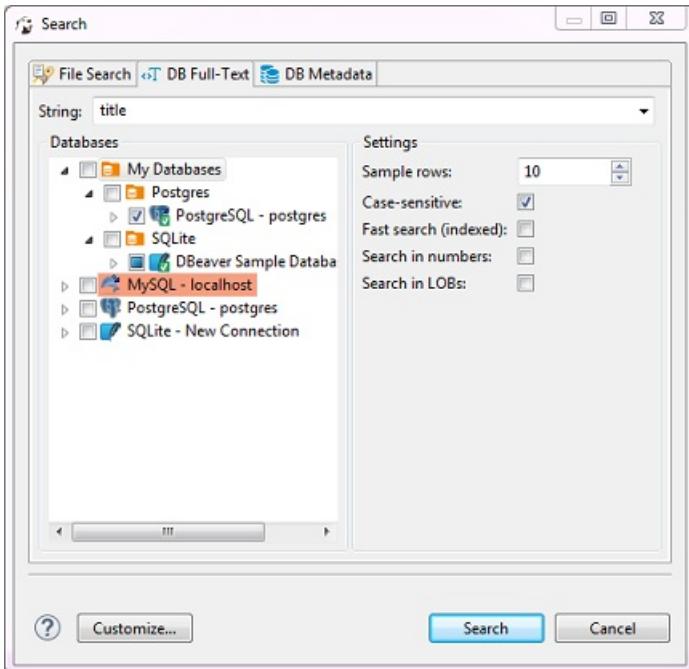
Double-clicking a results row opens it in a separate viewer.

# DB Full-Text Search

To do full text search in the database contents, click the arrow next to the Search icon in the main toolbar and then click **File Search** on the dropdown menu:



Alternatively, you can click the **Search** button on the main menu and then click the **DB Full-Text** tab in the Search window:



Now you need to choose the database connection or database objects against which to run the search – expand the tree in the **Databases** field to the database connections level or further down and select the checkboxes next to the required connections or database objects.

NOTE: The **Search** button is enabled only when you select the right level of checkboxes – database connections or lower nodes.

You can apply case-sensitive search, fast search and search in numbers and LOBs.

After you click **Search**, the results open in a **Search** view:

Name	Rows Found (>=)
pagila	
infoc	
	10
	10
	10
21 items	

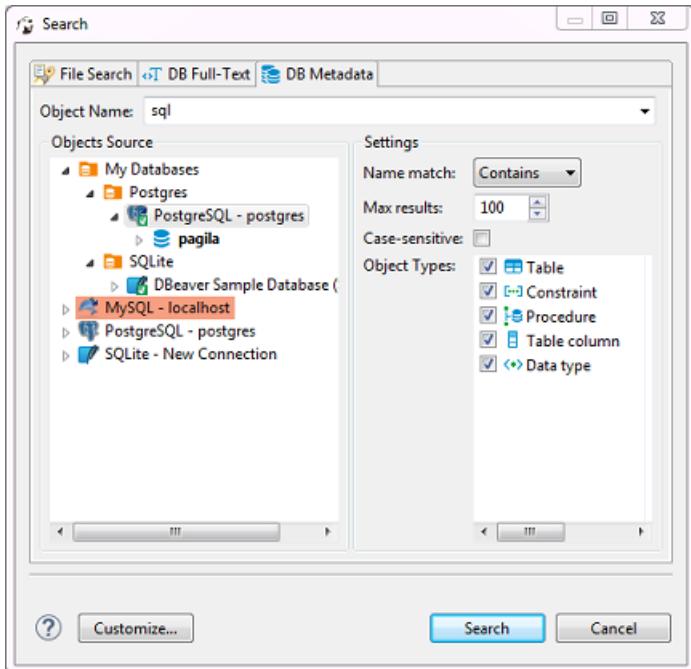
Double-clicking a row in the Search view opens the respective object in a dedicated [Database Object editor](#).

# DB Metadata Search

To search for database metadata, click the arrow next to the **Search** button in the main toolbar and then click **DB Metadata Search** on the dropdown menu:



Alternatively, you can click the **Search** button on the main menu and then click the **DB Metadata** tab in the Search window:



Now you need to choose the database connection against which to run the search – expand the tree in the **Objects Source** field to the database connections level and click the required database connection.

In the **Object Types** field, you can select the database objects among which DBeaver will run the metadata search – select or clear the checkboxes.

You can specify if the metadata should start with or contain or be similar to the search combination (**Name match** field). You can also set the maximum number of results to display (**Max results** field) and apply **Case-sensitive** search.

After you click **Search**, the results open in a **Search** view:

A screenshot of the DBeaver 'Search' view. The title bar says 'Search'. The search term '%lang%' is entered in the search input field. The table below lists database objects: language (Object ID 16,490, Owner postgres, Tablespace pg\_default, Row Count Estimate 6), language\_pkey (Object ID 16,493, Owner postgres, Tablespace pg\_default, Row Count Estimate 1), language\_id (Object ID 16,416, Owner postgres, Tablespace pg\_default, Row Count Estimate 1,000), film (Object ID 16,416, Owner postgres, Tablespace pg\_default, Row Count Estimate 1,000), and film\_language\_id\_fkey (Object ID 16,416, Owner postgres, Tablespace pg\_default, Row Count Estimate 1). The 'Comment' column is empty.

Double-clicking a row in the Search view opens the respective object in a dedicated [Database Object editor](#).

# Data compare

You can compare data of two tables using Data Compare tool.

It is very useful when you need to compare two tables which have almost identical data with just few differences.

DBeaver visualizes the differences using table diff view.

## Running data compare tool

- Select two tables in the [Database Navigator](#) from the same database or from different databases or even from different RDBMS (e.g. PostgreSQL and MySQL);
- Choose Compare/Migrate->Simple compare in the context menu.

DBeaver uses the best unique key or index (usually it is a Primary Key) to identify rows.

Tables without unique key cannot be compared properly because there is no way to compare individual rows.

Unique keys must have the same number of columns.

DBeaver fetches portions of data from each table and then finds differences.

## Result diff

	sakila.actor_prod [MySQL 8.x - sakila 1]	sakila.actor [MySQL 8.x - sakila 1]
	123 actor_id ↑ RBC first_name ↑ RBC last_name ↑ last_update ↑ 123 test_flg ↑	123 actor_id ↑ RBC first_name ↑ RBC last_name ↑ last_update ↑ 123 test_flg ↑
1	1 PENELOPE GUINNESS 2006-02-15 04:34:33 [NULL]	1 PENELOPE GUINNESS 2006-02-15 04:34:33 [NULL]
2	2 NICK WAHLBERG 2006-02-15 04:34:33 [NULL]	2 NICK WAHLBERG 2006-02-15 04:34:33 [NULL]
3	3 ED CHASE 2006-02-15 04:34:33 [NULL]	3 ED CHASE 2006-02-15 04:34:33 [NULL]
4	4 JENNIFER COPY DAVIS X 2020-10-07 23:15:40 [NULL]	4 JENNIFER DAVIS 2020-07-09 22:28:32 [NULL]
5	5 JOHNNY LOLLOBRIGIDA 2006-02-15 04:34:33 [NULL]	5 JOHNNY LOLLOBRIGIDA 2006-02-15 04:34:33 [NULL]
6	6 BETTE NICHOLSON 2006-02-15 04:34:33 [NULL]	6 BETTE NICHOLSON 2006-02-15 04:34:33 [NULL]
7	7 GRACE MOSTEL 2006-02-15 04:34:33 [NULL]	7 GRACE MOSTEL 2006-02-15 04:34:33 [NULL]
8	8 MATTHEW123 JOHANSSON 2020-04-29 11:31:40 [NULL]	8 MATTHEW123 JOHANSSON 2020-04-29 11:31:40 [NULL]
9	9 JOE SWANK 2006-02-15 04:34:33 [NULL]	9 JOE SWANK 2006-02-15 04:34:33 [NULL]
10	10 CHRISTIAN GABLE Z 2020-10-07 23:15:40 [NULL]	10 CHRISTIAN GABLE 2006-02-15 04:34:33 [NULL]
11	11 ZERO CAGE 2006-02-15 04:34:33 [NULL]	11 ZERO CAGE 2006-02-15 04:34:33 [NULL]
12	12 KARL ZDFG 2020-10-07 23:15:40 [NULL]	12 KARL SOMEBODY 2020-10-07 23:15:56 [NULL]
13	13 UMA WOOD 2006-02-15 04:34:33 [NULL]	13 UMA WOOD 2006-02-15 04:34:33 [NULL]
14	14 VIVIEN BERGEN 2006-02-15 04:34:33 [NULL]	14 VIVIEN BERGEN 2006-02-15 04:34:33 [NULL]
15	16 FRED COSTNER 2006-02-15 04:34:33 [NULL]	15 CUBA OLIVIER 2006-02-15 04:34:33 [NULL]
16	17 HELEN VOIGHT 2006-02-15 04:34:33 [NULL]	17 HELEN VOIGHT 2006-02-15 04:34:33 [NULL]
17	18 DAN TORN 2006-02-15 04:34:33 [NULL]	18 DAN TORN 2006-02-15 04:34:33 [NULL]
18	19 BOB FAWCETT 2006-02-15 04:34:33 [NULL]	19 BOB FAWCETT 2006-02-15 04:34:33 [NULL]
19	20 LUCILLE TRACY 2006-02-15 04:34:33 [NULL]	20 LUCILLE TRACY 2006-02-15 04:34:33 [NULL]
20	21 KIRSTEN PALTRROW 2006-02-15 04:34:33 [NULL]	21 KIRSTEN PALTRROW 2006-02-15 04:34:33 [NULL]
21	22 ELVIS MARX 2006-02-15 04:34:33 [NULL]	22 ELVIS MARX 2006-02-15 04:34:33 [NULL]
22	23 SANDRA KILMER 2006-02-15 04:34:33 [NULL]	23 SANDRA KILMER 2006-02-15 04:34:33 [NULL]
23	24 CAMERON STREEP 2006-02-15 04:34:33 [NULL]	24 CAMERON STREEP 2006-02-15 04:34:33 [NULL]
24	25 KEVIN BLOOM 2006-02-15 04:34:33 [NULL]	25 KEVIN BLOOM 2006-02-15 04:34:33 [NULL]
25	26 RIP CRAWFORD 2006-02-15 04:34:33 [NULL]	26 RIP CRAWFORD 2006-02-15 04:34:33 [NULL]
26	27 JULIA MCQUEEN 2006-02-15 04:34:33 [NULL]	27 JULIA MCQUEEN 2006-02-15 04:34:33 [NULL]
27	28 WOODY HOFFMAN 2006-02-15 04:34:33 [NULL]	28 WOODY HOFFMAN 2006-02-15 04:34:33 [NULL]
28	29 ALEC WAYNE 2006-02-15 04:34:33 [NULL]	29 ALEC WAYNE 2006-02-15 04:34:33 [NULL]
29	30 SANDRA PECK 2006-02-15 04:34:33 [NULL]	30 SANDRA PECK 2006-02-15 04:34:33 [NULL]
30	31 SISSY SOBIESKI 2006-02-15 04:34:33 [NULL]	30 SANDRA PECK 2006-02-15 04:34:33 [NULL]

# MockData generation

Note: since version 6.2 MockData generator extension is available only in [Enterprise Edition](#).

Sometimes in software development we need to generate mock, but valid, data for testing. Populating a database manually is a time-consuming and exhausting process. It can be very complicated when you need to generate not just 5–10 users, but thousands of entities of different types. DBeaver Mock Data generator helps you generate test data much easier.

The screenshot shows the DBeaver interface with the 'DBeaver Sample Database (SQLite)' selected. In the left sidebar, under 'Tables', the 'Album' table is highlighted. A context menu is open over the first row of the 'Album' table data. The menu items include: Edit Table (F4), Copy (Ctrl+C), Paste (Ctrl+V), Copy Advanced Info (Ctrl+Shift+C), Delete (Delete), Rename (F2), Filter (>), Properties (Alt+Enter), Refresh (F5), Read data in SQL console, Export Table Data, Import Table Data, Generate Mock Data (which is highlighted in blue), and Generate SQL. Below the table, the status bar shows '55 row(s) fetched'. At the bottom right of the status bar, there is a button labeled 'Generate Mock Data'.

**Disclaimer:** The idea behind Mock Data is to generate mock data in a table but it should **NOT TO BE USED IN PRODUCTION ENVIRONMENTS**. Please make sure you have a backup of your database before running the Mock Data generation process.

The following are features of DBeaver Mock Data generator:

- Works for all the RDBMS that are supported by DBeaver (DB2, MS SQL Server, MySQL, Oracle, PostgreSQL, SQLite, etc.)
- Generates data that matches your database schema:
  - Generated data matches the database column types.
  - All base data types are supported.
  - Constraints (PK, FK, multi-column FK, unique) are supported.
- Supports over 20 configurable data generators (constants, randoms, sequences, names, domains, addresses, prices, regex based, etc.)
- Automatically associates a column with a generator based on the column characteristics
- Saves or overwrites old database data

	123 id	ABC email_address	✓ is_admin	✓ is_banned	ABC password	ABC username
1	0	wbuid@uiotf.com	true	true	bbb1:dbe6:1744:461b	bryony
2	1	vlove@iunhob.com	true	false	3dde:c77e:59c3:de38	davina
Mock Data Generator						
Mock data generator configuration						
Set mock data generator settings						
Entity:	public.mockada1					
General	<input type="checkbox"/> Remove Old Data					
Rows :	3					
Generators						
<input checked="" type="checkbox"/> Auto assign generators		Email		E-mail addresses	Syntax description	Reset
Attribute		Generator		Name		Value
123 id		Sequence		% of NULLs		0
ABC email_address		Email		Regex		[a-z]{5,15}@[a-z]{5,}.com
✓ is_admin		Sequence		Lower Case		<input type="checkbox"/>
✓ is_banned		Random		Upper Case		<input type="checkbox"/>
ABC password		IP6				
ABC username		Name				
<a href="#">&lt; Back</a> <a href="#">Next &gt;</a> <a href="#">Start</a> <a href="#">Close</a>						

The following are mock data generators for data types with their configurable parameters:

- Boolean
  - Random
  - Sequence (initial, order)
- Date
  - Random (start, end)
  - Sequence (start, step, reverse)
- Numeric
  - Random
  - Sequence (start, step, reverse)
  - Advanced (min, max, precision, scale) \*
    - Price preset \*
    - Coordinate preset \*
- String
  - Text (template, min length, max length)
  - UUID
  - Address \*
  - City \*
  - Country \*
  - Domain \*
  - Email (gender, with surname, numeric suffix) \*

- Name (gender, with surname) \*
- Price (country, min, max) \*
- Regex based random (regex template) \*
  - Credit Card preset \*
  - Email preset \*
  - Gender preset \*
  - HEX Color preset \*
  - IP4 address preset \*
  - IP6 address preset \*
  - Phone Number preset \*
  - Postal Code preset \*
  - Price preset \*
- Template with parametrized directives for other generators \*:
  - address() - US postal address
  - city() - one of the world largest cities
  - country() - country
  - domain() - one of the top Internet domains
  - email(gender,surname) - e-mail address (gender is ALL|FEMALE|MALE, surname is true|false)
  - name(gender,surname) - personal name (gender is ALL|FEMALE|MALE, surname is true|false)
  - random(minimum,maximum) - random integer
  - regex(pattern) - regex based value for the pattern
  - sequence(start,step) - sequence of integers
- NULL values
- FK - data from the referenced table according to the constraint

**mockdata** | Enter a SQL expression to filter results (use Ctrl+Space)

	ABC column1	123 column2	⌚ column3	✓ column4	✉ column5	123 column6
1	1: Priscilla's credit card number is 5271-1988-5425-8425	7 811 418 058 151 931 281	2037-01-14	true	[NULL]	700 372 480
2	2: Winnie's credit card number is 4197-1211-1085-0635	869 154 855 573 675 099	1951-01-15	true	[NULL]	-372 481 792
3	3: Lorna's credit card number is 3111-5479-3555-8289	-5 399 850 573 088 964 770	2009-05-27	true	[NULL]	-534 159 872
4	4: Linda's credit card number is 1225-9521-1611-5444	-1 702 762 540 326 133 085	2009-04-28	true	[NULL]	702 211 328
5	5: S: Mock Data Generator					
6	6: E:					
7	7: H:					
8	8: Ja:					
9	9: F:					
10	10: J:					
11	11: Entity: public.mockdata					

General

Remove Old Data

Rows : 11

Generators

Auto assign generators		Template	Template with directives for generators	Reset
Attribute	Generator	Имя	Значение	
ABC column1	Template	% of NULLs	0	
123 column2	Numeric Random	Template	\$(sequence(1,1)): \${name(ALL,false)}'s credit card number is \${reqex((0...))}	
⌚ column3	Date Random	Lo	Template string can contain the directives like '\${generator(parameter1,parameter2...)}'.	
✓ column4	Boolean Random	U	They are processed by the appropriate generators. Here are the available directives (with parameters):	
✉ column5		address()	- US postal address,	
123 column6	Numeric Random	city()	- one of the world largest cities,	
...		country()	- country,	
		domain()	- one of the top Internet domains,	

ⓘ Generators for the red highlighted attributes aren't found yet.

email(gender,surname) - e-mail address (gender is ALL|FEMALE|MALE, surname is true|false),  
 name(gender,surname) - personal name (gender is ALL|FEMALE|MALE, surname is true|false),  
 random(minimum,maximum) - random integer,  
 regex(pattern) - regex based value for the pattern,  
 sequence(start,step) - sequence of integers.

< Back    Next >    Старт    Close

123 id	ABC email_address	✓ is_admin	✓ is_banned	ABC password	ABC username
0	wbuid@uiotf.com	true	true	bbb1:dbe6:1744:461b	bryony
1	vlqve@iuphoh.com	true	false	3dde:c77e:59c3:de38	davina
2	pwwjfw@itig.com	true	true	6fb7:3c8e:a72c:db43	delia
3	mpowgwqrssqq@osndw.com	true	false	042d:b708:e94b:eb55	samantha
4	qaqdv@ucnvs.com	true	true	051d:b48d:47b7:bfed	whitney
5	ubwkehfsse@bffkq.com	true	false	35d8:b74b:56b2:57b9	owen
6	bvgqs@vxzofg.com	true	true	85ef:5ac4:89c3:a3b9	stella
7	jejqt@otstm.com	true	false	d23c:7ed7:bd8e:e26c	eve
8	wqezy@xlkrenfj.com				
9	ohtwr@rbsmx.com				
10	kipyq@kwfkv.com				

**Mock Data Generator**

**Mock Data Generator progress**

Mock Data Generator progress log

Removing old data from the 'mockada1'.  
 Rows updated: 15  
 Duration: 76ms

Inserting mock data into the 'mockada1'.  
 Rows updated: 11  
 Duration: 160ms

< Back    Next >    Start    Close

\* These features are available in the [DBeaver Enterprise Edition](#) only.

# Dashboards, DB monitoring

**Dashboards** tool allows DBAs and programmers to quickly identify performance, disk space issues, number of connections and other important KPIs associated with a single database connection. To learn more about database connections, see [Database Connections](#).

By default, DBeaver is delivered with a number of predefined sets of dashboards for such databases as PostgreSQL, MySQL, Oracle and Exasol. Custom dashboards are also supported. To learn more about custom dashboards, see [Managing Dashboards](#) section below.

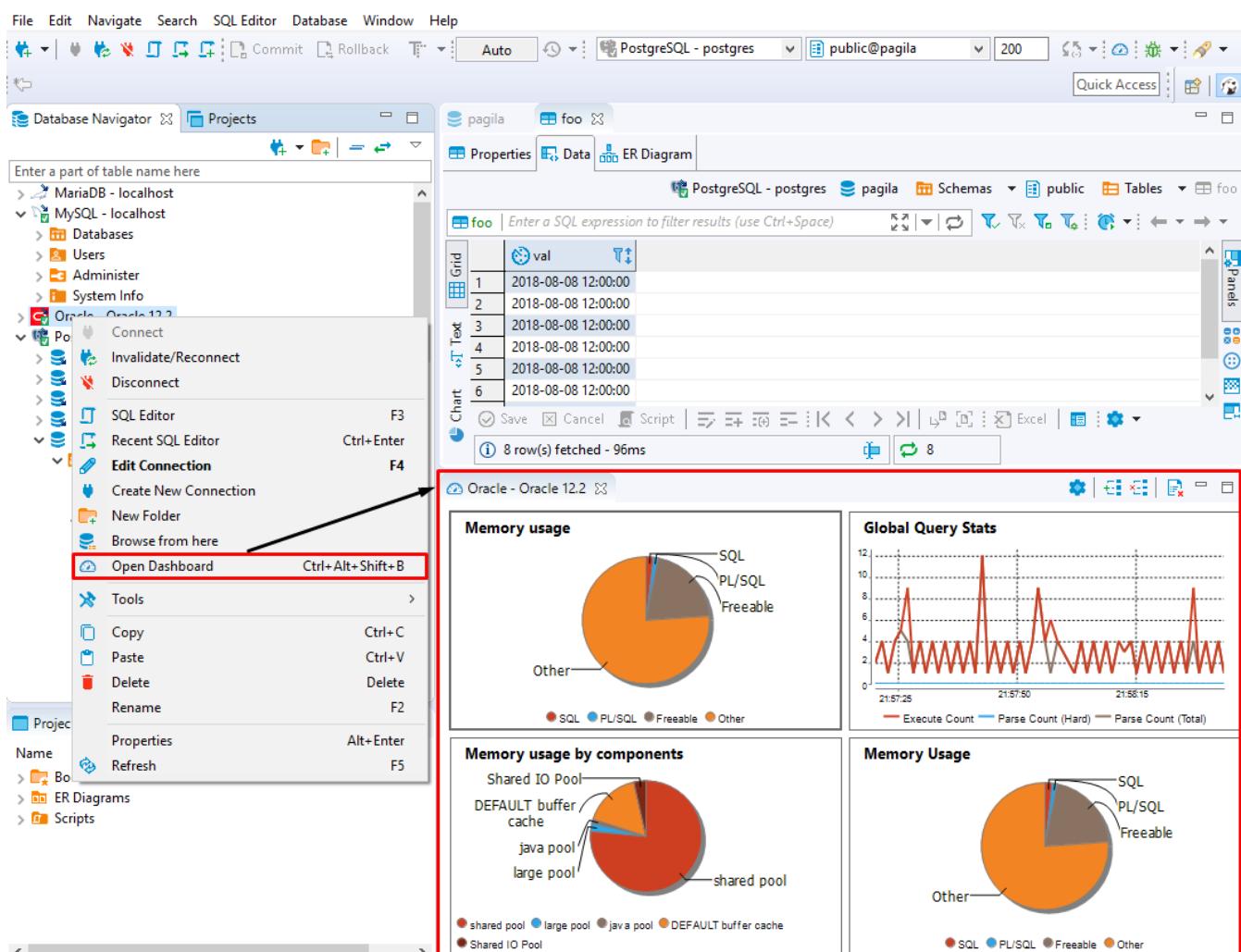
## Managing Dashboards Panel

Dashboards panel is a collection of real-time dashboards, that is dashboards that are continuously updated. Dashboards displayed on the dashboards panel are actually a combination of continuously run SQL SELECT queries and charts continuously built on the data fetched.

### Opening Dashboard Panel

To open dashboards panel **Open Dashboard** button  in the main toolbar. The default configuration of the dashboards panel for the current database connection will appear. To learn more about database connections, see [Database Connections](#).

You can also right-click a connection name in the **Database Navigator** editor and select **Open Dashboard** menu option or use keyboard shortcut **Ctrl+Alt+Shift+B** and the dashboards panel will be opened.



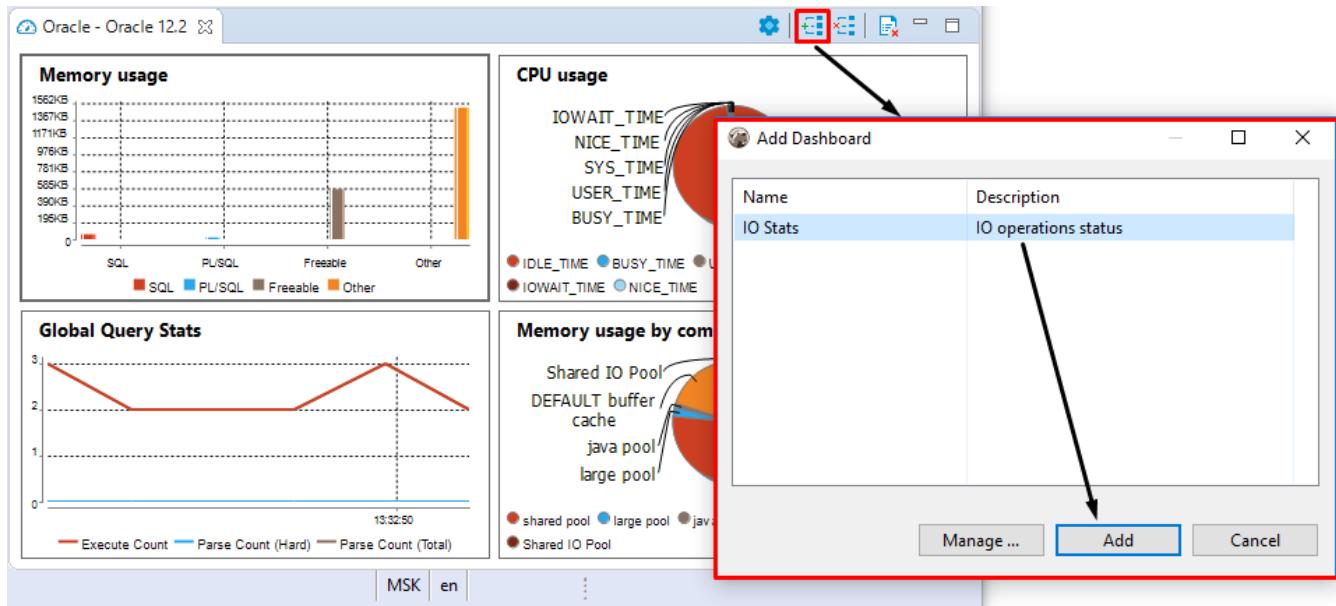
The following controls are available in the dashboards panel toolbar:

Icon	Name	Description
	<b>Settings</b>	Allows managing dashboards' configuration.
	<b>Add dashboard</b>	Allows to add dashboards to the dashboard panel.
	<b>Remove dashboard</b>	Allows to remove dashboards from the dashboard panel.

Icon	Name	Description
	Reset dashboards	Allows to restart dashboard calculation.

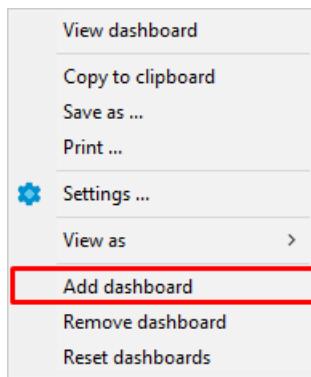
## Adding Dashboards

To add a dashboard to the dashboards panel, press **Add dashboard** button in the dashboards panel's toolbar, choose one of the dashboards from the list of available dashboards and press **Add** button.



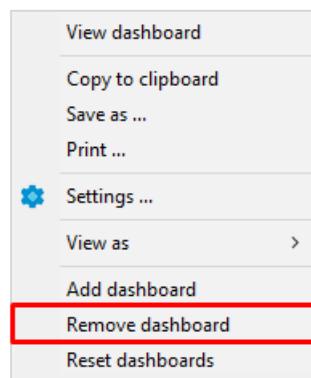
**Note:** Different databases have different sets of predefined dashboards. DBeaver is delivered with sets of predefined dashboards for such databases as Postgress SQL, MySQL, Oracle, and Exasol. It is also possible to create new custom dashboards, for more details see [Managing Dashboards](#).

You can also add a dashboard by right-click in any place of the dashboards panel and then select the **Add dashboard** menu option.



## Removing Dashboards

To remove a dashboard from the dashboards panel, click on the dashboard you want to remove and press button **Remove dashboard** in the dashboards panel toolbar or select **Remove dashboard** option in the dashboard's context menu.

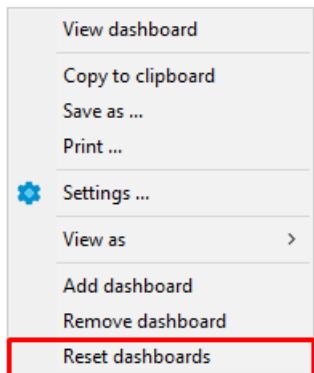


## Resetting Dashboards

If you want to restart dashboard's calculation you can reset it.

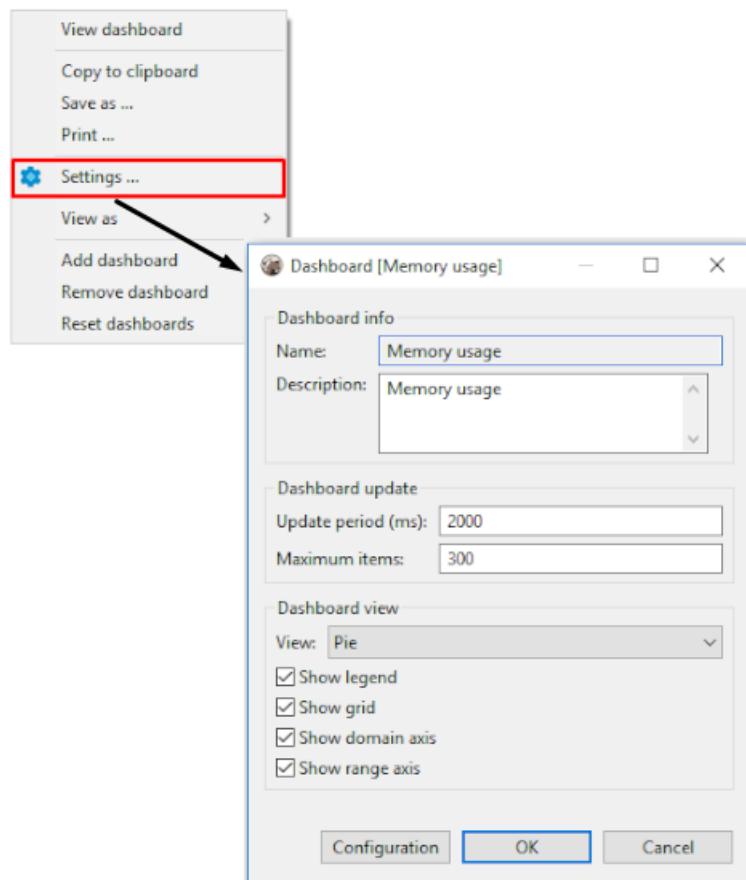
You can reset all the dashboards displayed in the dashboards panel by a single click on **Reset dashboards**  button in the dashboard panel's toolbar.

To reset a particular dashboard right-click on it and select **Reset dashboards** menu option or left click a dashboard and press **Reset dashboards** button in the dashboards panel's toolbar.



## Changing Dashboard Representation

To adjust dashboard representation settings right click on a dashboard and select the **Settings** menu option, then, in the opened dialog change the parameters you want.



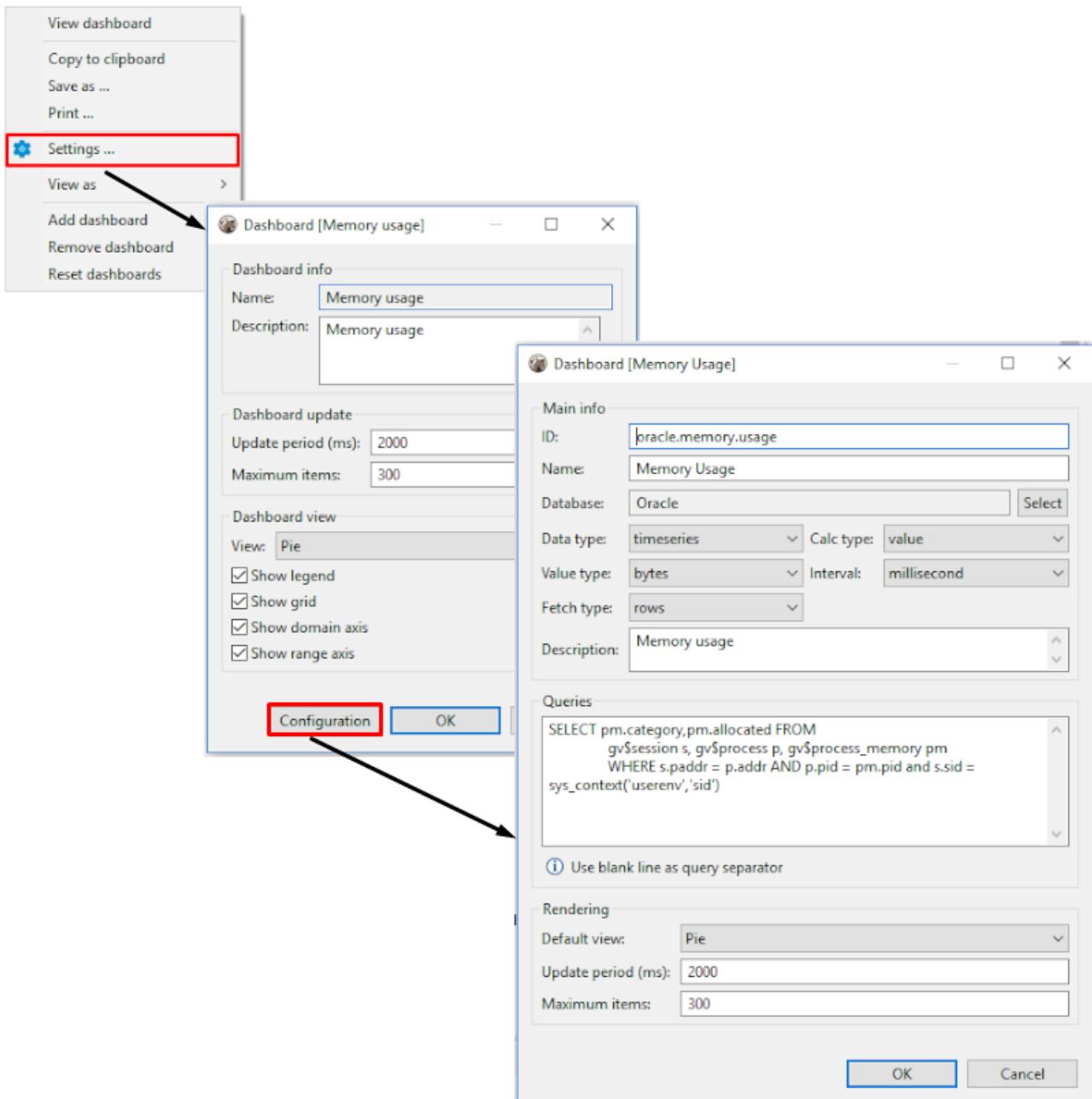
The following dashboard representation parameters can be adjusted:

Parameter	Description
Name	Defines a name of a dashboard.
Description	Defines dashboard's description. Use this field to make it easy to understand what kind of information the dashboard represents.

Parameter	Description
Update periods(ms)	Defines how often dashboard's rendering should be updated. The default value is 1000 ms.
Maximum items	Defines maximum number of fetched items. The default value is 300.
View	Defines visual representation of the dashboard. The following options are available: Bar, Pie, Time series.
Show legend	If this check-box is selected, the legend will be displayed on the dashboard.
Show grid	If this check-box is selected, the grid will be displayed on the dashboard.
Show domain axis	If this check-box is selected, the domain axis will be displayed on the dashboard.
Show range axis	If this check-box is selected, the range axis will be displayed on the dashboard.

## Adjusting Dashboard Configuration

To adjust dashboard's configuration settings right-click on a dashboard, select the **Settings** menu option, then, in the opened dialog box press the **Configuration** menu option.



The following dashboard parameters can be configured:

Parameter	Description
<b>ID</b>	Defines dashboard's ID. Make sure that ID has numeric values in it.
<b>Name</b>	Defines dasboard's name.
<b>Database</b>	Defines the database driver. To learn more about database drivers, see <a href="#">Database Drivers</a> .
<b>Data type</b>	Defines the data type. The following options are available: timeseries (the default option) and statistics. Select timeseries type if you want to track the actual value returned by the server. Select statistics type if your dashboard will show historical data.
<b>Calc type</b>	Defines how the data should be calculated. The following options are available: value (the default option) and delta. Select value if you're interested in the current value. Select delta if you want to track the difference between the current value and the previous one. This may be very useful when you work with statistics data, for example.
<b>Value type</b>	Defines the value to be shown on the range domain. The following options are available: decimal (the default option), integer, percent, bytes. Choose the value type in accordance with your data, for example, memory usage is convenient to be tracked in KBytes.
<b>Interval</b>	Defines time interval to be shown on the domain axis. The following time intervals are available: millisecond (the default option), second, minute, hour, day, week, month, year.
<b>Fetch type</b>	Defines whether the query should fetch data from rows or columns.
<b>Description</b>	Defines the description of a dashboard. Use this field to make it easy to understand what kind of information the dashboard represents.
<b>Queries</b>	Defines an SQL query whose fetched data will be used to build the chart displayed on the dashboard.
<b>Default view</b>	Defines the default visual representation of a dashboard on the dashboard panel. The following options are available: Bar, Pie, Time series (the default option).
<b>Update period(ms)</b>	Defines how often the dashboard's rendering should be updated.
<b>Maximum items</b>	Defines maximum number of items to be fetched for the dashboard.

**Note:** Predefined dashboards are read-only and cannot be re-configured, but you can copy them and use as templates to create new dashboards with any query and other settings. To learn about creating new dashboards, see [Managing Dashboards](#) section.

## Setting Connection Preferences

By default, if there is no active connection to the database and you open its dashboards panel, all the dashboards on the panel will be empty.

You can force database connection on the dashboard panel's activation by pressing **Settings** button  on the dashboards panel's toolbar and then selecting the **Connect on activation** check-box.

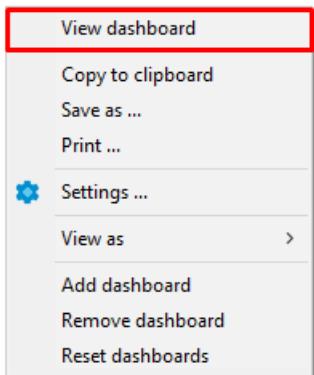
## Detaching Dashboards

If you have several monitors and would like to place a dashboard into a separate screen, you can either detach the whole dashboards panel or a single dashboard and drag-and-drop them to any place you want.

To detach the whole dashboard panel right click on the dashboard's tab name and select the **Detach** menu option.

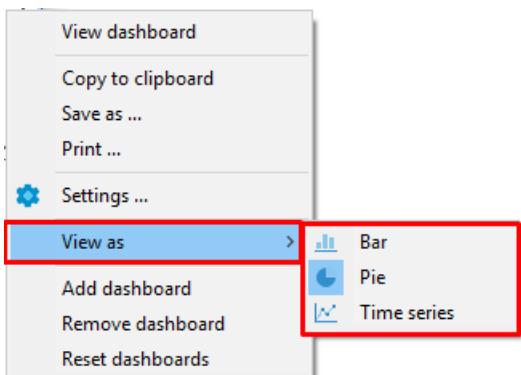


To detach a single dashboard make a double left click over it. You can also right click the dashboard and then, select the **View Dashboard** menu option, the dashboard will be detached from the panel and you will be able to move it to any place of your screen.



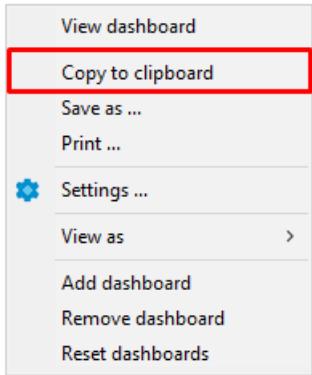
## Changing Dashboard View

You can change the representation of a dashboard and view it as a Pie, Bar or Time series. To change the view of a dashboard, right click on it and select **View as** menu option.



## Copying Dashboards to Clipboard

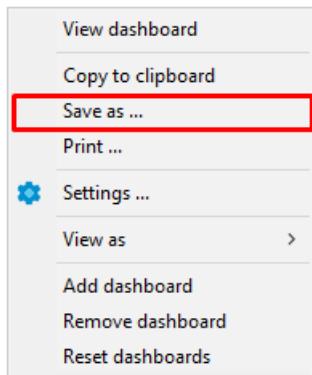
To copy a dashboard into the clipboard, right click on the dashboard and use **Copy to Clipboard** menu option, the screenshot of the dashboard will be placed to the clipboard.



## Saving Dashboards

---

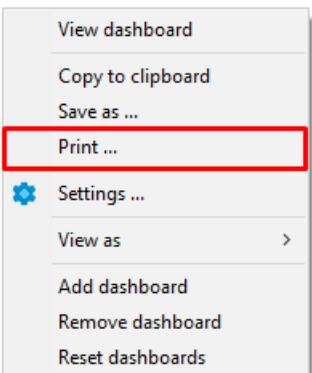
If you want to save a screenshot of a dashboard locally in PNG format, right click on it and select the **Save as ...** option in the context menu displayed.



## Printing Dashboards

---

If you want to print out a screenshot of a dashboard, right-click the dashboard to be printed and select the **Print...** option.

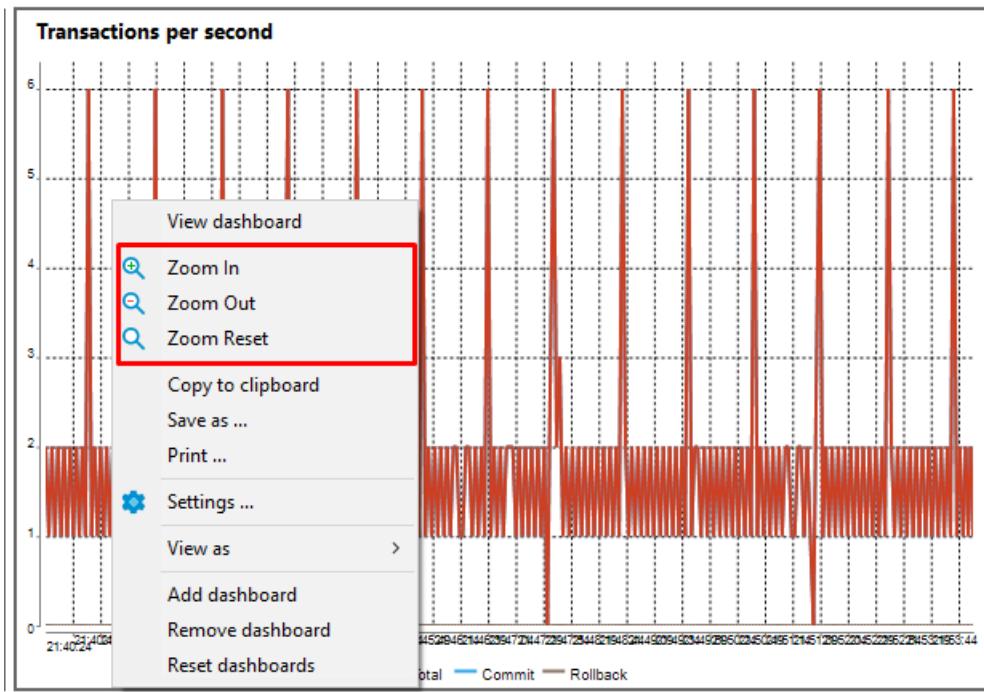


## Zooming

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For Time series and Bar dashboard representations the following zooming options are available in the dashboard's context menu:

- Zoom In
- Zoom Out
- Zoom Reset



## Managing Dashboards

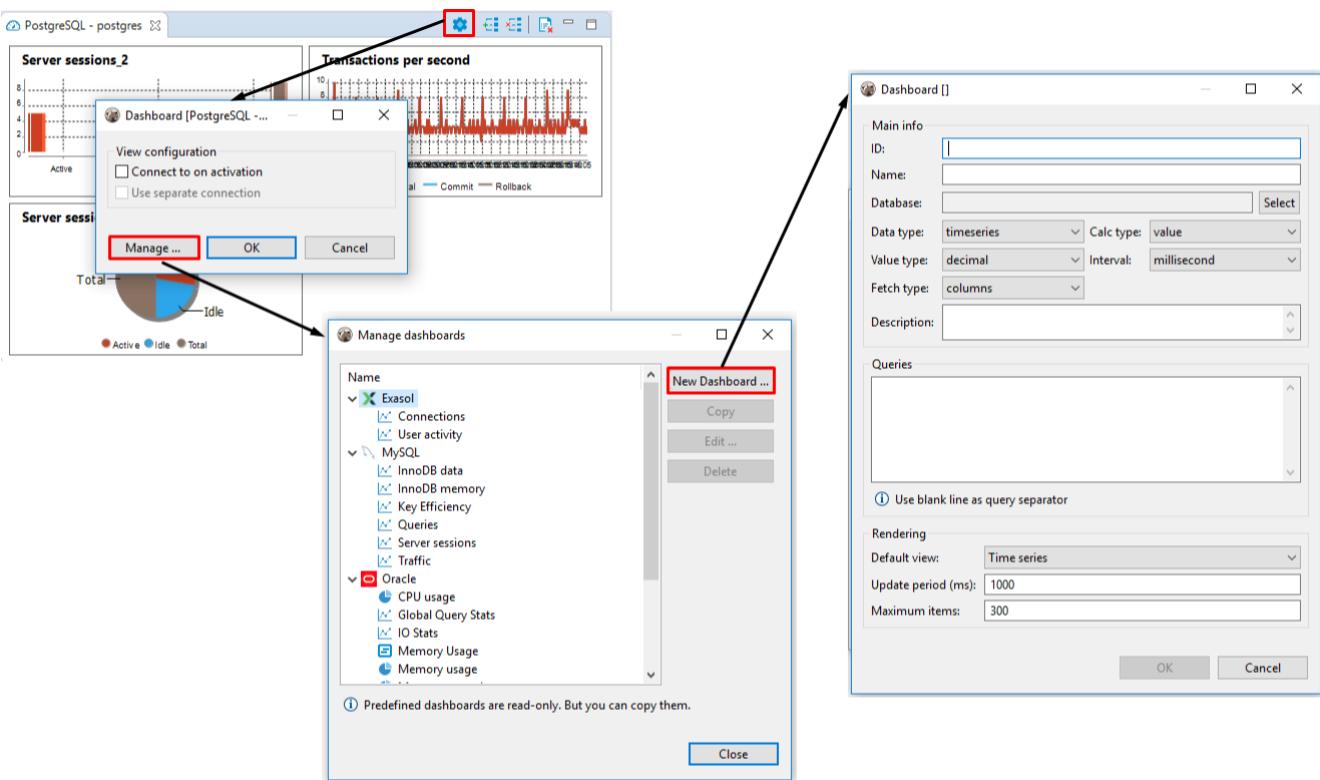
You can extend the list of predefined default dashboards by creating your own custom dashboards. This section describes dashboards' list management.

### Creating Dashboards

You can create a new custom dashboard either from scratch or from any of already existing dashboards.

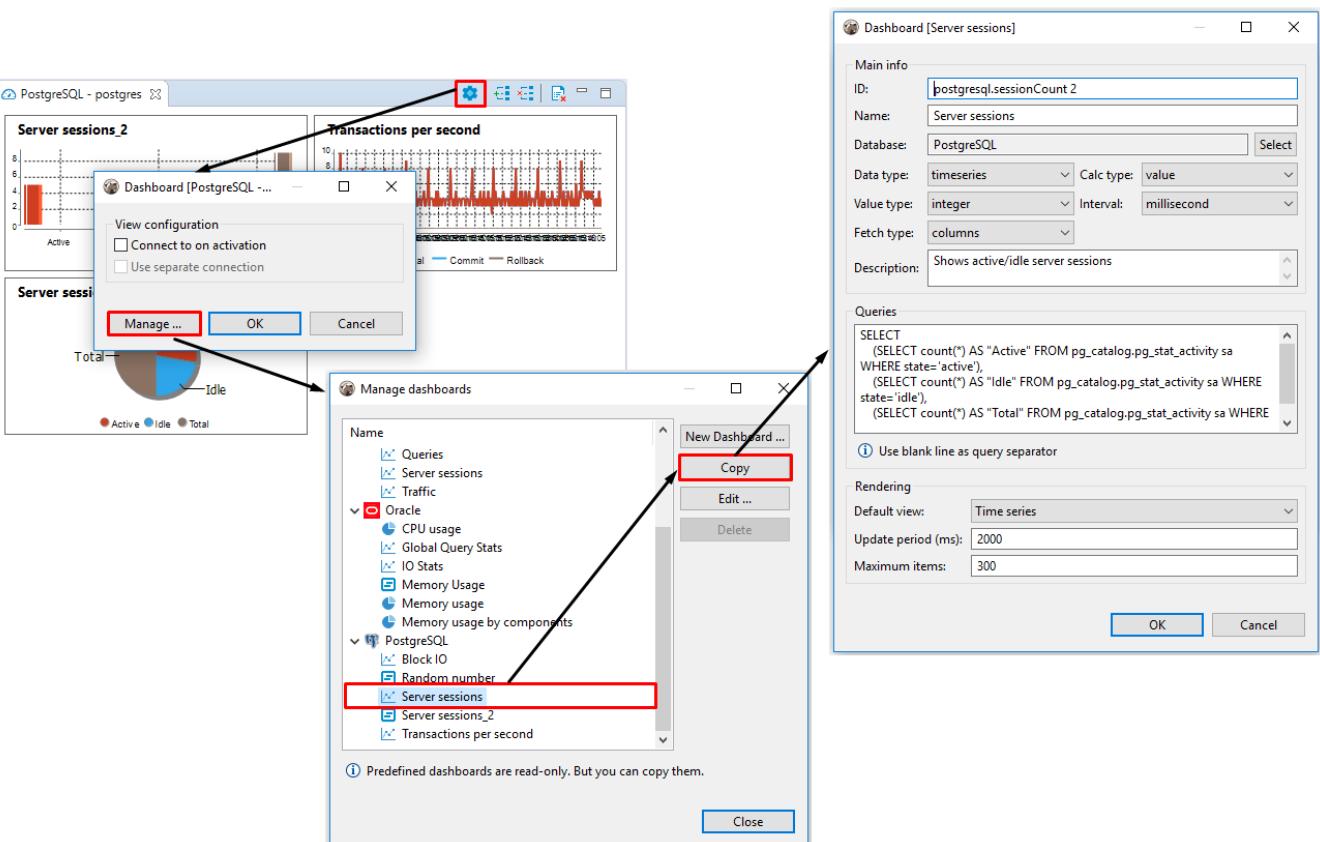
#### To create a dashboard from scratch:

1. Press **Settings** button in the dashboards panel toolbar.
2. In the opened dialog box click **Manage...** button.
3. In the **Manage dashboards** window click **New dashboard...** button.
4. Set up all configurational parameters as required and press **OK**. To learn more about dashboard's configuration parameters, see [Adjusting Dashboard Configuration](#).



## To create a dashboard from template:

1. Press **Settings** button  in the dashboards panel toolbar.
2. In the opened dialog box click **Manage...** button.
3. In the **Manage dashboards** window select any of the existing dashboards from the list and click **Copy**.
4. Adjust all configurational parameters as required and press **OK**. To learn more about dashboard's configuration parameters, see [Adjusting Dashboard Configuration](#).



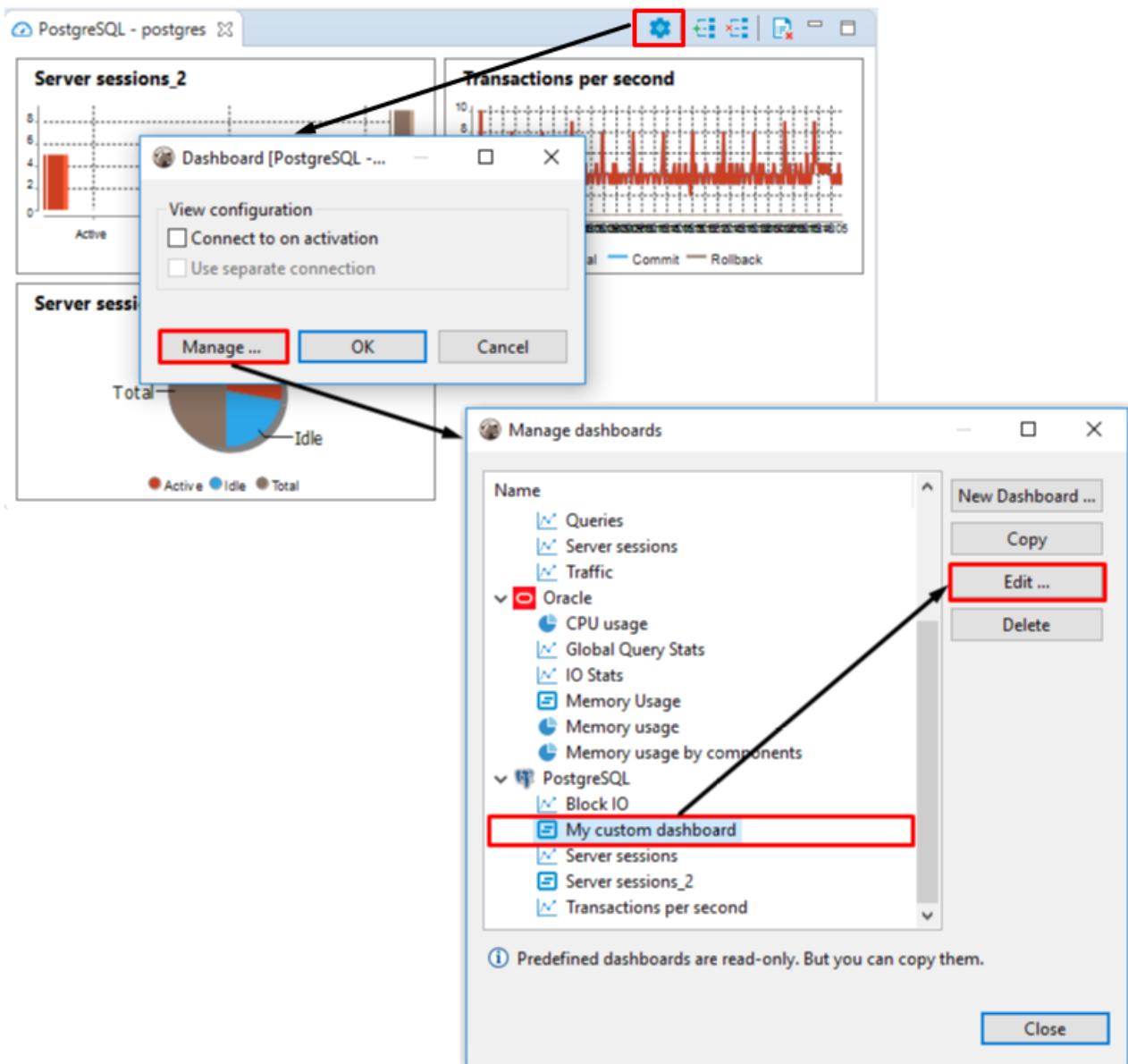
## Editing Dashboards

If you need to change dashboard's name , ID or any other configurational setting, you can edit a dashboard.

**Note:** Only custom dashboards can be edited, predefined dashboards are read-only, but you can use them as templates and create a custom dashboard whose parameters will be editable. To learn how to create dashboards from templates, see [Creating Dashboards](#).

## To edit dashboard's configuration:

1. Press **Settings** button  in the dashboards panel toolbar.
2. In the opened dialog box click **Manage...** button.
3. In the **Manage dashboards** window select any of the custom dashboards from the list and click **Edit....**
4. Adjust all configurational parameters as required and press **OK**. To learn more about dashboard's configuration parameters, see [Adjusting Dashboard Configuration](#).



## Deleting Dashboards

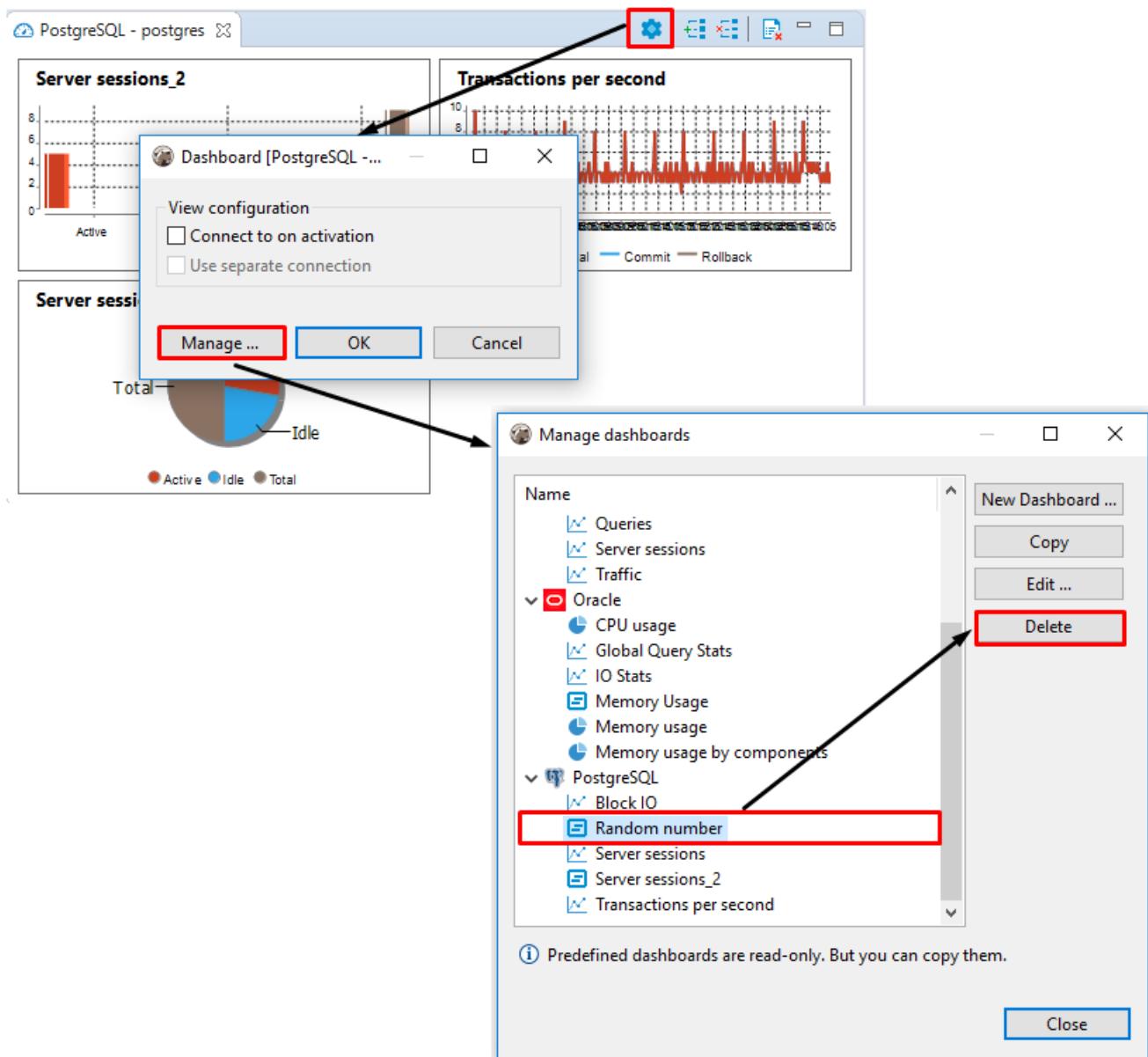
**Note:** Predefined dashboards cannot be deleted, but any of the custom dashboards can be deleted.

If you want to delete a dashboard, follow the steps described below.

## To delete a dashboard:

1. Press **Settings** button  in the dashboards panel toolbar.
2. In the opened dialog box click **Manage...** dashboards.

3. In the **Manage dashboards** window select any of the custom dashboards from the list and click **Delete**.

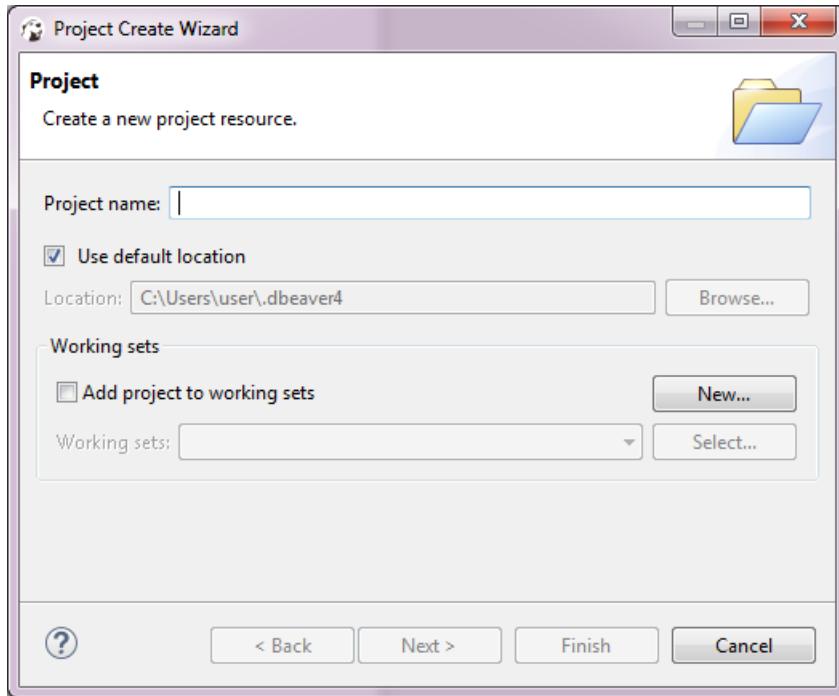


# Projects

The [Projects view](#) allows creating new projects as well as renaming and deleting projects that are not active. NOTE: You cannot rename or delete a project that is set as active.

## Creating Project

To create a project, in the Projects view, in the toolbar, click **Create Project** (). The Project Create Wizard opens.

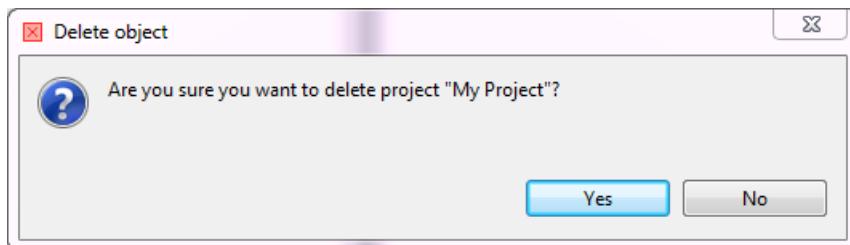


1. In the Project screen, in the **Project name** field, specify the name of the project.
2. To keep the default location to store the project, leave the **Use default location** checkbox selected. If you want to change the location, clear the checkbox and enter the name of the new directory into the **Location** field or click **Browse** and select the directory in the folder tree.
3. Click **Finish**. The new project appears in the projects tree.

## Deleting Project

To delete a project, in the Projects view, right-click its name in the tree and click **Delete** on the context menu. Two confirmation dialog boxes appear one after another:

1. **Delete object** dialog box is to confirm the deletion of the project itself. Click **Yes** if you are sure you want to delete it. Otherwise, click **No**.



2. **Delete project** dialog box is to confirm the deletion of the project's contents: these are the data stored in the file system, database connections are not affected. Click **Yes** if you want the contents to be deleted as well. To keep the contents, click **No**.

NOTE: If you have deleted a project and then re-create it with the same name, the new project picks up all the database connections of the deleted project.

# Project security

Note: This functionality is available only in Enterprise-Edition.

DBeaver support local storage for connection secure data. It includes:

- Database server user credentials
- SSH tunnel user credentials
- Proxy user credentials

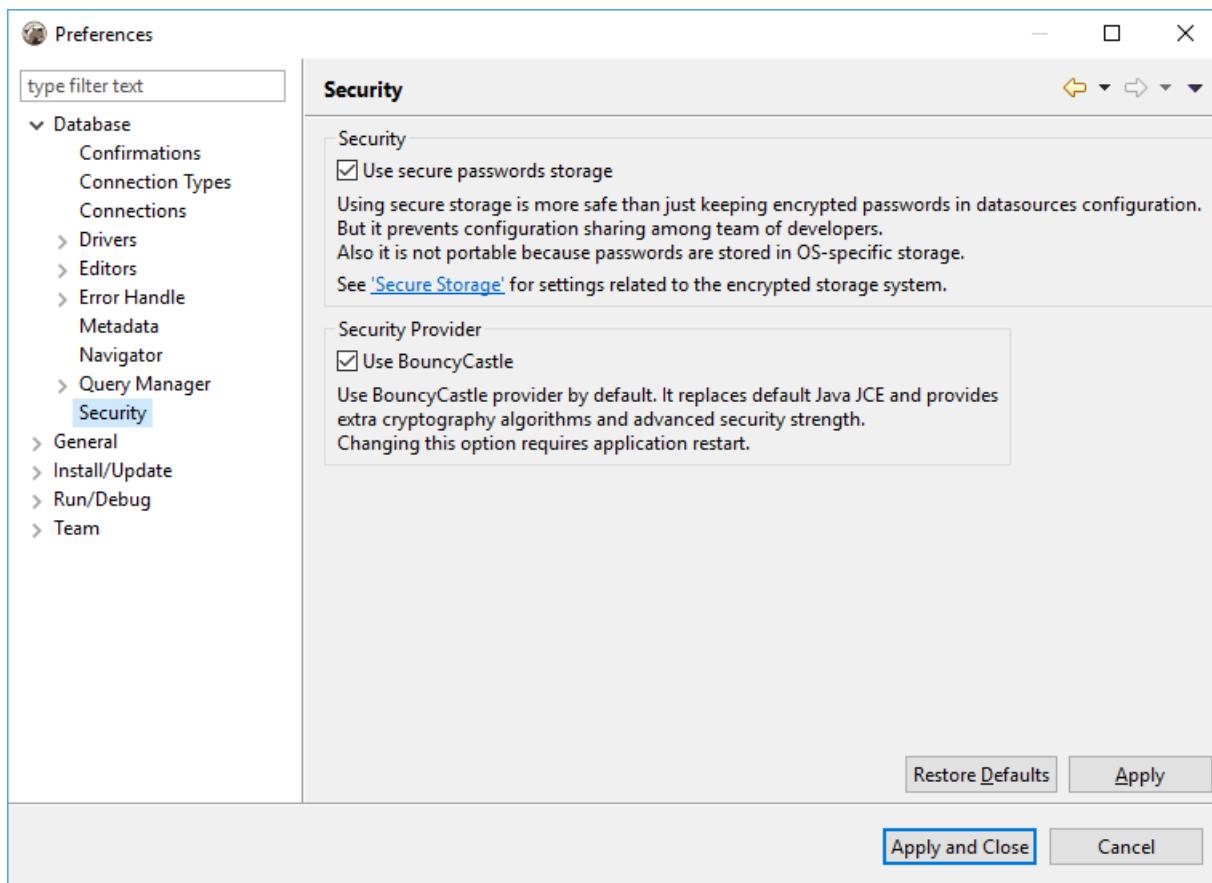
By default user names and passwords are stored in file `credentials-config.json`. This file is encrypted using AES key. However it is really secure as this key is not secure (can be found in DBeaver sources) and thus this file can be un-encrypted by 3rd party people using some 3rd party software.

In DBeaver Enterprise there is much more strong security support.

## Master password for local configuration

It is possible to set master password for all projects in local workspace. Go to Preferences->Database->Security and enable option `Use secure passwords storage`. There are several password storage providers (you can see them on page General->Security->Secure Storage), `DBeaver Enterprise Password Provider` is the default one (in standalone DBeaver). It will ask you to specify master password. DBeaver doesn't store this password anywhere, it only encrypts user credentials in special local storage. It is not possible to decrypt these password without password (at least easily).

Side effect of this configuration - you cannot share your connections (with password) between different users. Because user credentials are stored in a completely separate location and they are protected by local user password.



## Use Windows Integration password provider

You can disable default password provider and enable "Windows Integration" provider. This provider doesn't need master password but it uses randomly generated password stored in local user secure storage (in Windows). This is easier (as you don't need to remember master password) but less secure (anybody who have access to your Windows user account will have access to DBeaver stored credentials).

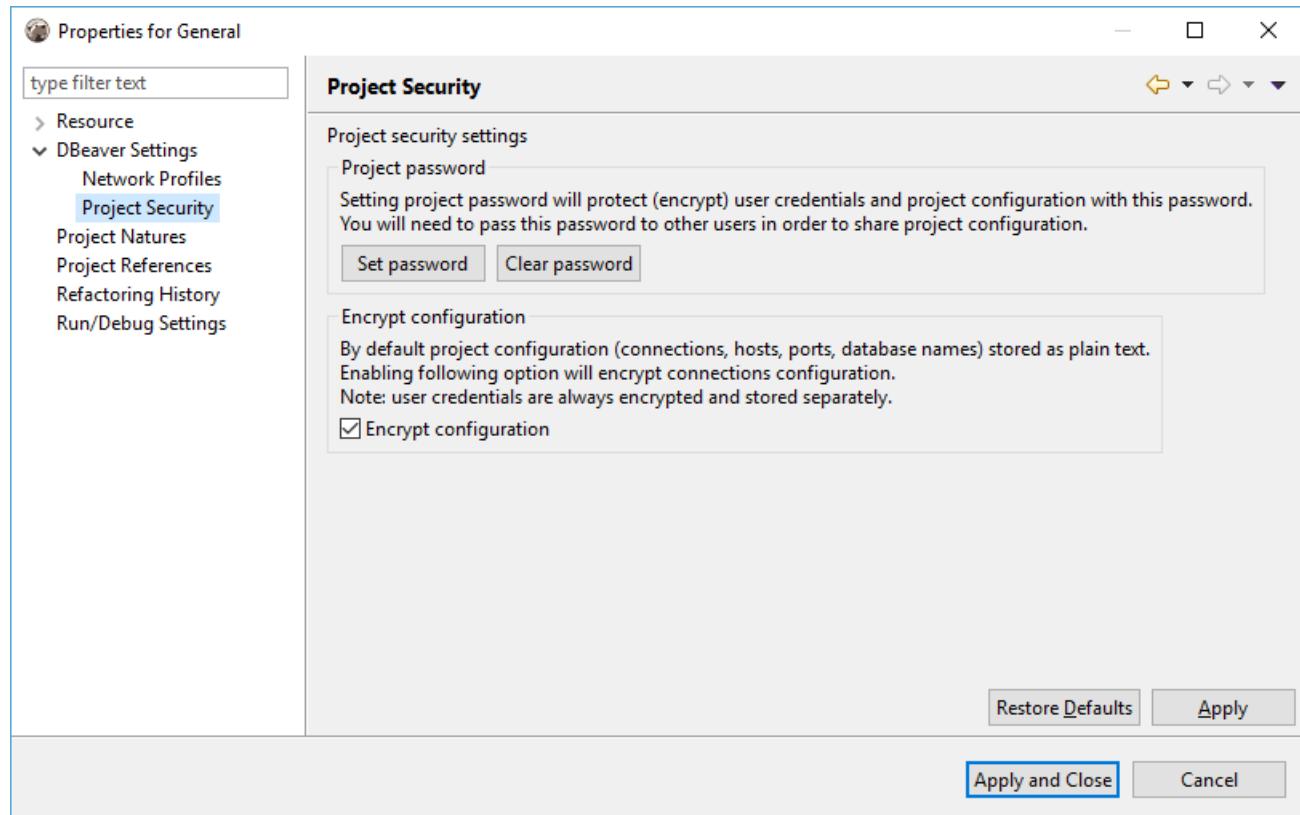
## Project password

You may specify a password for a project. It will encrypt all project's configurations with this password. Also you will be able to share

your project settings with other users (you will need to pass the project password as well).

In order to enable project password open project properties. You can do this by:

- Click on main menu File->Project security
- Click on "Configure" icon in project explorer view toolbar and switch to Project Security tab
- Press **ALT+Enter** on a project element in **Projects** view and switch to Project Security tab



On project security page click on "Set Password" button to enable project password. Click on Clear to disable it (you will need to enter current project password to clear it).

### "Encrypt configuration" option

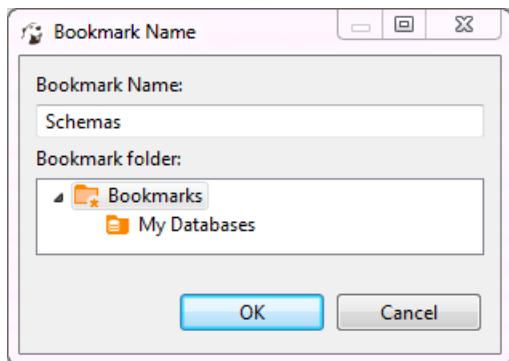
# Bookmarks

Bookmarks are quick access links to objects of a database. They appear in the project tree inside the [Projects](#) or [Project Explorer](#) views.

Name	DataSource	Preview	Size	Modified	Type
▷  Bookmarks	Bookm...			2018-03-13 19:58:46.104	
▷  ER Diagrams	Diagra...			2018-06-12 19:51:01.435	
▷  Scripts				2018-06-19 21:20:21.178	

To create a bookmark:

1. In the [Database Navigator](#) or under **Connections** node of the Projects view, click the database object of interest to set focus on it.
2. Press **CTRL+d**. The **Bookmark Name** dialog box appears.
3. In the **Bookmark Name** field, enter the bookmark name, then in the **Bookmark folder** field, click the folder, and then click **OK**:



The bookmark appears in the selected folder of the related project.

To open an object using its bookmark, double-click the bookmark or right-click it and click **Open Bookmark** on the context menu. You can rename and delete bookmarks using the context menu as well.

# Shortcuts

Brief list of the most important DBeaver shortcuts.

Of course you can redefine any (or almost any) of these shortcuts, here is the list of the default values.

Most of the following commands are accessible from DBeaver main menu, context menu or editor toolbar (or from all of them).

Use context menu wherever it is possible - it usually shows all actions accessible at this moment.

## SQL Editor

Shortcut	Action
CTRL+Enter	Execute current query (*)
CTRL+\	Execute current query in a new tab
ALT+X	Execute current script (**)
CTRL+ALT+'	Execute selected SQL expression and print results
CTRL+SHIFT+E	Explain current query execution plan
CTRL+ALT+SHIFT+X	Execute queries of current script simultaneously, showing results in separate tabs
CTRL+9	Switch active connection (for SQL script)
CTRL+Space Option+Space	SQL completion proposals popup
CTRL+ALT+Space	SQL templates proposals popup
CTRL+SHIFT+F	Format current script (**) using current formatter
CTRL+/ CTRL+SHIFT+ /	Toggle single/multi line comment
ALT+Up ALT+Down	Jump to previous/next query
CTRL+6 CTRL+SHIFT+6 ALT+6	Toggle editor/results panels (maximize/minimize/switch)
CTRL+SHIFT+X CTRL+SHIFT+Y	Convert selected text into upper/lower case

## Data viewer

Shortcut	Action
TAB	Switch to record/grid mode
CTRL+~	Switch presentation (grid, plain text, json ,etc)
CTRL+1	Foreign keys navigation menu
ALT+Space	Navigate to the link in active cell
ALT+Left	Navigate backward in history
ALT+Right	Navigate forward in history
CTRL+2	Toggle sorting by current column
F11	Current column filters menu
CTRL+F11	Current column filter dictionary panel
F7 CTRL+7	Toggle right panels on/off
F5	Refresh results (re-run query)

## Data editor

Shortcut	Action

Shortcut	Action
<b>Enter</b>	Activate inline editor
<b>SHIFT+Enter</b>	Open value editor dialog or separate value editor (for LOB values)
<b>Delete</b> <b>ALT+Delete</b>	Delete row
<b>ALT+Insert</b>	Add new row
<b>CTRL+ALT+Insert</b>	Copy current row
<b>Escape</b>	Cancel changes in current cell/row

## Database Navigator

Shortcut	Action
<b>F2</b>	Rename current element (if supported)
<b>F4</b>	Open editor of selected element(s)
<b>F5</b>	Refresh selected element(s)
<b>Delete</b>	Delete selected element(s) (if supported)
<b>CTRL+ALT+SHIFT+D</b>	Add bookmark on selected element
<b>Alt+Enter</b>	Show properties of selected element
<b>F3</b> <b>CTRL+ [</b>	Open SQL editor for current connection (**). Shows script selector popup.
<b>CTRL+F3</b> <b>CTRL+]</b>	Open new SQL editor for current connection (**). Always creates new script.
<b>CTRL+Enter</b>	Open recent SQL editor for current connection (**). Opens last modified script or creates a new script.

## Other

Shortcut	Action
<b>ALT+~</b>	Shows database tools context menu
<b>CTRL+0</b>	Switch active schema/catalog (available if SQL/database editor is open)
<b>CTRL+SHIFT+C</b>	Advanced copy. Works in different contexts and performs "smart copy" operation (usually with parameters).
<b>CTRL+SHIFT+V</b>	Advanced paste. Same as "smart copy" but for "paste".

## References

- \*\* - Current query is the query under cursor or the selected text. Query is separated from other script queries by delimiter (; by default) or by empty lines.
- \*\*\* - Current script is a set of all queries in the current SQL file. If there is a text selection then only queries in this selection are processed. Queries are separated from each other with a delimiter (; by default).
- \*\*\*\* - Current connection detected from active window and selection. If active (focused) window is SQL editor or database object editor then current connection is the same as in this editor. If active window is database navigator then active connection is "owner" connection of currently selected element. In other cases there is no current connection and DBeaver will ask you to choose connection explicitly.

# Database Connections

To be able to manage your database in DBeaver, you need to create a connection to this database – see [Creating Connections](#). A connection includes a driver and a number of configuration parameters including the location of the database and credentials to access it. You need to create a separate connection to every database you want to manage. Every database type requires its own set of connection parameters.

Connections reside in the [Database Navigator](#) and in the [Projects](#) views. In these views, you can:

- Edit connections, see [Editing Connections](#)
- Rename and delete connections - via corresponding context menu items, see [Database Navigator](#)
- Connect to and disconnect from databases using connections, see [Connect to Database](#) and [Disconnect from Database](#).

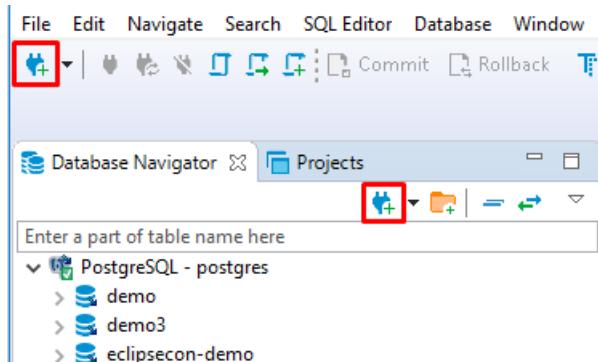
Database connections might have the following states:

-  - not connected
-  - has network settings specified (such as SSH tunnel, etc.)
-  - connected
-  - connection error

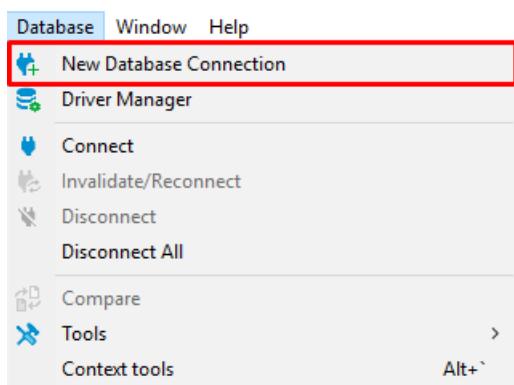
# Create Connection

DBeaver provides a wizard that guides you through the steps to create a connection. If you run DBeaver for the first time (standalone version), the new connection wizard appears automatically. In other cases, to create a connection, do one of the following:

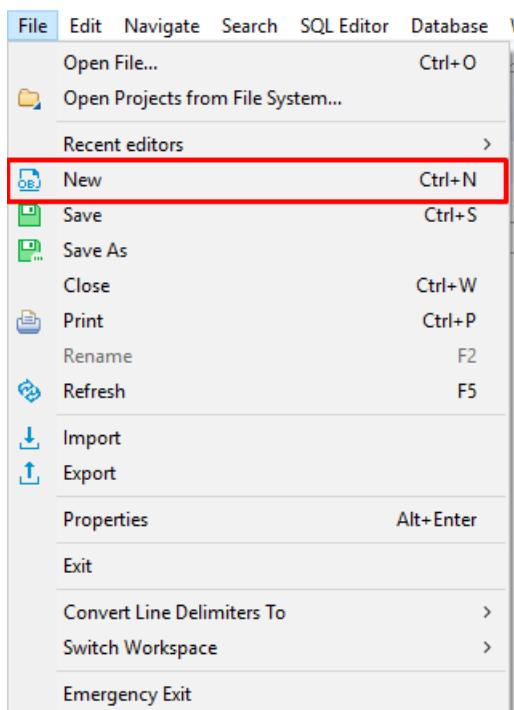
- Click the **New Connection Wizard** button in the application toolbar or in the Database Navigator view toolbar:



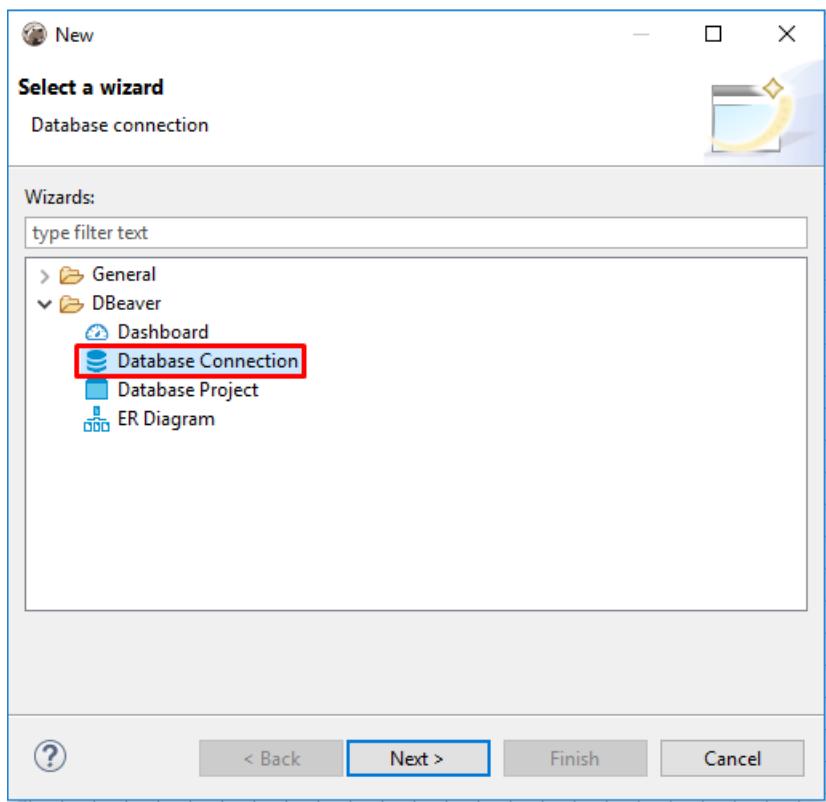
- Click **Database -> New Connection** in the menu bar:



- Press **Ctrl+N** or click **File -> New** in the menu bar:

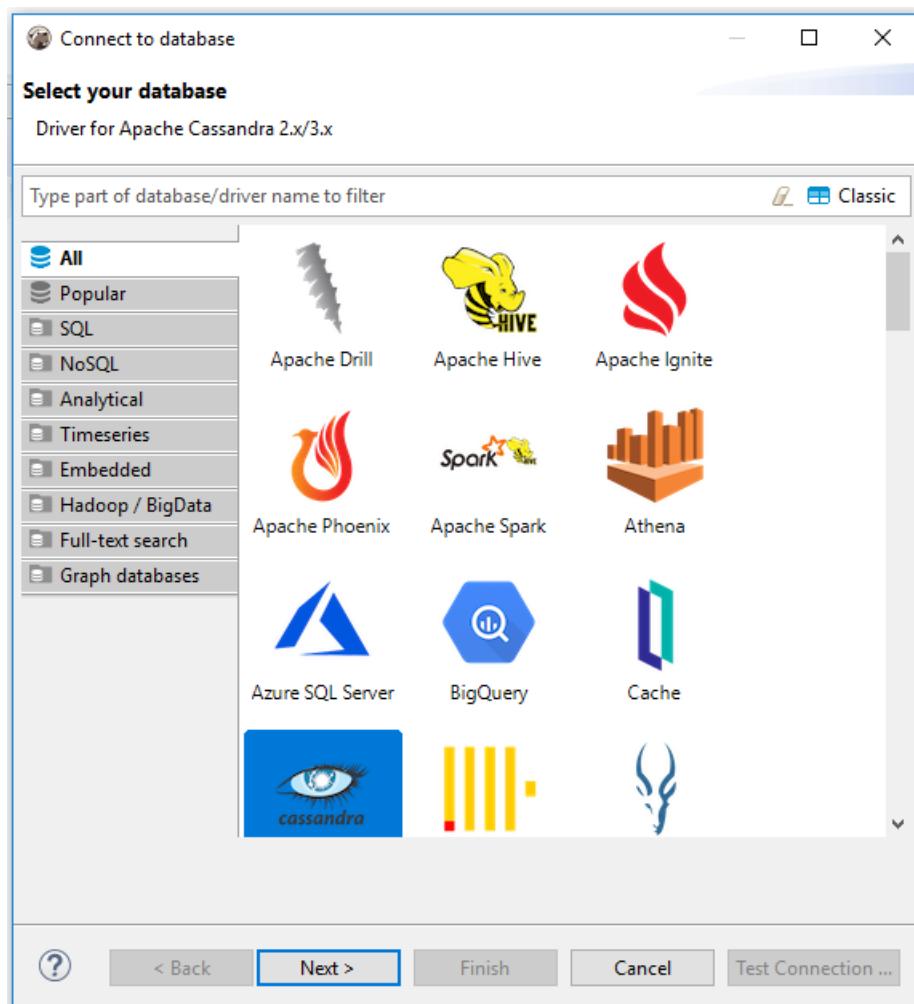


Then, in the wizard, click **Database connection** and then click **Next**:



Then, in the **Create new connection** wizard:

1. Choose a driver for the new connection: click the name of the suitable database type in the gallery. Then click **Next**.

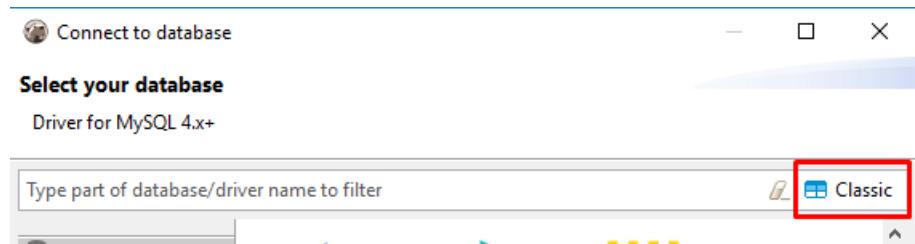


To quickly find the needed driver, you can type a hint in the text field above the list of drivers.

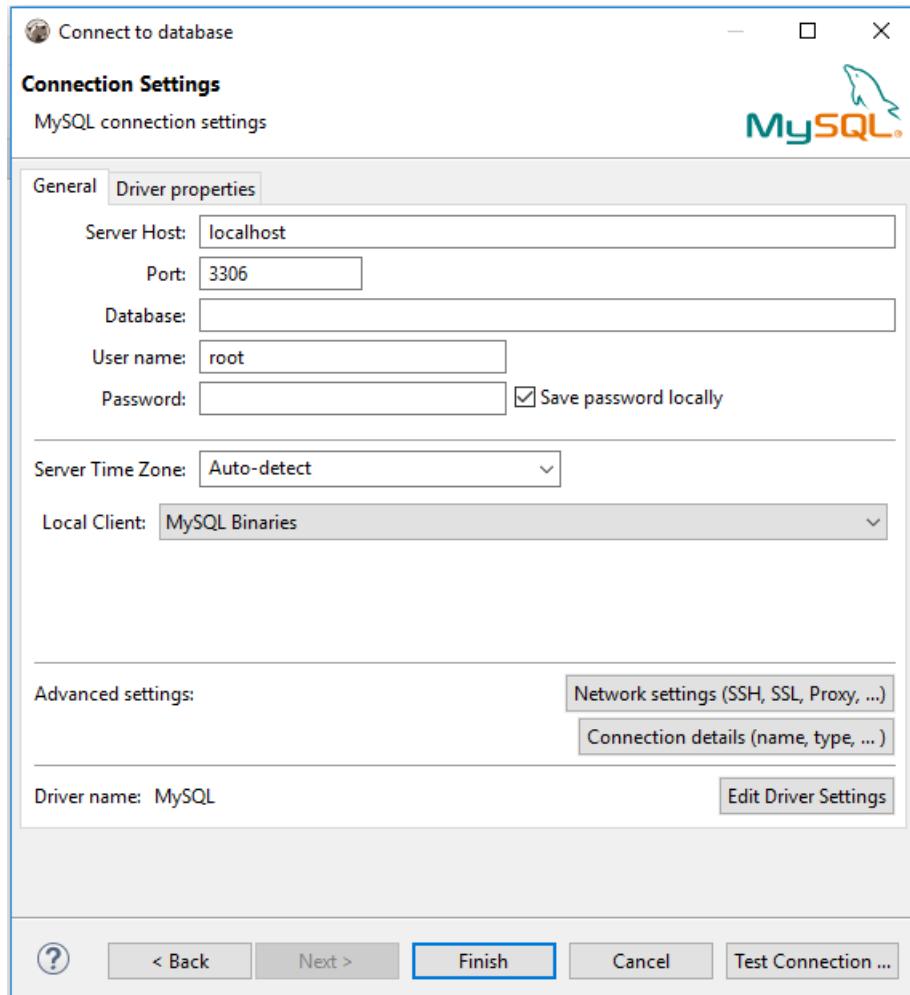
If you cannot find a driver for your database then probably there is no suitable driver and you need to create one. Please see [Database Drivers](#) article.

NOTE: The list of database drivers displays the number of existing connections next to each driver. No number is displayed if there are no connections.

If you prefer the classic list view of the available drivers, use the **Classic** button.



2. In the Connection Settings screen, on the General tab, set all primary connection settings:



For most drivers required settings include:

- Host
- Port
- Database name
- User name and password

However, the number and type of connection properties are very dependent on the driver.

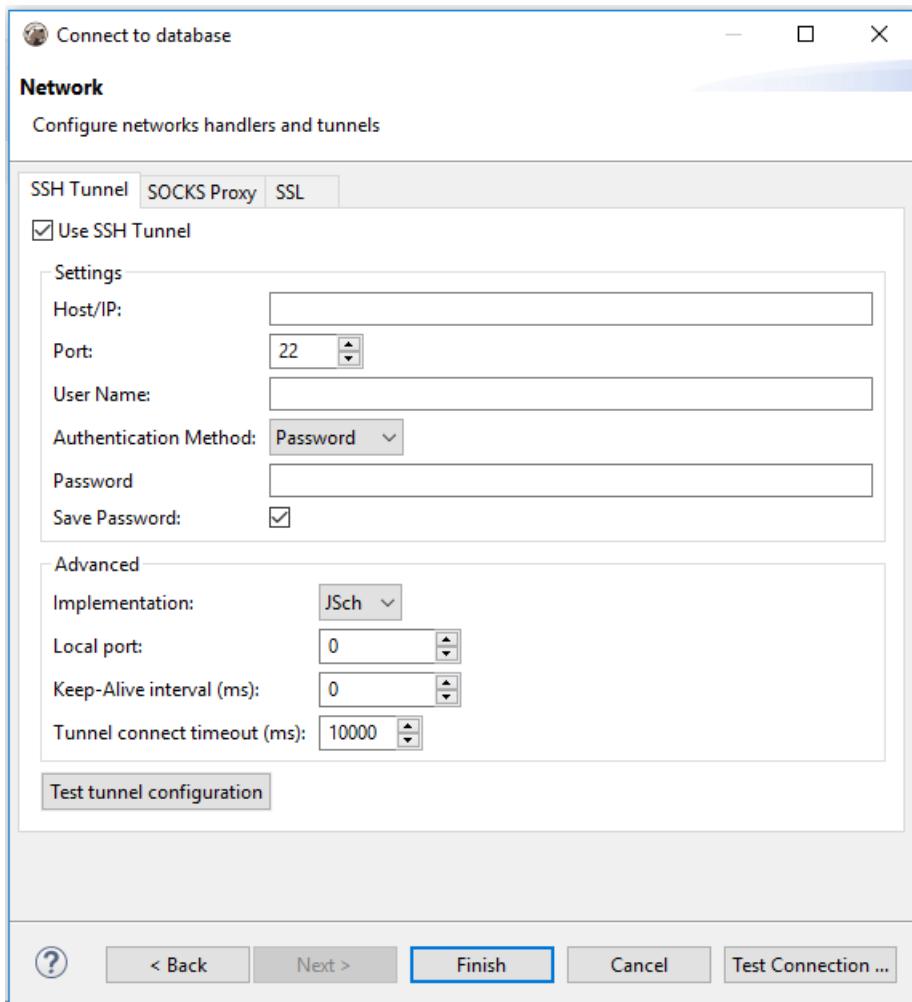
For example, embedded drivers (such as SQLite, Derby Embedded, HSQLDB, H2 Embedded), unlike remote ones, require only the path to the database.

3. If necessary, specify advanced settings, see **Advanced Settings** section below, and click **Next**.
4. To test if the connection works, click **Test Connection**.
5. Click **Finish**. The connection appears in the tree of connections in the Database Navigator and DBeaver actually connects to the database.

# Advanced Settings

## Network Settings (SSH, SOCKS, SSL)

If your database cannot be accessed directly, you can use SSH tunnel:

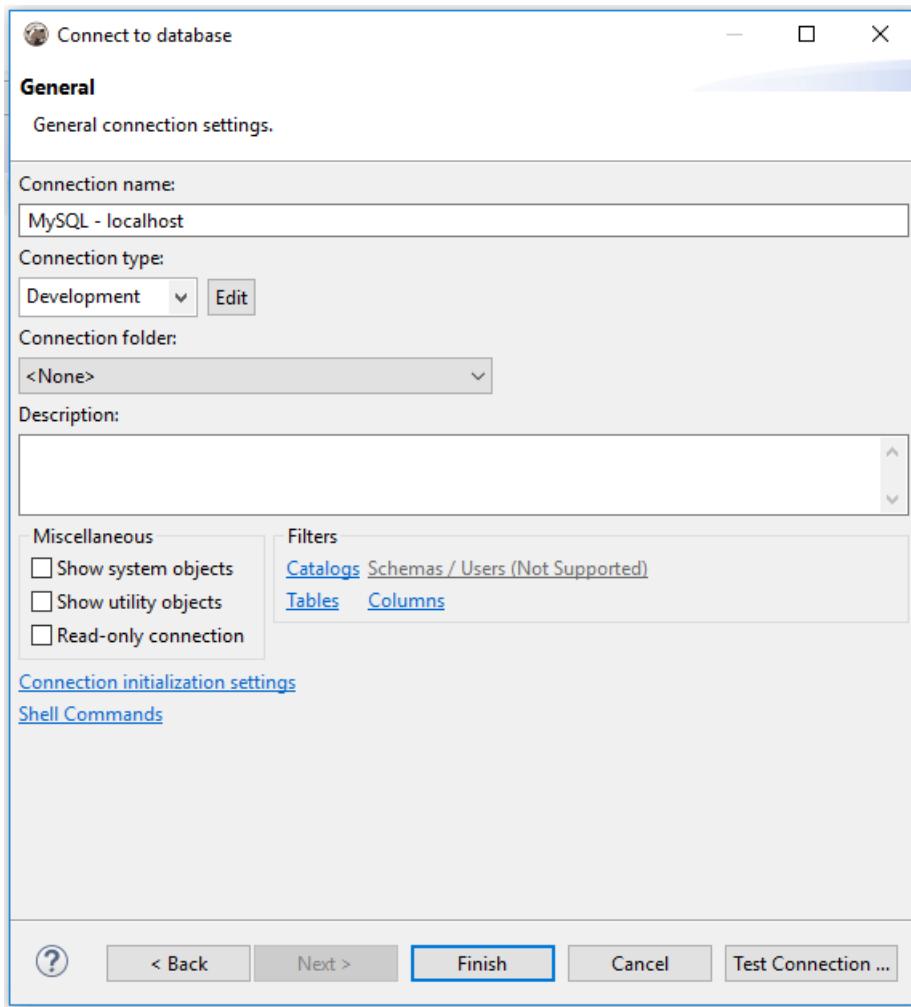


DBeaver supports following SSH authentication methods: user/password, public key authentication and agent authentication. Supported implementations for agent authentications are [pageant](#) and [ssh-agent](#).

If a connection has network settings specified, such a connection appears in the application with a special 'arrow' icon such as this:

## Connection Details (name, type, etc.)

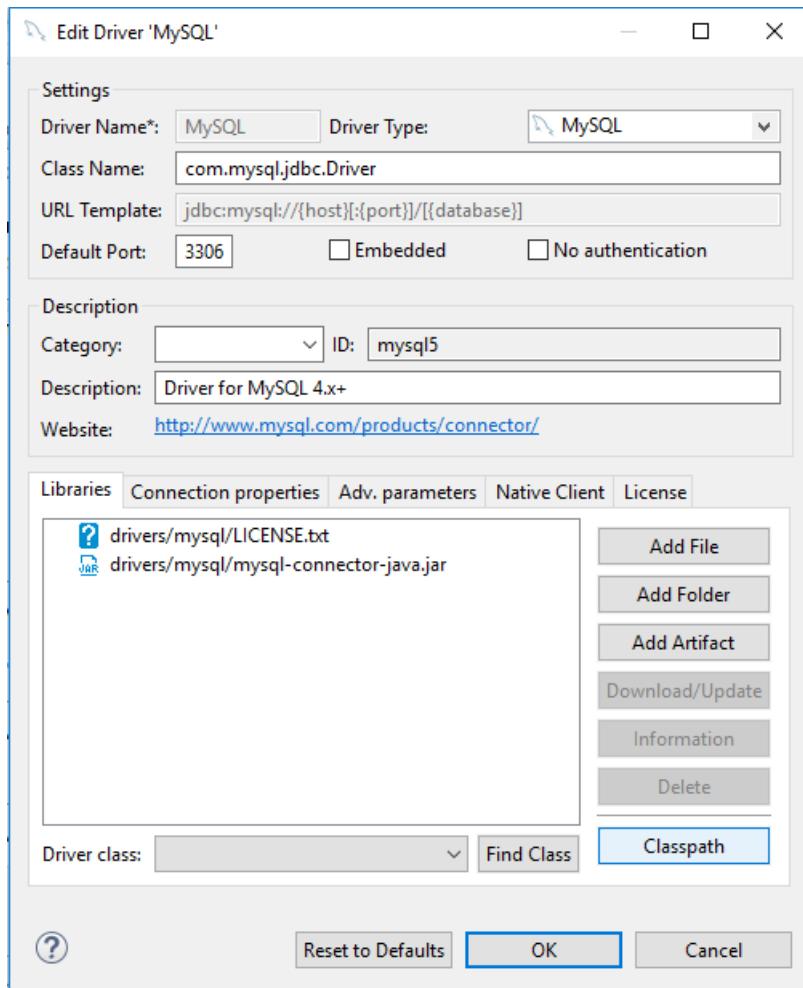
You can also set the connection name, type and initial settings (such as bootstrap queries, transaction state, global filters, etc.).



## Driver Properties

---

Each driver has its own set of additional properties. Refer to the driver documentation to get information about available properties and their values.



## Variables in parameters

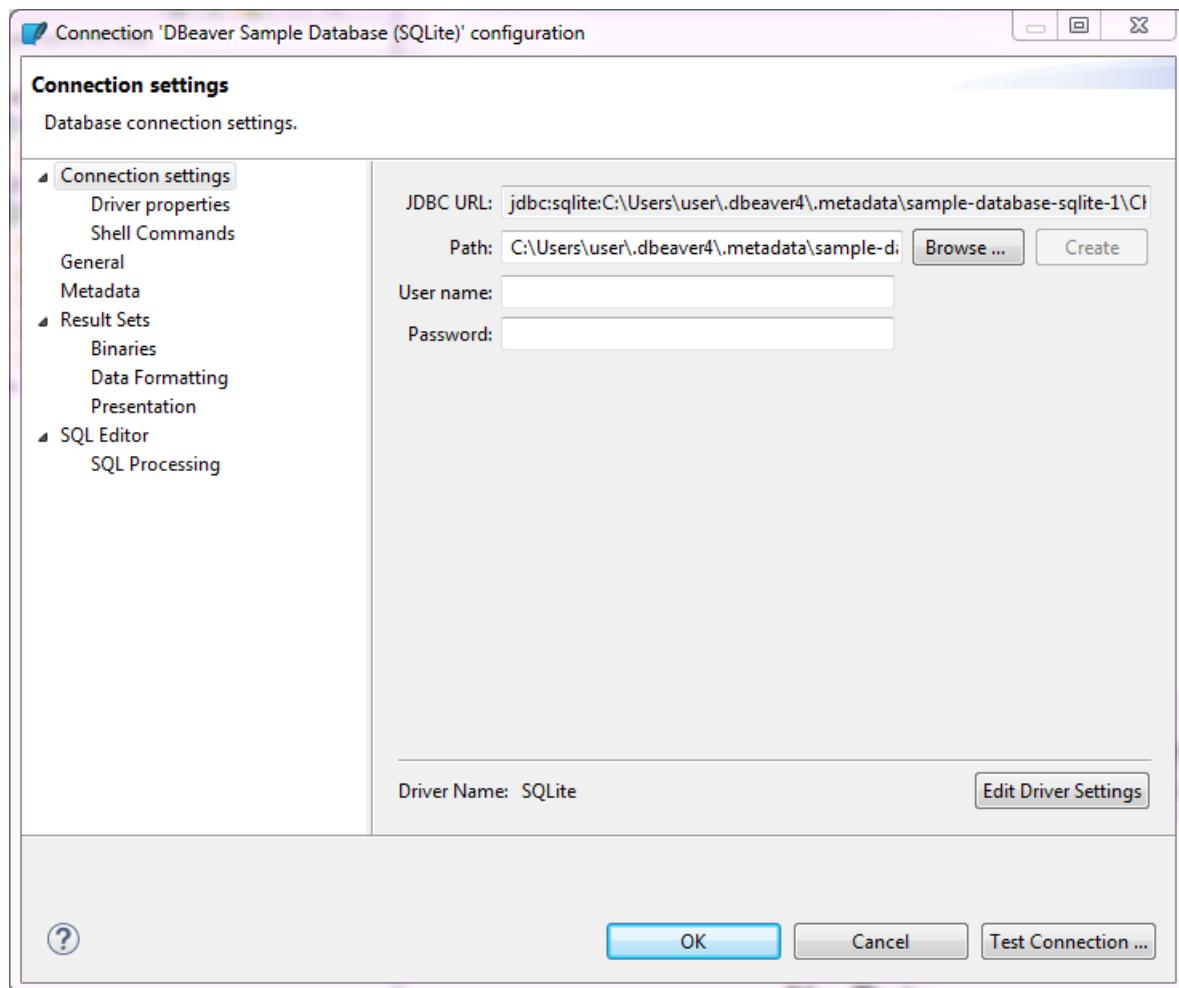
You can use variables in all connection parameters and in the driver properties. Variables are system environment variables or one of the following list:

Name	Value
<code> \${host}</code>	Host name
<code> \${port}</code>	Port number
<code> \${database}</code>	Database name
<code> \${server}</code>	Server name
<code> \${url}</code>	Connection URL
<code> \${user}</code>	User name
<code> \${password}</code>	User password

Note: option `Use environment variables in connection parameters` must be turned on (see preferences).

# Edit Connection

To edit configuration settings of a database connection, in the [Database Navigator](#) or in the [Projects](#) view, right-click the connection and click **Edit Connection** on the context menu. The Connection configuration window opens:



The navigation pane on the left displays configuration sections, most of which are the same as those in the Create new connection wizard, see [Connect to Database](#). There are additional configuration sections as well, such as **Result Sets** and **SQL Editor**. Click the section name to open the configuration settings for editing.

You can test if your connection works with modified settings - click **Test Connection**. When you finish editing your connection, click **OK** to save the changes or **Cancel** to discard them.

## Driver settings

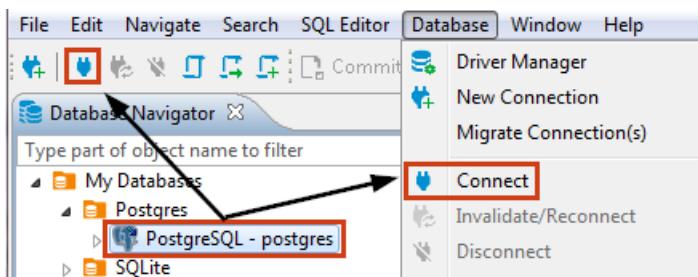
- In development

[JDBC Time Zones](#)

# Connect to Database

To be able to work with the content and structure of a database, you need to connect to it. When you create a new connection to a database, DBeaver automatically connects to the new database, see [Create Connection](#).

To connect to a database using an existing connection, in the [Database Navigator](#) or [Projects](#) view, click the connection and then click the **Connect** button in the toolbar or click **Database -> Connect** on the main menu:



You can also right-click the connection and click **Connect** on the context menu.

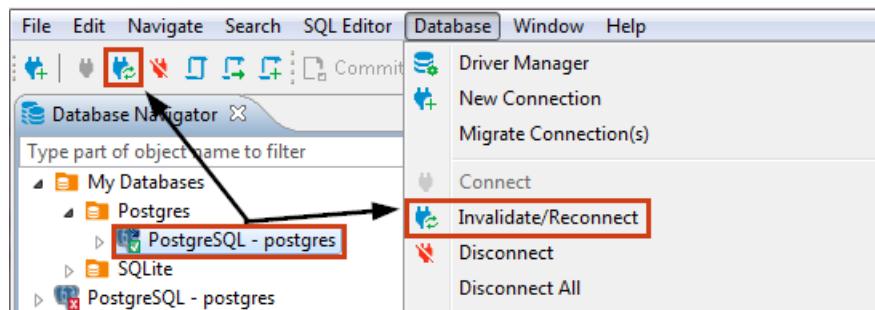
If a database connection exists but DBeaver is not connected to the database, the connection appears with its original icon (for example,  for PostgreSQL database). When DBeaver connects to the database, the icon changes to signal the connected status:



If DBeaver cannot connect to a database, the connection appears with an error sign: . If you attempt to connect to such a database, DBeaver displays an error message describing the cause for the error.

# Invalidate/Reconnect to Database

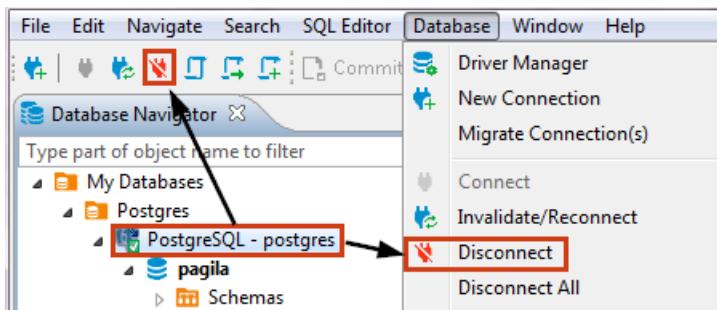
You might need to invalidate a database connection and then to reconnect to it again in such cases as connection to the server being lost, etc. To invalidate a database connection and then reconnect to the database, in the Database Navigator or Projects view, click the database connection and then click the **Invalidate/Reconnect** button in the toolbar or **Database -> Invalidate/Reconnect** on the main menu:



You can also right-click the connection and click **Invalidate/Reconnect** on the context menu.

# Disconnect from Database

You might need to disconnect from a database to free up resources or close transactions. To disconnect from a database, in the [Database Navigator](#) or [Projects](#) view, click the connection and then click the Disconnect button in the toolbar or click **Database -> Disconnect** on the main menu:



You can also right-click the connection and click **Disconnect** on the context menu.

NOTE: The Disconnect button and menu items are available only for those connections that are activated, that is, marked with the connected sign:

When DBeaver disconnects from a database, its icon changes to its original state (not connected), for example,

To disconnect from all active connections, click **Database -> Disconnect All** on the main menu.

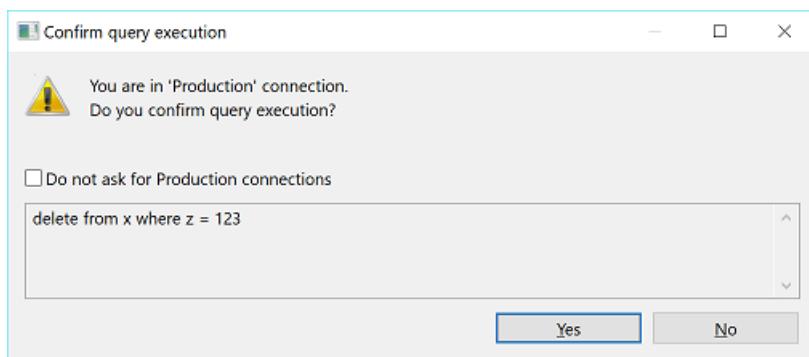
# Connection Types

Connection types define how DBeaver behaves regarding:

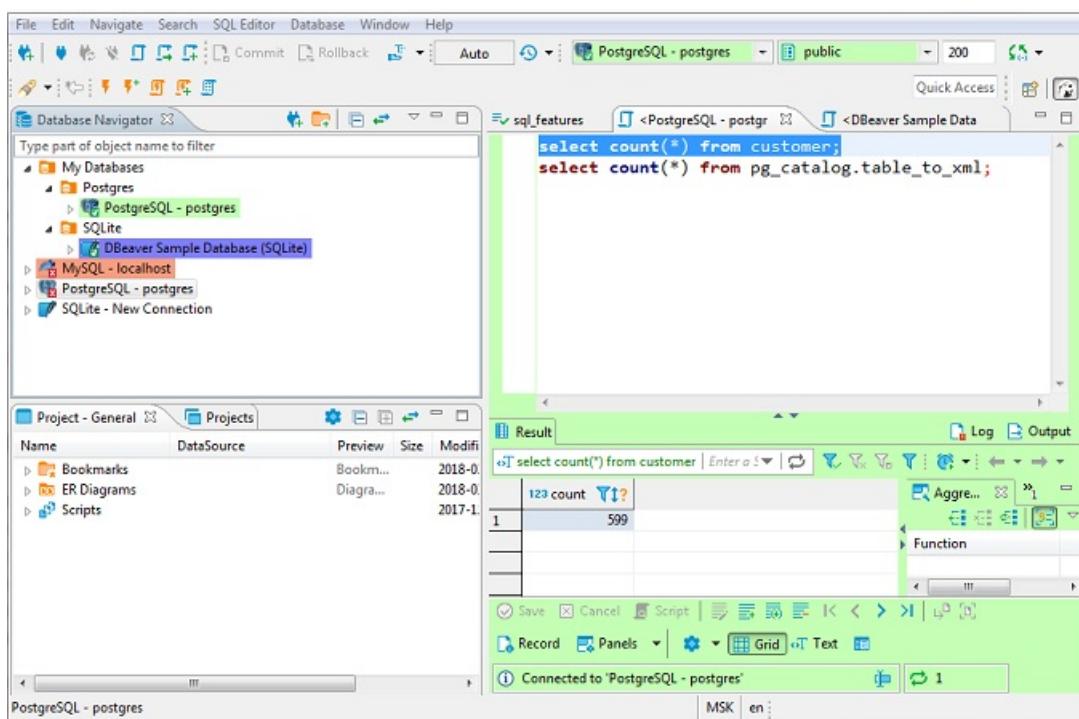
- Default transactions commit mode - with or without automatic commit of changes to the database.

NOTE: You can override the default commit behavior during your work with connections by changing the commit mode, see [Auto](#) and [Manual Commit Modes](#).

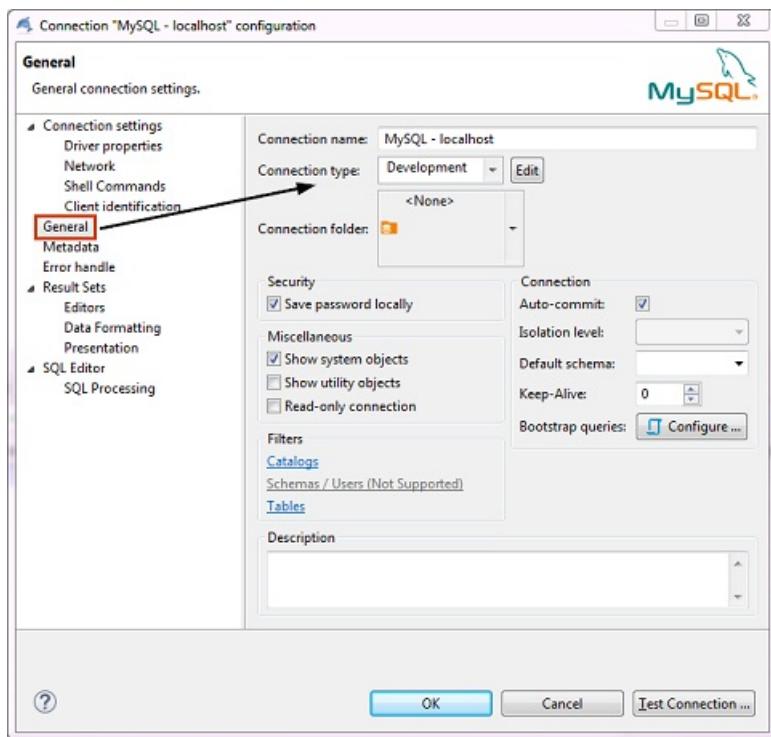
- SQL statements execution (with or without user confirmation). If set to require user confirmation for SQL execution, DBeaver shows a confirmation message every time you attempt to execute a 'transaction' type of query (INSERT/DELETE/UPDATE, etc.):



For your convenience, DBeaver supports color-coding of connection types so that you know at once which behavior to expect when you use a certain connection. Colored are database connections that use a certain connection type in the [Database Navigator](#) and [Projects](#) views as well as editors related to these connections:



To manage connection types for a database connection, in the Database Navigator or Projects view, click the connection to set focus to it and then press **F4** to open the connection properties window. Then, in the properties window, in the navigation pane on the left, click **General** to see the general settings. You can see **Connection Type** field among the settings:



There are three default connection types – **Development**, **Test**, and **Production**. You can change the connection type for your database connection as well as you can create a new connection type, edit or delete an existing one.

## Change Connection Type

By default, the **Development** connection is preset for all database connections. You can change the connection type to one of the default connection types or to a custom type, if there are any.

To change the connection type:

1. In the connection properties window, on the **General** page, click the **Connection type** field and then click the connection type in the dropdown list:

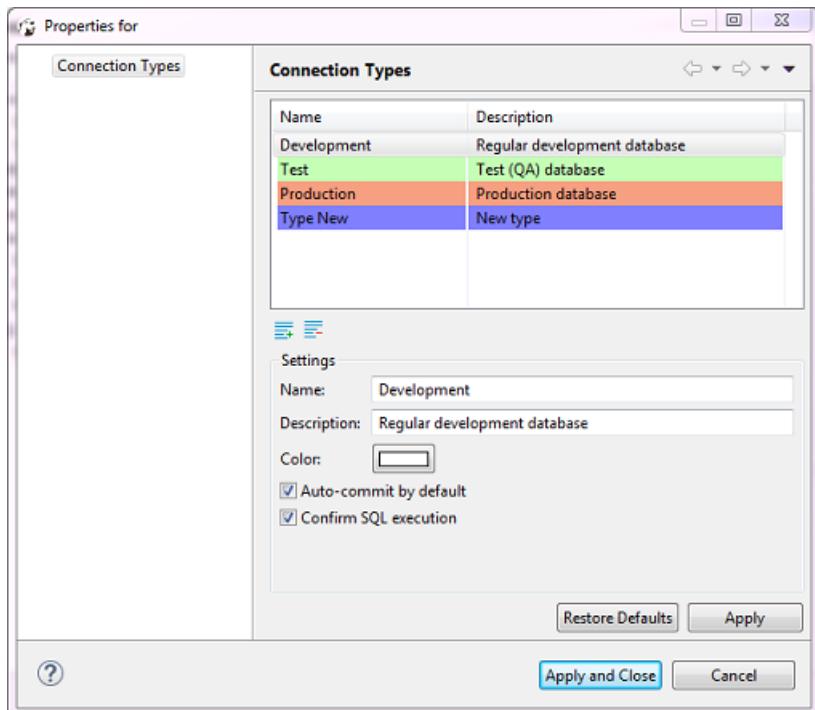


2. To test the connection, click **Test Connection**. To confirm the change, click **OK**.

## Create Connection Type

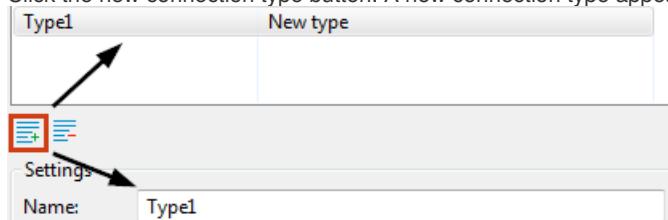
To create a connection type:

1. In the connection properties window (**F4** on a connection), on the **General** page, click **Edit** next to the **Connection type** field. The Properties for connection types window opens:



The window displays existing connection types and their settings.

- Click the new connection type button. A new connection type appears in the list:



- Now you can specify the settings for the new connection type:

- Enter the connection type's name into the **Name** field.
- Enter a description into the **Description** field, if needed.
- Click the **Color** box and select the color for the new connection type.
- To set DBeaver to automatically commit changes to the database when connections use this connection type, select the **Auto-commit by default** checkbox. Otherwise, leave it empty.
- To set DBeaver to ask for your confirmation at each execution of SQL statement of 'transaction' type, select the **Confirm SQL execution** checkbox. Otherwise, leave it empty.

- Click **Apply** to apply the changes and keep the window open or click **Apply and Close** to apply the changes and close the window. To discard all changes and return to the previous state, click **Restore Defaults**.

## Edit Connection Type

To edit a connection type:

- In the connection properties window (**F4** on a connection), on the **General** page, click **Edit** next to the **Connection type** field.
- Specify the settings for the new connection type the same way as when you create a connection type, see 'Create Connection Types' section above.
- When you finish editing the connection types, click **Apply** to apply the changes and keep the window open or click **Apply and Close** to apply the changes and close the window. To discard all changes and return to the previous state, click **Restore Defaults**.

## Delete Connection Type

To delete a connection type:

- In the connection properties window (**F4** on a connection), on the **General** page, click **Edit** next to the **Connection type** field. The Properties for connection types window opens.

2. In the Properties window, in the list of connection types, click the connection type to set focus to it and then click the delete button under the list: 
3. Click **Yes** in the confirmation dialog box to confirm the deletion. Otherwise, click **No**.
4. Click **Apply** to apply the changes and keep the window open or click **Apply and Close** to apply the changes and close the window.

# Auto and Manual Commit Modes

DBeaver supports two modes for committing changes to the database:

- **Auto-commit** transfers all changes that you make immediately to the database.
- **Manual commit** requires your confirmation before committing a change to the database or rolling it back.

Though available in many cases, the two modes are actionable only in [SQL Editor](#). See the next sections for details of using the modes.

To switch between the modes, use the mode selection button that appears in one of the two views: or .

## Auto-Commit Mode

Auto-commit mode is the default one for the Development and Test connection types, see [Connection Types](#). Auto-commit mode is on if you can see the auto-commit view of the mode selection button () in the application toolbar. If you see the manual commit view (, then in order to switch to auto-commit mode, click the mode selection button – it changes to auto-commit. At the same time, this disables the two manual commit buttons in the toolbar: **Commit** and **Rollback** – these are available only in manual commit mode.

The statistics field next to the mode selection button always shows **Auto** in auto-commit mode:

Clicking the statistics field opens the [Transaction Log](#).

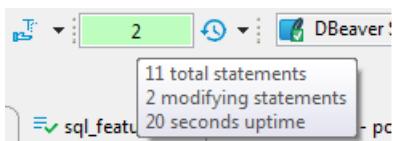
## Manual Commit Mode

Manual commit is intended to protect your database from inadvertent changes and that is why it is the default mode for Production connection type, see [Connection Types](#).

Manual commit mode is on if you can see the Manual commit view of the mode selection button () in the application toolbar. If you see the auto-commit view (, then in order to switch to manual commit mode, click the auto-commit button – it changes to manual commit. At the same time, this enables the two manual commit buttons in the toolbar: **Commit** ( Commit) and **Rollback** ( Rollback).

In manual commit mode, when you execute SQL statements ([\*\*Ctrl+Enter\*\*](#)), the number of database modifying statements that pend commitment to the database appears in the statistics field next to the mode selection button:

If you hover your mouse over the field, you can see statistics of your SQL statements:



To commit statements to the database, click the **Commit** button in the toolbar. To discard them, click **Rollback**.

If no modifying statements have been made, the statistics field shows **None**:

Clicking the statistics field opens the [Transaction Log](#).

## Smart Commit Mode

When smart commit is enabled and you are in auto-commit mode then DBeaver will monitor your activity.

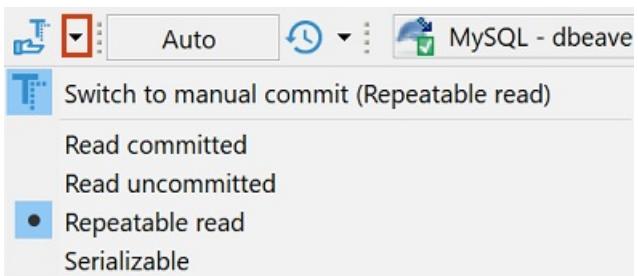
Once you will try to execute any data modifying query (UPDATE, INSERT, DELETE, UPSERT, MERGE, etc) DBeaver will switch to manual commit mode before executing your query. Also if you will edit table data and save your changes - DBeaver will also switch to manual mode before actual data modification.

If option "Return to auto-commit on transaction end" is on then DBeaver will switch back to auto-commit mode once you execute Commit or Rollback command (using main toolbar or main menu actions).

Smart commit mode is very useful if most of the time you are working in read-only mode. It doesn't lock tables when you perform SELECT queries. Transaction will be started only when you start to modify your data.

## Transaction Isolation Level

For both, Auto and Manual commit modes, you can select the transaction isolation level. To do so, click the arrow next to the mode icon and then click the required option in the dropdown list:



# Transaction Log

Transaction Log shows all transactions (queries of ‘transaction’ type such as INSERT/DELETE/UPDATE and others) made during the current DBeaver session. To open the Transaction Log, click the **Transaction log** button (⌚) in the toolbar or the statistics field to the left of it.

Time	Type	Text
22:08:49	SQL / USER	SELECT ((p.proname::text    '_'::text)    p.oid::text)::information_schema.sql_identifier AS specific_name FROM pg_proc
22:08:49	SQL / USER	SELECT * FROM information_schema.usage_privileges
22:08:45	SQL / USER	SELECT ((p.proname::text    '_'::text)    p.oid::text)::information_schema.sql_identifier AS specific_name FROM pg_proc
22:08:33	SQL / USER	SELECT ((p.proname::text    '_'::text)    p.oid::text)::information_schema.sql_identifier AS specific_name FROM pg_proc
22:08:27	SQL / USER	SELECT ((p.proname::text    '_'::text)    p.oid::text)::information_schema.sql_identifier AS specific_name FROM pg_proc
22:08:25	SQL / USER	SELECT * FROM information_schema.usage_privileges
22:08:22	SQL / USER	GRANT EXECUTE ON FUNCTION tiger.cull_null TO test_user

Show all queries  
 Show previous transactions  
  
**Close**

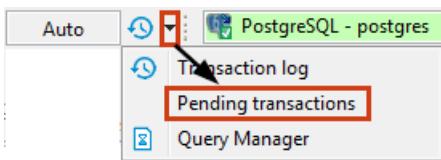
The Transaction Log window shows transactions that are:

- In progress or pending - shown without any special color
- Successfully committed – in green:
- Rolled back – in orange or red:

To see all previous transactions during the current session, select the **Show previous transactions** checkbox. To see all queries including non-transactional ones, select the **Show all queries** checkbox.

# Pending transactions

It might be useful to check pending transactions because they might lock your database. To see pending transactions, click the arrow next to the **Transaction Log** button in the toolbar and then click **Pending Transactions** on the dropdown menu:



The upper table of the Pending transactions window shows currently active connections and the number of their transactions. The bottom table shows query details of the connection that is currently in focus in the upper table:

A screenshot of the 'Pending transactions' window. The top part is a table with two rows: one for 'DBeaver Sample Database (SQLite)' with 'Main' connection having '2/2' transactions, and one for 'PostgreSQL - postgres' with 'Main' and 'Metadata' connections both having '0/0' transactions. Below this is a checkbox 'Show all connections'. The bottom part is a larger table showing query history. It has columns: Time, Type, Text, Duration, Rows, and Result. The data is as follows:

Time	Type	Text	Duration	Rows	Result
20:16:04	SQL / USER	select * from Customer	10 ms	59	Success
20:15:59	SQL / USER	select * from Artist	20 ms	200	Success
20:13:38	SQL / USER	select * from Customer	10 ms	59	Success
20:13:31	SQL / USER	select 2 + 2	20 ms	1	Success
20:13:18	SQL / USER	select 2 + 2	0 ms	1	Success
18:57:33	SQL / USER	select * from Customer	30 ms	59	Success

Below the table are two checkboxes: 'Show all queries' (unchecked) and 'Show previous transactions' (checked). At the bottom right is a 'Close' button.

When the Pending transactions window opens, the upper table shows only those connections that have pending transactions. If no connections have pending transactions, the table is empty. To see all connections that are currently active (connected), select the **Show all connections** checkbox.

You can commit or roll back transactions right from the Pending transactions window: in the upper table, click the row with required uncommitted transactions and then click the **Commit** or **Rollback** button, depending on your purpose. If a transaction is committed/rolled back successfully, both buttons are disabled. If the operation is unsuccessful, the system displays an error message.

To see all previous transactions made during the current session, select the **Show previous transactions** checkbox. To see all queries including non-transactional ones, select the **Show all queries** checkbox. The green rows are committed transactions, orange (or red) ones are rolled back, rows without a special color are non-transactional or pending transactions.

# Database drivers

You can use pre-configured database driver or create new driver.

DBeaver has a lot of pre-configured driver including SQL, NoSQL, key-value databases, graph databases, search engines, etc. But sometimes you need to connect to a database which was not configured in DBeaver yet.

All you need is JDBC driver of your database. The rest is easy.

## Obtaining JDBC driver

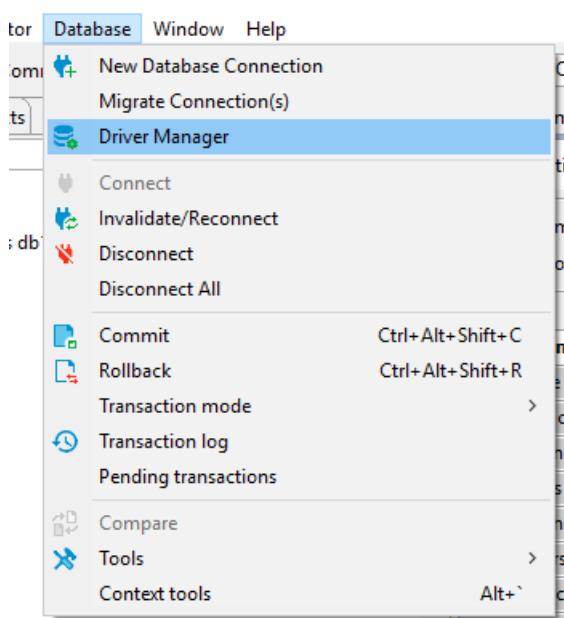
JDBC driver is a program (in Java) which can connect and operate with some local or remote database server. It usually provides all needed functionality to cover 100% of database functionality. Usually, JDBC driver are provided by database vendors to let customers ability to work with their databases.

JDBC driver consists of one or multiple `.jar` files. Jar file is a library which contains program code and some other files. You need to download driver's jar files before adding them in DBeaver. Sometimes jar files are included in database server distribution - in that case you need to refer your database documentation or ask your DBA.

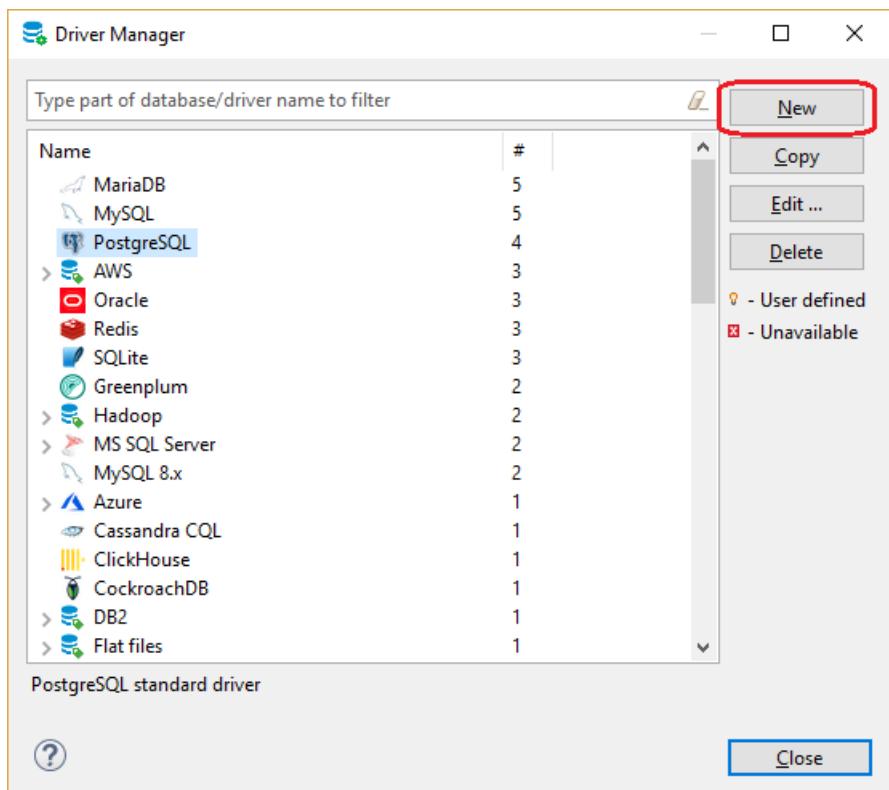
## Adding driver configuration in DBeaver

### Open driver manager dialog

You can open driver manager from main menu:



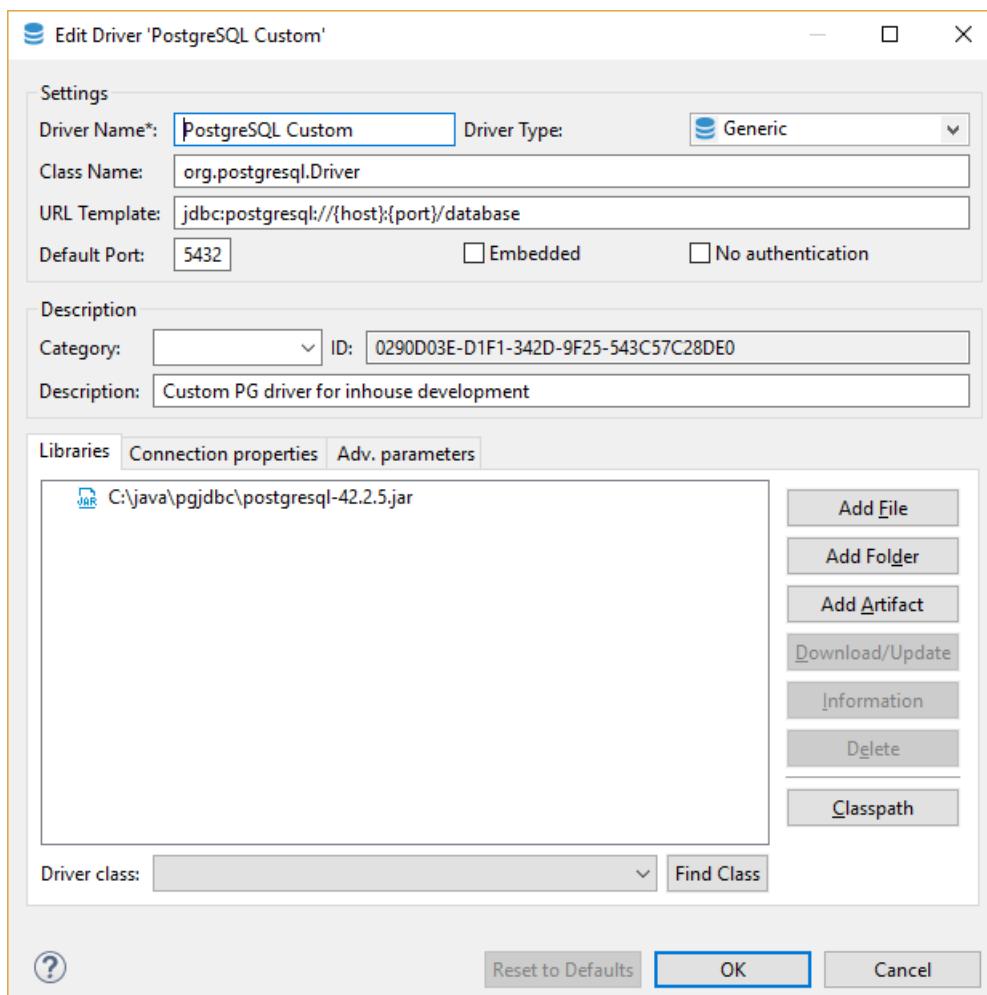
or from Database Navigator drop-down menu.



## Add new driver

Just click the button New and create a new driver. On the driver edit dialog you need to enter all required information:

## Main parameters



Parameter	Description
-----------	-------------

Parameter	Description
Driver Name	Name of your driver. It can be any name you like
Driver Type	Driver provider. In 99% cases you will need Generic driver (JDBC provider)
Class Name	JDBC driver class name. You can get it from the documentation or find it in jar files (see "Find Class" button description)
URL Template	Template of driver URL. You can leave it empty. But in this case you will be ready to set JDBC URL for each your connection. It is better to define a valid template, this will greatly simplify connections creation. See "URL Templates" for the detailed description
Default Port	Default database port. You can get it from documentation or leave it empty
Embedded	Enable it for server-less databases. This flag affects a few config options related to network/connections management
No Authentication	This means that driver doesn't require authentication (no user/password fields will be shown)
Category	Driver category, deprecated
ID	Driver unique ID, ignore it
Description	Driver description, it is shown on some dialogs/wizards as a hint

## Libraries

This is the list of jar files, binary libraries (dll or so) and any other files required by driver. In most cases you need only jar files. Click "Add File" to add single jar file, "Add Folder" to add folder with Java classes/resources and "Add Artifact" to add Maven artifact (see below).

After you add jar files you will be able to find all JDBC driver classes which present in these jars. Just click on the "Find Class" button and DBeaver will show all of them. In most cases there is just one driver class in the driver. If there are many of them then you need to refer to the driver's documentation.

## Maven artifacts

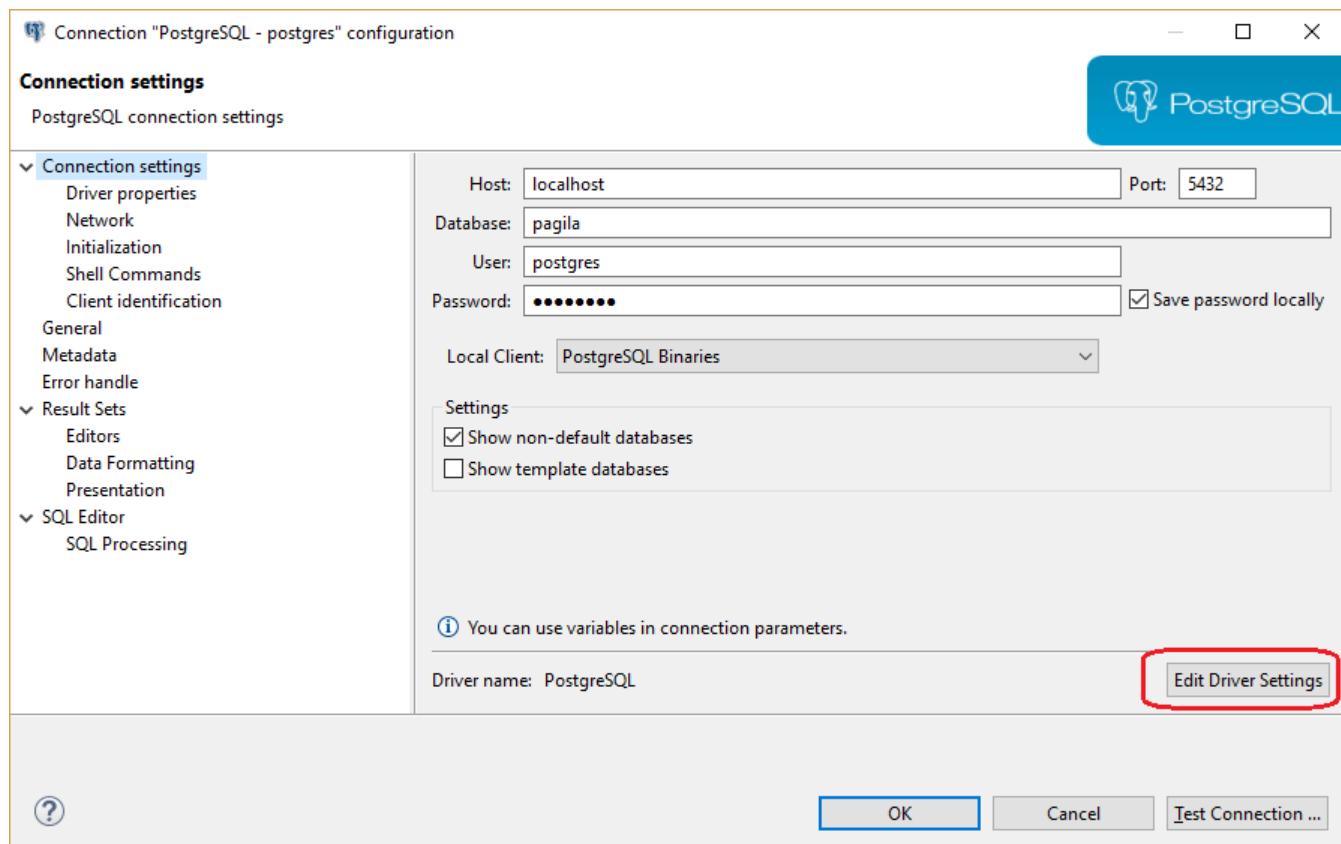
DBeaver can download driver jars directly from Maven repository (it is a global public repository of Java libraries, usually open-source). If your database driver is published on some public repository you can use this feature. Maven artifacts are better than plain jar files because you can see all existing driver versions and can change driver version in runtime without any driver properties reconfiguration.

## Saving driver, adding connection

After you finished configuring your driver just press Ok button.

Now you can [create connection](#).

If you need to change some driver properties later you can access them directly from connection properties dialog:



## URL Templates

JDBC drivers use URLs to identify remote servers - strings similar to classic web URLs. Usually, URL has form `jdbc:vendor:host:port/database`, for example `'jdbc:postgresql:localhost:5432/postgres'`. It is not very convenient to edit such long and unobvious string. DBeaver can construct this URL from connection parameters (like host, port, etc).

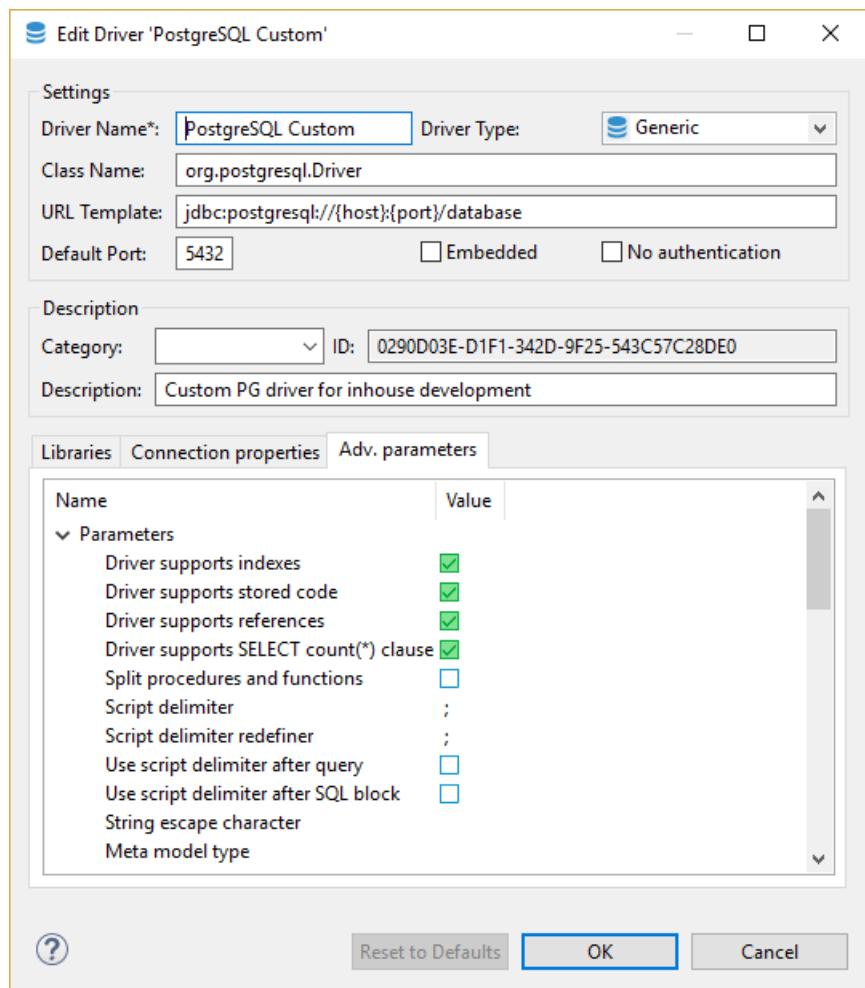
For example above the URL template is: `jdbc:postgresql://{{host}}:{{port}}/{{database}}`  
Host, port and database are parameters which you will need to enter on the connection configuration page.

Supported URL variables:

Parameter	Description
{host}	Database server host name
{port}	Database server port number
{database}	Target database name
{server}	Target server name (rarely used)
{folder}	Folder path (on the local file system). Used for embedded drivers
{file}	File path (on the local file system). Used for embedded drivers

## Advanced settings

For most driver you don't need to change any advanced properties. But in some cases you can use this as a driver tuning, e.g. for better performance or for structure fixing.



### Main parameters

Parameter	Description
Driver supports indexes	Driver supports table indexes
Driver supports stored code	Whether this driver supports stored code (procedures, functions, packages, etc)
Driver supports references	Driver supports table references (foreign keys)
Driver supports SELECT count(*) clause	Driver supports SELECT count(*) clause
Split procedures and functions	Show procedures and functions in different folders
Script delimiter	Literal for SQL queries separation in scripts
Script delimiter redefiner	SQL clause which redefines script delimiter value
Use script delimiter after query	Keep SQL script delimiter after each SQL query
Use script delimiter after SQL block	Keep SQL script delimiter after SQL script blocks (BEGIN/END)
String escape character	Character used to escape special symbols in strings
Meta model type	Type of metadata reading model - standard or indexed
All Objects Pattern	SQL pattern for all metadata objects
Omit catalog(s)	Do not read and use catalog (aka database) information
Omit single catalog	Hide catalog (database) if there is only one catalog on server
Omit single schema	Hide schema if there is only one schema on server
Omit type cache	Do not use data types provided by driver
Shutdown parameter	Database shutdown URL parameter
Create database parameter	Database create URL parameter
Driver supports multiple results	Driver supports multiple results for a single query

Parameter	Description
Driver supports result set limit	Driver supports multiple result set limit (max rows)
Driver supports structure cache	Driver supports structure cache reading. Enables schema columns, keys, etc
Driver supports TRUNCATE operation	Driver supports TRUNCATE command. It is much faster than DELETE without criteria

#### Queries (Custom driver queries)

Parameter	Description
Get active database	Query to obtain active database name
Set active database	Query to change active database
Shutdown database	Query to shutdown active database connection. Used for some embedded databases
PING query	Query to check connection state
Dual table name	Name of dummy 'DUAL' table which is used for expressions evaluation
Active object type	Type of selectable object (schema, catalog)
Driver supports results scrolling	Driver supports resultset scrolling
Quote reserved words	Quote columns/table names if they conflicts with reserved SQL keywords
Escape LIKE masks in search queries	Use to access JDBC metadata API. Enabled by default but should be disabled for some (broken) drivers

#### DDL (DDL generation options)

Parameter	Description
Drop column short syntax	Use 'ALTER TABLE DROP column-name' instead of standard syntax
Use legacy SQL dialect for DDL	Use legacy SQL dialect for DDL

#### Formatting (SQL values formats)

Parameter	Description
Timestamp format	Format pattern for timestamp columns
Date format	Format pattern for date columns
Time format	Format pattern for time columns

## Summary

If you have configured some driver, it works good and you think that it makes sense to have this driver configuration in standard DBeaver, please send your configuration to us. Just create a feature request issue on GitHub and copy/paste driver description to the ticket (in any suitable form).

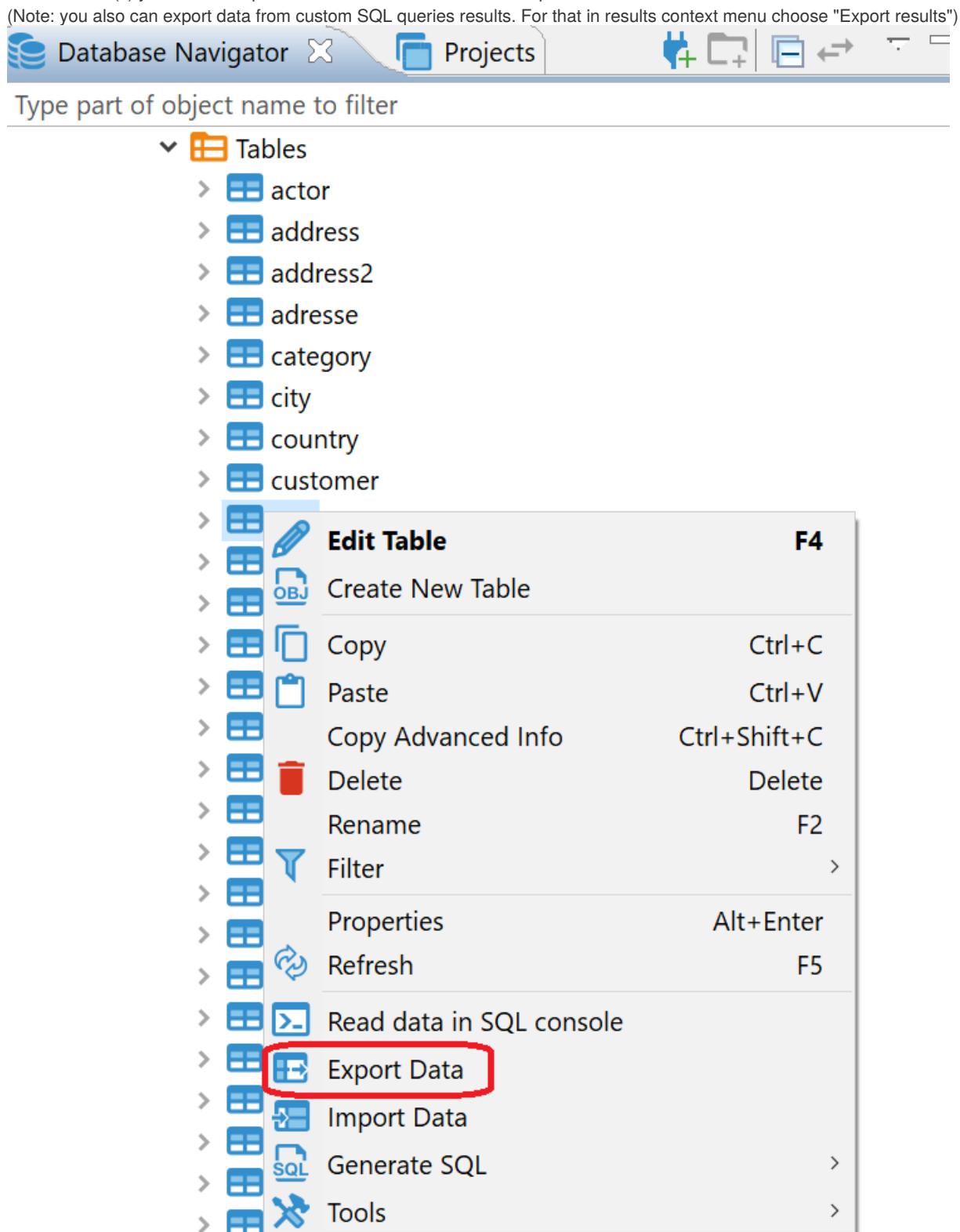
Thank you :)

# Data export/import

You can perform data export/import or migration for database table(s). We'll describe most typical use cases.

## Exporting table data to CSV format

1. Select a table(s) you want to export. In the context menu choose "Export Data".



2. Choose export format. DBeaver support many different output formats including CSV, HTML, XLSX, etc:

**Data transfer target type and format**

Configure data transfer target type and format

 Database	Database table(s)
 CSV	Export to CSV file(s)
 DbUnit	Export to DbUnit XML file(s)
 HTML	Export to HTML file(s)
 JSON	Export to JSON file(s)
 Markdown	Export to markdown file(s)
 SQL	Export to SQL INSERT statements
 TXT	Export to plain text format
 XLSX	Export to XLSX (Excel spreadsheet) format
 XML	Export to XML file(s)



&lt; Back

Next &gt;

Finish

Cancel

- Set data extraction options (how data will be read from tables). This may affect extraction performance:

## Extraction settings

Database table(s) extraction settings

### Progress

Maximum threads: 1

Extract type:

Open new connection(s)

Select row count



< Back

Next >

Finish

Cancel

4. Set export format option. They are specific to the data format you chose on step 2:



## Settings

Set export settings

### General

Formatting: <Connection's default>

Binaries: Set to NULL

### Exporter settings

Name	Value	▲
File extension	csv	
Delimiter	,	
Header	top	
Characters escape	quotes	
Quote character	"	
Quote always	<input checked="" type="checkbox"/>	▼



< Back

Next >

Finish

Cancel

5. Set options for output files or clipboard:

## Output

Configure export output parameters

### General

Copy to clipboard:

Directory:  

File name pattern:

Encoding:   Insert BOM:

Compress:

### Results

Open output folder at end

Execute process on finish

Show finish message



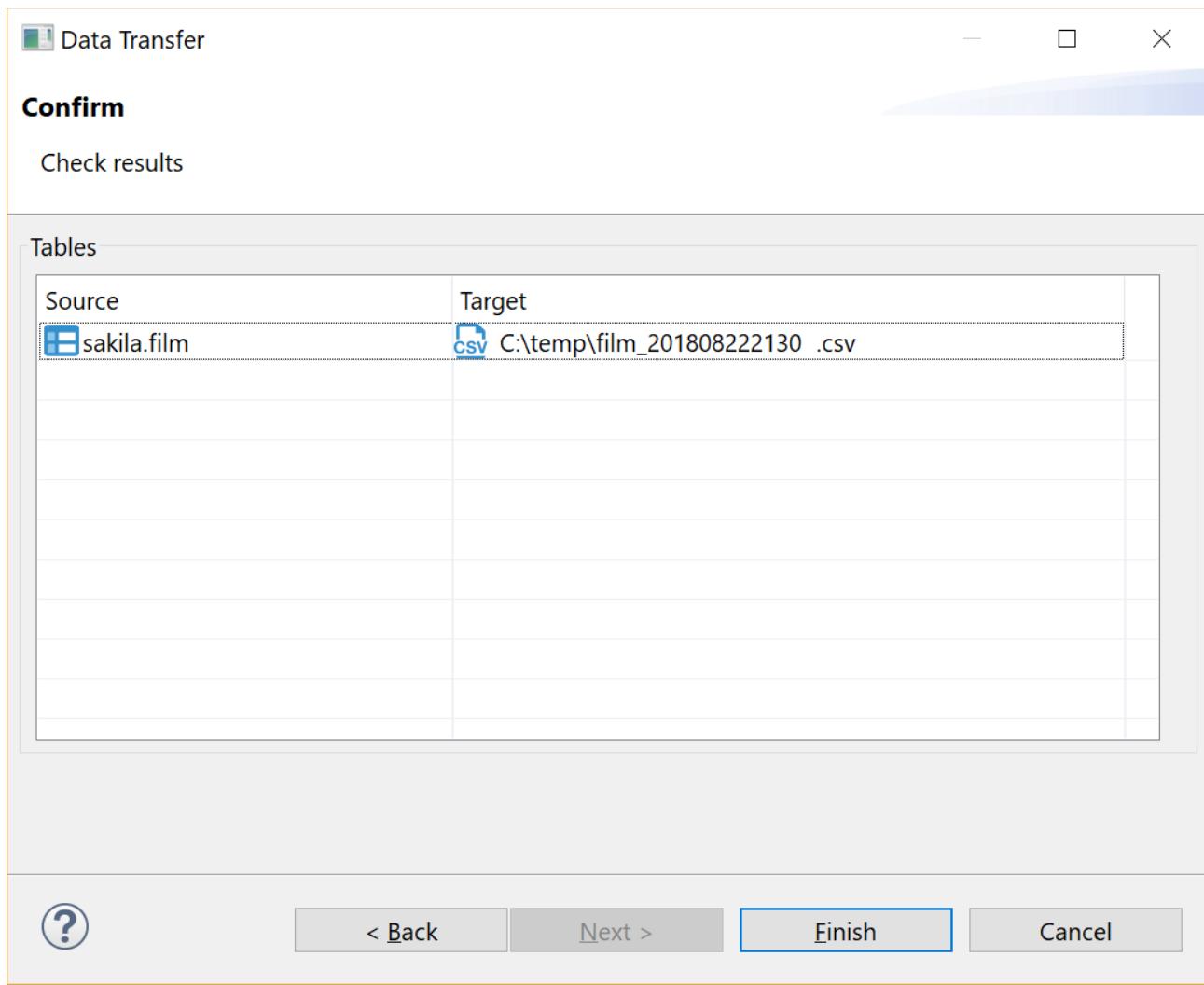
< Back

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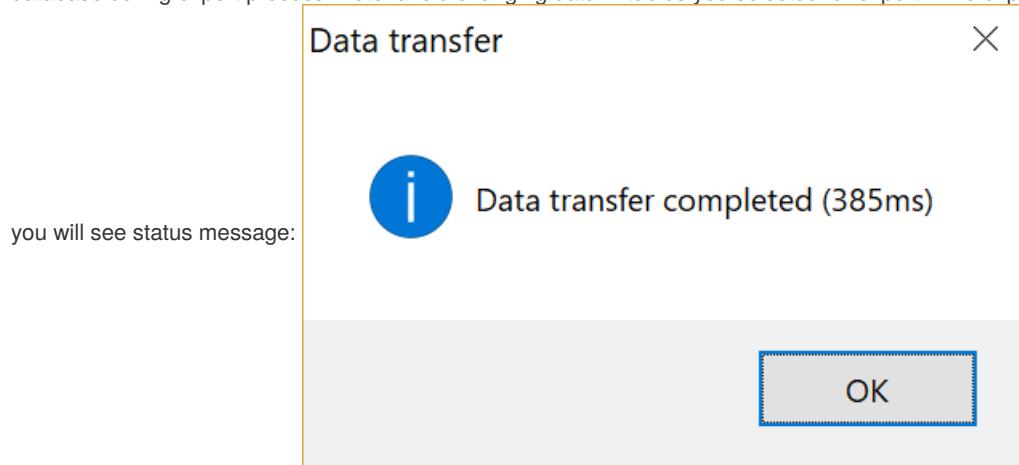
Finish

Cancel

6. Review what and to what format you will export:



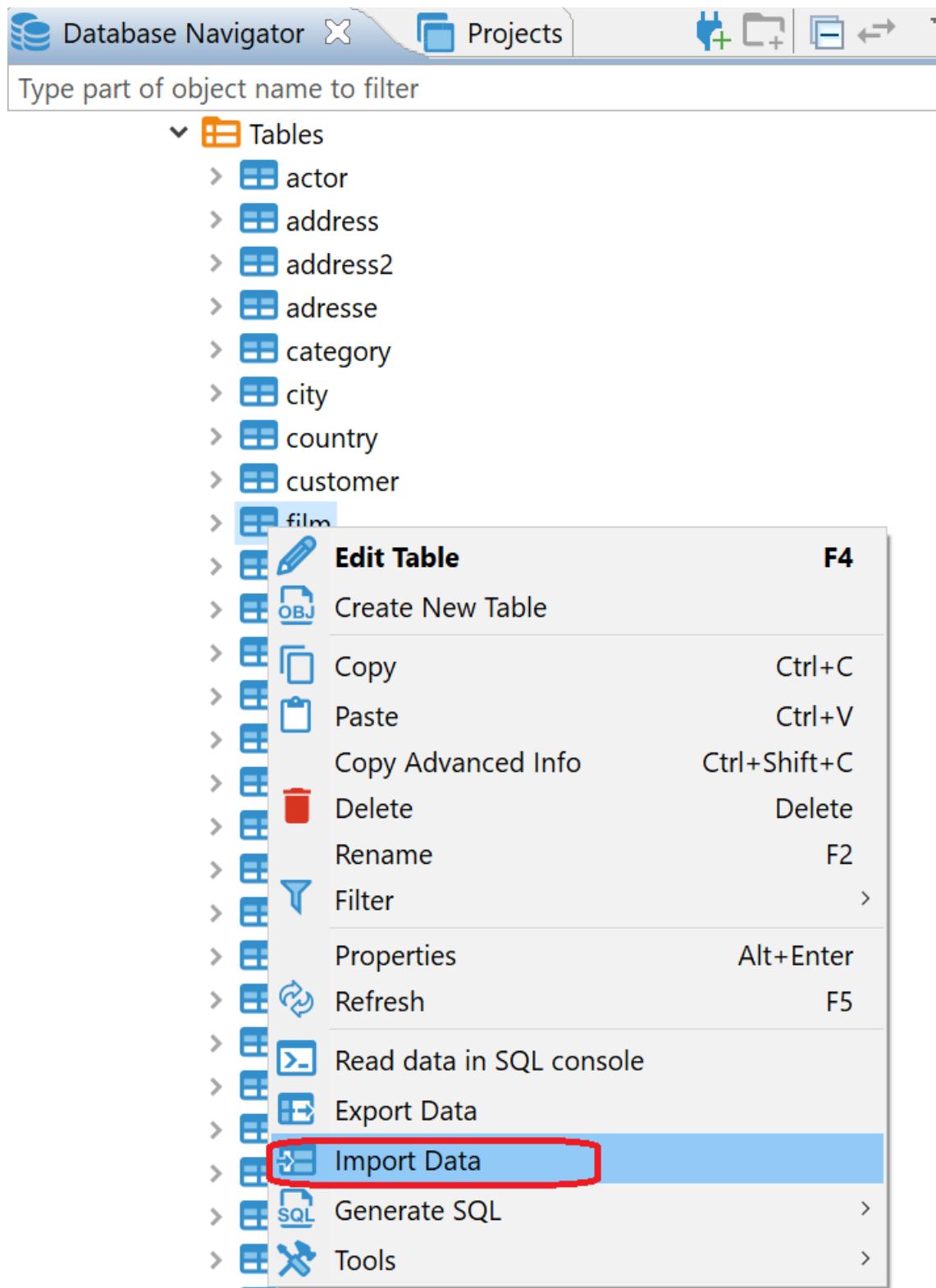
7. Press finish. See extraction progress. Actual data extraction will be performed in background, you can keep working with your database during export process. Note: avoid changing data in tables you selected for export while export is running. In the end



## Importing data from CSV format

You can import data from CSV file(s) directly into your database table(s).

1. Select a table(s) to which you want to import data. In the context menu choose "Import Data":



2. Choose import format (CSV):

**Source type and format**

Configure data transfer source type and format



CSV

Import from CSV file(s)



Table

Database table(s)



&lt; Back

Next &gt;

Finish

Cancel

3. Select input CSV file for each table you want to import:

Data Transfer

## Input file(s)

Configure input files or directories

**Input files**

Source	Target
<none>	sakila.film

**Importer settings**

Name	Value
Extension	csv,tsv,txt
Encoding	utf-8
Column delimiter	,
Header position	top
Quote char	"
Set empty strings to NULL	<input type="checkbox"/>

[?](#) [< Back](#) [Next >](#) [Finish](#) [Cancel](#)



4. Set CSV-to-table mappings. You need to set some column in CSV file for each database table column. You can skip some column at all (in target table column value will be set to NULL). You can set some constant value for table column if there is no source column for it in CSV.

**Data Transfer**

### Preview data import

See how data will be imported into the table

#### Column mappings

Entity: **sakila.film**

Target	Source	Mapping type
123 film_id	film_id	import
RBC title	title	import
RBC description	-	skip
release_year	2018	custom value
123 language_id	language_id	import
123 original_language_id	original_language_id	import

#### Preview data

film_id	title	release_year	language_id	original_language_id	rental_duration	rental_rate	length	replacement_cost	rating	...
1	ACADEMY DINOSAUR	2018	1	[NULL]	6	0.99	86	20.99	PG	D
2	ACE GOLDFINGER	2018	1	[NULL]	3	4.99	48	12.99	G	T
3	ADAPTATION HOLES	2018	1	[NULL]	7	2.99	50	18.99	NC-17	T
4	AFFAIR PREJUDICE	2018	1	[NULL]	5	2.99	117	26.99	G	C
5	AFRICAN EGG	2018	1	[NULL]	6	2.99	130	22.99	G	D
6	AGENT TRUMAN	2018	1	[NULL]	3	2.99	169	17.99	PG	D
7	AIRPLANE SIERRA	2018	1	[NULL]	6	4.99	62	28.99	PG-13	T
8	AIRPORT POLLOCK	2018	1	[NULL]	6	4.99	54	15.99	R	T

< Back      Next >      Finish      Cancel

5. Set options for loading data in database. These options may affect performance:

**Data Transfer**

### Data load settings

Configuration of table data load

#### Data load

Truncate target table before load

#### Performance

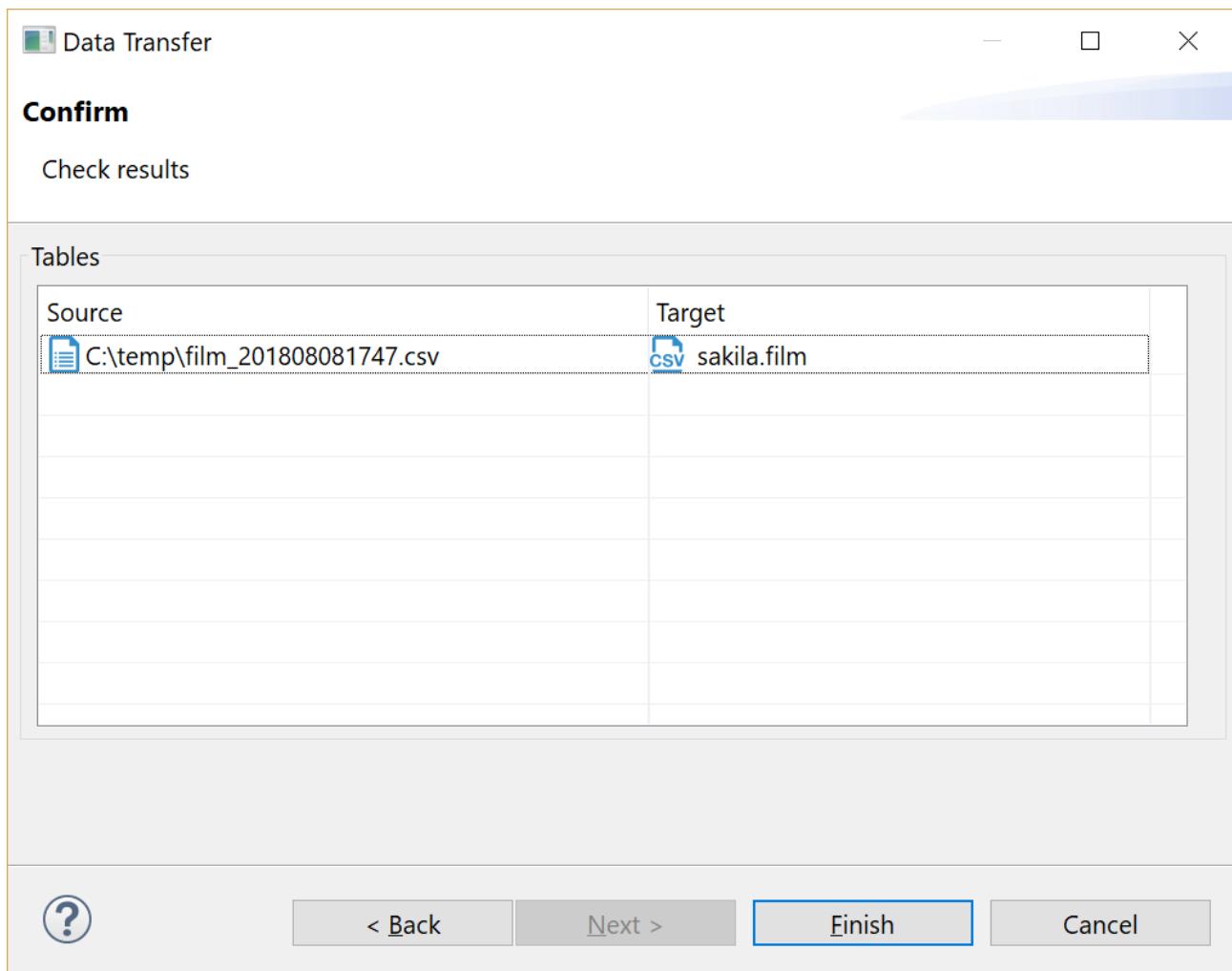
Open new connection(s)  
 Use transactions  
 Commit after insert of :

#### General

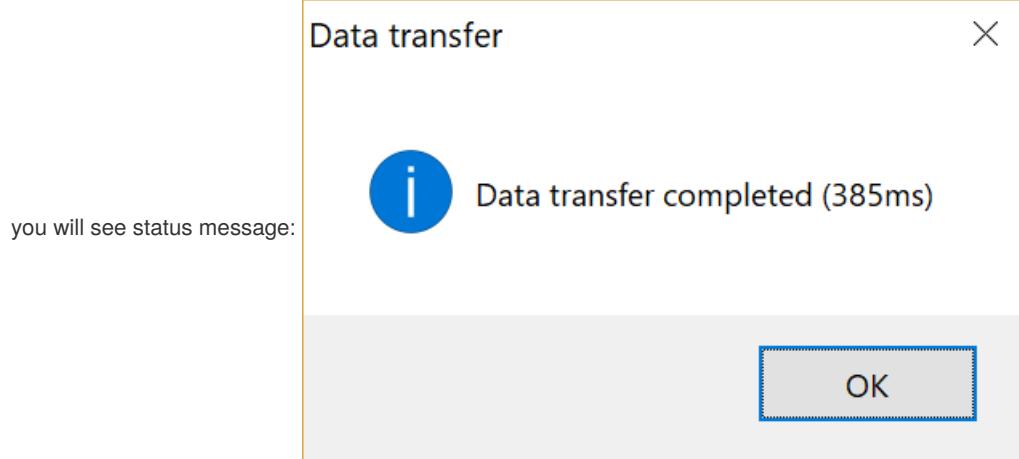
Open table editor on finish  
 Show finish message

< Back      Next >      Finish      Cancel

6. Review what file(s) and to what table(s) you will import:



7. Press finish. See extraction progress. Actual data loading will be performed in background, you can keep working with your database during export process. Note: avoid changing data in tables you selected for import while import is running. In the end



Related topic: [Migrating table\(s\) data to another database table\(s\)](#)

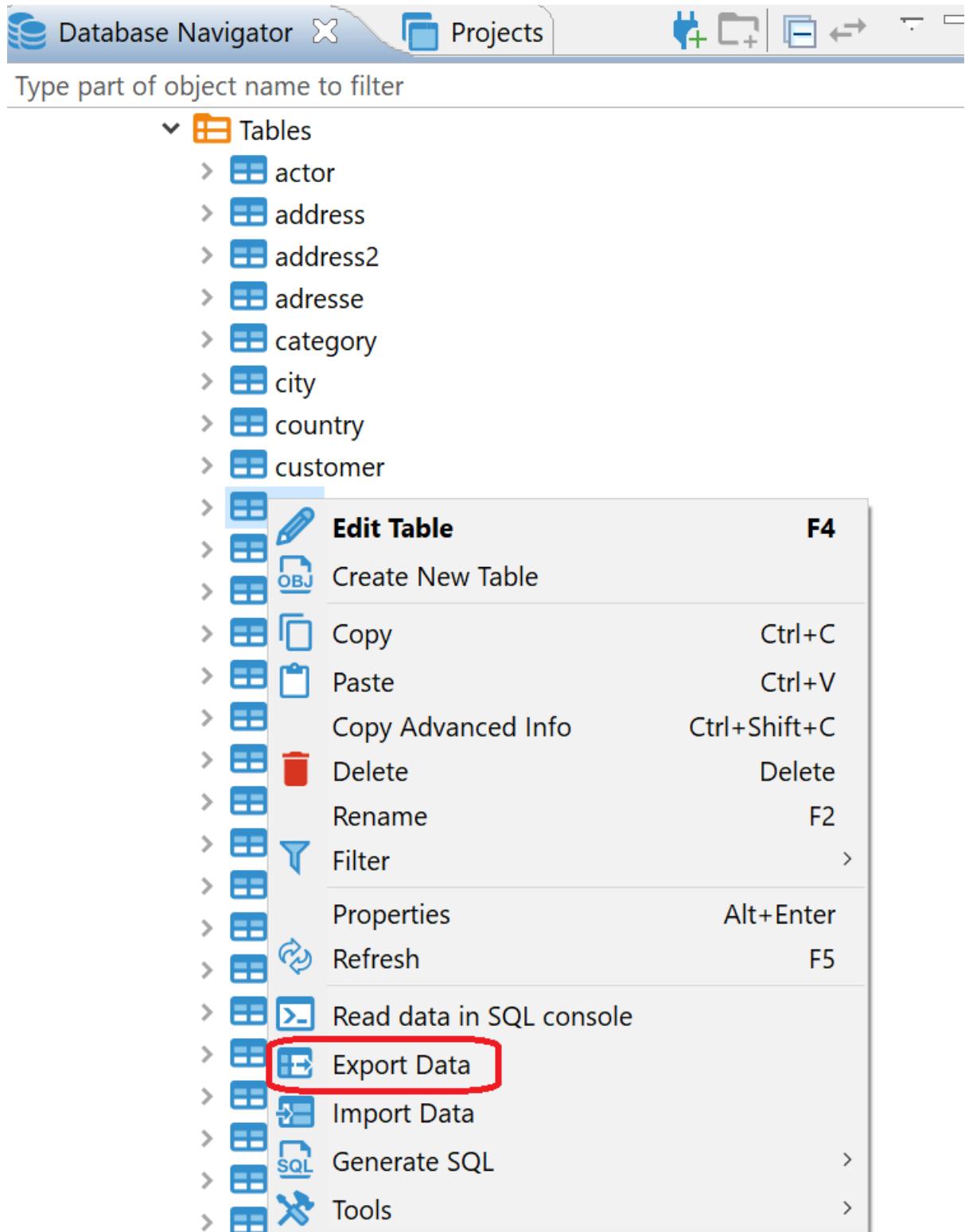
# Data migration

DBeaver supports data migration from tables of one database to tables of another one.

To perform data transfer, please, follow the steps below.

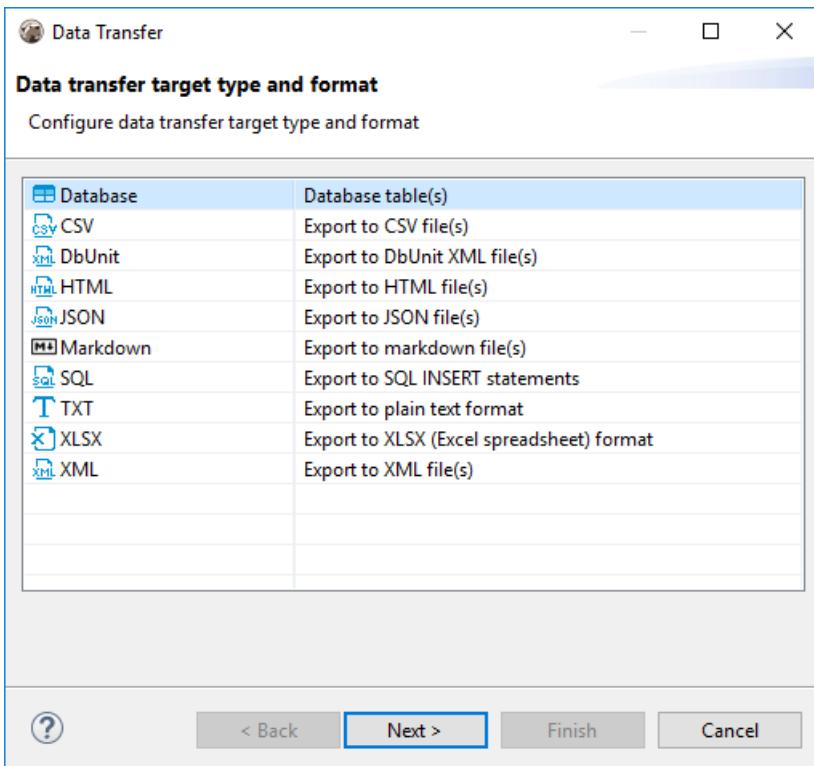
## Step 1: Define the data source

In the **Database Navigator** select one or more tables you want to export. In the context menu choose "Export Data". (Note: you also can export data from the custom SQL queries results. For that in the results context menu choose "Export results").



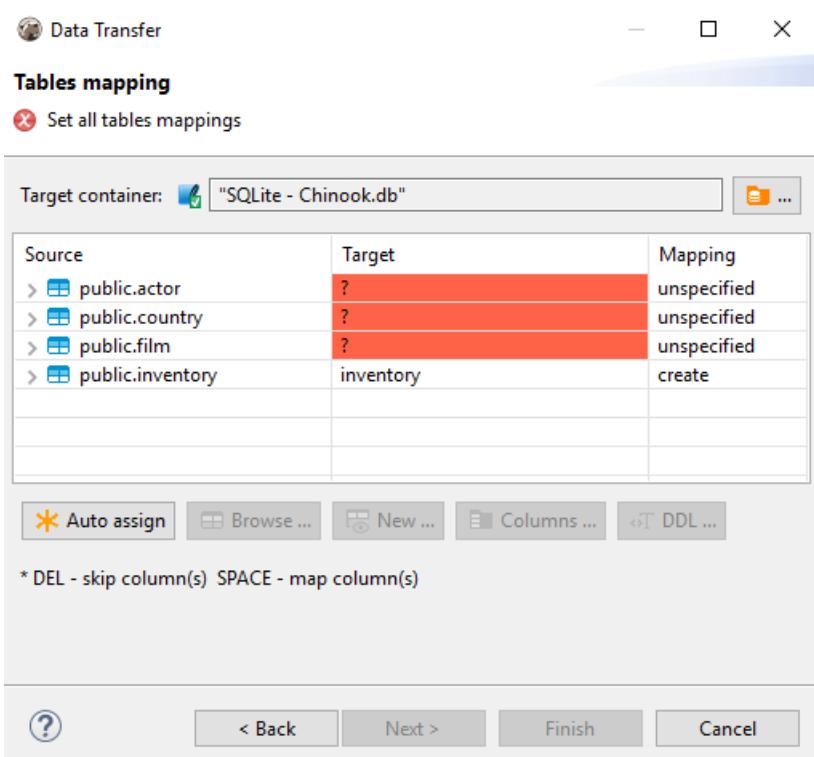
## Step 2: Define data transfer target type

In the opened dialog box choose **Database** type as the data transfer target and press **Next**.

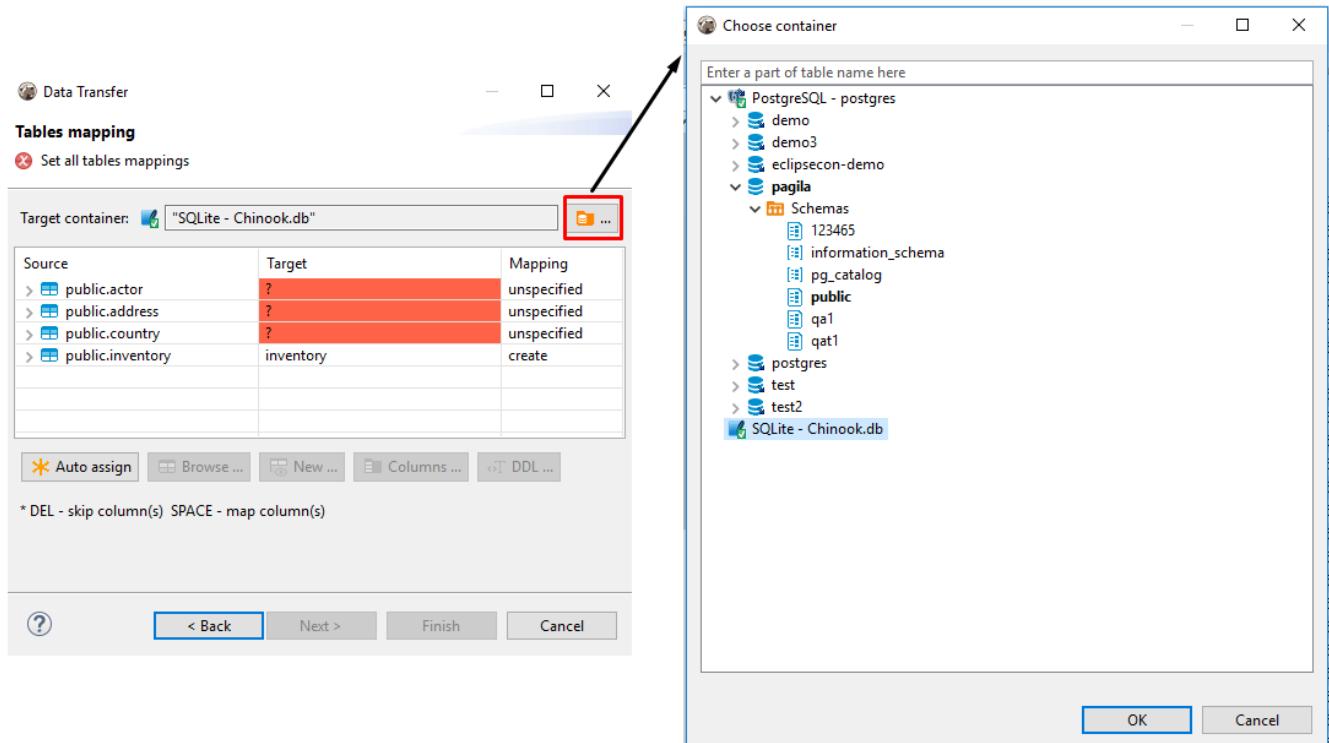


## Step 3: Define data mapping

For proper table mapping the following options are available:



- **Target container** - defines a database or a schema where the data will be transferred to. Press button and choose the container.



- **Source** - contains names of all the tables selected at step 1. You can also see the list of columns existing in the source table by pressing

The screenshot displays two windows of the DBeaver Data Transfer tool. The top window shows a general mapping step where source tables are mapped to target tables. The bottom window shows a detailed mapping step where specific columns from a source table are mapped to columns in a target table.

**Top Window (General Mapping):**

Source	Target	Mapping
> public.actor	actor	create
> public.address	address	create
> public.country	country	create
> public.inventory	inventory	

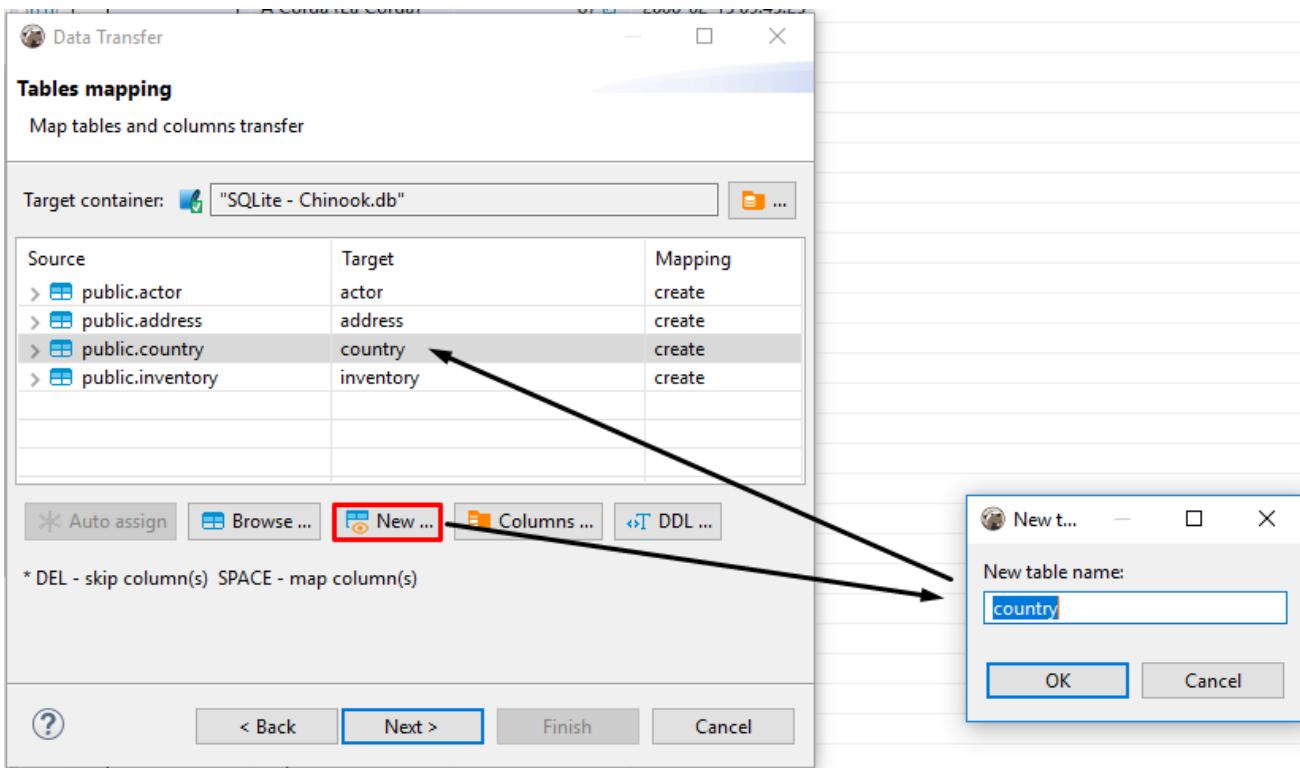
**Bottom Window (Detailed Mapping):**

Source	Target	Mapping
> public.actor	actor	create
123 actor_id	actor_id	create
ABC first_name	first_name	create
ABC last_name	last_name	create
last_update	last_update	create
data_name	data_name	create

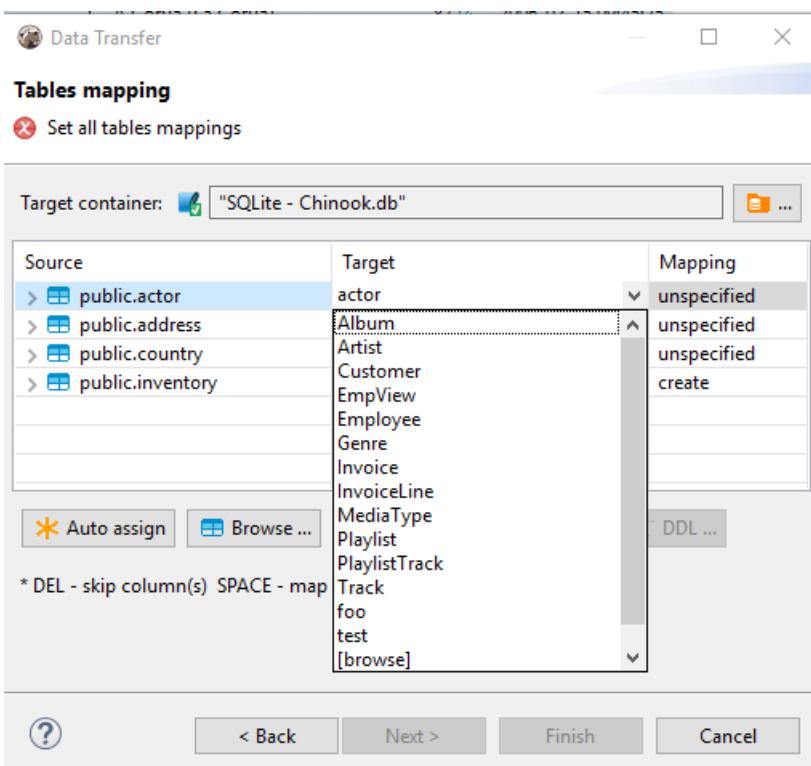
- **Target** - contains names of the tables where the data will be transferred to.
- **Mapping** - contains the list of actions to be applied to the source data on data transfer. The following options are available:
  - Create** - the source data will be populated into a newly created table or column of the target container.
  - Skip** - the source data will not be transferred to the target container.
  - Existing** - the source data will be transferred to the table that already exists in the target container.
  - Unassigned** - this value is set by default when there is no target defined.

If cells are marked as **?** it means that in the target table there are no source tables with matching names, otherwise the names will be filled in automatically.

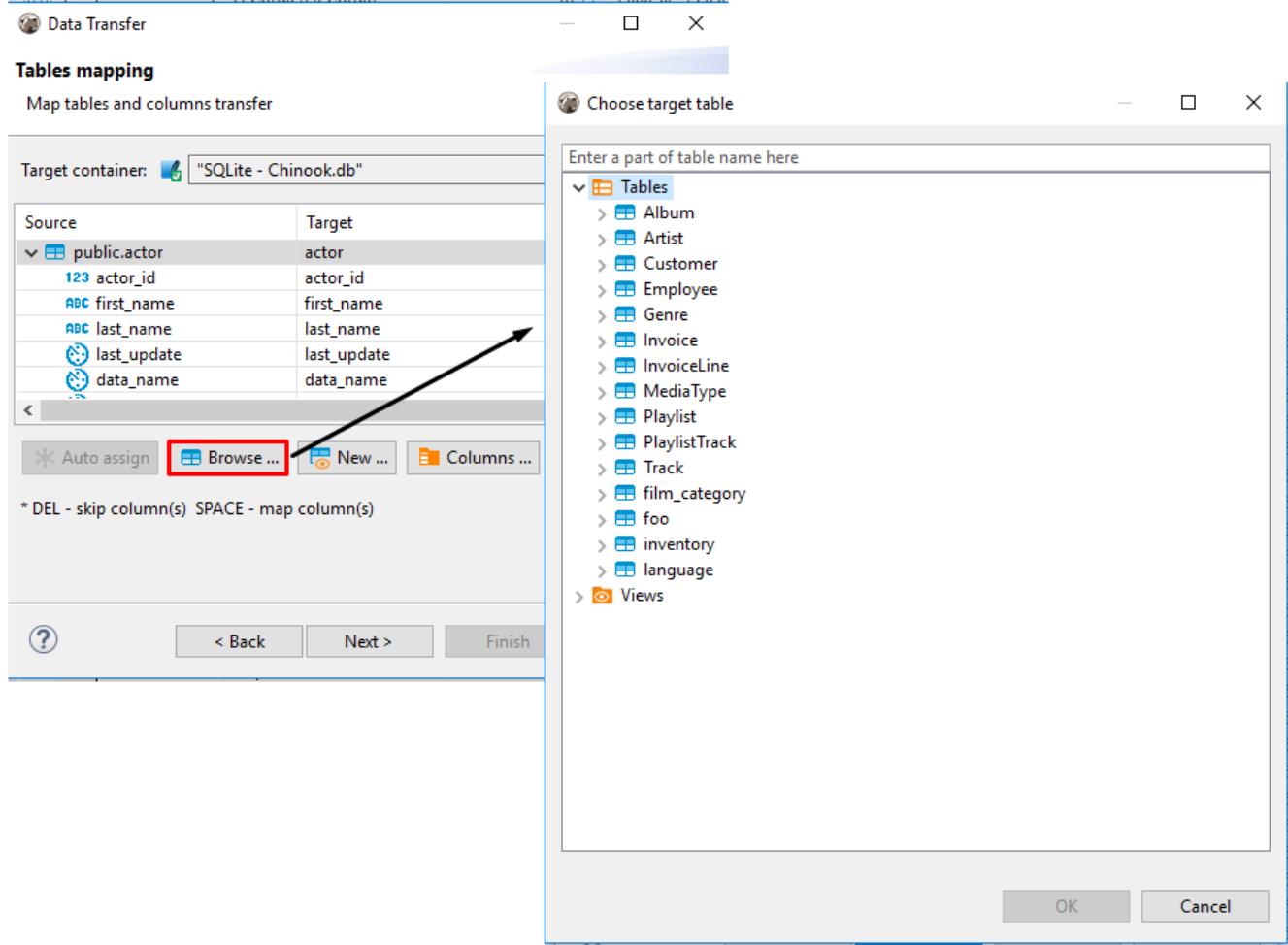
You can define a target table by clicking on a cell in the **Target** column and entering its name, or press the **New** button and enter a new name in the opened dialog box.



You can also choose a name for a target table from the drop-down list.



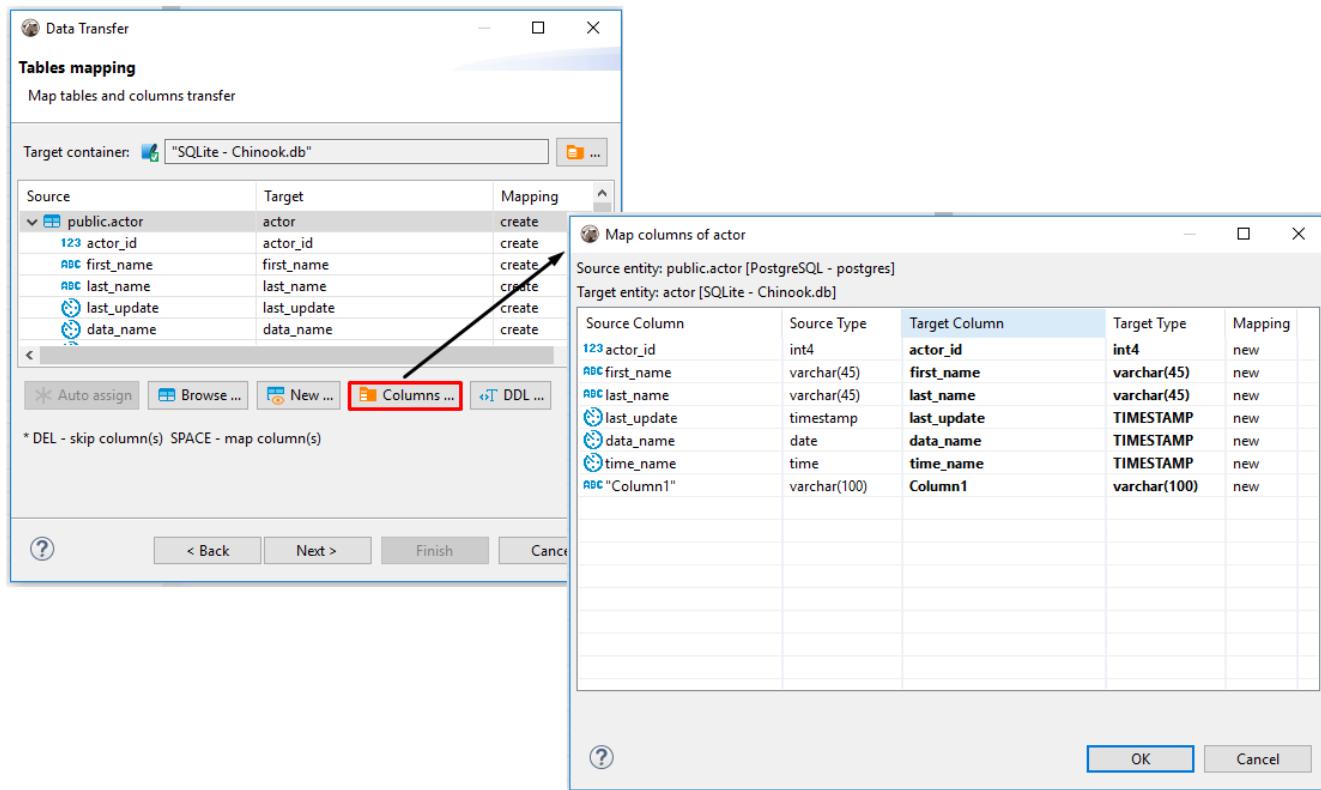
Or select from the list of tables already existing in the target container by pressing the **Browse** button **Browse ...**



To define mapping setting for a column in a target table, release the list of source table columns by pressing next to the table's name in the **Source** column, then click the name of the target column and enter a new one or select one from the dropdown list. To collapse the list, press .

If you want tables of the target container to be named like those of source, press the **Auto assign** button and the **Target** column will be automatically populated.

You can also define the names of target columns, as well as their data types, by clicking a row with a table name and pressing the **Columns** button .



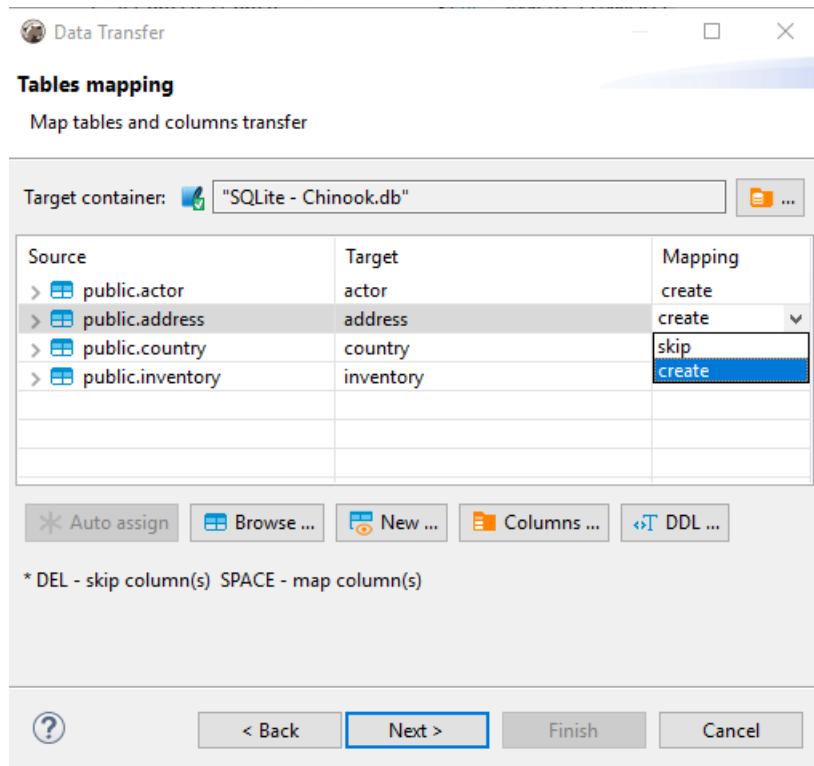
The following elements are available here:

- **Source column** - this column contains names of columns existing in the selected source table;
- **Source type** - this column contains the list of data types assigned to the columns in the selected source table;
- **Target column** - this column contains names of target table columns where the data from source column will be transferred to. To change the name, click the cell and enter a new name.
- **Target type** - this column contains the list of data types that will be assigned to the columns in the target table.

**IMPORTANT:** Sometimes data types that are supported on the source database are not supported on the target or vice versa. To set a data type for a column in a target table, click the cell in the **Target Type** column and select one from the dropdown list of data types supported on the target.

- **Mapping** - this column contains the list of actions to be applied to the data on data transfer.

To change mapping type click a cell in **Mapping** column of **Table mapping dialog box** and select the required mapping type.



You can also view the SQL script that will be run on data transfer by pressing the DDL button `DDL ...`.

The screenshot shows the 'Tables mapping' interface with the 'DDL ...' button highlighted. A separate window titled 'Target DDL' displays the generated SQL script:

```

CREATE TABLE actor(
    actor_id int4 NOT NULL,
    first_name varchar(45) NOT NULL,
    last_name varchar(45) NOT NULL,
    last_update TIMESTAMP NOT NULL,
    data_name TIMESTAMP,
    time_name TIMESTAMP,
    Column1 varchar(100),
    PRIMARY KEY (actor_id)
)

```

At the bottom of the 'Target DDL' window are 'Copy' and 'Close' buttons.

The following keyboard shortcuts for easy navigation within the mapping table area of **Table mapping** screen are supported:

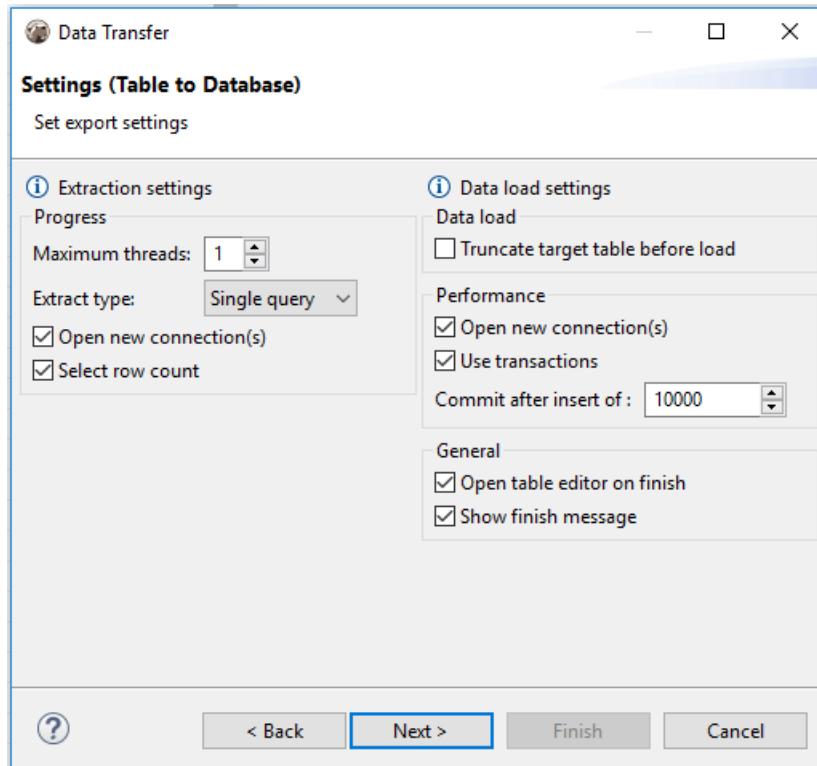
Shortcut	Action
Up	Moves one row up.
Down	Moves one row down.
Right	Releases the list of source table columns.

Shortcut	Action
Left	Swaps the list of source table columns.
Space	Auto-assigns the target.
Del	Sets mapping type to skip.

Configure data mapping and press **Next**.

## Step 4: Define export settings

Data export settings are grouped into **Extraction settings** and **Data load settings**.



### Extraction Settings

Extraction settings define how the data will be pulled from the source. The following options are available:

Option	Description
<b>Maximum threads</b>	Defines a number of threads to be used for data transfer.
<b>Extract type</b>	Select <b>Single query</b> option if your data load is not too big. Select <b>By segments</b> option if you need to migrate a solid amount of data. When this option is selected you can set the <b>Segment size</b> value, that is to define a number of rows to be transferred in each segment.
<b>Open new connections</b>	If selected, a new connection will be opened and data transfer will not interfere with other calls to the database whose data is being transferred.
<b>Select row count</b>	If selected, a progress bar displaying data migration process will be shown.

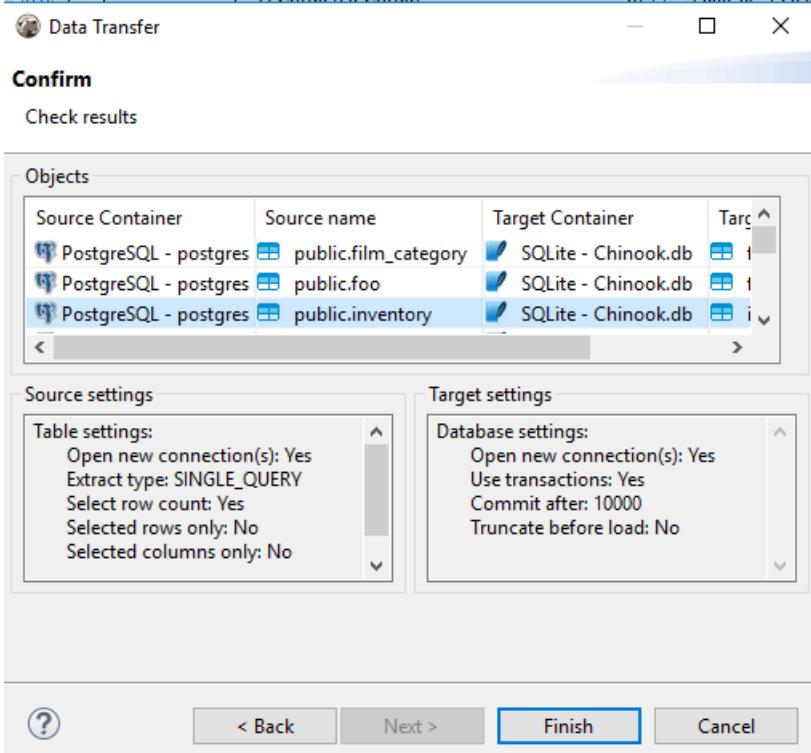
### Data load settings

Data load settings define how the extracted data will be pushed to the target. The following options are available.

Option	Description
<b>Truncate data load table before load</b>	Select this check-box only if you want all the data be cleared from the target table. Be very careful with this option!

Option	Description
Open new connections	Use this option to speed up data transfer. If selected, a new connection will be opened and data transfer will not interfere with other calls to the database where data is being transferred to.
Use transactions	This option allows to speed up data transfer and to define the number of rows for each transaction by setting <b>Commit after insert of</b> parameter.
Open table editor on finish	If selected, the table editor to be opened when data transfer is over.
Show finish message	If selected, a notification message will be shown when transfer is over.

## Step 5: Confirm



Check out data transfer settings and press **Finish**.

# Database backup/restore

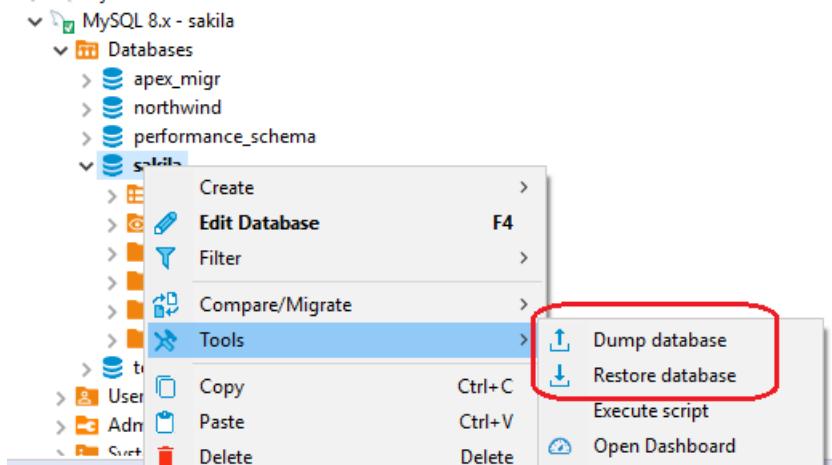
## Database Backup/restore

DBeaver supports native database backup/restore functions for following databases:

- PostgreSQL
- MySQL

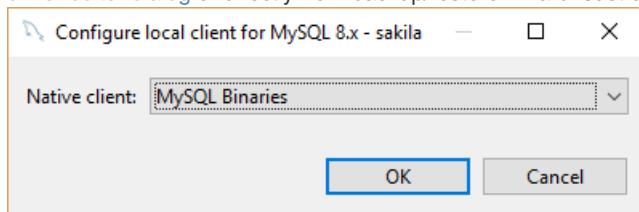
Native backup restore differs from standard DBeaver [data transfer](#) feature. It uses database native dump formats and it may work much faster as it uses special utilities for direct high-performance database access.

These functions can be accessed from context menu Tools or main menu Database->Tools.

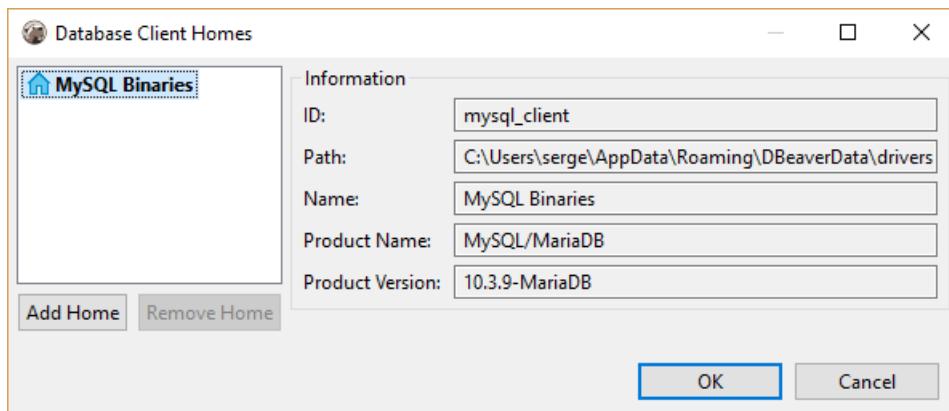


### Native client configuration

In order to execute native backup/restore tools you need to configure database native client. Native client is a set of binaries (different for different OSes) which will be executed by DBeaver to process actual backup/restore. Native client configuration can be done in [driver editor dialog](#) or directly from backup/restore wizard. Just click on [Client ...](#) button in the button bar:

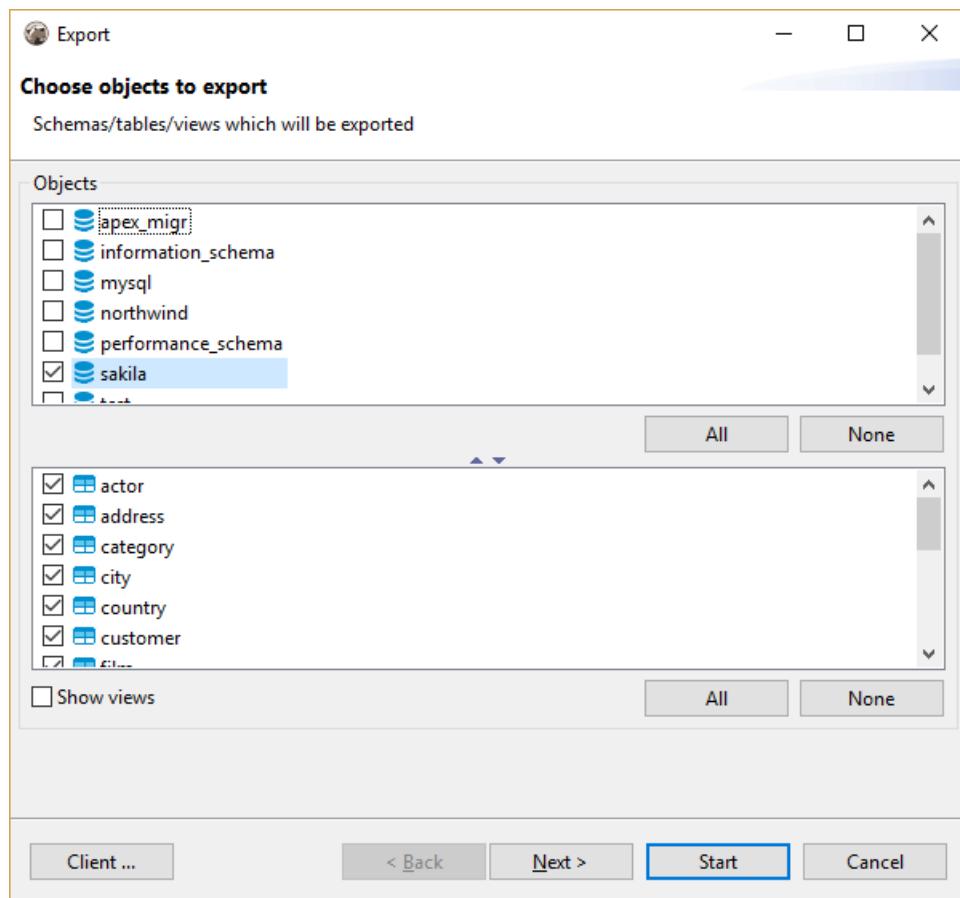


To configure new client location choose [Browse ...](#) item and ad new client in the following dialog:



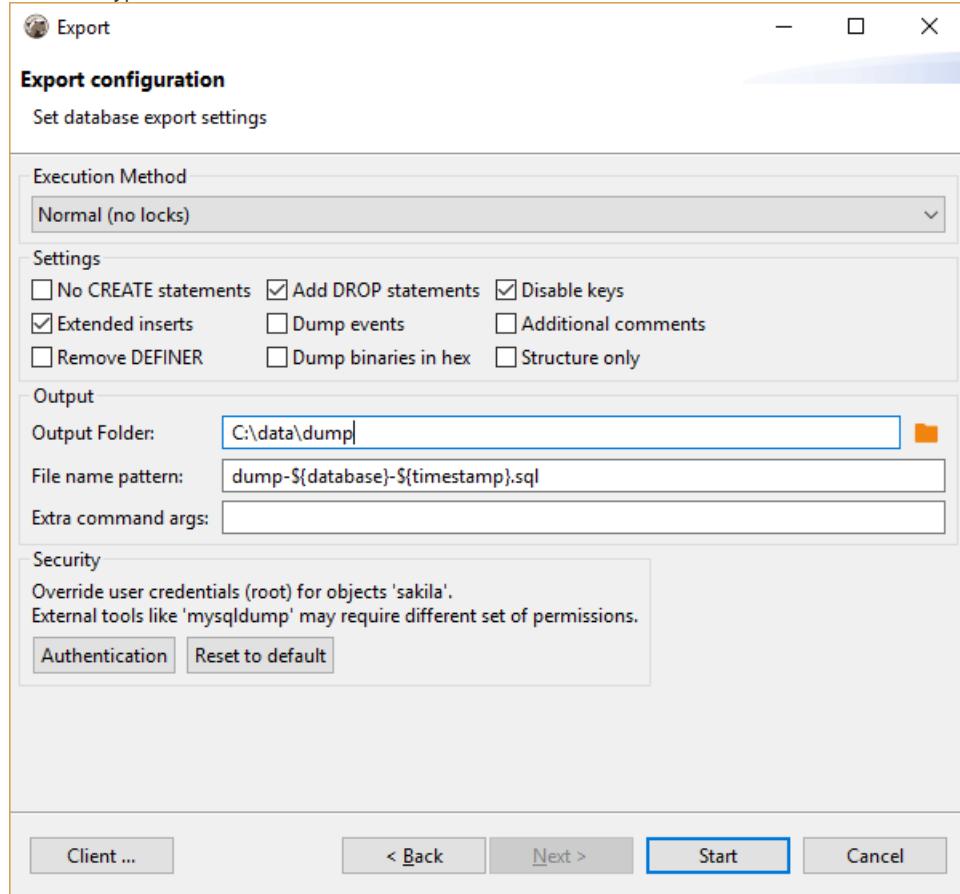
### Database dump object selector

You can choose what schemas/tables you want to backup/dump:



## Database native tool configuration

You can pass a set of additional dump/restore parameters to the native tool. Particular set of configuration options depends on a database type.



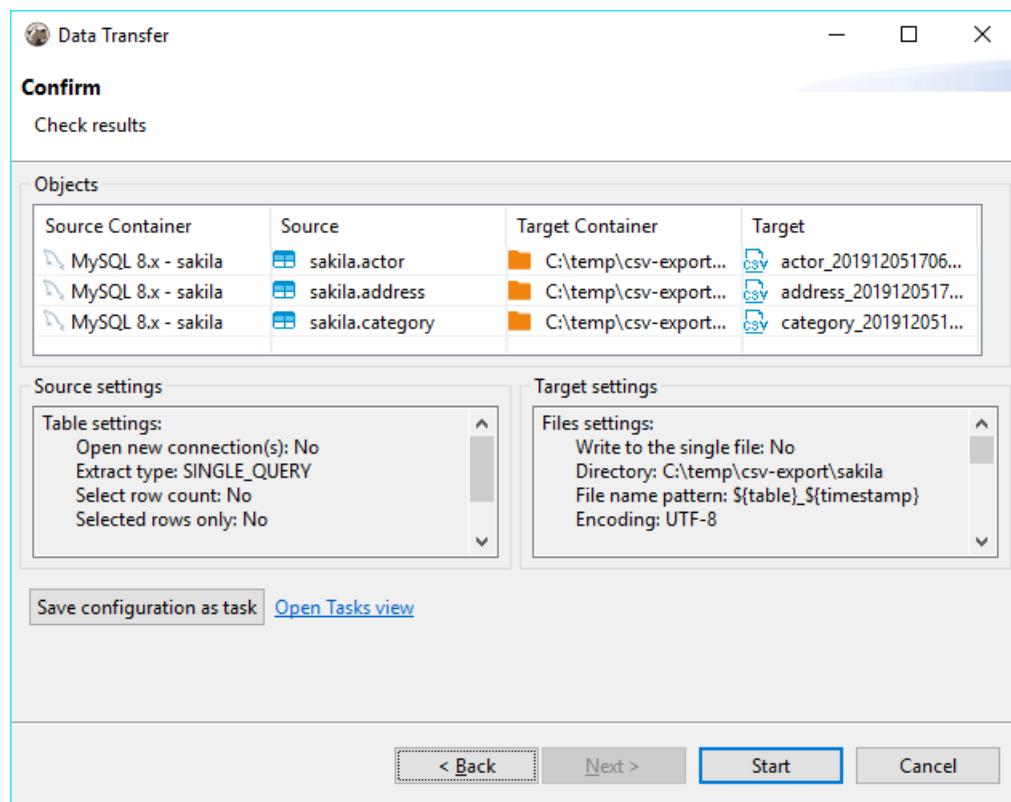
# Task management

## Creating tasks

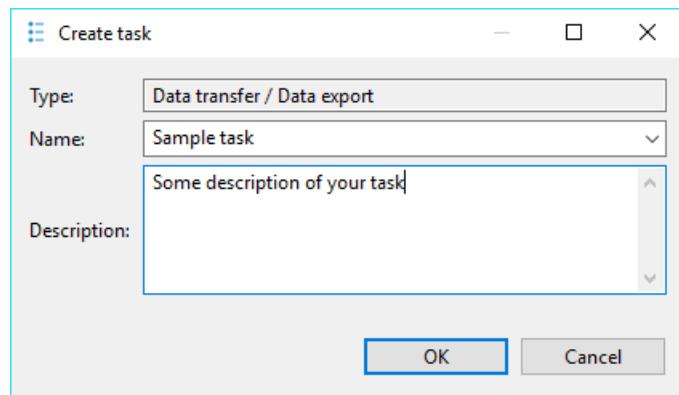
Task is a saved configuration of some database tool. It can be started from task management view or from menu by a single click. You can create tasks for frequently used tools. Also tasks can be [scheduled](#) for regular execution.

### Create task from tool configuration

You can save tool configuration into a task and run your task later with a single click. For example you can start [Data Transfer](#) wizard and configure data export from several tables in MySQL database into CSV files:



Click on `Save configuration as task` button and fill task properties:

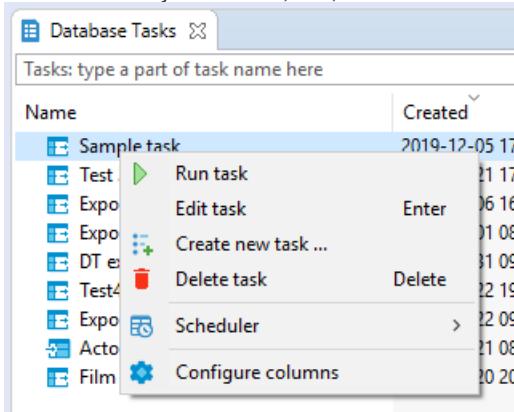


Now click on `Open Tasks view` link to open task list:

Name	Created	Last Run	Last Result	Type	Next Run	Project	Ti
Sample task	2019-12-05 17:2...	N/A	N/A	Data export		dbeaver-test-databases	
Test 3	2019-11-21 17:4...	2019-12-05 13:07:00	Success	Data export		dbeaver-test-databases	
Export payment data (daily)	2019-11-06 16:5...	2019-11-15 21:17:00	Success	Data export		Test 9	
Export Sample	2019-11-01 08:3...	2019-11-21 18:13:00	Success	Data export		General	
DT example 1	2019-10-31 09:3...	N/A	N/A	Data export		General	
Test4	2019-09-22 19:1...	N/A	N/A	Data export		dbeaver-test-databases	
Export SQL (employees)	2019-09-22 09:4...	N/A	N/A	Data export		dbeaver-test-databases	
Actor import	2019-09-21 08:3...	N/A	N/A	Data import		dbeaver-test-databases	
Film export 5	2019-09-20 20:5...	N/A	N/A	Data export		dbeaver-test-databases	

## Editing/running tasks

From task view you can add, edit, remove and execute saved tasks. You can use context menu or view tools for that:



By clicking on [Edit](#) or by double-clicking on task you can open tasks edit wizard. In this wizard you can change task settings as well as actual tool configuration. You can change set of input objects for data transfer or any export configuration. After changing task settings click on [Update configuration in task](#) button (it is on the last page of task configuration wizard).

**Data Transfer - [Export Sample]**

**Edit task properties**

Set task name, type and input data

<b>Task info</b>	<b>Export tables</b>	
Category: Data transfer	Object	Data Source
Type: Data export	sakila.actor	MySQL - localhost3
Name: Export Sample	sakila.address	MySQL - localhost3
Description: Some description	sakila.category	MySQL - localhost3
ID: 7f166384-93b0-4683-9420-12eff48e7e77	sakila.city	MySQL - localhost3
<input type="button" value="Add Table ..."/> <input type="button" value="Add Query ..."/> <input type="button" value="Remove"/>		
<input type="button" value="&lt; Back"/> <input type="button" value="Next &gt;"/> <input type="button" value="Start"/> <input type="button" value="Cancel"/>		

## Create task from task management view

You can create task from scratch using tasks view. Open tasks view and [Create new task](#) button in the view toolbar or in the context menu. In task wizard you can choose task category, task type and name. On the next wizard pages actual tool configuration pages will be shown (they depend on chosen task type).

## Scheduling tasks

You can schedule tasks for later/regular execution. See [Task Scheduler](#) article.

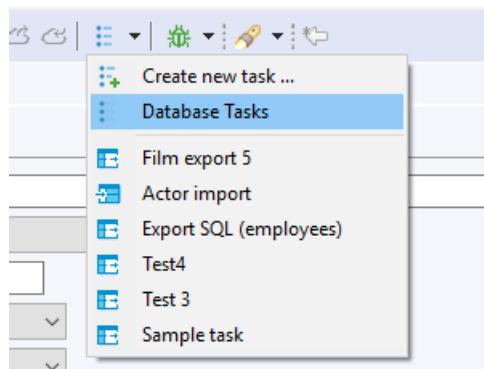
# Task scheduler

Note: This functionality is available only in [Enterprise-Edition](#).

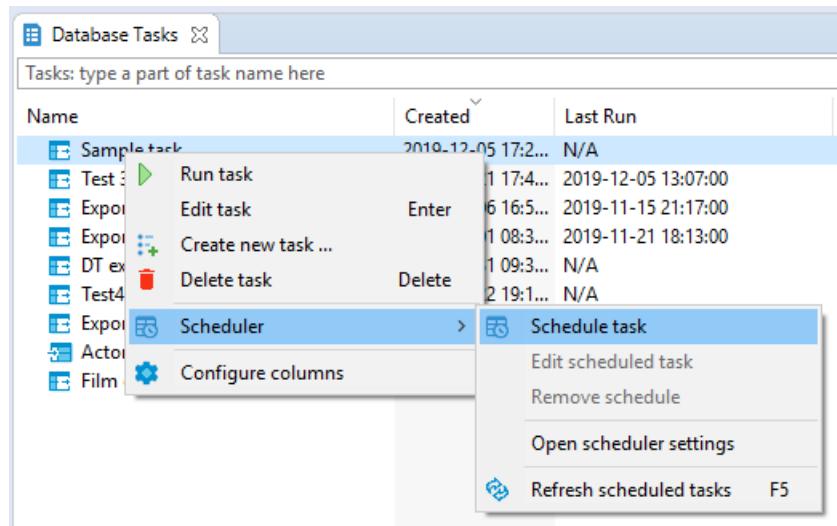
DBeaver can schedule task execution for regular executions. In version 6.x DBeaver supports only native Windows Task Scheduler. You can configure scheduler (CRON) manually on other OSes by calling `dbeaver-cli` command line tool (see below).

## Scheduling tasks from the Tasks view

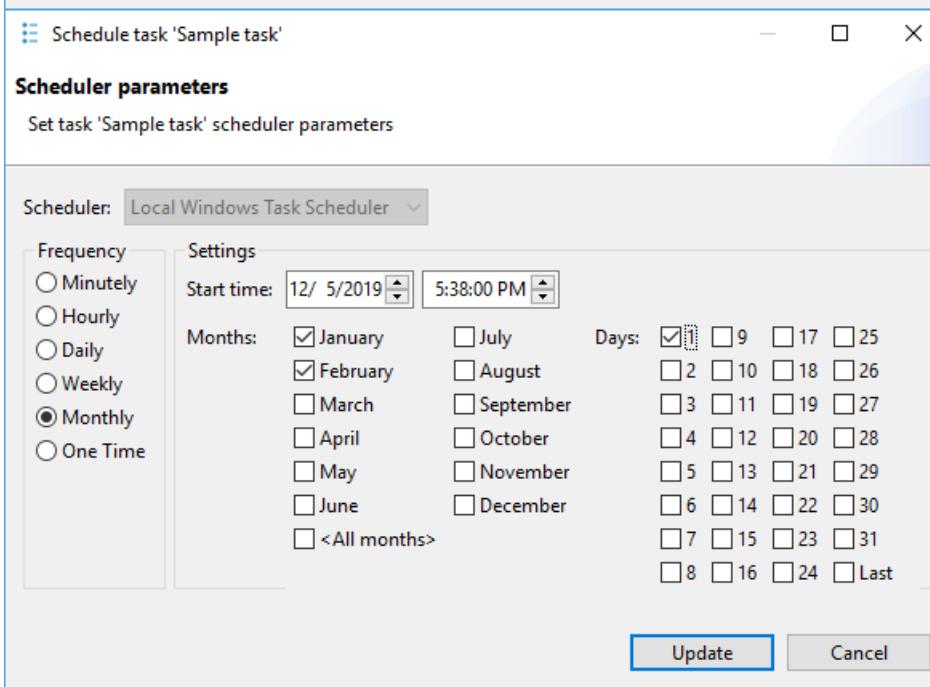
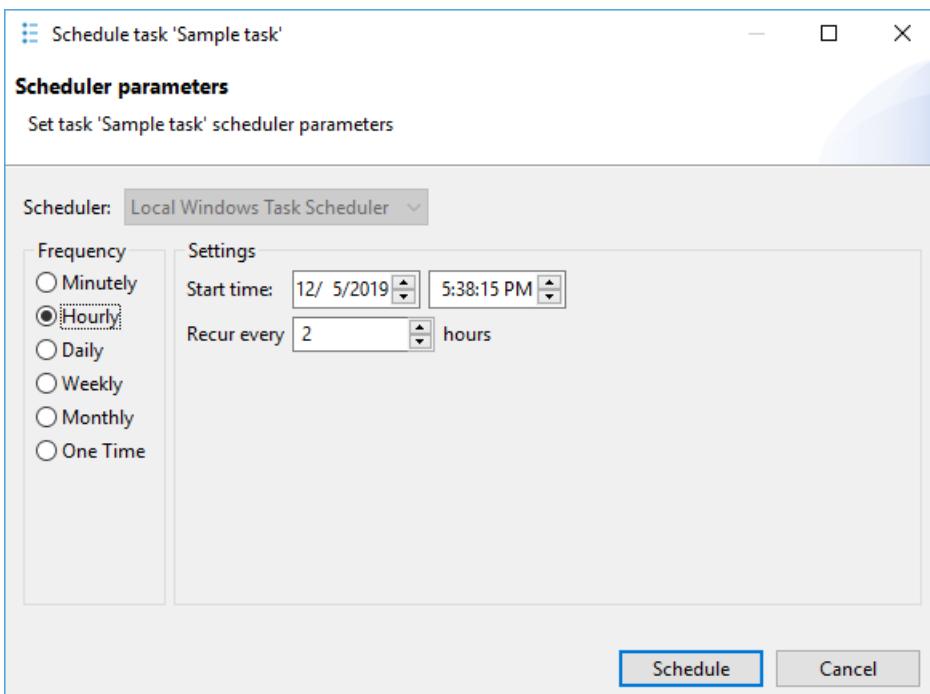
You can open the tasks view from the main toolbar:



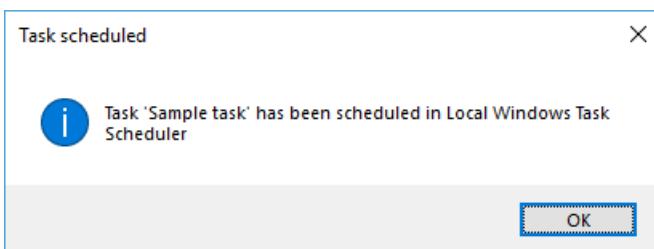
or from the main menu [Window](#). Select a task that you want to schedule in the tasks view and open the context menu:



Scheduler configuration dialog will be opened. You can configure task frequency, recurrence period and start time there:



Then click on a `Schedule` button. If everything is configured correctly you will see the confirmation dialog:

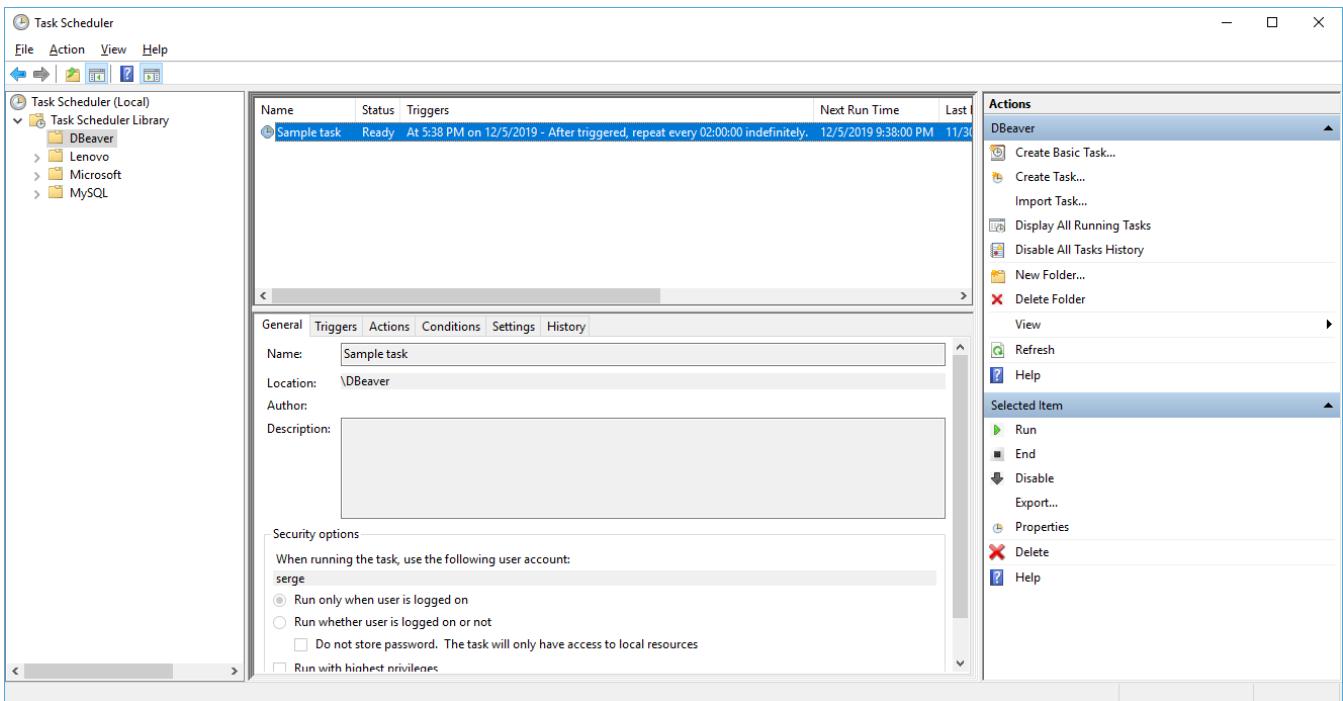


If anything goes wrong you will see an error message dialog. Error details can be viewed in the `Error Log` view.

You can change scheduler settings at any moment by choosing `Edit scheduled task` command from the context menu. You can also cancel scheduling by clicking on `Remove schedule`.

## See schedule details and logs in the Windows Task Scheduler

You can see and change scheduled task details in the Windows Task Scheduler. Click on the `Open scheduler settings` command in the task view context menu:



All DBeaver tasks are located in a folder `DBeaver`.

## Monitoring for task execution

You can look through the task execution logs in the right side of the tasks view. By double clicking on a task run item you can see the full log with all details/errors/warnings:

Name	Created	Last Run	Last Result	Type	Next Run	Pr	Time	Duration	Result
Sample task	2019-12-05 17:22:40	N/A	N/A	Data export	2019-11-15 21:17:24	db	2019-11-15 21:17:00	1.225s	Success
Test 3	2019-11-01 17:24:30	2019-11-01 17:24:30	Success	Data export	2019-11-15 21:17:24	db	2019-11-15 21:14:00	1.216s	Success
Export payment data (daily)	2019-11-06 16:55:00	2019-11-15 21:17:24	Success	Data export	2019-11-15 21:17:25	Te	2019-11-15 21:13:00	1.350s	Success
Export Sample	2019-11-01 08:30:00	2019-11-01 08:30:00	Success	Data export	2019-11-15 21:17:25	Ge	2019-11-15 21:08:00	1.284s	Editors not sup...
DT example 1	2019-10-31 09:30:00	N/A	N/A	Data export	2019-11-15 21:17:25	Ge	2019-11-15 21:00:00	1.273s	Editors not sup...
Test4	2019-09-22 19:30:00	N/A	N/A	Data export	2019-11-15 21:17:25	db	2019-11-15 20:54:00	1.385s	Editors not sup...
Export SQL (employees)	2019-09-22 09:45:00	N/A	N/A	Data export	2019-11-15 21:17:25	db	2019-11-15 20:52:00	1.313s	Editors not sup...
Actor import	2019-09-21 08:30:00	N/A	N/A	Data import	2019-11-15 21:17:25	db	2019-11-15 20:38:00	1.309s	Editors not sup...
Film export 5	2019-09-20 20:55:00	N/A	N/A	Data export	2019-11-15 21:17:25	db	2019-11-15 20:30:00	1.271s	Success
							2019-11-11 08:48:00	3.307s	Success
							2019-11-06 16:56:00	3.187s	Success

DBeaver keeps the task run logs in the `workspace` directory, subfolder `.metadata/task-stats`.

## Running tasks from the command line

The task scheduler uses the DBeaver [command line](#) interface to perform task execution. Command line parameter `-runTask TASK_ID` launches saved task execution (immediately).

`TASK_ID` has form `@projectName:taskName`. You can omit project name part if you have only one project in your workspace. Use `dbeaver-cli` executable to run tasks.

Draw your attention that if you use `dbeaver` executable (by any reason) you will need to add command line parameter `-nosplash` to

avoid splash screen appearance.

## Configuring CRON scheduler

TBD

# MongoDB

## Overview

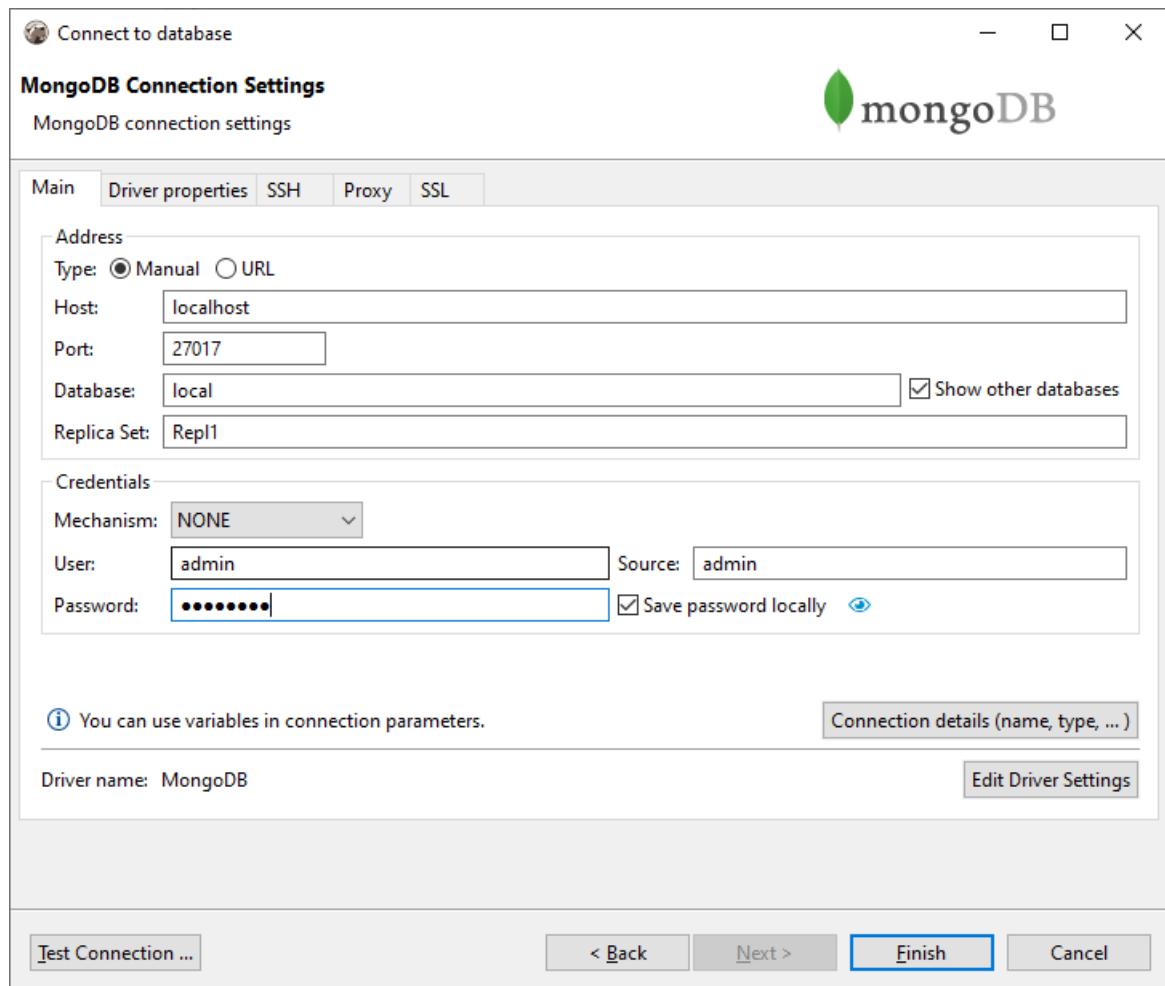
DBeaver EE supports MongoDB schema browser, data viewer, SQL and JavaScript queries execution. Also it supports various administrative tools (like server sessions manager).

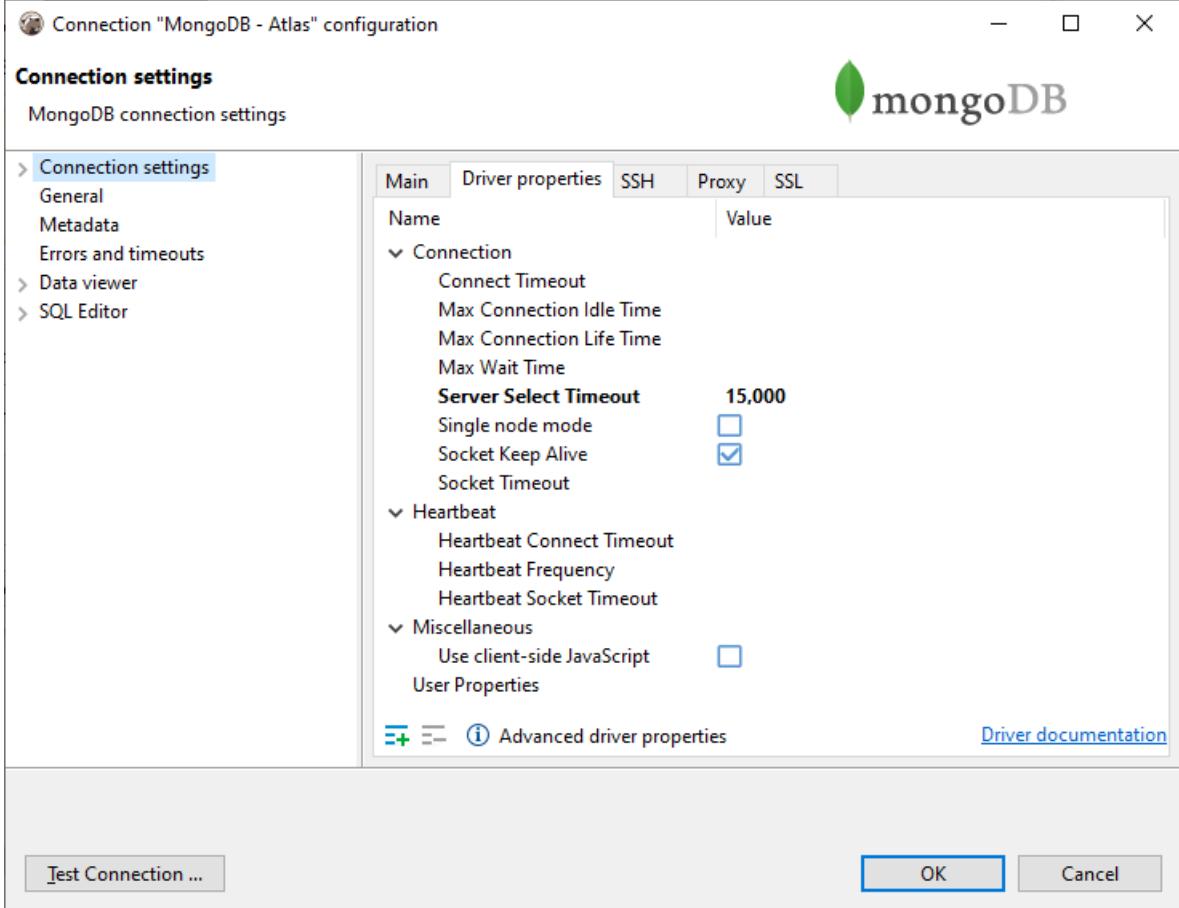
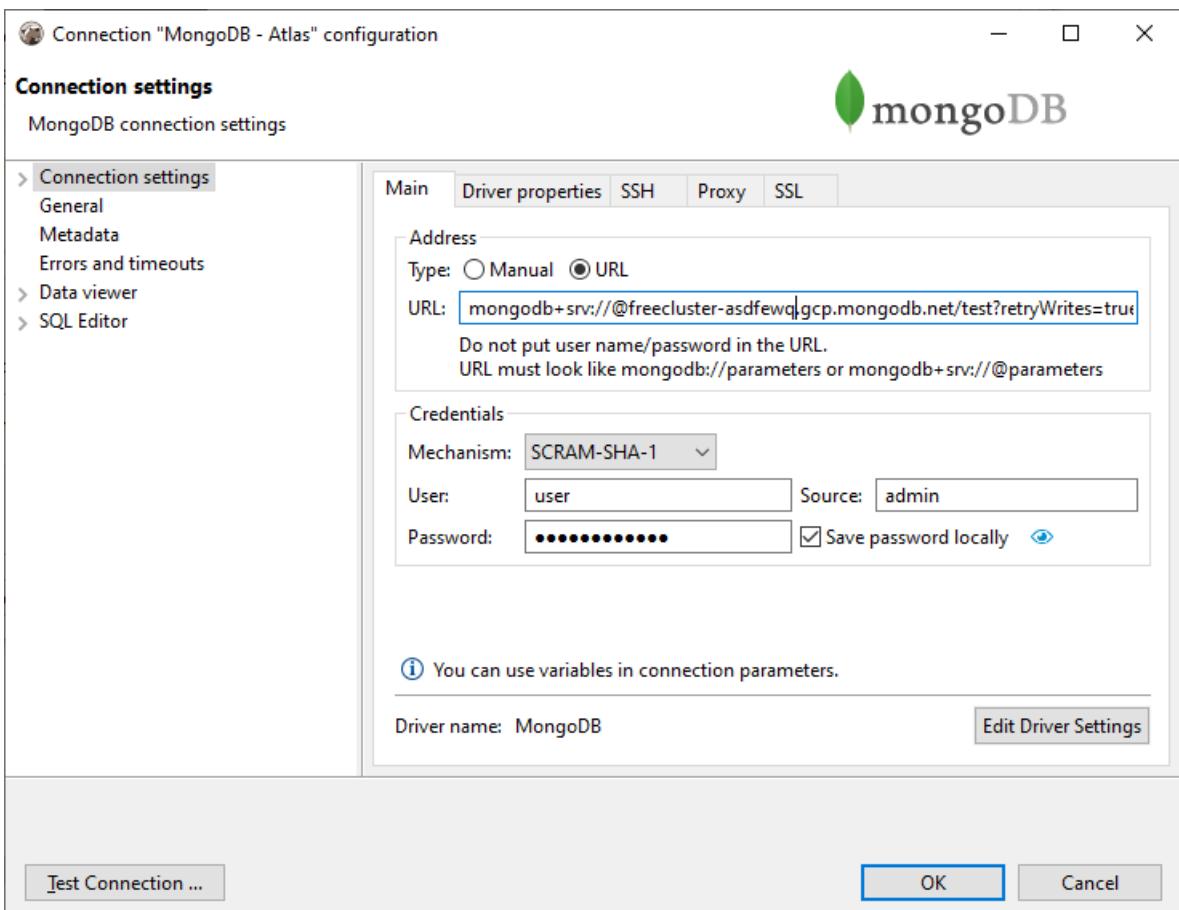
DBeaver uses MongoDB Java driver 3.8.0 to operate with server. It supports MongoDB servers from 2.x to 4.x.

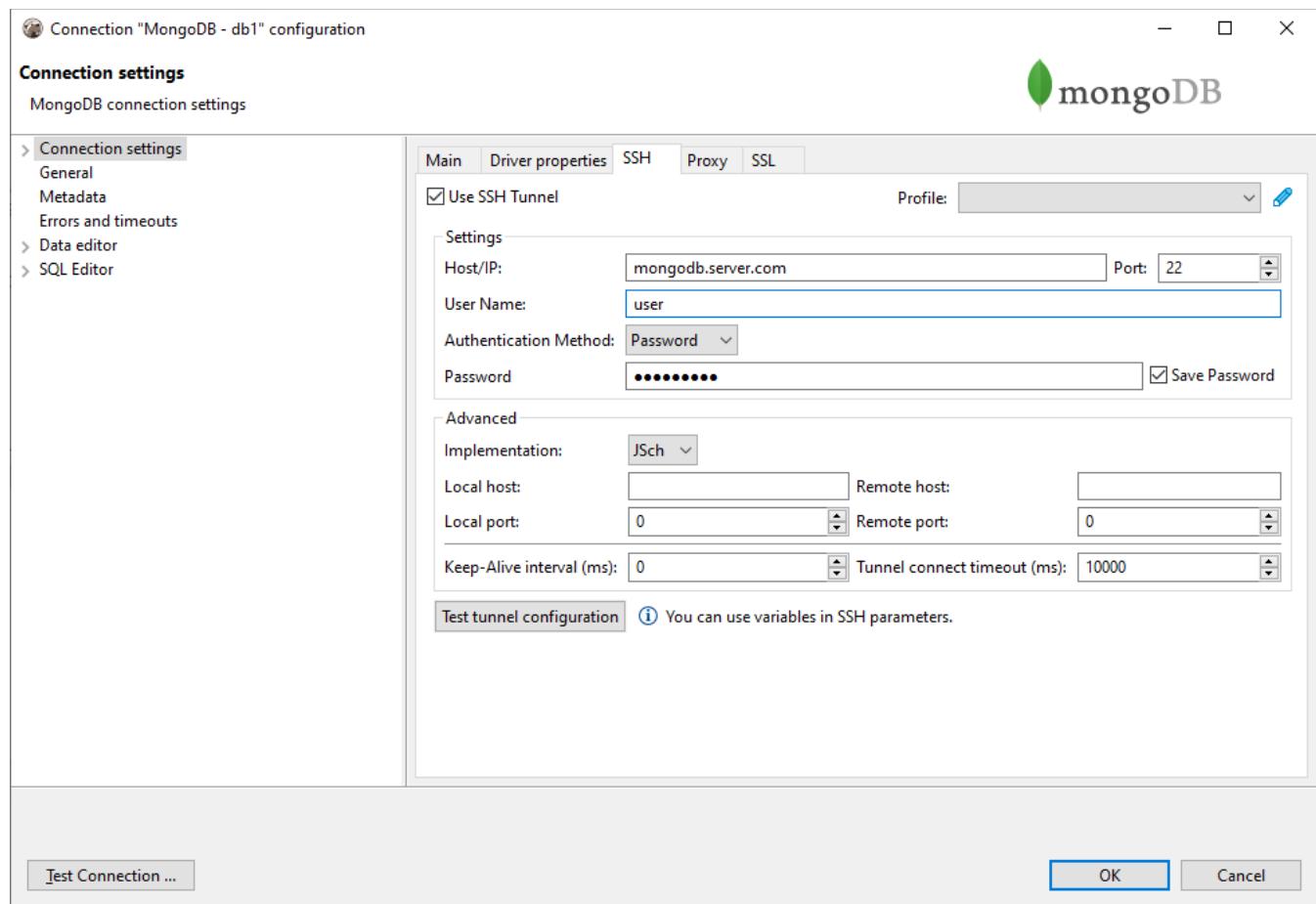
## Connecting to MongoDB Server

You can connect directly to a server or use SSH tunneling or SOCKS proxy.

You can specify server address as host/port/database configuration or you can enter target database URL with all necessary parameters:







## Browsing Mongo collections

You can view/edit MongoDB collections content as standard relational tables (grid/plain text presentations) or as JSON documents. Presentation can be switched in the Results Viewer toolbar. In grid DBeaver will try to unify all documents in some particular collection (as they have the same structure/the same set of properties).

DBeaver Enterprise 5.2.1 - customers

File Edit Navigate Search SQL Editor Database Window Help

Commit Rollback Auto

MongoDB - local local 200 Quick Access

customers

Properties Data ER Diagram MongoDB - local Databases test Collections customers

customers | Enter a SQL expression to filter results (use Ctrl+Space)

[2] 2

```
{  
    "_id": 2,  
    "Address": "1121 Loja Avenue",  
    "City": "San Bernardino",  
    "Country": "United States",  
    "District": "California",  
    "First Name": "PATRICIA",  
    "Last Name": "JOHNSON",  
    "Phone": "838635286649",  
    "Rentals": [  
        {  
            "Film Title": "DOORS PRESIDENT",  
            "Payments": [  
                {  
                    "Amount": 4.989999771118164,  
                    "Payment Date": "2005-05-27 00:09:24.0",  
                    "Payment Id": 33  
                }  
            ],  
            "Rental Date": "2005-05-27 00:09:24.0",  
            "Return Date": "2005-05-28 04:30:24.0",  
            "filmId": 243,  
            "rentalId": 320,  
            "staffId": 2  
        },  
        {  
            "Film Title": "BLACKOUT PRIVATE",  
            "Payments": [  
                {  
                    "Amount": 4.989999771118164,  
                    "Payment Date": "2005-05-27 00:09:24.0",  
                    "Payment Id": 33  
                }  
            ],  
            "Rental Date": "2005-05-27 00:09:24.0",  
            "Return Date": "2005-05-28 04:30:24.0",  
            "filmId": 243,  
            "rentalId": 320,  
            "staffId": 2  
        }  
    ]  
}
```

Save Cancel Script | Grid Text JSON Excel 200 row(s) fetched - 0ms 200+ MSK en

DBeaver Enterprise 5.2.1 - customers

File Edit Navigate Search SQL Editor Database Window Help

Commit Rollback Auto

MongoDB - local local 200 Quick Access

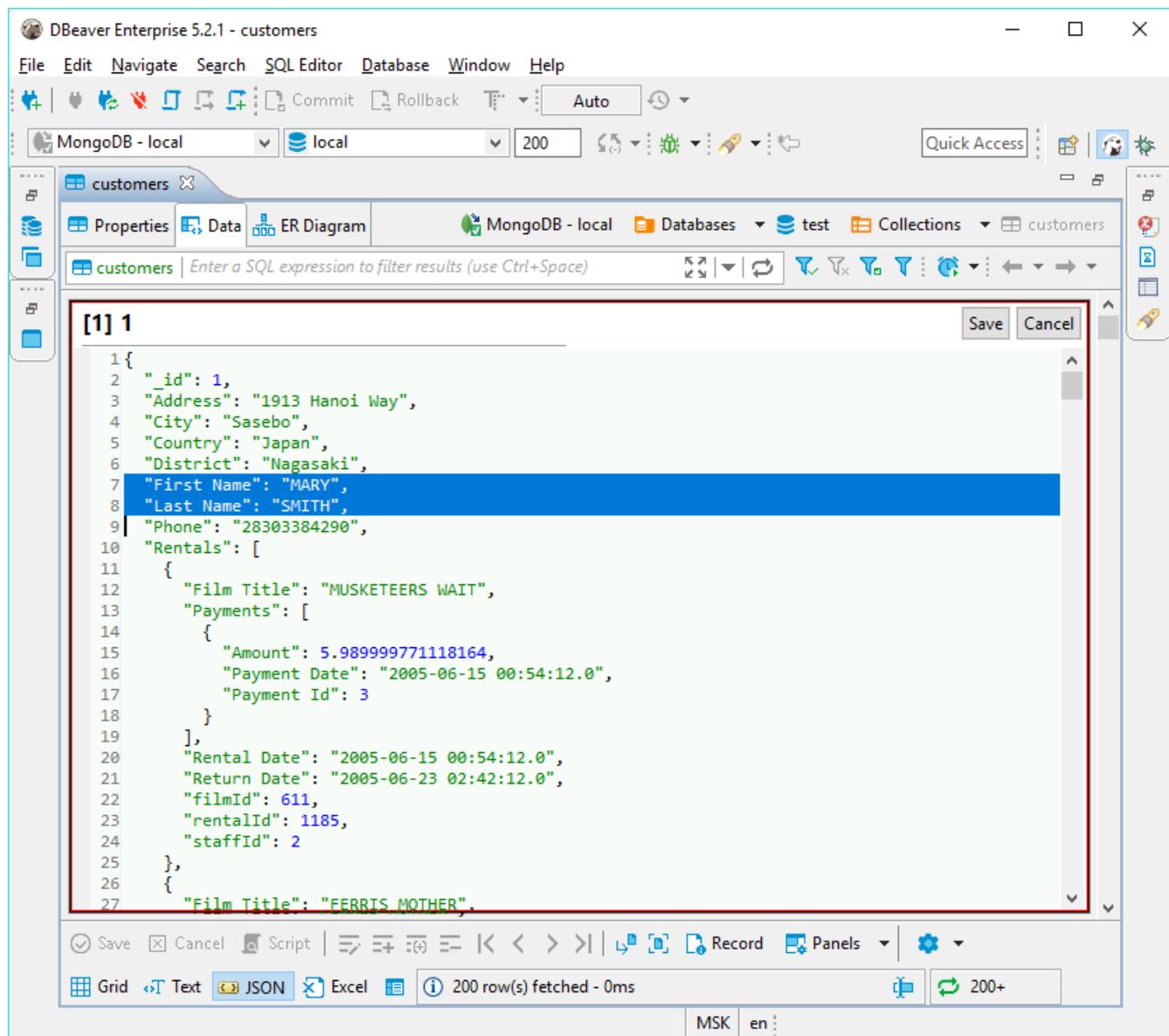
customers

Properties Data ER Diagram MongoDB - local Databases test Collections customers

customers | Enter a SQL expression to filter results (use Ctrl+Space)

	ABC District	ABC First Name	ABC Last Name	ABC Phone	Rentals	Payments
					ABC Film Title	123 Amount
1	Nagasaki	MARY	SMITH	28303384290	MUSKeteers WAIT	5.9899997711
2	California	PATRICIA	JOHNSON	838635286649	DOORS PRESIDENT	4.9899997711
3	Attika	LINDA	WILLIAMS	448477190408	RINGS HEARTBREAKERS	1.9900000095
4	Mandalay	BARBARA	JONES	705814003527	BEDAZZLED MARRIED	0.9900000095
5	Texas	JENNIFER	DAVIS	860452626434	BLUES INSTINCT	2.9900000095
6	Nantou	ELIZABETH	BROWN	10655648674	BETRAYED REAR	6.9899997711
7	Central Serbia	MARIA	MILLER	716571220373	RIDGE MONT SUBMARINE	5.9899997711
8	Hamilton	SUSAN	WILSON	657282285970	HIGH ENCINO	5.9899997711
9	Masqat	MARGARET	MOORE	380657522649	CRUELTY UNFORGIVEN	0.9900000095
10	Kanagawa	LISA	ANDERSON	635297277345	BOOGIE AMELIE	6.9899997711
11	Esfahan	DOROTHY	TAYLOR	648856936185	SNOWMAN ROLLEROASTER	4.9899997711
12	Haryana	NANCY	THOMAS	465887807014	FAMILY SWEET	4.9899997711
13	Osmaniye	KAREN	JACKSON	695479687538	SOUTH WAIT	2.9900000095
14	California	BETTY	WHITE	517338314235	OUTBREAK DIVINE	0.9900000095
15	England	SANDRA	MARTIN	949312333307	FEUD FROGMEN	3.9900000095
16	Madhya Pradesh	HELEN	HARRIS	990911107354	HOTEL HAPPINESS	5.9899997711
17	Kalmykia	DONNA	THOMPSON	407752414682	TIES HUNGER	4.9899997711
18	Kaduna	CAROL	GARCIA	747791594069	WIFE TURN	4.9899997711
19	Maharashtra	RUTH	MARTINEZ	372572257002	ROMAN PUNK	0.0000000000

Save Cancel Script | Grid Text JSON Excel 200 row(s) fetched - 0ms 200+ MSK en



## Executing JavaScript

JS statements can be executed in SQL editor as usual.

Mongo scripting reference

Following example creates a user in the current database.

```
db.createUser(
{
  user: "testuser",
  pwd: "test",
  roles: []
}
)
```

This example returns all documents in collection 'test\_col':

```
db.test_col.find().toArray()
```

Note: script will be executed in the current database.

You can not set explicit database name in your query.

Current database can be changed in SQL Editor toolbar or in Database Navigator.

## Executing SQL

You can use standard SQL statements (SELECT, INSERT, UPDATE, DELETE) to manipulate Mongo data.

```
SELECT * FROM test_col  
WHERE propName.subProp='value';
```

```
UPDATE FROM test_col  
SET propsName.val1=123  
WHERE propName.subProp='value'
```

Nested JSON properties can be divided by dot.

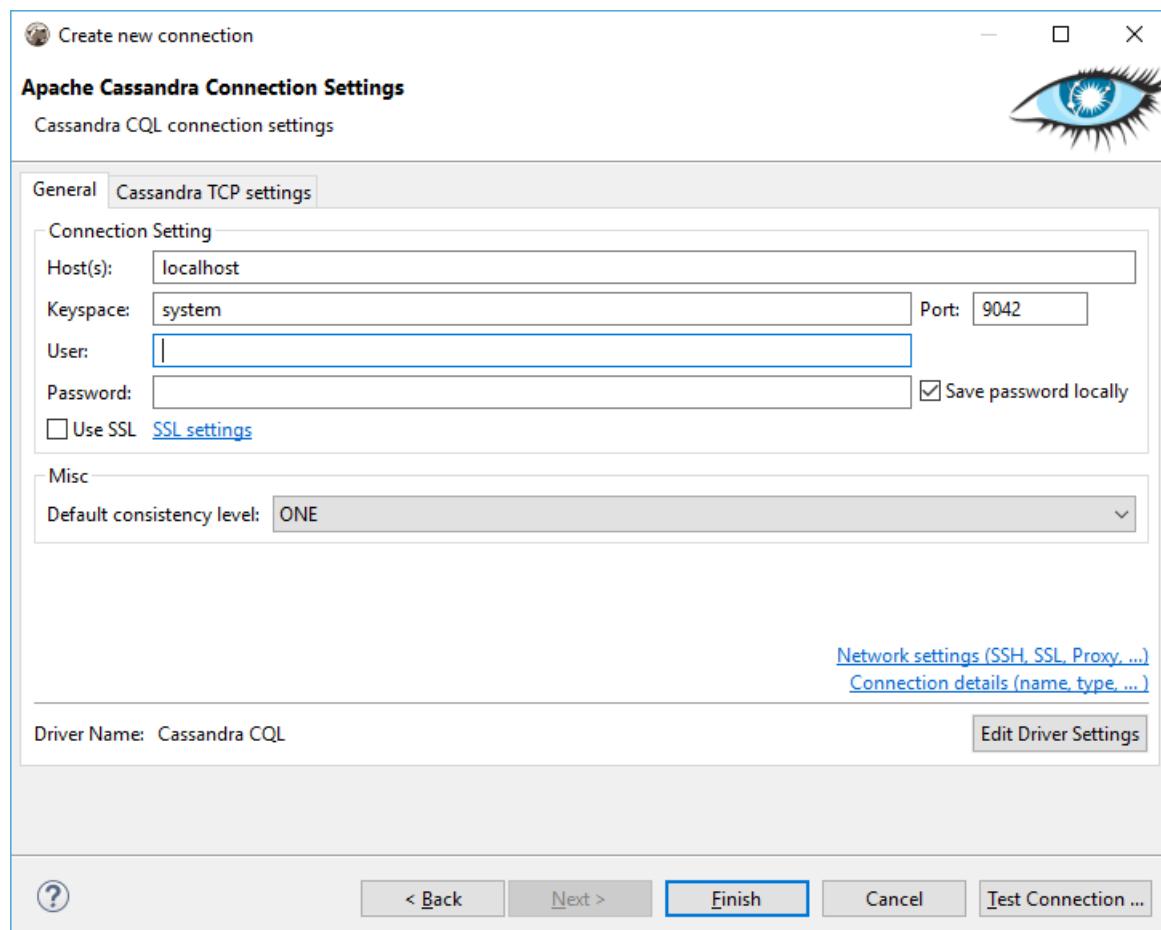
# Cassandra

## Overview

DBeaver EE supports Cassandra schema browser, data viewer and CQL queries execution. Also it supports various administrative tools.

## Connecting to Cassandra cluster

You can connect directly to a server or use SSH tunneling or SOCKS proxy. DBeaver uses DataStax Java driver to operate with server. It supports Cassandra servers 2.x, 3.x or higher.



Create new connection

### Network

Configure networks handlers and tunnels

SSH Tunnel SOCKS Proxy SSL

Use SSH Tunnel

Settings

Host/IP: theserver.com  
Port: 22  
User Name: theuser  
Authentication Method: Password  
Password: \*\*\*\*\*  
Save Password:

Advanced

Implementation: JSch  
Local port: 0  
Keep-Alive interval (ms): 0  
Tunnel connect timeout (ms): 10000

Create new connection

### Network

Configure networks handlers and tunnels

SSH Tunnel SOCKS Proxy SSL

Use SSL

You can choose SSL context configuration type:

Trust Store

Client Trust Store:

Trust Store password:

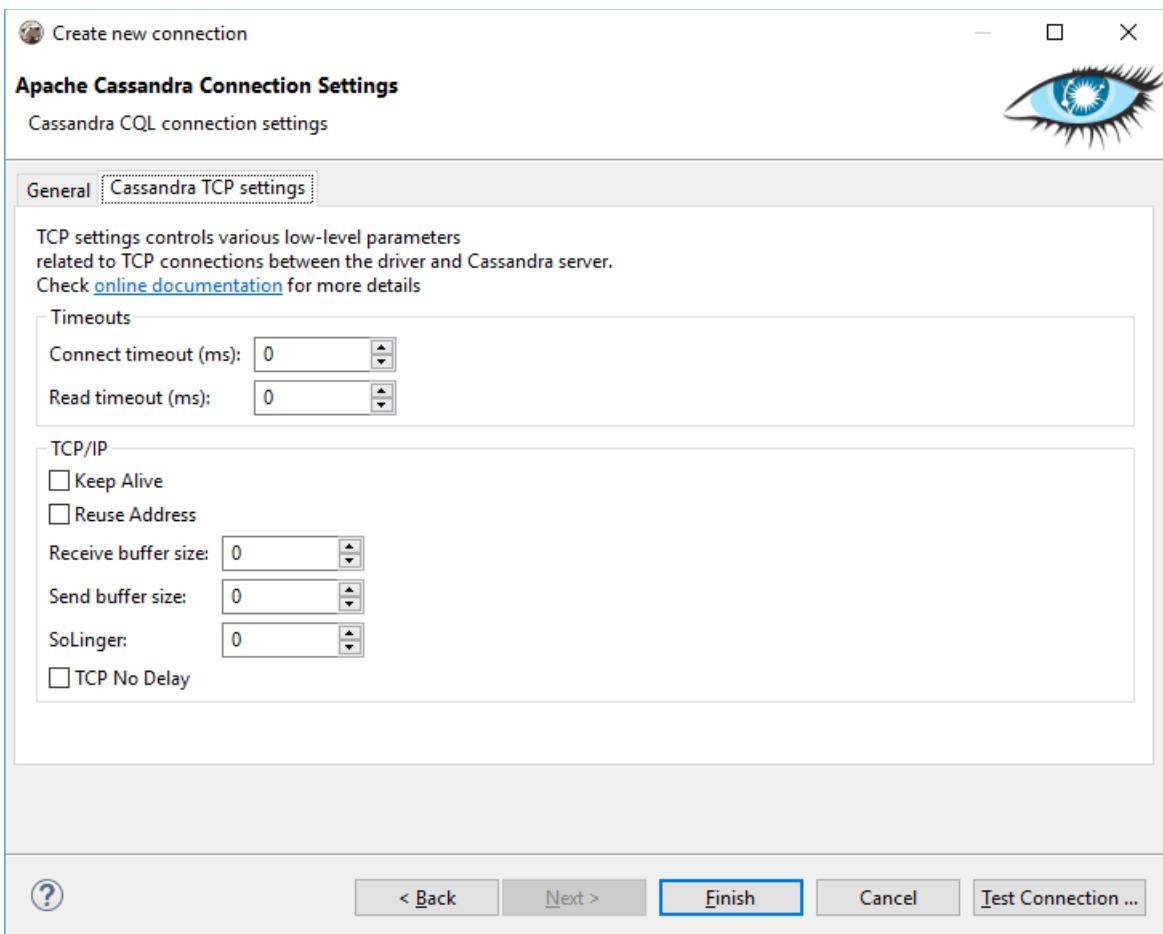
(i) Trust store file must be in Java KeyStore format (jks)

Client Authentication

Client Certificate:

Client Key:

(i) Use it if you have client certificate and private key



## Browsing Cassandra tables

You can browse, view and filter Cassandra tables the same way as with regular (relational) tables. However, being a distributed key-value database, Cassandra doesn't support any kind of referential integrity. There are no foreign keys, references, etc. Note that Cassandra has very advanced (comparing to relational databases) data type system. Each column may be a collection, map or set of values (with very big number of values). In some cases this makes browsing data in the "Grid" mode inconvenient.

```

CREATE TABLE songs (
    id uuid PRIMARY KEY,
    title text,
    album text,
    artist text,
    data blob
);

CREATE TABLE playlists (
    id uuid,
    song_order int,
    song_id uuid,
    title text,
    album text,
    artist text,
    PRIMARY KEY (id, song_order )
);
INSERT INTO playlists (id, song_order, song_id, title, artist, album)
VALUES ...

```

acc lot	acc gtin	Value	Events	Info	Time	Source	Thread
1	1683	Zambia	137	Parsing SELECT * FROM test.job LIMIT 200 ALLOW FILTERING	/127.0.0.1	Native-Transport-Requests-1	
2	1424	Vietnam	265	Preparing statement	/127.0.0.1	Native-Transport-Requests-1	
3	1615	Uruguay	453	Computing ranges to query	/127.0.0.1	Native-Transport-Requests-1	
4	631	Estonia	795	Submitting range requests on 257 ranges with a concurrency ...	/127.0.0.1	Native-Transport-Requests-1	
5	403	Cabo Verde	1027	Submitted 1 concurrent range requests	/127.0.0.1	Native-Transport-Requests-1	
6	492	Serbia	1844	Executing seq scan across 1 sstable for (min(-9223372036854...)	/127.0.0.1	ReadStage-3	
7	517	The Gambia	3003	Read 200 live rows and 0 tombstone cells	/127.0.0.1	ReadStage-3	
8	1843	East Timor					
9	789	The Gambia					
10	947	Papua New Guinea					
11	255	North Korea					
12	326	Senegal					
13	374	Iran					
14	151	Vietnam					
...	...	...					

200 row(s) fetched - 124ms (+1ms)

DBeaver Enterprise 5.2.1 - job

File Edit Navigate Search SQL Editor Database Window Help

Cassandra CQL - system system 200 Quick Access

Properties Data ER Diagram Cassandra CQL - system Keyspaces test Tables job

job | Enter a SQL expression to filter results (use Ctrl+Space)

	ABC lot	ABC gtin	ABC machine	ABC aggregation_machine
1	1683	Zambia	20.118.0.2	4MG
2	1424	Vietnam	155.0.32.26	3
3	1615	Uruguay	37.0.27.0	8N775UE3JZU443D
4	631	Estonia	253.0.0.27	
5	403	Cabo Verde	0.63.0.1	XQA3N2O8
6	492	Serbia	245.14.171.1	EVOD7
7	517	The Gambia	0.5.1.8	YJ6353H
8	1843	East Timor	0.9.1.20	
9	789	The Gambia	0.1.1.144	
10	947	Papua New Guinea	0.21.179.1	
11	255	North Korea	0.25.6.1	3Y
12	326	Senegal	99.55.26.5	0Y7WI
13	374	Iran	8.160.0.22	F4MO
14	151	Vietnam	2.25.0.1	JU4YDE7U
15	1955	Kiribati	1.42.1.57	
16	837	Grenada	0.1.20.23	P1
17	1019	Cote d'Ivoire	18.1.1.0	F2M7M
18	1529	Fiji	246.8.29.0	PUD6M
19	1964	Sao Tome and Principe	2.0.1.0	8
20	840	Kosovo	0.9.0.16	8RO
21	1123	New Zealand	25.1.17.18	P6WW

Save Cancel Script | Record Panels Grid Text

Excel 200 row(s) fetched - 0ms 200+ MSK en

## Executing CQL

CQL [Cassandra Query Language](#) is a kind of very simple SQL language dialect.  
It supports simple SELECT queries, DDL statements (like CREATE TABLE) and some other.

You can use standard DBeaver SQL editor to execute CQL queries. DBeaver supports Cassandra query execution, results scrolling, data export/import, mock data generation and other features. Data viewer (of individual tables or custom CQL query results) query tracing is supported.

The screenshot shows the DBeaver Enterprise 5.2.1 interface for working with a Cassandra database. The top menu bar includes File, Edit, Navigate, Search, SQL Editor, Database, Window, and Help. The toolbar has various icons for connection management, committing, rolling back, and other database operations. The main window displays a script editor titled 'Cassandra CQL - system' containing a query:

```
1 SELECT * FROM test.job
2 LIMIT 200
3 ALLOW FILTERING
```

Below the script editor is a 'Result' panel. It shows the query `SELECT * FROM test.job LIMIT 200` and its execution results. The results table has two columns: 'ABC lot' and 'ABC gtin'. The data is as follows:

	ABC lot	ABC gtin
1	1683	Zambia
2	1424	Vietnam
3	1615	Uruguay
4	631	Estonia
5	403	Cabo Verde
6	492	Serbia
7	517	The Gambia
8	1843	East Timor
9	789	The Gambia
10	947	Papua New Guinea
11	255	North Korea
12	326	Senegal
13	374	Iran
14	151	Vietnam
15	1955	Kiribati
...	...	...

Below the results table is a 'Query Trace' section showing the execution events:

Event	Time	Source	Thread
Parsing SELECT * FROM test.jobLIMIT 200 ALLOW FILTERING	137	/127.0.0.1	Native-Transport-Requests-1
Preparing statement	265	/127.0.0.1	Native-Transport-Requests-1
Computing ranges to query	453	/127.0.0.1	Native-Transport-Requests-1
Submitting range requests on 257 ranges with a concurrency ...	795	/127.0.0.1	Native-Transport-Requests-1
Submitted 1 concurrent range requests	1027	/127.0.0.1	Native-Transport-Requests-1
Executing seq scan across 1 sstables for (min(-9223372036854...	1844	/127.0.0.1	ReadStage-3
Read 200 live rows and 0 tombstone cells	3003	/127.0.0.1	ReadStage-3

At the bottom of the interface, there are various toolbars and status indicators.

## ERD

Physical ERD (Entity Relation Diagram) doesn't make much sense for Cassandra as there are no any foreign keys. However you can make your own [custom ERD](#) and connect actual Cassandra table with each other using logical associations.

# InfluxDB

## Overview

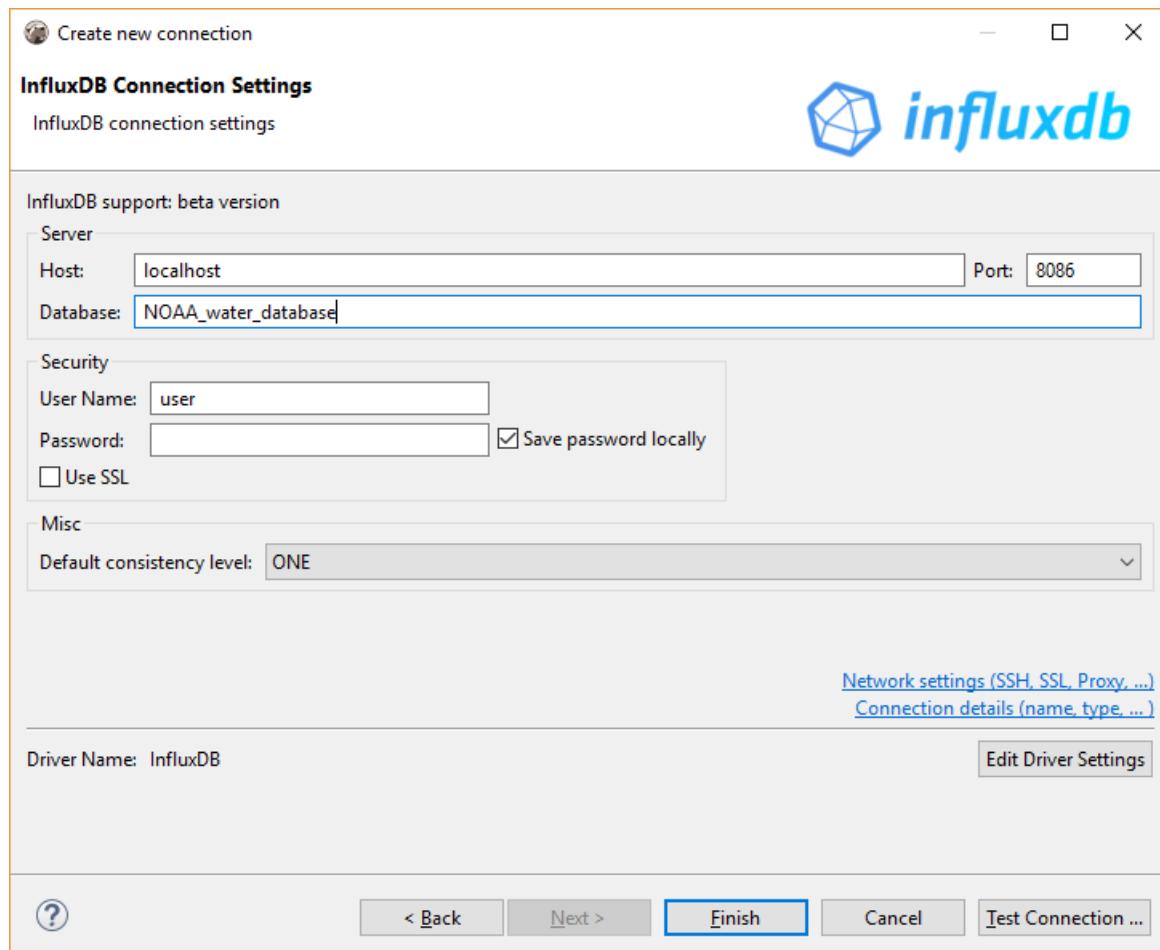
DBeaver EE supports InfluxDB schema browser, data viewer and InfluxQL queries execution.

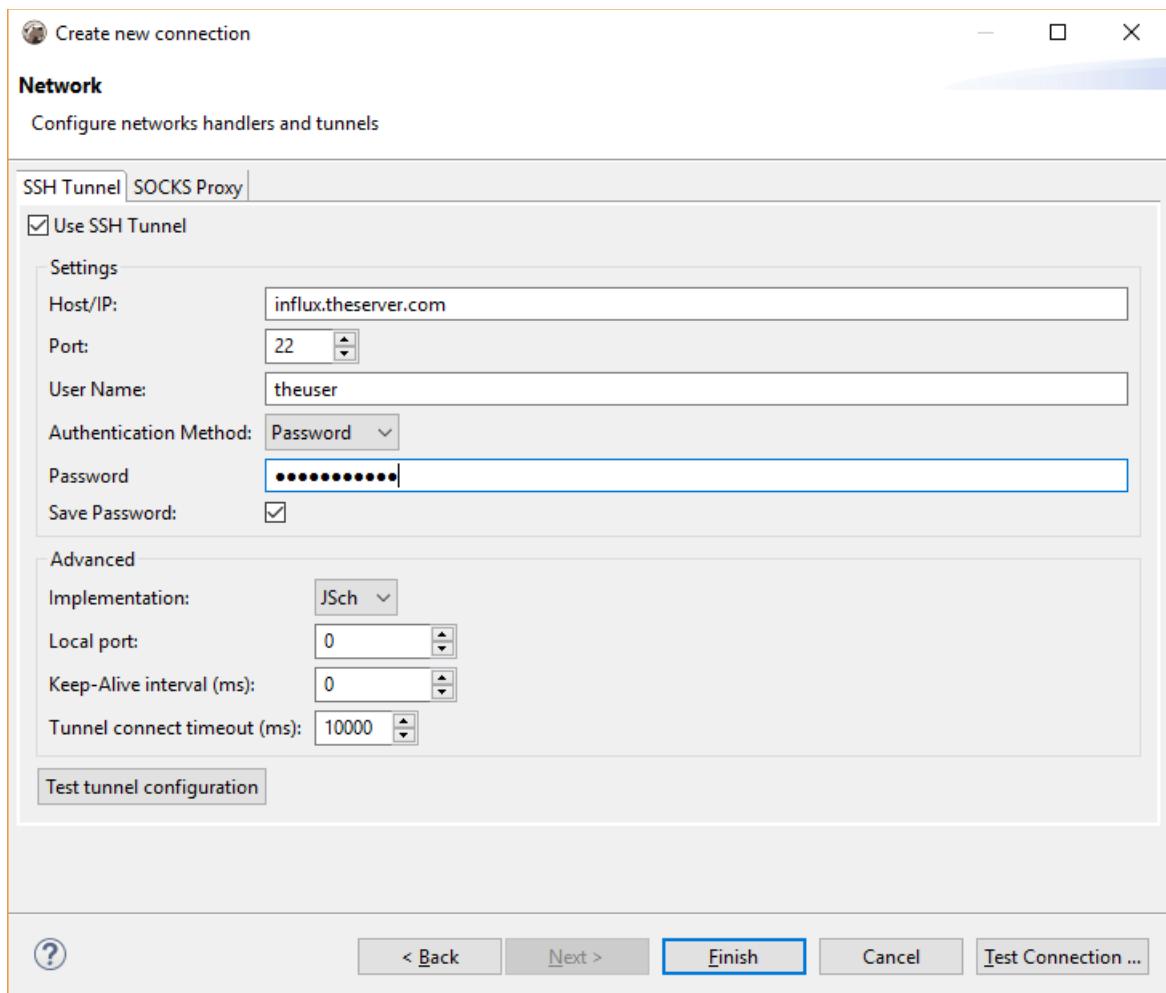
DBeaver uses InfluxDB Java driver 2.12 to operate with the server over HTTP/HTTPS (standard InfluxDB protocol).

It supports InfluxDB servers of any version (in the moment of writing).

## Connecting to Influx Server

You can connect directly to a server or use SSH tunneling or SOCKS proxy.





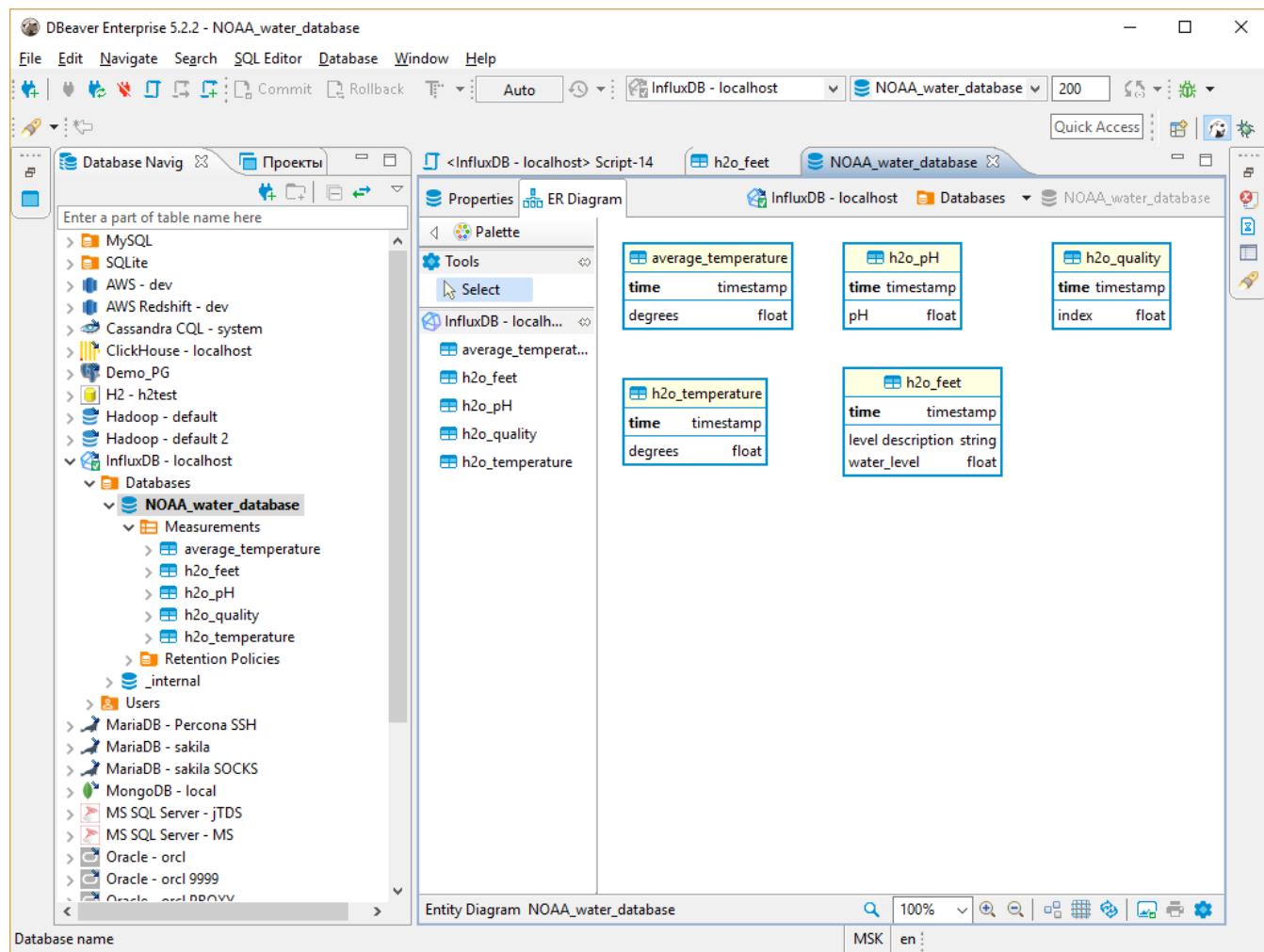
## Browsing InfluxDB schema

InfluxDB is [TimeSeries database](#), it doesn't support tables, foreign keys and other relational entities.

DBeaver doesn't support data insert/update in InfluxDB. Basically for DBeaver database is in read-only state. You can browse schema and view/analyse data.

While data itself is loaded by various sensors/data collectors in real time.

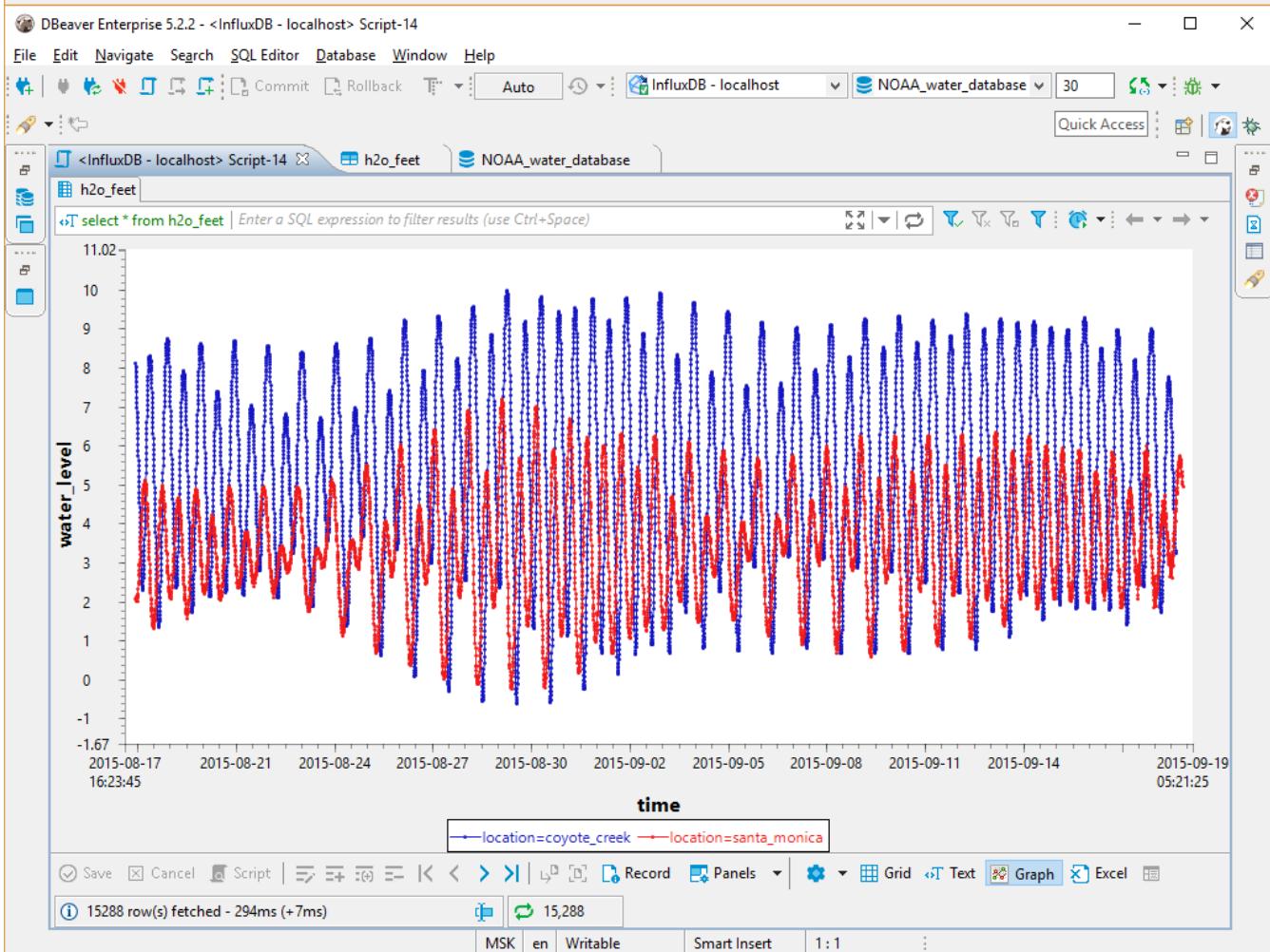
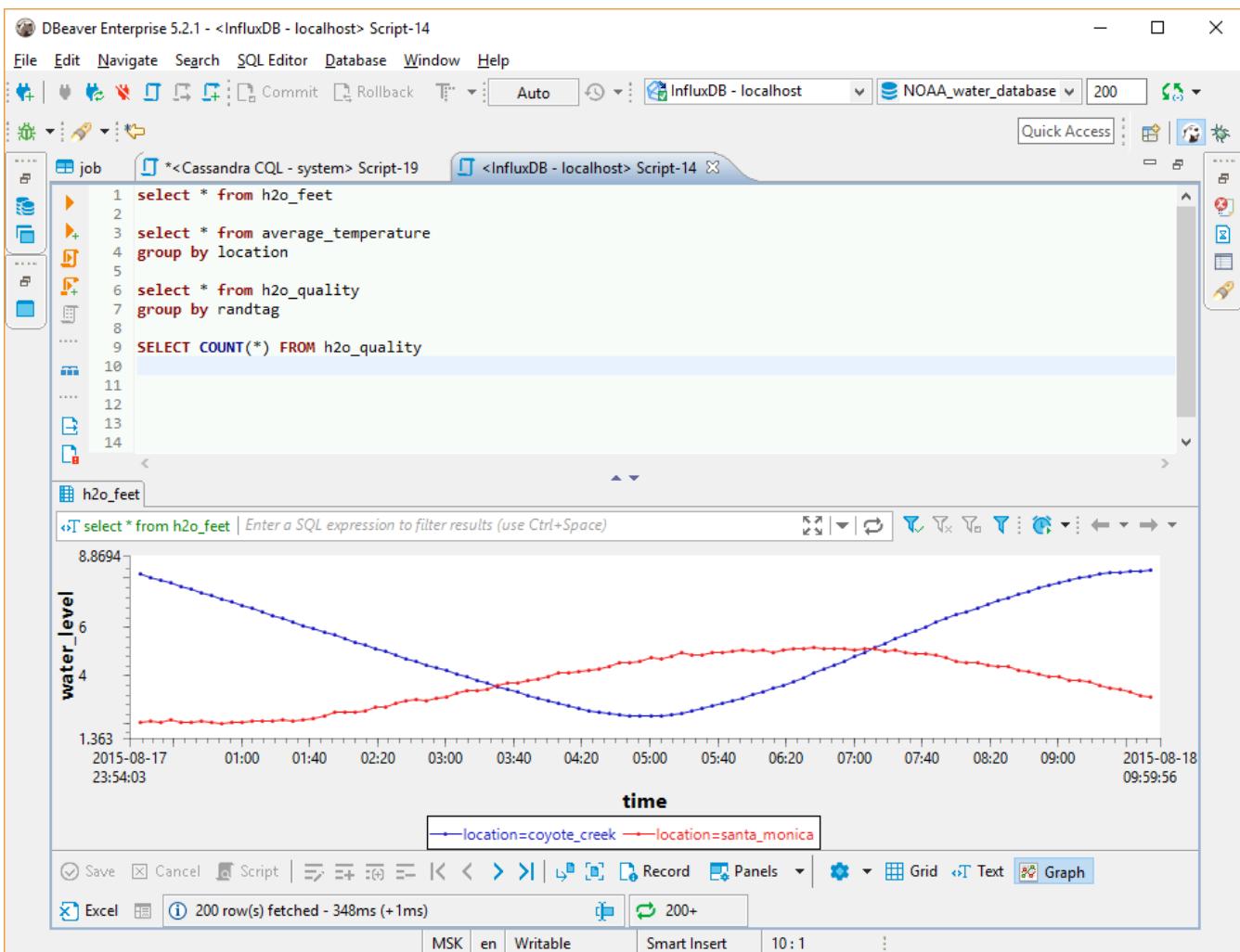
Instead of tables InfluxDB has [measurements](#). Instead of columns it has [fields](#) and [tags](#).



## Executing InfluxQL

InfluxQL is a query language similar to SQL.

DBeaver fully supports all InfluxQL statements. Query results are presented as grid or as graphs:



# Redis

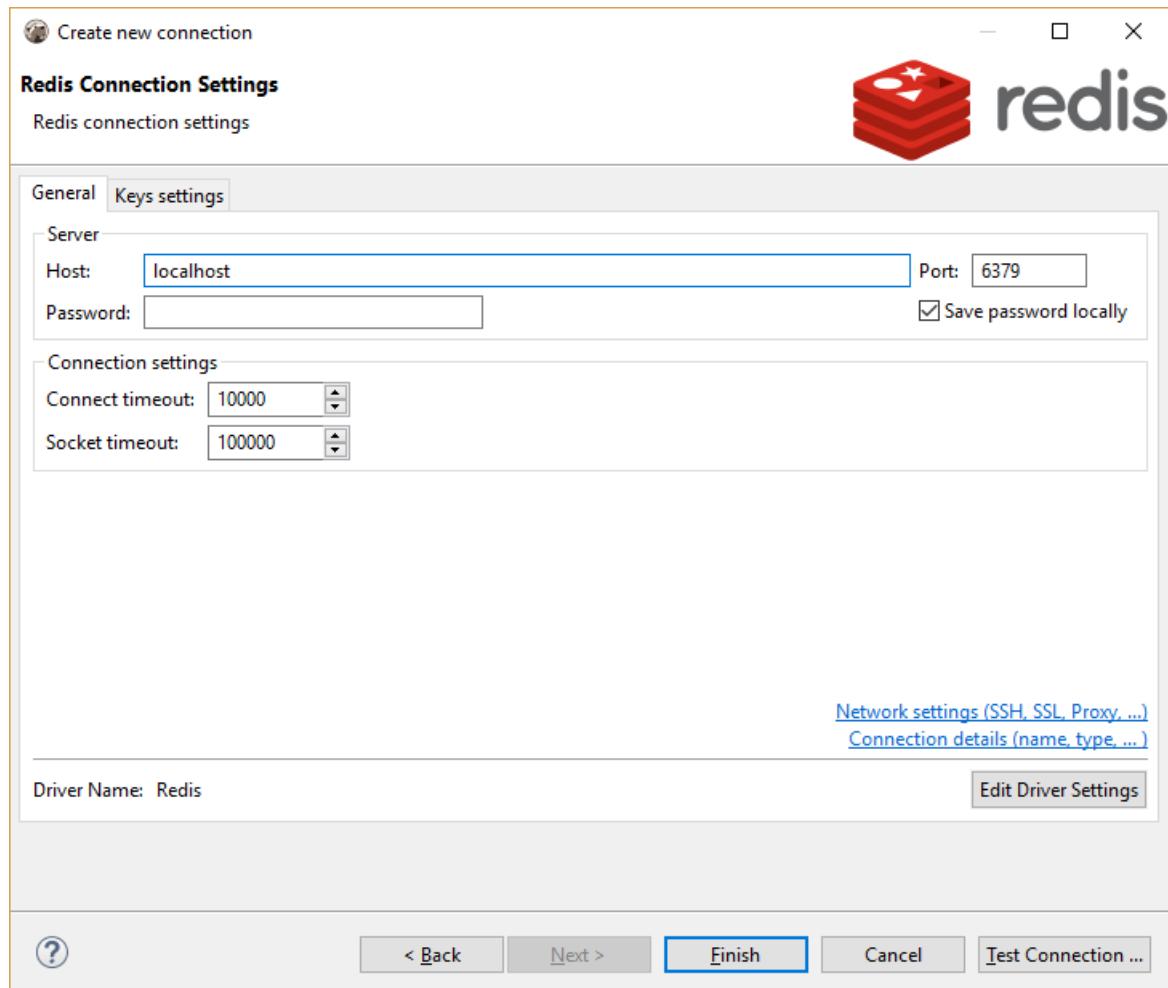
## Overview

DBeaver EE supports Redis key browser, key value viewer and Redis commands shell.

DBeaver uses [Jedis](#) driver 2.9.0 to operate with [Redis](#) server. It supports Redis servers of any version.

## Connecting to Redis Server

You can connect directly to a server or use SSH tunneling or SOCKS proxy.



Create new connection

### Network

Configure networks handlers and tunnels

SSH Tunnel   SOCKS Proxy   SSL

Use SSH Tunnel

Settings

Host/IP: redis.theserver.com

Port: 22

User Name: theuser

Authentication Method: Password

Password:

Save Password:

Advanced

Implementation: JSch

Local port: 0

Keep-Alive interval (ms): 0

Tunnel connect timeout (ms): 10000

Create new connection

### Redis Connection Settings

Redis connection settings



General   Keys settings

Keys

Key group divider: :

Max keys read: 10000

Max cache read: 100000

Key filters:

## Browsing Redis keys

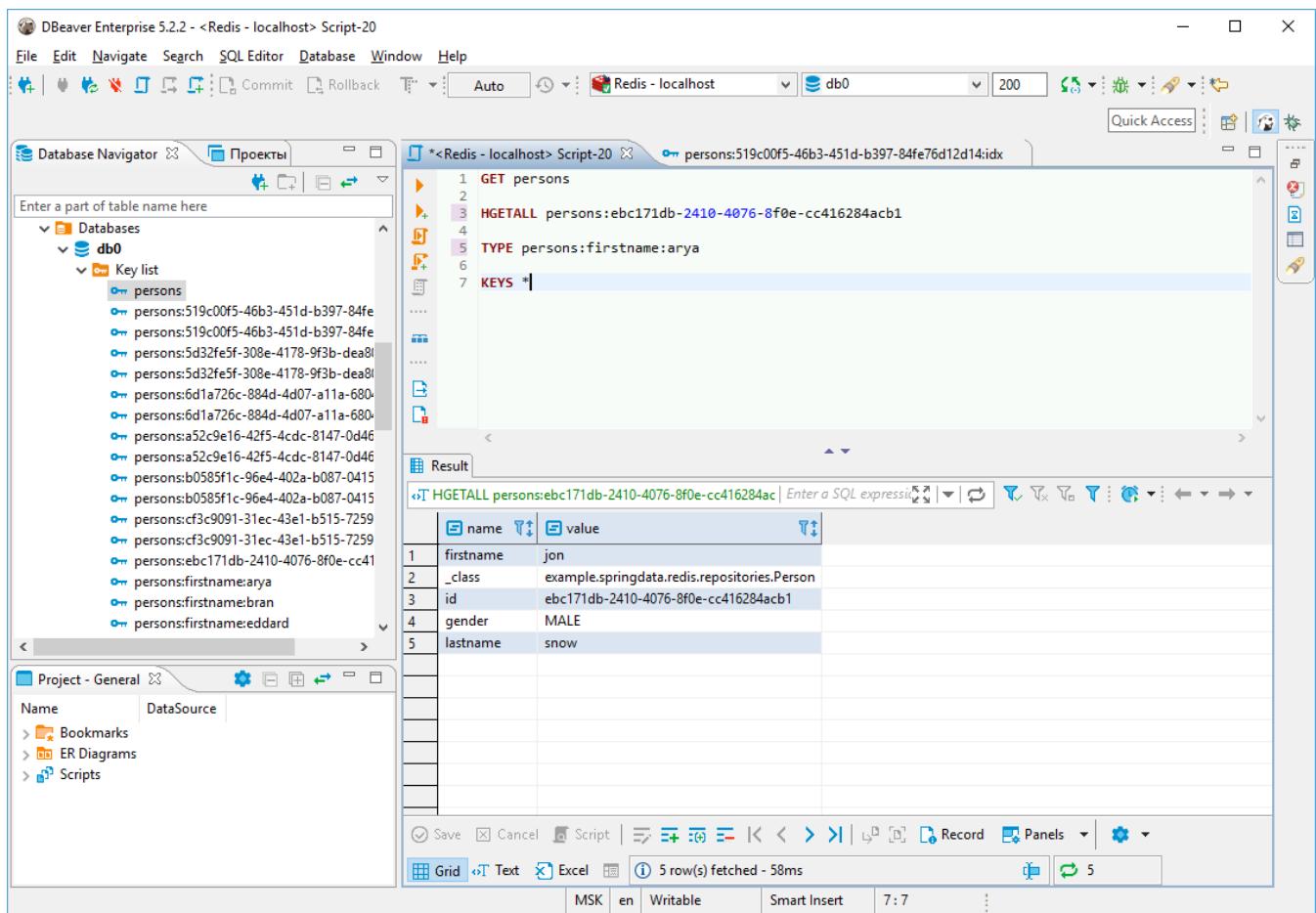
You can view/edit Redis keys a plain list. However Redis database usually contains a lot of keys (millions or even billions) and using list presentation is not convenient (or is not possible).

DBeaver supports hierarchy presentation of keys. Internally Redis doesn't support hierarchies but on application level key names may be divided on groups using some character (e.g. coma, dash or colon). DBeaver uses this pattern to show hierarchy. Group separator can be configured in connection properties.

Key browser may be convenient in some cases but in case of big databases it is very uneasy to find your key in navigator and SQL editor should be used instead. Redis [commands](#) are the most flexible way to operate with keys.

The screenshot shows the DBeaver interface for interacting with a Redis database. The Database Navigator on the left displays a hierarchical list of keys. The main workspace shows the contents of the 'persons' key, which is a Person object with attributes: \_class, id, firstname, lastname, and gender. The Project - General panel at the bottom shows the available data sources.

abc name	value
1	_class example.springdata.redis.repositories.Person
2	id a52c9e16-42f5-4cdc-8147-0d46fd4d554c
3	firstname arya
4	lastname stark
5	gender FEMALE



## Executing Redis commands

Redis doesn't support SQL or any other query language. Instead of that it supports [build-in commands](#) and [LUA scripts](#).

Redis commands can be executed in the same way as in Redis command line shell: `COMMAND ARG1 ARG2 ... ARGN`

In order to execute a command run it using CTRL+Enter or ALT+X. All standard DBeaver SQL editor shortcuts are working for Redis as well.

In order to execute LUA script surround it with {} brackets and run as single statement. If script contains empty lines or special characters select script text before execution.

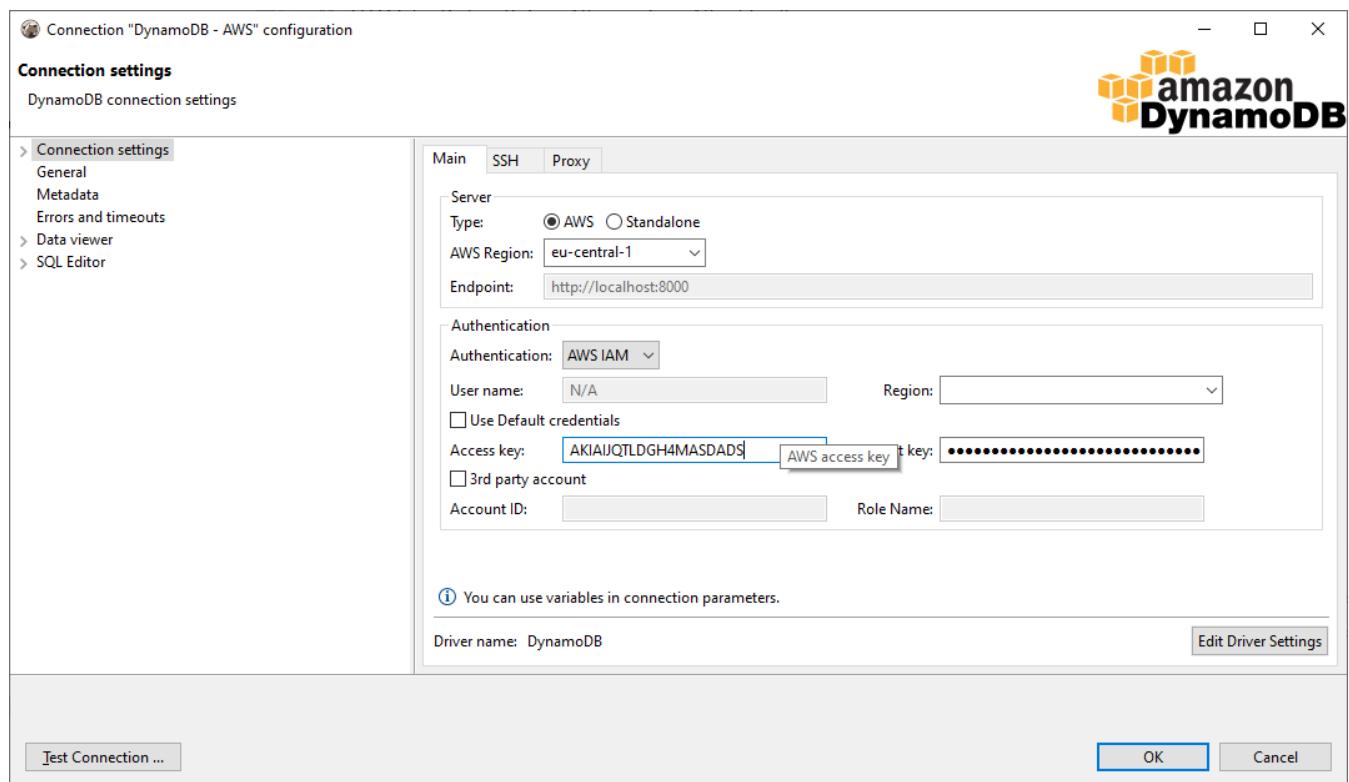
```
{
    return {1,2,{3,'Hello World!'}}
}
```

# AWS DynamoDB

## Supported features:

- Table data view
- Table data edit in document (json) mode
- Data filters
- SQL queries execution
- JSON queries execution
- Data export and import

## DynamoDB connection



DBeaver supports AWS Cloud and Standalone versions of DynamoDB.

For standalone server you need to enter endpoint (http or https URL).

For cloud server you must enter AWS region. DynamoDB exists in all available regions in your AWS account but tables are different.

AWS Access Key and Secret Key are used for authentication.

For 3rd-party account access you must specify 3rd party account ID (12-digits number) and 3rd party role name. This role will be used for permission management. Your account must be added to whitelist in the 3rd party account.

Press "Test Connection" to validate your connection settings.

## Database navigation

DynamoDB has simple metadata structure. Basically you can access only Table and Global tables.

Table has primary attributes (a kind of primary key) and indexes.

DynamoDB is document-oriented database. Each table may have its own set of attributes and sub-attributes.

DynamoDB - AWS

Tables

- Forum 246B
- Movies 2M
- Attributes
  - title
  - year
- Local Indexes
- Global Indexes
- NewTable 1K
- ProductCatalog 492B
- Reply 573B
- Thread
- Global Tables
- Backups

## Viewing table data

You can open table editor and see table data.

You may need to switch to the "Data" tab. By default DBeaver converts DynamoDB documents into table format but you can switch to another data representation.

You can use data filters in order to find documents.

DBeaver Enterprise 7.3.0 - Movies

File Edit Navigate Search SQL Editor Database Window Help

Commit Rollback Auto DynamoDB - AWS < N/A >

	year	title	info	release_date	plot	image_url
1	1958	Cat on a Hot Tin Roof	Brick, an alcoholic ex-football player, drinks his day	1958-09-18T00:00:00Z	[NULL]	<a href="http://ia.media-imdb.com/images/M/MV5BMjA4">http://ia.media-imdb.com/images/M/MV5BMjA4</a>
2	1958	Monster on the Campus	The blood of a primitive fish exposed to gamma r	1958-12-17T00:00:00Z	[NULL]	<a href="http://ia.media-imdb.com/images/M/MV5BMTC">http://ia.media-imdb.com/images/M/MV5BMTC</a>
3	1958	No Time for Sergeants	Will Stockdale is a country bumpkin drafted into th	1958-05-29T00:00:00Z	[NULL]	<a href="http://ia.media-imdb.com/images/M/MV5BMTI4">http://ia.media-imdb.com/images/M/MV5BMTI4</a>
4	1958	Teacher's Pet	Will Stockdale is a country bumpkin drafted into th	1958-04-01T00:00:00Z	[NULL]	<a href="http://ia.media-imdb.com/images/M/MV5BMTI1">http://ia.media-imdb.com/images/M/MV5BMTI1</a>
5	1958	Touch of Evil	A stark, perverse story of murder, kidnapping, and	1958-04-23T00:00:00Z	[NULL]	<a href="http://ia.media-imdb.com/images/M/MV5BNjMi">http://ia.media-imdb.com/images/M/MV5BNjMi</a>
6	1958	Vertigo	A retired San Francisco detective suffering from ac	1958-05-09T00:00:00Z	[NULL]	<a href="http://ia.media-imdb.com/images/M/MV5BNzYc">http://ia.media-imdb.com/images/M/MV5BNzYc</a>
7	2013	+1	Three college friends hit the biggest party of the y	2013-03-10T00:00:00Z	[NULL]	<a href="http://ia.media-imdb.com/images/M/MV5BMTC">http://ia.media-imdb.com/images/M/MV5BMTC</a>
8	2013	100 Degrees Below Zero	After freak climate and weather events destroy the	2013-03-29T00:00:00Z	[NULL]	<a href="http://ia.media-imdb.com/images/M/MV5BMjEx">http://ia.media-imdb.com/images/M/MV5BMjEx</a>
9	2013	12 Years a Slave	In the antebellum United States, Solomon Northup,	2013-08-30T00:00:00Z	[NULL]	<a href="http://ia.media-imdb.com/images/M/MV5BNTQ">http://ia.media-imdb.com/images/M/MV5BNTQ</a>
10	2013	2 Guns	A DEA agent and a naval intelligence officer find th	2013-07-30T00:00:00Z	[NULL]	<a href="http://ia.media-imdb.com/images/M/MV5BNTQ">http://ia.media-imdb.com/images/M/MV5BNTQ</a>
11	2013	20 Feet from Stardom	Backup singers live in a world that lies just beyond	2013-01-17T00:00:00Z	[NULL]	<a href="http://ia.media-imdb.com/images/M/MV5BMTC">http://ia.media-imdb.com/images/M/MV5BMTC</a>
12	2013	200 Cartas	2013-06-14T00:00:00Z	[NULL]	[NULL]	<a href="http://ia.media-imdb.com/images/M/MV5BMTC">http://ia.media-imdb.com/images/M/MV5BMTC</a>
13	2013	21 & Over	The night before his big medical school interview,	2013-02-28T00:00:00Z	[NULL]	<a href="http://ia.media-imdb.com/images/M/MV5BMjI0I">http://ia.media-imdb.com/images/M/MV5BMjI0I</a>
14	2013	3 Geezers!	2013-05-22T00:00:00Z	[NULL]	[NULL]	<a href="http://ia.media-imdb.com/images/M/MV5BOTg">http://ia.media-imdb.com/images/M/MV5BOTg</a>
15	2013	3096 Tage	2013-02-28T00:00:00Z	[NULL]	[NULL]	<a href="http://ia.media-imdb.com/images/M/MV5BMjEw">http://ia.media-imdb.com/images/M/MV5BMjEw</a>
16	2013	42	A young Austrian girl is kidnapped and held in cap	2013-04-12T00:00:00Z	[NULL]	<a href="http://ia.media-imdb.com/images/M/MV5BMTC">http://ia.media-imdb.com/images/M/MV5BMTC</a>
17	2013	47 Ronin	The life story of Jackie Robinson and his history-m	2013-12-06T00:00:00Z	[NULL]	<a href="http://ia.media-imdb.com/images/M/MV5BMTA">http://ia.media-imdb.com/images/M/MV5BMTA</a>
18	2013	7500	A band of samurai set out to avenge the death an	2013-10-01T00:00:00Z	[NULL]	<a href="http://ia.media-imdb.com/images/M/MV5BMjEC">http://ia.media-imdb.com/images/M/MV5BMjEC</a>
19	2013	A Belfast Story	Passengers aboard a flight across the Pacific Ocea	2013-09-20T00:00:00Z	[NULL]	<a href="http://ia.media-imdb.com/images/M/MV5BMTY">http://ia.media-imdb.com/images/M/MV5BMTY</a>
20	2013	A Case of You	A young writer tries to impress a girl he meets onl	2013-04-21T00:00:00Z	[NULL]	<a href="http://ia.media-imdb.com/images/M/MV5BMjI2I">http://ia.media-imdb.com/images/M/MV5BMjI2I</a>
21	2013	A Field in England	2013-07-04T00:00:00Z	[NULL]	[NULL]	<a href="http://ia.media-imdb.com/images/M/MV5BMzI4">http://ia.media-imdb.com/images/M/MV5BMzI4</a>
22	2013	A Good Day to Die Hard	John McClane travels to Russia to help out his see	2013-02-07T00:00:00Z	[NULL]	<a href="http://ia.media-imdb.com/images/M/MV5BMTQ">http://ia.media-imdb.com/images/M/MV5BMTQ</a>
23	2013	A Madea Christmas	Madea dispenses her unique form of holiday spirit	2013-12-13T00:00:00Z	[NULL]	<a href="http://ia.media-imdb.com/images/M/MV5BMTY">http://ia.media-imdb.com/images/M/MV5BMTY</a>
24	2013	A Most Wanted Man	A Chechen Muslim illegally immigrates to Hamburg	2013-11-21T00:00:00Z	[NULL]	<a href="http://ia.media-imdb.com/images/M/MV5BNjEy">http://ia.media-imdb.com/images/M/MV5BNjEy</a>
25	2013	A Resurrection	2013-03-22T00:00:00Z	[NULL]	[NULL]	<a href="http://ia.media-imdb.com/images/M/MV5BOD">http://ia.media-imdb.com/images/M/MV5BOD</a>
26	2013	A Single Shot	The tragic death of a beautiful young girl starts a t	2013-02-09T00:00:00Z	[NULL]	<a href="http://ia.media-imdb.com/images/M/MV5BMjM">http://ia.media-imdb.com/images/M/MV5BMjM</a>
27	2013	A C.O.D.	A grown man caught in the crossfire of his parents	2013-01-22T00:00:00Z	[NULL]	<a href="http://ia.media-imdb.com/images/M/MV5BMTQ">http://ia.media-imdb.com/images/M/MV5BMTQ</a>

Save Cancel Script | Excel UTC 200+ Rows: 1 200 row(s) fetched - 679ms (+627ms)

## Viewing data in JSON document format

You view, search and edit JSON documents. Double-click on a document to activate editor.

```
[1] year=1933, title=King Kong
{
    year: 1933,
    title: "King Kong",
    info: {
        actors: [
            "Fay Wray",
            "Robert Armstrong",
            "Bruce Cabot"
        ],
        release_date: "1933-03-07T00:00:00Z",
        plot: "A film crew goes to a tropical island for an exotic location shoot and discovers a colossal giant gorilla who takes a shine to their female reporter.",
        genres: [
            "Adventure",
            "Fantasy",
            "Horror"
        ],
        image_url: "http://ia.media-imdb.com/images/M/MV5BMTkxOTIxMDU2OV5BMl5BanBnXkFtZTcwNjM5NjQyMg@@._V1_SX400_.jpg",
        directors: [
            "Merian C. Cooper",
            "Ernest B. Schoedsack"
        ],
        rating: 8,
        rank: 351,
        running_time_secs: 6000
    }
}

[2] year=1944, title=Arsenic and Old Lace
{
    year: 1944,
    title: "Arsenic and Old Lace",
    info: {
        actors: [
            "Cary Grant",
            "Priscilla Lane",
            "Raymond Massey"
        ],
        release_date: "1944-09-01T00:00:00Z",
        plot: "A widow and her daughter plan to kill their eight aunts in a most unusual way, but things go wrong and they end up saving their lives instead.",
        genres: [
            "Comedy",
            "Mystery",
            "Thriller"
        ],
        image_url: "http://ia.media-imdb.com/images/M/MV5BMTkxOTIxMDU2OV5BMl5BanBnXkFtZTcwNjM5NjQyMg@@._V1_SX400_.jpg",
        directors: [
            "Frank Capra"
        ],
        rating: 8,
        rank: 352,
        running_time_secs: 6000
    }
}
```

## Executing queries

DBeaver support simple SQL dialect for DynamoDB.

You can use WHERE clause in the same fashion as in regular SQL in order to find or filter documents.

You can also use JSON requests syntax to query documents. See [Amazon DynamoDB query reference](#).

The screenshot shows the DBeaver Enterprise 7.3.0 interface. At the top, the title bar reads "DBeaver Enterprise 7.3.0 - <DynamoDB - AWS> Script-168". The menu bar includes File, Edit, Navigate, Search, SQL Editor, Database, Window, and Help. The toolbar has various icons for committing, rolling back, auto-commit, and database navigation. The main window displays a table named "Movies" with one row selected. The table has columns: year, title, info, release\_date, plot, image\_url, rating, and rai. The selected row is for the movie "King Kong" from 2005. The "info" column contains a detailed plot summary. The bottom status bar shows "Rows: 1" and "1 row(s) fetched - 1ms (+48ms)".

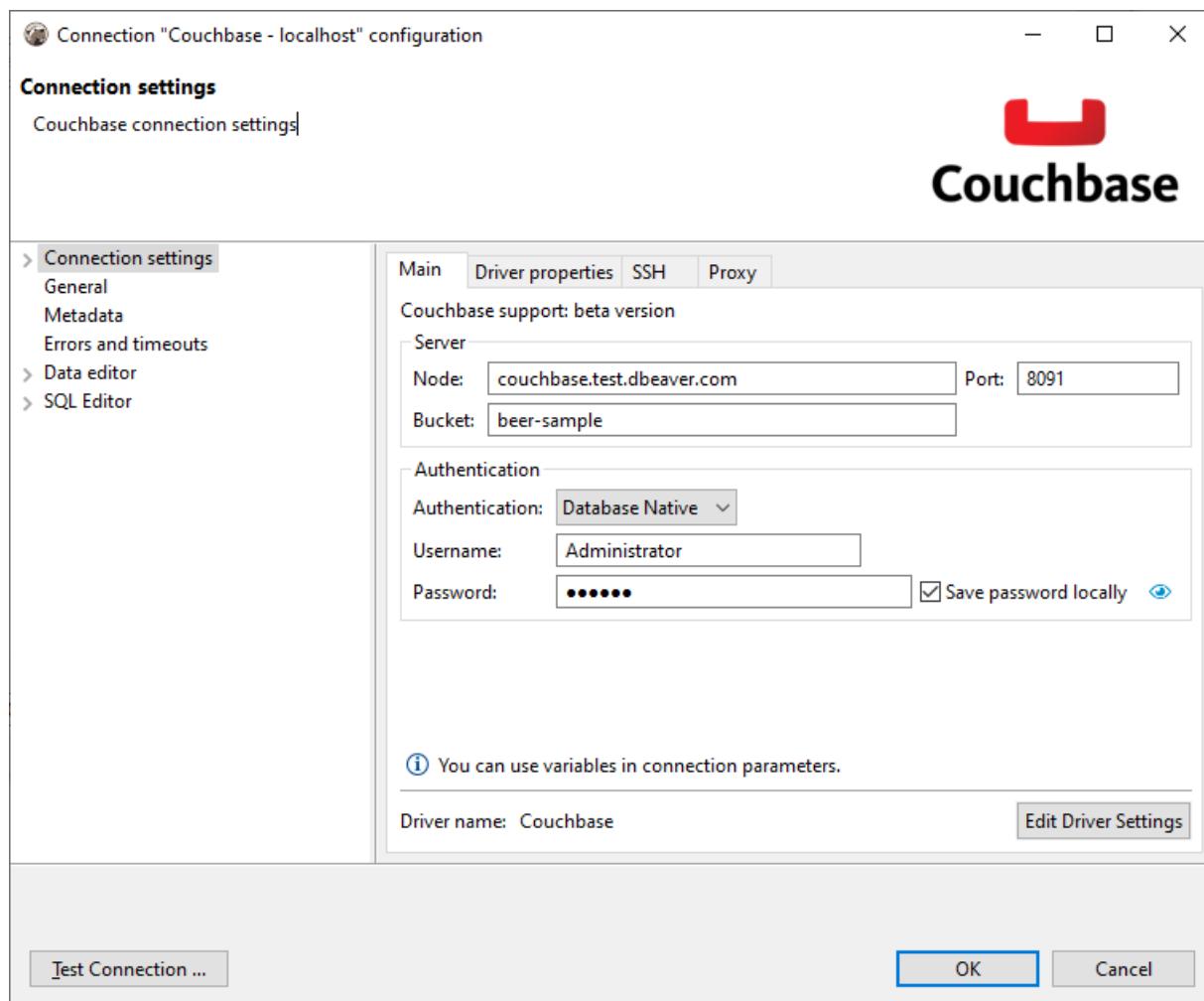
## Exporting and importing data

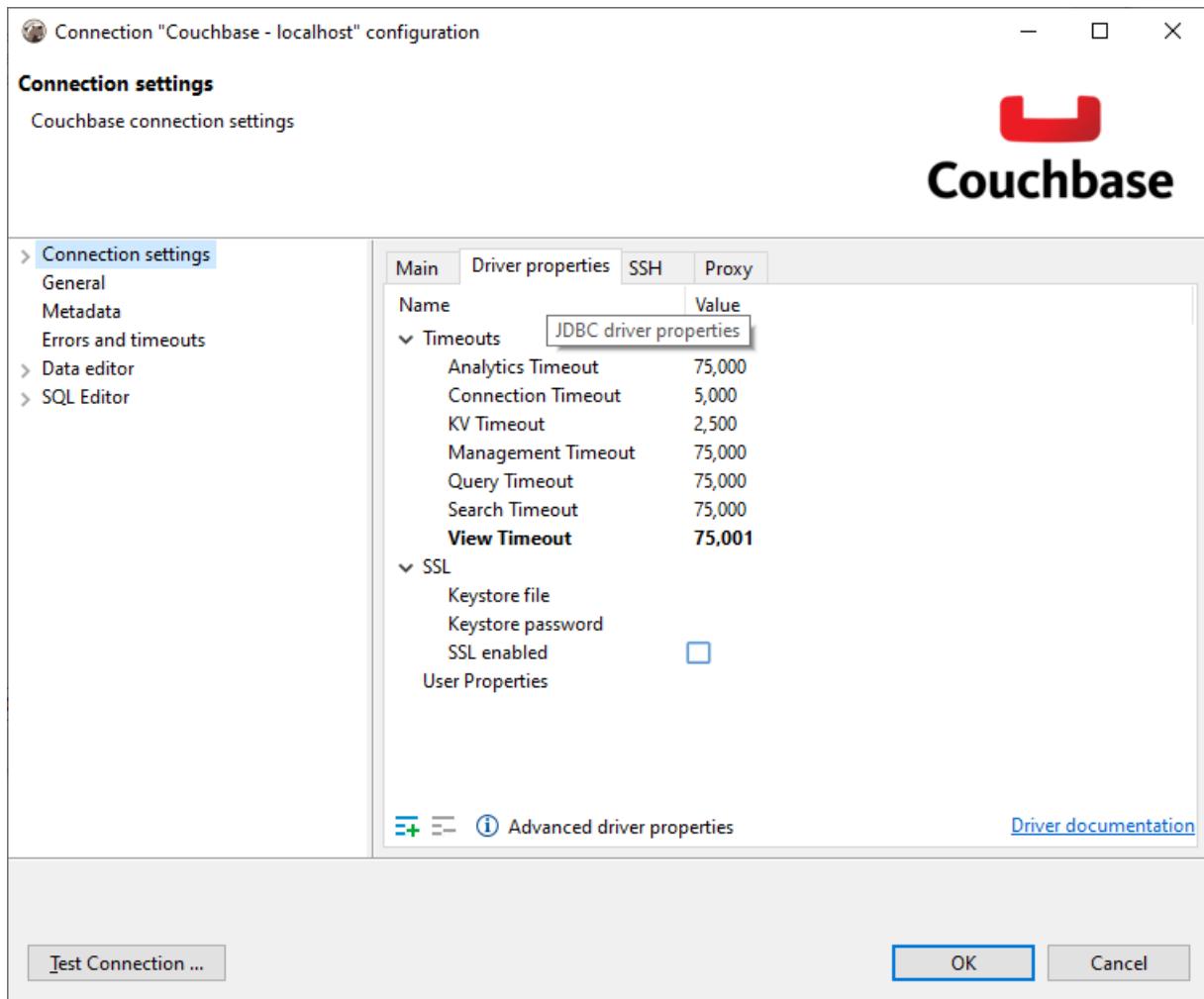
You can export data from DynamoDB table in different file formats (CSV, XLSX, XML, JSON, etc) or export data directly to another table.

# Couchbase

## Connecting to Couchbase server

Couchbase client uses [multiple ports](#) to connect to a cluster (8091-8096, 9140, etc). Some of these ports are dynamic (i.e. depend on server settings) and can't be overwritten. It makes SSH tunnelling impossible. Thus, if you work with remote Couchbase deployed behind a firewall you will need to setup VPN connection or SOCKS proxy.





## Viewing and editing Couchbase tables

Couchbase is a document-oriented database. It means that all documents may have different structure. You can view/edit buckets content as standard relational tables (grid/plain text presentations) or as JSON documents.

DBeaver Enterprise 7.3.0 - beer-sample

File Edit Navigate Search SQL Editor Database Window Help

Couchbase - localhost < N/A >

beer-sample < Couchbase - localhost>Script-183

Properties Data

beer-sample Enter a SQL expression to filter results (use Ctrl+Space)

Grid

	geo	abv	country	website	upc	code	style
1	ROOFTOP	-122.393	37.7825	[NULL]	United States	http://www.21st-amendment.com/	[NULL]
2	[NULL]	[NULL]	[NULL]	7.2	[NULL]	[NULL]	0 [NULL] American-Style India Pale Ale
3	[NULL]	[NULL]	[NULL]	5.0	[NULL]	[NULL]	0 [NULL] American-Style Stout
4	[NULL]	[NULL]	[NULL]	5.2	[NULL]	[NULL]	0 [NULL] American-Style Pale Ale
5	[NULL]	[NULL]	[NULL]	3.6	[NULL]	[NULL]	0 [NULL] Special Bitter or Best Bitter
6	[NULL]	[NULL]	[NULL]	9.8	[NULL]	[NULL]	0 [NULL] Imperial or Double India Pale Ale
7	[NULL]	[NULL]	[NULL]	5.5	[NULL]	[NULL]	0 [NULL] Porter
8	[NULL]	[NULL]	[NULL]	5.8	[NULL]	[NULL]	0 [NULL] American-Style Amber/Ruby Ale
9	[NULL]	[NULL]	[NULL]	5.9	[NULL]	[NULL]	0 [NULL] American-Style Stout
10	[NULL]	[NULL]	[NULL]	5.2	[NULL]	[NULL]	0 [NULL] Special Bitter or Best Bitter
11	[NULL]	[NULL]	[NULL]	5.0	[NULL]	[NULL]	0 [NULL] Golden or Blonde Ale
12	[NULL]	[NULL]	[NULL]	5.5	[NULL]	[NULL]	0 [NULL] Belgian-Style Fruit Lambic
13	[NULL]	[NULL]	[NULL]	[NULL]	[NULL]	[NULL]	[NULL]
14	RANGE_INTERPOLATED	4.3081	50.7668	[NULL]	Belgium	http://www.3fonteinen.be/index.htm	[NULL]
15	[NULL]	[NULL]	[NULL]	5.0	[NULL]	[NULL]	0 [NULL] Belgian-Style Fruit Lambic
16	[NULL]	[NULL]	[NULL]	6.0	[NULL]	[NULL]	0 [NULL] Belgian-Style Fruit Lambic
17	ROOFTOP	-97.7697	30.2234	[NULL]	United States	http://www.512brewing.com/	[NULL]
18	[NULL]	[NULL]	[NULL]	6.0	[NULL]	[NULL]	0 [NULL] German-Style Brown Ale
19	[NULL]	[NULL]	[NULL]	7.6	[NULL]	[NULL]	0 [NULL] American-Style Brown Ale
20	[NULL]	[NULL]	[NULL]	7.0	[NULL]	[NULL]	0 [NULL] American-Style India Pale Ale
21	[NULL]	[NULL]	[NULL]	5.8	[NULL]	[NULL]	0 [NULL] American-Style Pale Ale
22	[NULL]	[NULL]	[NULL]	6.8	[NULL]	[NULL]	0 [NULL] Porter
23	[NULL]	[NULL]	[NULL]	8.2	[NULL]	[NULL]	0 [NULL] Porter
24	[NULL]	[NULL]	[NULL]	5.2	[NULL]	[NULL]	0 [NULL] Belgian-Style White Ale
25	[NULL]	[NULL]	[NULL]	8.0	[NULL]	[NULL]	0 [NULL] Belgian-Style Pale Strong Ale
26	APPROXIMATE	10.2135	59.7451	[NULL]	Norway	http://www.aass.no	[NULL]

Save Cancel Script | < > Excel | 200 | 7,303 Rows: 1 200 row(s) fetched - 7.235s (+30ms)

UTC en 95M of 305M

DBeaver Enterprise 7.3.0 - beer-sample

File Edit Navigate Search SQL Editor Database Window Help

Couchbase - localhost < N/A >

beer-sample < Couchbase - localhost>Script-183

Properties Data

beer-sample Enter a SQL expression to filter results (use Ctrl+Space)

Grid

[1] Document

```
{
  "beer-sample": {
    "geo": {
      "accuracy": "ROOFTOP",
      "lon": -122.393,
      "lat": 37.7825
    },
    "country": "United States",
    "website": "http://www.21st-amendment.com/",
    "address": [
      "563 Second Street"
    ],
    "code": "94107",
    "city": "San Francisco",
    "phone": "1-415-369-0900",
    "name": "21st Amendment Brewery Cafe",
    "description": "The 21st Amendment Brewery offers a variety of award winning beers and cocktails in a comfortable lounge setting. We also have a full menu of pizzas, salads, and sandwiches.",
    "state": "California",
    "type": "brewery",
    "updated": "2010-10-24 13:54:07"
  }
}
```

[2] Document

```
{
  "beer-sample": {
    "abv": 7.2,
    "name": "21A IPA",
    "description": "Deep golden color. Citrus and piney hop aromas. Assertive malt backbone supporting the overwhelming bitterness. Dry hopped in-house for maximum flavor and aroma.",
    "upc": 0,
    "style": "American-Style India Pale Ale",
    "brewery_id": "21st_amendment_brewery_cafe",
    "category": "North American Ale",
    "type": "beer",
    "ibu": 0,
    "updated": "2010-07-22 20:00:20"
  }
}
```

Find/Replace

Find: Cali

Replace with:

Direction: Forward Scope: All

Options: Case sensitive Wrap search Whole word Incremental Regular expressions

Find Replace/Find Replace Replace All Close

Save Cancel Script | < > Excel | 200 | 7,303 Rows: 1 200 row(s) fetched - 7.235s (+30ms)

UTC en 115M of 305M

## Executing Couchbase queries

Couchbase uses [N1QL language](#) for queries. It is very similar to the standard SQL language.

```
SELECT country FROM `travel-sample` WHERE name = "Excel Airways";
```

The screenshot shows the DBeaver Enterprise 7.3.0 interface. At the top, there is a toolbar with various icons for file operations, database management, and search. Below the toolbar, the main window has a title bar "beer-sample" and a status bar indicating "Couchbase - localhost". The left side features a tree view of the database structure under "beer-sample", including tables like "beer-sample", "travel-sample", and system tables. A search bar at the bottom of the tree view says "Enter a SQL expression to filter results (use Ctrl+Space)". The right side of the interface contains a large panel titled "[1] Document" which displays a JSON document. The JSON structure is as follows:

```
{  
  "beer-sample": {  
    "geo": {  
      "accuracy": "ROOFTOP",  
      "lon": -122.393,  
      "lat": 37.7825  
    },  
    "country": "United States",  
    "website": "http://www.21st-amendment.com/",  
    "address": [  
      "563 Second Street"  
    ],  
    "code": "94107",  
    "city": "San Francisco",  
    "phone": "(1-415-369-0900",  
    "name": "21st Amendment Brewery Cafe",  
    "description": "The 21st Amendment Brewery offers a variety of award winning house made brews and American grilled cuisine in a comfortable 1",  
    "state": "California",  
    "type": "brewery",  
    "updated": "2010-10-24 13:54:07"  
  }  
}
```

The bottom of the interface includes a footer with links to "UTC", "en", "Writable", "Smart Insert", and "120M of 305M".

# Apache Hive/Spark/Impala

## Apache Hive

Hive is a Hadoop-based storage system. Hive uses a special SQL dialect (HiveQL) to operate with data and metadata. Generally, it is quite similar to SQL.

There are multiple implementations of storage systems which utilize Hive on server-side - including Apache Spark, Impala, etc. Most of them support standard Hive JDBC driver which is used in DBeaver to communicate with the server.

DBeaver uses so-called Hive JDBC Uber Jar driver (<https://github.com/timveil/hive-jdbc-uber-jar>) which includes all necessary dependencies. You don't need to download anything - DBeaver will download everything automatically (if you have internet access).

## Connection setup

The screenshot shows the 'Create new connection' dialog in DBeaver. The title bar says 'Create new connection'. The main area is titled 'Select new connection type' and shows 'Apache Hive JDBC' as the selected option. Below this, there is a search bar containing 'hive' and a tree view under 'Name' showing 'Hadoop' expanded, with 'Apache Hive' and 'Spark Hive' listed. At the bottom, there are buttons for '?', '< Back' (disabled), 'Next >', 'Finish' (disabled), 'Cancel', and 'Test Connection ...'.

Name	#
Hadoop	6
Apache Hive	1
Spark Hive	1

Create new connection

### Generic JDBC Connection Settings

Hadoop / Apache Hive connection settings

General Driver properties

JDBC URL: `jdbc:hive2://hive.theserver.com:10000/foodmart`

Host: `hive.theserver.com` Port: `10000`

Database/Schema: `foodmart`

User name:

Password:   Save password locally

[Network settings \(SSH, SSL, Proxy, ...\)](#)  
[Connection details \(name, type, ...\)](#)

Driver Name: Hadoop / Apache Hive [Edit Driver Settings](#)

[?](#) [Back](#) [Next >](#) [Finish](#) [Cancel](#) [Test Connection ...](#)

**Success** [X](#)

**i** Server: Apache Hive 1.2.1000.2.6.5.0-292  
Driver: org.apache.hive.jdbc.HiveDriver -1.-1

Connected (2349 ms)

[OK](#)

## Schema/data browser

FancyName - foodmart.customer

File Edit Navigate Search SQL Editor Run Database Window Help

Hive - default

Default

customer | Enter a SQL expression to filter results (use Ctrl+Space)

	123 customer_id	123 account_num	RBC lname	RBC fname	RBC mi	RBC address1	RBC address2	RBC address3
1	1	87,462,024,688	Nowmer	Sheri	A.	2433 Bailey Road		
2	2	87,470,586,299	Wheplay	Derrick	I.	2219 Dewing Avenue		
3	3	87,475,757,600	Derry	Jeanne		7640 First Ave.		
4	4	87,500,482,201	Spence	Michael	J.	337 Tosca Way		
5	5	87,514,054,179	Gutierrez	Maya		8668 Via Neruda		
6	6	87,517,782,449	Damstra	Robert	F.	1619 Stillman Court		
7	7	87,521,712,800	Kanagaki	Rebecca		2860 D Mt. Hood Circle		
8	8	87,539,744,377	Brunner	Kim	H.	6064 Brodia Court		
9	9	87,544,797,658	Blumberg	Brenda	C.	7560 Trees Drive		
10	10	87,568,712,234	Stanz	Darren	M.	1019 Kenwal Rd.		
11	11	87,572,821,378	Murrauin	Jonathan	V.	5423 Camby Rd.		
12	12	87,579,237,222	Creek	Jewel	C.	1792 Belmont Rd.		
13	13	87,587,122,917	Medina	Peggy	A.	3796 Keller Ridge		
14	14	87,592,626,810	Rutledge	Bryan	K.	3074 Ardith Drive		
15	15	87,597,749,829	Cavestany	Walter	G.	7987 Seawind Dr.		
16	16	87,603,285,908	Planck	Peggy	M.	4864 San Carlos		
17	17	87,625,473,141	Marshall	Brenda	S.	2687 Ridge Road		
18	18	87,637,655,735	Wolter	Daniel	P.	2473 Orchard Way		
19	19	87,650,814,652	Collins	Dianne		551 Rainier Dr		
20	20	87,653,979,700	Baker	Beverly		591 Merriewood Drive		
21	21	87,663,244,009	Castillo	Pedro		1579 Plaza Rosa		
22	22	87,675,641,200	Borges	Laurie		1873 Lyon Circle		
23	23	87,678,398,489	Wyro	Shauna	K.	3114 Notre Dame Ave.		
24	24	87,681,713,700	Wyllie	Jacqueline		6318 Marclair Dr.		
25	25	87,686,740,159	Conlev	Lin	N.	7814 Milburn Dr.		

Save Cancel Script < > Record Panels Grid Text Excel

① 200 row(s) fetched - 332ms (+583ms) [Hive - default]

MSK en 96M of 518M Load row count

Properties Data ER Diagram

Name Value

Table Name account

Table Type TABLE

Catalog

Schema foodmart

Table Description

Columns Indexes DDL

```

CREATE EXTERNAL TABLE `foodmart.account`(
  `account_id` int,
  `account_parent` int,
  `account_description` varchar(30),
  `account_type` varchar(30),
  `account_rollup` varchar(30),
  `custom_members` varchar(255))
ROW FORMAT SERDE
  'org.apache.hadoop.hive.ql.io.orc.OrcSerde'
STORED AS INPUTFORMAT
  'org.apache.hadoop.hive.ql.io.orc.OrcInputFormat'
OUTPUTFORMAT
  'org.apache.hadoop.hive.ql.io.orc.OrcOutputFormat'
LOCATION
  'hdfs://sandbox-hdp.hortonworks.com:8020/apps/hive/warehouse/foodmart.db/account'
TBLPROPERTIES (
  'COLUMN_STATS_ACCURATE'='{"COLUMN_STATS":{\'account_id\':\'true\',\'account_parent\':\'true\',\'account_description\':\'true\',\'account_type\':\'true\',\'account_rollup\':\'true\',\'custom_members\':\'true\'}}',
  'numFiles'=1,
  'orc.compress'=SNAPPY,
  'totalSize'=1444,
  'transient_lastDdlTime'=1529335182)
  
```

## Limitations

Hive doesn't support referential integrity so you won't see primary keys or foreign keys. ER diagrams also don't make much sense.

# Installing extensions - Themes, version control, etc

You can install a lot of optional extensions (plugins) in DBeaver. Most of extensions can be found on [Eclipse Marketplace website](#).

## Popular extensions for DBeaver

- [Darkest Dark theme](#) - the best Dark theme for DBeaver
- [Eclipse Color Theme](#) - use it if you don't like Darkest Dark theme by some reason
- [Git support](#) - Git version control integration
- [Subversion support](#) - Subversion integration
- [Embedded Shell](#) - Allows to run shell commands directly from DBeaver
- [Editor vertical indents](#) - Adds vertical indents to all text editors

### DBeaver-specific extensions

- [Office formats support \(XLSX\)](#)
- [Vector graphics support \(SVG\)](#)
- [SSHJ and advanced cryptography](#)
- [SQL debugger](#)

## Install Process

In DBeaver EE you can use drag-n-drop from Marketplace web site (see button [Install](#)) into DBeaver main window. This will launch Marketplace installation wizard automatically. In DBeaver Community or other DBeaver-based products which do not include marketplace clients you can use following instructions:

### Extension installation in CE version:

---

1. Copy URL of extension update site:



MY M...

HOME / MARKETPLACE / TOOLS (1555) / DBEAVER - OFFICE INTEGRATION

MARKETS

»

## DBeaver - Office integration

SEARCH

▼

Search



ADVANCED SEARCH »

SEARCH

View

Clear Outdated Flags

Edit



★ 13    0



Details

Metrics

Errors

External Install Button

Office integration with DBeaver (<https://marketplace.eclipse.org/package/com.jkiss.dbeaver.feature.featuregroup>)

Support data export in XLSX file format and direct results Calc)

Categories: Database, Editor

database, sql, sql client, xls, xlsx, offi

★ FAVORITED BY

LINK TO THIS LISTING

Allow users to favorite this listing from your website!

Update site url

Add this URL to your Eclipse Installation to reach this solution's update site.

Oxygen (4.7)  
Neon (4.6)  
Mars (4.5)  
Luna (4.4)  
Kepler (4.3)  
Photon (4.8)  
2018-09 (4.9)<https://dbeaver.jkiss.org/update/office/latest/>

**DETAILS**

**Version:** Neon (4.6), Mars (4.5), Luna (4.4), Kepler (4.3), Photon (4.8), 2018-09 (4.9)

**Support:** Windows, Mac, Linux/GTK

**Name:** JKISS

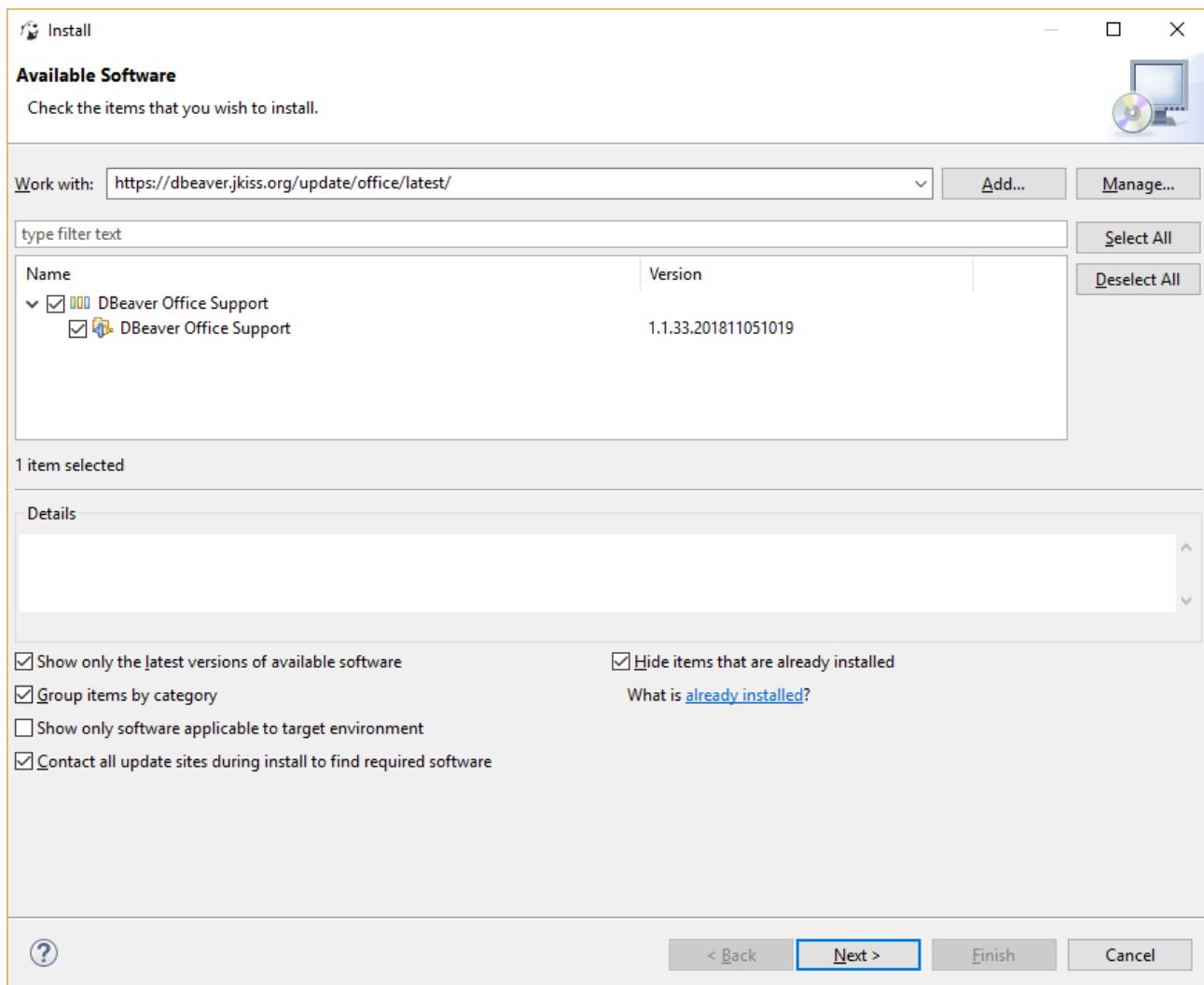
**Last Update:** Tue, 2017-11-07 16:54

**Status:** Production/Stable

**Author:** Serge Rider

**Created:** Thu, 2018-08-23 15:11

2. In DBeaver main menu open `Help -> Install New Software`
3. Paste update site URL into `Work with` field and press `Enter`
4. Check items you wish to install (in most cases just all items)



5. Click Next. You may need to accept extension license before installation

 Install

**Review Licenses**

Licenses must be reviewed and accepted before the software can be installed.



**License text (for DBeaver Office Support 1.1.33.201811051019):**

Apache License  
Version 2.0, January 2004  
<http://www.apache.org/licenses/>

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**1. Definitions.**

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"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

I accept the terms of the license agreement  
 I do not accept the terms of the license agreement

 [Back](#) [Next >](#) [Finish](#) [Cancel](#)

6. Some extensions may contain unsigned bundles. Install such extensions only if you really trust author.

 Security Warning

 Warning: You are installing software that contains unsigned content. The authenticity or validity of this software cannot be established. Do you want to continue with the installation?

[Install anyway](#) [Cancel](#) [Details >>](#)

7. Click Next->Finish. Installation will take some time. Restart DBeaver.

# Command-Line

## Command line parameters

Command line parameters might be passed directly to dbeaver[.exe] executable.

On Windows you also can use `dbeaver-cli.exe` executable (it doesn't spawn new window so you can see output messages).

Also you can add parameters in the `dbeaver.ini` configuration file (in the beginning, each parameter on its own line).

## DBeaver control

Name	Value	Example
-help	Prints help message	
-stop	Quits DBeaver	
-dump	Prints DBeaver thread dump	
-f	Opens file in DBeaver UI	<code>-f c:\some-path\some-file.sql</code>
-con	Opens database connection in DBeaver UI	See <a href="#">connection parameters table</a>
-closeTabs	Closes all open editor tabs	
-disconnectAll	Closes all open connections	
-reuseWorkspace	Force reuse of single workspace by multiple DBeaver instances	
-newInstance	Force new DBeaver instance creation (do not try to reuse already running one)	
-runTask	Executes specified task	<code>-runTask @projectName:taskName</code> . EE version only. See <a href="#">task scheduler</a> .
-license	Path to the EE license file	<code>-license /etc/licenses/dbeaver.txt</code> . EE version only.

## System parameters

Name	Value	Example
-nl	Locale	en_US
-data	Workspace path	c:\ProgramData\MyWorkspace
-nosplash	Omits splash screen	true
-clean	Clears all Eclipse caches. Use it if DBeaver fails to start after version upgrade.	
-vmargs	VM parameters	See <a href="#">VM arguments table</a>

## VM arguments

You can pass any advanced Java parameters supported by your local JVM (Oracle, OpenJDK, IBM, etc).

Parameters supported by Oracle JVM (1.8): <https://docs.oracle.com/javase/8/docs/technotes/tools/windows/java.html>

Parameters supported by all JVMs:

Name	Value	Example
-Xms	Sets initial memory available for DBeaver	<code>-Xms1000m</code>
-Xmx	Sets maximum memory available for DBeaver	<code>-Xmx4000m</code>

## Connection parameters

All connection parameters must be supplied as a single command line argument, parameters are divided by pipe ( | ). Parameter name and value are divided by = .

Example: -con driver=sqlite|database=C:\db\SQLite\Chinook.db|name=SQLiteChin|openConsole=true|folder=SQLite

Name	Value	Example
name	Connection name	Test connection
driver	Driver name or ID	driver=sqlite , driver=mysql , etc
url	Connection URL. Optional (JDBC URL may be constructed by driver from other parameters)	url=jdbc:sqlite:c:\db\SQLite\Chinook.db
host	Database host name (optional)	host=localhost
port	Database port number (optional)	port=1534
server	Database server name (optional)	server=myserver
database	Database name or path (optional)	database=db.name
user	User name (optional)	user=root
password	User password (optional)	password=mypassword
auth	Authentication model ID. See <a href="#">Auth models</a>	auth=postgres_pgpass
authProp.propName	Custom authentication parameters (depends on driver and <a href="#">auth model</a> )	authProp.oracle.net.wallet_location=C:/temp/ora-wallet
savePassword	Do not ask use password on connect	savePassword=true
showSystemObjects	Show/hide system schemas, tables ,etc	showSystemObjects=true
showUtilityObjects	Show/hide utility schemas, tables ,etc	showUtilityObjects=true
folder	Put new connection in a folder	folder=FolderName
autoCommit	Sets connection auto commit flag (default value depends on driver)	autoCommit=true
prop.propName	Advanced connection parameters (depend on driver)	prop.connectTimeout=30
id	Connection id	oracle_thin-16a88e815bd-70598e648cedd28c (useful in conjunction with <code>create=false</code> )
connect	Connect to this database	connect=false
openConsole	Open SQL console for this database (sets <code>connect</code> to true)	openConsole=true
create	Create new connection	<code>create=false</code> (true by default). If set to false then existing connection configuration will be used. name or id parameter must be specified.

# Reset UI settings

Sometimes, usually after multiple version and /or upgrades/incorrect shutdowns DBeaver UI may become corrupted. Extra toolbar elements, missing menu items, broken keyboard shortcuts, broken localization strings and other glitches may happen.

To reset DBeaver UI just delete file `workbench.xmi` in DBeaver workspace/.metadata. By default workbench.xmi file locations is:

- Windows: `%APPDATA%\DBeaverData\workspace6\.metadata\.plugins\org.eclipse.e4.workbench\workbench.xmi`
- MacOS: `~/Library/DBeaverData/workspace6/.metadata/.plugins/org.eclipse.e4.workbench/workbench.xmi`
- Linux: `$XDG_DATA_HOME/DBeaverData/workspace6/.metadata/.plugins/org.eclipse.e4.workbench/workbench.xmi`

To reset settings:

1. Close DBeaver
2. Delete workbench.xmi from Explorer/Finder or open terminal and run `del` (Windows) or `rm` (Linux/MacOS) followed by workbench.xmi path.
3. Start DBeaver

# Reset workspace

Sometimes (especially after multiple DBeaver versions upgrade) workspace become messy.

Some keyboard shortcuts may stop working, toolbars layout may be broken, etc, etc.

To reset all UI settings (this includes menus, shortcuts, view and toolbar layouts):

1. Shutdown DBeaver
2. Go to the default workspace folder `.metadata\.plugins\org.eclipse.e4.workbench\`

- o Windows: `Win+R`, enter `%APPDATA%\DBeaverData\workspace6\.metadata\.plugins\org.eclipse.e4.workbench\`
- o MacOS: `open ~/Library/DBeaverData/workspace6/.metadata/.plugins/org.eclipse.e4.workbench/`
- o Linux: `cd $XDG_DATA_HOME/DBeaverData/workspace6/.metadata/.plugins/org.eclipse.e4.workbench/`

3. Delete file `workbench.xmi`

4. Start DBeaver

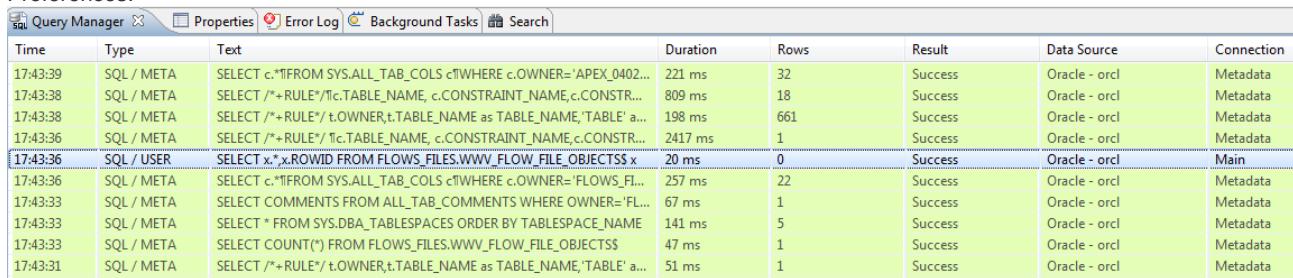
If that doesn't help then you can try to remove `.metadata` folder (see location above). This will erase all your UI settings (but all connections, settings and scripts will remain as is).

That's it.

# Posting issues

A few tips.

- Check existing issues for your issue (including closed ones). Duplicating an issue is slower for both parties so search through open and closed issues to see if what you're running into has been addressed already.
- Be clear about what your problem is: what was the expected outcome, what happened instead? Detail how someone else can recreate the problem.
- If you posting a bug report check "Error Log" view. If there are any errors related to your bug then post a complete stacktrace. Sometimes there are no errors in Error Log - then try to find them in [log files](#).
- If your issue is related to a database data or metadata management - check the Query Manager view. It contains information about all queries DBeaver executes (explicitly or implicitly). To see more detailed information you can configure Query Manager in Preferences.



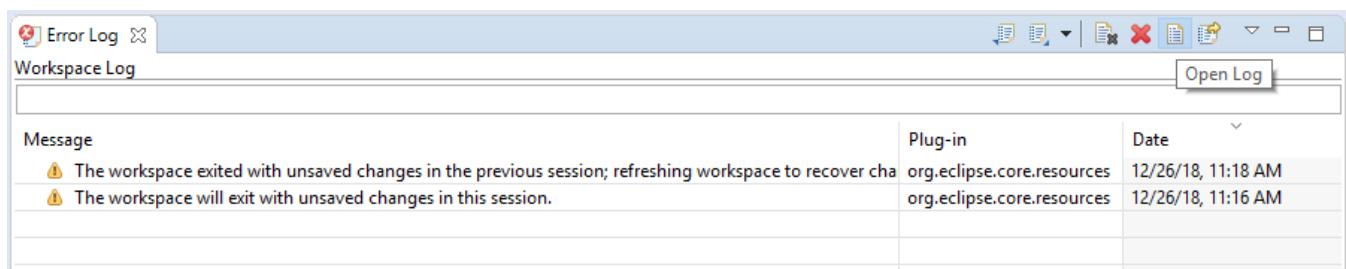
Time	Type	Text	Duration	Rows	Result	Data Source	Connection
17:43:39	SQL / META	SELECT c.*  FROM SYS.ALL_TAB_COLS c  WHERE c.OWNER='APEX_0402...'	221 ms	32	Success	Oracle - orcl	Metadata
17:43:38	SQL / META	SELECT /*+RULE*/  c.TABLE_NAME, c.CONSTRAINT_NAME,c.CONSTR...	809 ms	18	Success	Oracle - orcl	Metadata
17:43:38	SQL / META	SELECT /*+RULE*/ t.OWNER,t.TABLE_NAME as TABLE_NAME, TABLE' a...	198 ms	661	Success	Oracle - orcl	Metadata
17:43:36	SQL / META	SELECT /*+RULE*/  c.TABLE_NAME, c.CONSTRAINT_NAME,c.CONSTR...	2417 ms	1	Success	Oracle - orcl	Metadata
17:43:36	SQL / USER	SELECT x.*  x.ROWID FROM FLOWS_FILES.WVV_FLOW_FILE_OBJECTS\$ x	20 ms	0	Success	Oracle - orcl	Main
17:43:36	SQL / META	SELECT c.*  FROM SYS.ALL_TAB_COLS c  WHERE c.OWNER='FLOWS_Fl...	257 ms	22	Success	Oracle - orcl	Metadata
17:43:33	SQL / META	SELECT COMMENTS FROM ALL_TABLE_COMMENTS WHERE OWNER='FL...	67 ms	1	Success	Oracle - orcl	Metadata
17:43:33	SQL / META	SELECT * FROM SYS.DBA_TABLESPACES ORDER BY TABLESPACE_NAME	141 ms	5	Success	Oracle - orcl	Metadata
17:43:33	SQL / META	SELECT COUNT(*) FROM FLOWS_FILES.WVV_FLOW_FILE_OBJECTS\$	47 ms	1	Success	Oracle - orcl	Metadata
17:43:31	SQL / META	SELECT /*+RULE*/ t.OWNER,t.TABLE_NAME as TABLE_NAME, TABLE' a...	51 ms	1	Success	Oracle - orcl	Metadata

- Depending on the nature of your bug report provide information about:
  - Operating system
  - Window manager (for Linux)
  - Database (name and version)
  - Database driver (name and version)
- Do not write issue type in the issue title (like Feature Request:, Bug: etc). We'll review your issue and assign a corresponding label.

# Log files

## Error Log view

There is Error Log view (main menu Window->Show View->Error Log) which contains all errors occurred during DBeaver runtime. You can double click on warning/error in the log viewer and see error stacktrace. Please attach it to the bug report. Also you can open full log (all error messages) if you need:



## Log files

DBeaver writes different log files. Most of them are Eclipse logs.

Usually log files reside in the `workspace/workspace6/.metadata`.

- On Windows open Explorer and paste path `%APPDATA%\DBeaverData\workspace6\.metadata`.
- On Linux just type `cd $XDG_DATA_HOME/DBeaverData/workspace6/.metadata`
- On MacOS open path `~/Library/DBeaverData/workspace6/.metadata` in Finder.
  - To view hidden folders press `Cmd+Shift+.`  in the folder view.

Two standard log files:

- `workspace/workspace6/.metadata/.log` - all warnings and errors which happens during normal work
- `workspace/workspace6/.metadata/dbeaver-debug.log` - the same as `.log` plus debug information

In special cases log files can be written in other directories. Special case is an emergency situation when DBeaver can't start and there is no workspace. Two typical places to find emergency logs:

- `<install-path>/configuration`
- `~/.eclipse/org.jkiss.dbeaver.product_<dbeaver-version>`

If you are reporting about some error please attach logs (not complete file but valuable part of it). Logs are very useful, big number of errors can't be reproduced/fixed without full error stacktrace.

## Java fatal logs

In rare cases DBeaver process dies and doesn't leave any valuable logs. This caused by Java VM crash.

JVM creates a fatal log file for each crash (log file `hs_err_PID.log`). This log usually resides in the same directory where dbeaver launcher is (e.g. `dbeaver.exe`).

But in some cases it is a write-protected directory and log file will be created in other folder.

Instruction how to find Java fatal log file: <https://docs.oracle.com/javase/9/troubleshoot/fatal-error-log.htm>

# JDBC trace

In some cases custom JDBC drivers work incorrectly in DBeaver - shows wrong metadata like table columns, constraints or foreign keys.

Usually it happens because driver isn't compliant with JDBC API specification and DBeaver can't correctly interpret metadata provided by driver.

To understand what is going on inside driver you can enable JDBC tracing:

1. Find `dbeaver.ini` file (it is located in the same folder where DBeaver is installed)
2. Add line `-Ddbeaver.jdbc.trace=true` in the end of `dbeaver.ini`
3. Restart DBeaver
4. Connect to your database and browse metadata in the database navigator/object editors.
5. In DBeaver **Workspace** go to `.metadata` folder
6. File `jdbc-api-trace.log` contains all JDBC API invocations and all queries with results.

Analyzing contents of `jdbc-api-trace.log` you can understand what is wrong with metadata. Attach piece of trace file in GitHub ticket if you think that something is wrong on DBeaver side.

**WARNING:** disable JDBC tracing in your regular work. Enable it only for debugging. Trace generation decreases application performance and may produce huge log files.

# Thread dump

Sometimes (due to some bug) DBeaver UI hangs, freezes or works incorrectly. Usually it is impossible to find the reason of such problem without thread dump. Thread dump is the information about internal execution state of Java program. To get thread dump:

## Mac and Linux

Run the following on your terminal:

```
jstack $(ps aux | grep -m1 dbeaver | awk '{print $2}') > thread-dump.txt
```

## Windows

Just open task manager (CTRL+Escape), find DBeaver in the process list and copy process ID value. On Windows 8+ you need to switch to "Details" tab. Run

```
jstack <PID> > thread-dump.txt
```

in Command Prompt.

Now you can attach `thread-dump.txt` to the GitHub issue.

# Managing connections

This guide describes how to manage/secure DBeaver database connections. It is designed for System administrators. Regular users should check [this](#) guide.

## Provide predefined connections

DBeaver keeps connections information in project folder. By default all projects reside in [workspace](#). Default project folder is `workspace\workspace6\General`.

### DBeaver 6.1.3+

DBeaver keeps information about project connections in file `.dbeaver/data-sources.json`.

All secured information (user name, password, secret keys, etc) is stored in the encrypted file `.dbeaver/credentials-config.json`.

DBeaver can load multiple connection files. Any files in project folder matching `.dbeaver/data-sources*.json` pattern will be loaded on startup. So you can create a file, say, `.dbeaver/data-sources-2.json` in the project folder and DBeaver will see it.

### DBeaver < 6.1.3

DBeaver keeps information about project connections in file `dbeaver-data-sources.xml`.

DBeaver can load multiple connection files. Any files in project folder matching `.dbeaver-data-sources*.xml` pattern will be loaded on startup. So you can create a file, say, `.dbeaver-data-sources-2.xml` in the project folder and DBeaver will see it.

## Importing connections from CSV/XML

You can import connection from CSV or XML files.

CSV file must have a header row (first line of file) with column names (see list of supported columns below). XML file should contain top-level element and a set of nested elements. Connections config must be specified in attributes of nested elements. Attribute names are the same as CSV column names.

### Supported names:

Name	Meaning
name	Connection name
url	JDBC URL
host	Database server host name
port	Database server port
database	Database/schema name
user	User name
password	User password

You can specify just URL or set host/port/etc setting.

User name/password are options.

### Sample CSV

```
name,host,port,server,database,url,user,password,type
Postgre Import XML 1,localhost,5432,,postgres,jdbc:postgresql://localhost:5432/postgres,postgres,postgres,dev
Postgre Import XML 2,localhost,5432,,postgres2,jdbc:postgresql://localhost:5432/postgres2,postgres2,postgres2,prod
```

### Sample XML

```
<connections>
  <connection name="Postgre Import XML 1" host="localhost" port="5432" server="" database="postgres" url="jdbc:postgresql://localhost:5432/postgres" user="postgres" password="postgres" type="dev"/>
  <connection name="Postgre Import XML 2" host="localhost" port="5432" server="" database="postgres" url="jdbc:postgresql://localhost:5432/postgres2" user="postgres2" password="postgres2" type="prod"/>
</connections>
```

## Secure connections from editing

It is possible to make connection settings read-only (protected by password)

- Generate MD5 hash of your password. You can do it from command line using Linux utility md5sum (`md5sum <<<"your password"`) or you can do it online - just google "MD5 hash online".
- Add field `lockPassword` in connection descriptor (in `.dbeaver/data-sources.json` in `connections` element. So it will look like this:

```
postgres-jdbc-161537836e8-3e0957d039995715": {
    "provider": "postgresql",
    "driver": "postgres-jdbc",
    "name": "PostgreSQL - postgres",
    "save-password": true,
    "show-system-objects": true,
    "read-only": false,
    "folder": "PG",
    "lockPassword": "2ba81a47c5512d9e23c435c1f29373cb"
...
}
```

- Now if user will try to change connection settings he/she will be asked for password

# Managing drivers

## Configure drivers with pre-installed jars

You can customize drivers configuration in `workspace/.metadata/.plugins/org.jkiss.dbeaver.core/drivers.xml` file. If you have some pre-installed jar files you can reference them in `drivers.xml`. Example:

```
<library type="jar" path="absolute-jar-folder-path\driver-jar.jar" custom="true"/>
```

Also in `drivers.xml` you can use following variables to specify relative paths:

Variable	Meaning
drivers_home	Standard DBeaver drivers location - ( <code>\$workspace/drivers</code> by default)
dbeaver_home	DBeaver installation folder
home	User home folder
workspace	DBeaver workspace path

For instance:

```
<library type="jar" path="${workspace}\drivers\my-driver.jar" custom="true"/>
```

Full `drivers.xml` example:

```
<?xml version="1.0" encoding="UTF-8"?>
<drivers>

    <provider id="postgresql">
        <driver id="postgres-jdbc" custom="false" embedded="false" name="PostgreSQL" class="org.postgresql.Driver" url="jdbc:postgresql://{host}[:{port}]/[{database}]" port="5432" description="PostgreSQL standard driver">
            <library type="jar" path="maven:/org.postgresql:postgresql:RELEASE" custom="false" version="42.2.3">
                <file id="org.postgresql:postgresql" version="42.2.3" path="${drivers_home}/maven/maven-central/org.postgresql/postgresql-42.2.3.jar"/>
            </library>
            <library type="jar" path="maven:/net.postgis:postgis-jdbc:RELEASE" custom="false" version="2.2.1">
                <file id="net.postgis:postgis-jdbc" version="2.2.1" path="${drivers_home}/maven/maven-central/net.postgis/postgis-jdbc-2.2.1.jar"/>
            </library>
            <library type="jar" path="maven:/net.postgis:postgis-jdbc-jtsparser:RELEASE" custom="false" version="2.2.1">
                <file id="net.postgis:postgis-jdbc-jtsparser" version="2.2.1" path="${drivers_home}/maven/maven-central/net.postgis/postgis-jdbc-jtsparser-2.2.1.jar"/>
            </library>
        </driver>
    </provider>
</drivers>
```

## Provide predefined drivers configuration

In some cases you may need to provide drivers configuration or driver jar files for a number of DBeaver installations automatically. This can be done by adding special parameter in the `dbeaver.ini` file: `-Ddbeaver.drivers.configuration-file=c:\some-path\dbeaver-drivers-config.xml`

This file has the same structure as `drivers.xml` file (see above) and it will be loaded *before* `drivers.xml`.

You can specify partial driver configuration. For example if you need to configure only jar path then it may look like this:

```
<?xml version="1.0" encoding="UTF-8"?>
<drivers>
    <provider id="generic">
        <driver id="netezza">
            <library type="lib" path="X:\jdbc-drivers\netezza-jdbc.jar"/>
        </driver>
    </provider>
</drivers>
```

# Windows Silent Install

It is possible to install DBeaver in silent mode using Windows Installer command line parameters.

This might be very useful for mass install automation (SSCM and other similar systems).

Installer was improved in DBeaver 5.3.3, special thanks to <https://github.com/Drizin/NsisMultiUser> team.

## Parameters

Command line parameters supported by DBeaver installer:

Parameter	Description
/S	silent mode, requires /allusers or /currentuser, case-sensitive
/D=path	(installer only) set install directory, must be last parameter, without quotes, case-sensitive
/allusers	(un)install for all users, case-insensitive
/currentuser	(un)install for current user only, case-insensitive
/uninstall	(installer only) run uninstaller, requires /allusers or /currentuser, case-insensitive

In order to install with /allusers parameter current user must have administrator permissions.

## Installer return codes (decimal):

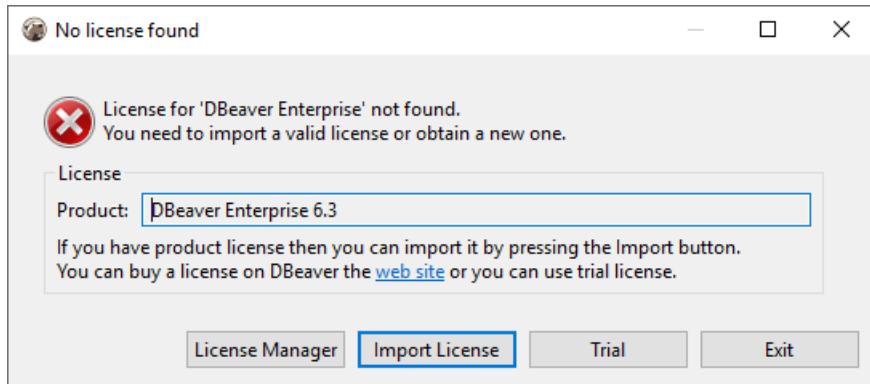
Code	Meaning
0	normal execution (no error)
1	(un)installation aborted by user (Cancel button)
2	(un)installation aborted by script
666660	invalid command-line parameters
666661	elevation is not allowed by defines
666662	uninstaller detected there's no installed version
666663	executing uninstaller from the installer failed
666666	cannot start elevated instance
other	Windows error code when trying to start elevated instance"

# License Administration

Note: This functionality is available only in [Enterprise Edition](#).

## Manual license import

DBeaver EE asks user to import license file if this file cannot be found in the local license storage. For individual users this is the most simple and convenient way to import product license.



## License management automation

There are several ways to automate license management process. It makes sense for multi-user environment.

### Put the license file to the predefined locations

On start DBeaver will look for license file in the following locations:

- Windows
  - `%HOMEPATH%\.dbeaver-ee-license.dat`
  - `%APPDATA%\DBeaverData\workspace6\.metadata\.dbeaver-ee-license.dat`
- MacOS X
  - `~/.dbeaver-ee-license.dat`
  - `~/Library/DBeaverData/workspace6/.metadata/.dbeaver-ee-license.dat`
- Linux
  - `~/.dbeaver-ee-license.dat`
  - `$XDG_DATA_HOME/DBeaverData/workspace6/.metadata/.dbeaver-ee-license.dat`

### Passing license file through command line

You can add command line parameter `license <license-path>` to the DBeaver EE shortcut. Also you can add this parameter to `dbeaver.ini` config file.

[Command line reference](#).