Navicat
Version 15

User Guide

PremiumSoft™
PremiumSoft CyberTech Ltd.

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Chapter 1 - Introduction

About Navicat

Navicat is a multi-connections Database Administration tool allowing you to connect to MySQL, Oracle, PostgreSQL, SQLite, SQL Server, MariaDB and/or MongoDB databases, making database administration to multiple kinds of database so easy. It can also manage cloud databases such as Amazon Redshift, Amazon RDS, Alibaba Cloud. Features in Navicat are sophisticated enough to provide professional developers for all their specific needs, yet easy to learn for users who are new to database server. With its well-designed Graphical User Interface(GUI), Navicat lets you quickly and easily create, organize, access and share information in a secure and easy way.

Navicat is available on three platforms - Microsoft Windows, macOS and Linux. It can connect to local/remote servers, providing several utility tools such as Navicat Cloud Collaboration, Data Modeling, Data Transfer, Data/Structure Synchronization, Import/Export, Backup/Restore, Charts and Automation.

For details, visit our website: https://www.navicat.com

System Requirements

Windows

- Microsoft Windows Vista, Windows 7, Windows 8, Windows 8.1, Windows 10, Server 2008, Server 2012, Server 2016, Server 2019

macOS

- macOS 10.12 Sierra, macOS 10.13 High Sierra, macOS 10.14 Mojave, macOS 10.15 Catalina, macOS 11 Big Sur

Linux

- Debian 9 or later, Ubuntu 16.04 or later, CentOS 7 or later, Fedora 26 or later, Linux Mint 18 or later

Supported On-Premises Databases

- MySQL 3.23 or later, Drizzle, OurDelta, Percona Server
- PostgreSQL 7.3 or later
- Oracle 8i or later
- SQLite 2 and 3
- SQL Server 2000 or later
- MariaDB 5.1 or later
- MongoDB 3.0 to 4.4

Supported Cloud Databases

Amazon AWS

- Amazon Redshift
- Amazon Aurora for MySQL
- Amazon Aurora for PostgreSQL
- Amazon RDS for MySQL
- Amazon RDS for PostgreSQL
- Amazon RDS for Oracle
- Amazon RDS for SQL Server
- Amazon RDS for MariaDB
- Amazon DocumentDB

Google Cloud

- Google Cloud SQL for MySQL
- Google Cloud SQL for PostgreSQL

Oracle Cloud

- Oracle Database Cloud Service
- Oracle MySQL Cloud Service

Microsoft Azure

- Microsoft Azure SQL Database
- Microsoft Azure Database for MySQL
- Microsoft Azure Database for PostgreSQL
- Microsoft Azure Database for MariaDB

MongoDB Cloud Services

- MongoDB Atlas

Alibaba Cloud

- Alibaba Cloud ApsaraDB for RDS (MySQL)

- Alibaba Cloud ApsaraDB for RDS (PostgreSQL)
- Alibaba Cloud ApsaraDB for RDS (SQL Server)
- Alibaba Cloud ApsaraDB for MongoDB

Tencent Cloud

- Tencent Cloud TencentDB for MySQL
- Tencent Cloud TencentDB for SQL Server
- Tencent Cloud TencentDB for PostgreSQL
- Tencent Cloud TencentDB for MariaDB
- Tencent Cloud TencentDB for MongoDB

Huawei Cloud

- Huawei Cloud RDS for MySQL
- Huawei Cloud RDS for PostgreSQL
- Huawei Cloud RDS for SQL Server
- Huawei Cloud Document Database Service

Installation

We strongly suggest that you shut down any opened applications. This will help ensure a smooth installation.

Installation for Download Version

1. Download Navicat Linux version.
2. Open Terminal. Execute the following commands:
   chmod +x navicat15-premium-en.AppImage
   ./navicat15-premium-en.AppImage

Installation for CD Version

1. Load the Navicat CD Installation disk into the CD-ROM drive.
2. Copy the *.AppImage* file to anywhere you wish.
3. Open Terminal. Execute the following commands:
   chmod +x navicat15-premium-en.AppImage
   ./navicat15-premium-en.AppImage

Registration

When the trial period is finished, Navicat requires a license key or a subscription plan to continue using the features.

Note: Perpetual License and Subscription Plan cannot be used at the same Navicat. Before changing the registration method, you need to deactivate the license key or sign out your Navicat ID.

Perpetual License

If you have purchased a perpetual license, you will receive a license key for activating Navicat.

In the **Perpetual License** section, paste your license key (16 digits) and click the **Activate** button. Navicat contacts our licensing server to activate the license key. If the activation process is successful, the license key details are displayed.

Manual Activation

Manual activation is available when your computer does not have an internet connection. You will need another computer with an internet connection to complete this activation process.

1. If the online activation is failed, click **Manual Activation**.
2. Copy the Request Code in the **Copy the Request Code Here:** box.
3. Open web browser on a computer with an internet connection and then go to https://customer.navicat.com/manual_activate.php.
4. Paste/Enter the Request Code into the left box.
5. Click **Get Activation Code**.
6. Copy the generated Activation Code in the right box.
7. Go back to the computer where you are activating Navicat.
8. Paste the Activation Code into the **Paste the Activation Code Here:** box.
9. Click **Activate**.

Subscription Plan

If you have subscribed a plan, you can sign in your Navicat ID to use Navicat during the subscription term.

Note: Navicat ID is the Email address that you used to subscribe the plan.

In the **Subscription** section, provide your **Navicat ID** and **Password**. After signed in, the subscription plan details are displayed.

Navicat contacts our licensing server once per hour to auto reload the plan by default. If you have updated your plan in the portal site, you can use the **Reload Plan** button to force reloading the new plan.

Note: Each Navicat ID can connect to only one Navicat. If you sign in your Navicat ID in another Navicat, you will be signed out from the current Navicat.

Migration / Upgrade

Migrate Navicat to a new computer

1. In Navicat, choose **File** -> **Export Connections**. The exported file (.ncx) contains all your connection settings.
2. Backup the exported file (.ncx).
3. In Navicat, choose **Help** -> **Registration**.
4. [Perpetual License] Click **Deactivate** to online deactivate the license key.
5. [Subscription Plan] Click **Sign Out** to sign out your Navicat ID.
6. Uninstall Navicat from the existing computer.
7. Re-install Navicat in the new computer.
8. Open Navicat and choose **File** -> **Import Connections** in the new computer to import the connection settings (.ncx).

When a new connection is being established, Navicat will create a subfolder under Settings Location. Most files are stored within this subfolder. To look for the path, right-click the connection and select **Edit Connection** -> **Advanced** -> **Settings Location**.

Moreover, all your saved profiles are stored under the default path, e.g. /home/your_username/.config/navicat/Premium/Profiles.

Upgrade Navicat

If you want to upgrade an installed copy of Navicat to the latest release, please choose **Help** -> **Check For Updates** to start the Updater. It will automatically check your installed version. If there is a new version, simply follow the steps in the Updater to upgrade your Navicat. It will replace your previous Navicat and your current settings will remain unchanged.

Or, you can submit your registered email address on the Customer Center to download the latest version installer.

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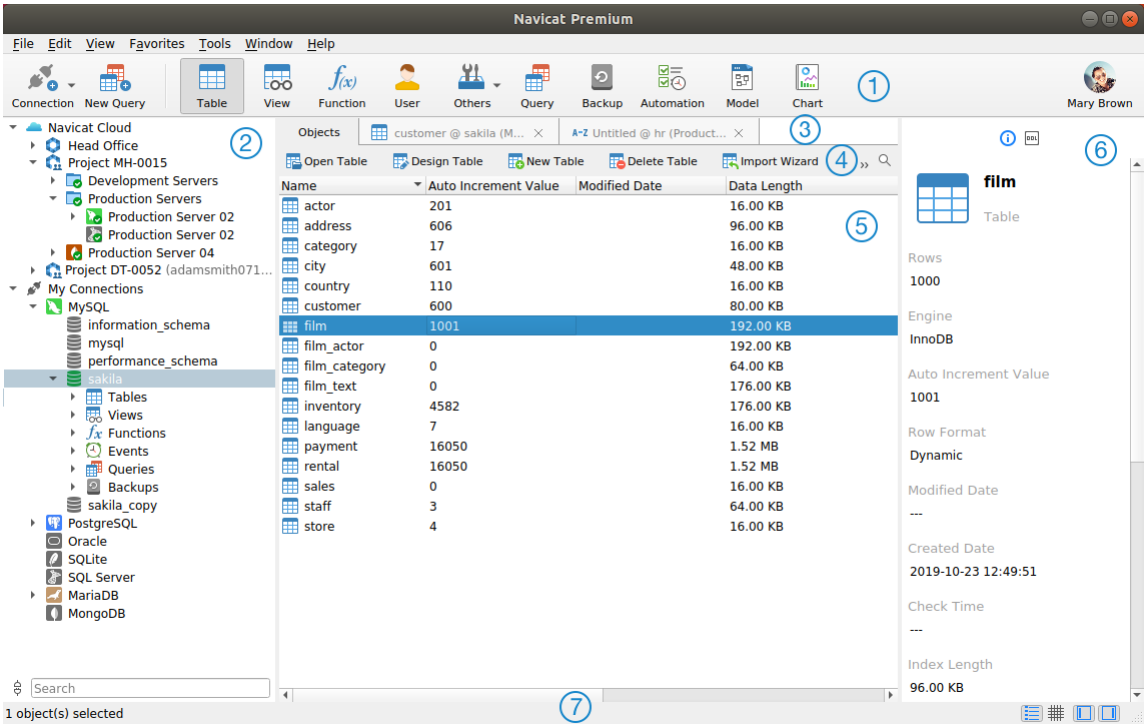
Chapter 2 - User Interface

Main Window

The Main Window consists of several toolbars and panes for you to work on connections, database objects and advanced tools.

Hint: Navicat has added support for the system-wide dark mode. (Only Available for Linux with KDE)



① Main Toolbar

The Main Toolbar allows you to access basic objects and features, such as connections, users, tables, collections, backup, automation and more.

② Navigation Pane

The Navigation Pane is the basic way to navigate with connections, databases and database objects. If the Navigation Pane is hidden, choose **View** -> **Navigation Pane** -> **Show Navigation Pane** from the menu bar.

③ Tab Bar

The Tab Bar allows you to switch among the tabbed windows on the Object Pane. You can choose to always display pop-ups on a new tab, or to always display them in a new window. If you have multiple tabs open, you can use CTRL+TAB to easily switch to other tabs. See also Options.

④ Object Toolbar

The Object Toolbar provides other controls that you can use to manipulate the objects.

⑤ Object Pane

The Object Pane displays a list of objects (such as tables, collections, views, queries) and the tabbed window forms. Use the **Detail** and **ER Diagram** buttons to change the view of the Objects tab.

⑥ Information Pane

The Information Pane shows the detailed object information, project activities, the DDL of database objects, object dependencies, membership of users/roles and preview. If the Information Pane is hidden, choose **View** -> **Information Pane** -> **Show Information Pane** from the menu bar.

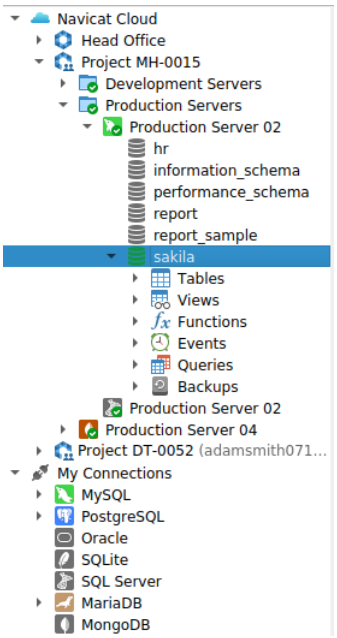
⑦ Status Bar

The Status Bar displays the current window's status information.

Navigation Pane

The Navigation pane employs tree structure which allows you to take action upon the database and their objects through their pop-up menus quickly and easily. If the **Show objects under schema in navigation pane** option is checked at the Options window, all database objects are also displayed in the pane. To connect to a database or schema, simply double-click it in the pane.

After logged in the Navicat Cloud feature, the Navigation pane will be divided into **Navicat Cloud** and **My Connections** sections.



You can filter the tree by focusing the tree and type a search string. To show the opened objects only, choose **View** -> **Navigation Pane** -> **Show Only Active Objects** from the menu bar.

If you want to hide the group structure in the Navigation pane, choose **View** -> **Navigation Pane** -> **Flatten Connection**.

If the Navigation pane is hidden, choose **View** -> **Navigation Pane** -> **Show Navigation Pane**.

Object Pane

In the **Objects** tab, you can use the **Detail** and **ER Diagram** buttons to change the object view.

If you want to hide the group structure in Details view, choose **View** -> **Flatten Object List** from the menu bar.

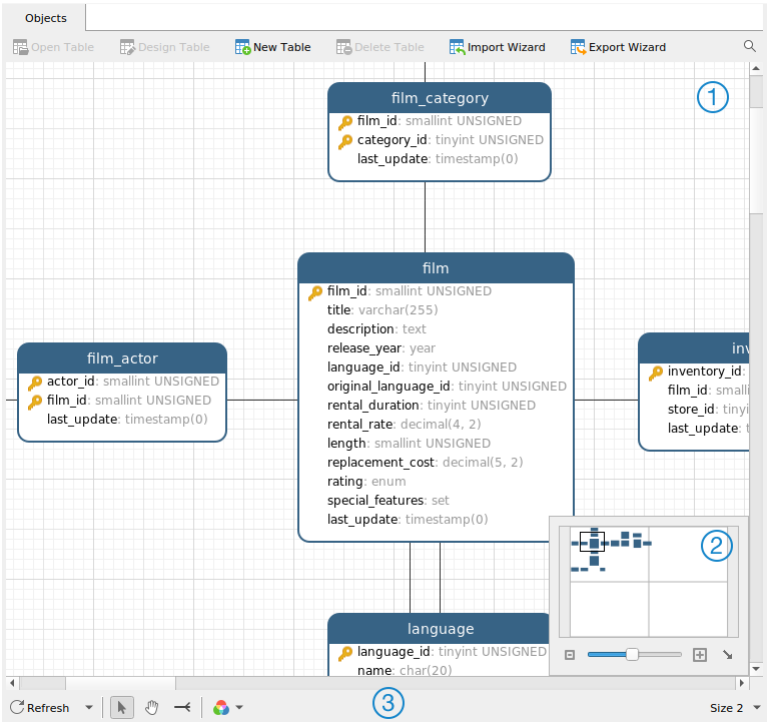
Detail View

Detail view shows the name and several properties of objects in columns. To change the display columns of properties, choose **View** -> **Choose Columns** from the menu bar and choose display columns for different objects from the pop-up window.

ER Diagram View (Available only in Non-Essentials Edition)

Note: Available only for MySQL, Oracle, PostgreSQL, SQLite, SQL Server and MariaDB. Only tables provide ER Diagram view.

An ER diagram will be generated automatically if the selected database/schema contains tables. ER diagram files are stored under Settings Location.



① Diagram Canvas

Display table fields and relationships between tables in a database/schema graphically. You can add, edit or delete relations between tables, and also add or delete vertices on a relation line.

Add a Foreign Key

Click from the bottom toolbar. Drag and drop a field from the child table to the parent table.

Edit or Delete a Foreign Key

Right-click a relation line and select **Design Foreign Key** or **Delete Foreign Key** from the pop-up menu.

Add or Delete a Vertex

Select a relation line or a vertex. Press and hold the SHIFT key and click on the relation line or the vertex.

Note: Double-click a table in the ER Diagram view will open the Table Designer, while double-click a table in the List or Detail view will open the Table Viewer.

② **Overview**

To zoom in or zoom out the selected area of the diagram, adjust the slider of the Overview. Same effect can be achieved with keyboard shortcuts:

Zoom In: [CTRL++]

Zoom Out: [CTRL+-]

Reset: [CTRL+0]

③ **Bottom Toolbar**

Refresh

Refresh the ER diagram. Choose **Regenerate ER Diagram** to regenerate the ER diagram with using auto layout feature.

Move Diagram

Switch to hand mode for moving the diagram. Or, you can press and hold the SPACE key, then move the diagram.

New Relation

Add a relation between two table fields. Click this button, and then drag and drop a field from the child table to the parent table.

Color

Set the color of the selected tables or relations.

Paper Size

Select a paper size from the drop-down list. The corresponding paper size will reflect in the Overview.

Information Pane

The Information Pane shows the detailed object information, project activities, the DDL of database objects, object dependencies, membership of users/roles and preview. If the Information Pane is hidden, choose **View** -> **Information Pane** -> **Show Information Pane** from the menu bar.

You can select any connections, objects or projects, and then select the corresponding buttons on the Information Pane.

Button	Description
	**General** - Show the general information of the object/project.
	**Preview** - Show the SQL statements in the query.
	**DDL** - Show the DDL statements of the object.
	**Using** - Show the objects that the selected object depends on. **Objects** - Show the objects in the tablespace. **Member Of** - Show the roles that the user or the role assigned to.
	**Used By** - Show the objects that depend on the selected object. **Members** - Show the members of the role.
	**Code Snippet** - Show all built-in and custom code snippets. (Available only in Non-Essentials Edition)
	**Identifiers -** Show all available tables, collections, views or fields in the selected database or schema.
	**Privileges** - Show the privileges granted to the user.
	**Project** - Show the project members and the project activities done by the members. Click **+** to add members to the project.
	**Type Color** - Set the color of particular types for highlighting cells in Grid View. (Available only for MongoDB)

Chapter 3 - Navicat Cloud

About Navicat Cloud

Navicat Cloud provides a cloud service for synchronizing connections, queries, model files and virtual group information from Navicat, other Navicat family members, different machines and different platforms. All the Navicat Cloud objects are located under different projects. You can share the project to other Navicat Cloud accounts for collaboration.

Navicat Cloud could not connect and access your databases. By which it means, it could only store your connection settings, queries, model files, and virtual group; your database passwords and data (e.g. tables, views, etc) will not be stored to Navicat Cloud.

Note: PremiumSoft will keep all synchronized files strictly confidential, and all employees are prohibited from viewing/accessing content of files you may store in your Navicat Cloud account.

Create a new account

1. In the main window, click **Sign In** and click **Create Navicat ID**.
2. Enter the required information and click the **Sign Up** button. A verification email will send to your email address.
3. Click the link in the email to verify the new account.

Hint: You can sign in with the same Navicat ID you use for the Navicat Customer Center.

Sign in Navicat Cloud

1. In the main window, click **Sign In** and enter your **Navicat ID** and **Password**.
2. Click the **Sign In** button.
3. If you enabled two-step verification in Navicat Cloud Portal site, a code will be sent to your phone via your mobile app. Enter the received code to sign in.

Sign out Navicat Cloud

1. In the main window, right-click **Navicat Cloud** and select **Close All Connections** to close all connections under Navicat Cloud.
2. Click your avatar on the toolbar.
3. Click your email in the Navicat Cloud window and select **Sign Out**.

Manage Navicat Cloud

View the cloud usage

1. In the main window, click your avatar on the toolbar.
2. Your cloud usage and current plan will be shown in the Navicat Cloud window.

Note: A connection, a query, a model or a virtual group counts for one unit.

Change your avatar

1. In the main window, click your avatar on the toolbar.
2. Click the avatar in the Navicat Cloud window.
3. Choose an image file.

Manage your Navicat Cloud account

1. In the main window, click your avatar on the toolbar.
2. Click your email in the Navicat Cloud window and select **Manage Account**.
3. A browser will open with Navicat Cloud Portal site.

Upgrade the Navicat Cloud plan

1. In the main window, click your avatar on the toolbar.
2. Click **Upgrade** in the Navicat Cloud window.
3. A browser will open with Navicat Cloud Portal site.

Create a project

1. Select **Navicat Cloud** in the Navigation pane.
2. Right-click it and select **New Project**.

Add members to a project

1. Select a project in the Navigation pane.
2. Right-click it and select **Collaborate with**.
3. Click **Add Members**.
4. Enter the members' Navicat ID.

5. Select the member role.

6. Click **Add**.

Member Roles	Privileges
Owner	Read Objects, Write Objects, Manage Members and Delete Project
Admin	Read Objects, Write Objects and Manage Members
Member	Read Objects and Write Objects
Guest	Read Objects

Note: Each time can add up to 10 members. Use comma or enter to separate the members in the edit box.

Manage members in a project

1. Select a project in the Navigation pane.

2. Right-click it and select **Collaborate with**.

3. Click **Apply** after changes.

Note: If you are the Owner or Admin, you can click the **x** button to remove the member.

Rename a project

1. Select a project in the Navigation pane.

2. Right-click it and select **Rename**.

3. Enter the project name.

Quit a project

1. Select a project in the Navigation pane.

2. Right-click it and select **Quit Project**.

Delete a project

1. Select a project in the Navigation pane.

2. Right-click it and select **Delete Project**.

Move/copy a connection to a project

1. Right-click a connection under **My Connections** and select **Move Connection to** or **Copy Connection to**.

2. Select an existing project or create a new project.

3. The connection will move or copy to Navicat Cloud. And, all its query files and virtual groups will store in Navicat Cloud.

Move/copy a connection to My Connections

1. Right-click a connection under **Navicat Cloud** and select **Move Connection to** or **Copy Connection to** -> **My Connections**.

2. The connection will move or copy to My Connections. And, all its query files and virtual groups will store in the local machine.

Move/copy a model to Navicat Cloud

1. Select a model file under **My Connections**.

2. Drag and drop it to a project in **Navicat Cloud**.

Move/copy a model to My Connections

1. Select a model file in a project under **Navicat Cloud**.

2. Drag and drop it to **My Connections**.

Chapter 4 - Connection

About Connection

To start working with your server in Navicat, you should first establish a connection or several connections using the Connection window. If you are new to the server or 'Net in general' and are not quite sure how things work, you may want to look at:

- MySQL User Manual
- Oracle Database Documentation
- PostgreSQL User Manual
- SQLite User Manual
- SQL Server MSDN Library
- MariaDB Documentation
- MongoDB Manual

To create a new connection, click  **Connection** and select your server type. Then, enter the necessary information in the Connection window.

Note: Navicat authorizes you to make connection to remote servers running on different platforms (i.e. Windows, macOS, Linux and UNIX), and supports PAM and GSSAPI authentication.

You can edit the connection properties by right-click the connection and select **Edit Connection**.

Navicat Cloud

To copy or move a connection between **My Connections** and Navicat Cloud, right-click the connection and select **Copy Connection to** or **Move Connection to**.

Flush MySQL/MariaDB Connection

To clear or reload various internal caches, flush tables, or acquire locks, right-click your connection in the Navigation pane and select **Flush** and choose the flush option. You must have the RELOAD privilege to use this feature.

Manage Azure SQL Database Firewall Rules

You cannot connect to Azure SQL Database until you have granted your client IP access. To access Azure SQL Database from your computer, ensure that your firewall allows outgoing TCP communication on TCP port 1433. You must have at least one firewall rule before you can connection to Azure SQL Database.

To manage the Firewall Rule settings, right-click your Azure SQL Database connection in the Navigation pane and select **SQL Azure Firewall Rules**. Add a new rule by providing an IP address range.

Testing Account

Navicat provides evaluated accounts for testing purpose.

MySQL

- Host: server1.navicat.com
- Port: 4406
- User Name: navicat
- Password: testnavicat

PostgreSQL

- Host: server1.navicat.com
- Port: 5432
- Initial Database: HR
- User Name: navicat
- Password: testnavicat

General Settings

RDBMS

To successfully establish a new connection to local/remote server - no matter via SSL, SSH or HTTP, set the database login information in the General tab. If your Internet Service Provider (ISP) does not provide direct access to its server, Secure Tunneling Protocol (SSH) / HTTP is another solution.

Note: The following options depend on the connection server type and sort in ascending order.

Add To

After you logged in the Navicat Cloud feature, you can choose to save the connection to My Connections or a project in Navicat Cloud.

Authentication

SQL Server Authentication	Use login records to validate the connection. Users must provide their server login: **User Name** and **Password**.
Windows Authentication	When a user connects through a Windows user account, SQL Server validates the account name and password using the Windows principal token in the operating system.

Connection Name

Enter a friendly name to best describe your connection.

Connection Type

Basic	In Basic mode, it connects to Oracle through the Oracle Call Interface (OCI). Enter the **Host** and **Port**. Set the **Service Name/SID** which the user connects when making connection. Select the corresponding radio button.
TNS	In TNS mode, it connects to Oracle server using an alias entry from a tnsnames.ora file through the Oracle Call Interface (OCI). User needs to provide the **Net Service Name**.

OCI is an application programming interface that allows an application developer to use a third-generation language's native procedure or function calls to access the Oracle database server and control all phases of SQL statement execution. OCI is a library of standard database access and retrieval functions in the form of a dynamic-link library. See also: OCI options

Database File

Specify the initial database file. If the HTTP Tunnel is enabled, you need to enter an absolute file path of the database file in your web server.

Endpoint

The Endpoint for connecting to the Amazon Web Services instance.

Host

A host name where the database is situated or the IP address of the server.

Initial Database

Set the initial database which user connects when making connection.

Password

Password for connecting to the database server.

Port

A TCP/IP port for connecting to the database server.

Sync User Name with Navicat Cloud

When editing a connection in Navicat Cloud, you can choose to synchronize the user name.

Type

Existing Database File	Connect to an existing database in the **Database File**.
New SQLite 3	Create a new SQLite 3 database in the **Database File**.
New SQLite 2	Create a new SQLite 2 database in the **Database File**.

User Name

User name for connecting to the database server.

MongoDB

To successfully establish a new connection to local/remote server - no matter via SSL or SSH, set the database login information in the General tab. If your Internet Service Provider (ISP) does not provide direct access to its server, Secure Tunneling Protocol (SSH) is another solution.

Connection Name

Enter a friendly name to best describe your connection.

Add To

After you logged in the Navicat Cloud feature, you can choose to save the connection to My Connections or a project in Navicat Cloud.

Connection

The type of your MongoDB server: Standalone, Shard Cluster or Replica Set.

SRV Record

Check this option to connect the server using an SRV Record.

Host

A host name, IP address, or UNIX domain socket of the server.

Port

A TCP/IP port for connecting to the server.

Member

Add or remove the members of replica set or the instances of sharded cluster to the connection.

Read Preference

Choose the replica set read preference for this connection.

Replica Set

The name of the replica set.

Authentication

Choose the authentication mechanism that MongoDB will use to authenticate the connection.

None	No authentication.
Password	Specify the **Authentication Database** name associated with the **User Name** and **Password**.
LDAP	Specify the **User Name** and **Password**.
Kerberos	Set the Kerberos **Service Name** and the user **Principal**.
X.509	x.509 certificate authentication.

Use MongoDB URI

You can also use a MongoDB URI to connect your MongoDB server. Simply click the **URI** button and paste the URI. Navicat will automatically fill out the options in the General, SSL and SSH tabs.

SSL Settings

Secure Sockets Layer(SSL) is a protocol for transmitting private documents via the Internet. To get a secure connection, the first thing you need to do is to install OpenSSL Library and download Database Source.

Note: Available only for MySQL, PostgreSQL, MariaDB and MongoDB. Support from PostgreSQL 8.4 or later.

MySQL and MariaDB Connections

To provide authentication details, enable **Use authentication** and fill in the required information:

Client Key

The SSL key file in PEM format to use for establishing a secure connection.

Client Certificate

The SSL certificate file in PEM format to use for establishing a secure connection.

CA Certificate

The path to a file in PEM format that contains a list of trusted SSL certificate authorities.

Verify server certificate against CA

Check the server's Common Name value in the certificate that the server sends to the client.

Specified Cipher

A list of permissible ciphers to use for SSL encryption.

PostgreSQL Connection

Choose the **SSL Mode**:

require	Only try an SSL connection.
verify-ca	Only try an SSL connection, and verify that the server certificate is issued by a trusted CA.
verify-full	Only try an SSL connection, verify that the server certificate is issued by a trusted CA and that the server hostname matches that in the certificate.

To provide authentication details, enable **Use authentication** and fill in the required information:

Client Key

The path of the client private key.

Client Certificate

The path of the client certificate.

Root Certificate

The path of the trusted certificate authorities.

Certificate Revocation List

The file path of the SSL certificate revocation list (CRL).

MongoDB Connection

To provide authentication details, enable **Use authentication** and fill in the required information:

Client Key

The SSL key file in PEM format to use for establishing a secure connection.

Client Key Password

The password of the key file.

Weak certificate validation

Check this option if your MongoDB server allows weak certificate validation.

CA Certificate

The path to a file in PEM format that contains a list of trusted SSL certificate authorities.

Certificate Revocation List

The file path of the SSL certificate revocation list (CRL).

Allow invalid host names

Check this option to allow invalid hostnames in SSL certificates.

SSH Settings

Secure SHell (SSH) is a program to log in into another computer over a network, execute commands on a remote server, and move files from one machine to another. It provides strong authentication and secure encrypted communications between two hosts, known as **SSH Port Forwarding (Tunneling)**, over an insecure network. Typically, it is employed as an encrypted version of Telnet.

In a Telnet session, all communications, including username and password, are transmitted in plain-text, allowing anyone to listen-in on your session and steal passwords and other information. Such sessions are also susceptible to session hijacking, where a malicious user takes over your session once you have authenticated. SSH serves to prevent such vulnerabilities and allows you to access a remote server's shell without compromising security.

Note: Available only for MySQL, Oracle, PostgreSQL, SQL Server, MariaDB and MongoDB.

Please make sure that the parameter - "AllowTcpForwarding" in the Linux server must be set to value "yes", otherwise, the SSH port forwarding will be disabled. To look for the path: /etc/ssh/sshd_config. By default, the SSH port forwarding should be enabled. Please double check the value settings.

Even the server support SSH tunnel, however, if the port forwarding being disabled, Navicat cannot connect via SSH Port 22.

Host

A host where SSH server is activated.

Note: The host name in the General tab should be set relatively to the SSH server which provided by your database hosting company.

Port

A port where SSH server is activated, by default it is 22.

User Name

A user on SSH server machine. (It is not a user of database server.)

Sync User Name with Navicat Cloud

When editing a connection in Navicat Cloud, you can choose to synchronize the user name.

Authentication Method

Password	Provide the SSH server user **Password**.
Public Key	**Private Key**

	It is used together with your public key. The private key should be readable only by you. **Passphrase** A passphrase is exactly like a password, except that it applies to the keys you are generating and not an account.

Note: HTTP Tunnel and SSH Tunnel cannot be function simultaneously. The SSH Tunnel is disabled when you select the HTTP Tunnel and vice versa.

HTTP Settings

HTTP Tunneling is a method for connecting to a server that uses the same protocol (http://) and the same port (port 80) as a web server does. It is used while your ISPs do not allow direct connections, but allows establishing HTTP connections.

Note: Available only for MySQL, PostgreSQL, SQLite and MariaDB.

Uploading the Tunneling Script

To use this connection method, first thing you need to do is to upload the tunneling script to the web server where your server is located.

Note: ntunnel_mysql.php (for both MySQL and MariaDB), **ntunnel_pgsql.php** or **ntunnel_sqlite.php** is available in the Navicat installation folder.

Setting up HTTP Tunnel

The following instruction guides you through the process of configuring a HTTP connection.

1. Select the HTTP tab and enable **Use HTTP tunnel**.
2. Enter URL of the tunneling script.
   e.g. http://www.navicat.com/ntunnel_mysql.php
3. If your server installed a Web Application Firewall, you can check the **Encode outgoing query with base64** option.
4. If the tunneling script is hosted in a password protected server or you have to access internet over a proxy server, you can provide the required authentication details in the **Authentication** or **Proxy** tab.

Note: HTTP Tunnel and SSH Tunnel cannot be function simultaneously. The SSH Tunnel is disabled when you select the HTTP Tunnel and vice versa.

Advanced Settings

Note: The following options depend on the connection server type and sort in ascending order.

Auto connect

Open the connection at application startup automatically.

Client Character Set

Choose the session client character set used in Navicat.

Encoding

Choose a codepage for converting data to display in Navicat UI.

Encrypted

Enable this option and provide **Password** when connecting to an encrypted SQLite database.

Keepalive interval (sec)

Keep the connection with the server alive by pinging it. You can set the period between pings in the edit box.

Limit connection sessions

Specify the maximum number of concurrent connections that the server allows.

OS authentication

Use OS user login credentials to authenticate database users.

Role

Indicate that the database user is connecting with either the Default, SYSOPER or SYSDBA system privilege.

Settings Location

When a new connection is being established, Navicat will create a subfolder under the Settings Location. Most files are stored within this subfolder:

File in Settings Location	Server Type	File Extension
Backup	MySQL, PostgreSQL, SQLite and MariaDB	.nb3
Backup Profile	MySQL	.nbakmysql
	PostgreSQL	.nbakpgsql
	SQLite	.nbaksqlite
	SQL Server	.nbakmssql
	MariaDB	.nbakmariadb
Data Pump Export Profile	Oracle	.nbakora
ER Diagram File	MySQL, Oracle, PostgreSQL, SQLite, SQL Server and	.ned

	MariaDB	
Export Materialized View Profile	Oracle	.nexpmora
	PostgreSQL	.nexpmpgsql
Export Query Result Profile	MySQL	.nexpqmysql
	Oracle	.nexpqora
	PostgreSQL	.nexpqpgsql
	SQLite	.nexpqsqlite
	SQL Server	.nexpqmssql
	MariaDB	.nexpqmariadb
	MongoDB	.nexpqmongodb
Export Table/Collection Profile	MySQL	.nexptmysql
	Oracle	.nexptora
	PostgreSQL	.nexptpgsql
	SQLite	.nexptsqlite
	SQL Server	.nexptmssql
	MariaDB	.nexptmariadb
	MongoDB	.nexptmongodb
Export View Result Profile	MySQL	.nexpvmysql
	Oracle	.nexpvora
	PostgreSQL	.nexpvpgsql
	SQLite	.nexpvsqlite
	SQL Server	.nexpvmssql
	MariaDB	.nexpvmariadb
	MongoDB	.nexpvmongodb
Import Table/Collection Profile	MySQL	.nimpmysql
	Oracle	.nimpora
	PostgreSQL	.nimppgsql
	SQLite	.nimpsqlite
	SQL Server	.nimpmssql
	MariaDB	.nimpmariadb
	MongoDB	.nimpmongodb
MapReduce	MongoDB	.mapreduce
Query	MySQL, Oracle, PostgreSQL, SQLite, SQL Server and MariaDB	.sql
	MongoDB	.js
Schema Analysis	MongoDB	.nsatmongodb

Use compression

Use compression protocol. It is used if both client and server support zlib compression, and the client requests compression.

Use encryption

Use encryption for SQL Server connection.

Use named pipe, socket

Use socket file for localhost connection.

Databases / Attached Databases Settings

MySQL, Oracle, PostgreSQL, SQL Server, MariaDB, MongoDB

In the **Databases** tab, you can set which databases will be shown in the Navigation pane when connecting to your server. It is not obligatory. To start working with custom database settings, check **Use custom database list**. Then, check the preferable databases in the **Database** column. If you want Navicat automatically open the databases at connection, check the **Auto Open** box.

Add a hidden database to the list

1. Click the **Add Database to List** button.
2. Enter the database name.
3. Check the newly added database in the database list.

Remove a database from the list

1. Select the database in the database list.
2. Click the **Remove Database from List** button.

Note: The database will be just removed from the database list box, it will still exist in the server.

SQLite

In the **Attached Databases** tab, you can attach SQLite database files to the connection. Click the **Attach Database** button and enter the information:

Option	Description
Database File	Choose the file path of a database file.
Database Name	Enter the database name which displays in Navicat.
Encrypted	Check this option and provide the **Password** if the database file is encrypted.

To detach a database, select it from the list and click the **Detach Database** button.

Chapter 5 - Server Objects

About Server Objects

Navicat provides powerful tools to manage server objects, such as databases, tables, views, functions, etc.

Some server objects may have been hidden by Navicat. These objects include system databases, system tables and so on. To show the hidden items, choose **View** -> **Show Hidden Items** from the menu bar.

Note: Before working with the server objects in Navicat, you should establish the connection first.

In object designers, you can preview the necessary SQL statements or scripts for creating or editing the object on the **SQL Preview** or **Script Preview** tab. For some database or schema objects, you can use the bottom drop-down list to show the SQL or scripts which will be run when choosing **Save** or **Save As** from the **File** menu.

MySQL / MariaDB

Databases

To start working with the server objects, you should create and open a connection. If the server is empty, you need to create a new database.

Create a new database

1. In the Navigation pane, right-click your connection and select **New Database**.
2. Enter the database properties in the pop-up window.

Edit an existing database

1. In the Navigation pane, right-click a database and select **Edit Database**.
2. Edit the database properties in the pop-up window.

Note: MySQL does not support renaming database through its interface at this moment. Access the directory in which databases being stored. By default, all databases store within a directory called data under MySQL Installation folder. For example: /var/lib/mysql/. You must stop MySQL before you can rename the database.

Tables

Tables are database objects that contain all data in a database. A table is a set of rows and columns, and their intersections are fields. In the main window, click  **Table** to open the table object list.

There are two ways to open a table with graphical fields, right-click a table and select:

Option	Description
Open Table	Navicat loads all your BLOB fields (images) while opening the table.

Open Table (Quick)	Faster performance for opening the graphical table, as BLOB fields (images) will not be loaded until you click on the cell. (It is invisible by default until you hold down the SHIFT key when right-clicking the table.)

To empty a table, right-click the selected table and select **Empty Table** from the pop-up menu. This option is only applied when you wish to clear all the existing records without resetting the auto-increment value. To reset the auto-increment value while emptying your table, use **Truncate Table**.

Table Designer

Table Designer is the basic Navicat tool for working with tables. It allows you to create, edit and drop table's fields, indexes, foreign keys, and much more.

In the **Fields** tab, you can search a field name by choosing **Edit** -> **Find** or pressing CTRL+F.

Note: The tabs and options in the designer depend on the server type and version.

Table Viewer

When you open a table, **Table Viewer** displays data as a grid. Data can be displayed in two modes: Grid View and Form View. See Data Viewer for details.

Note: Transaction is only available for INNODB tables.

Views

A view allows users to access a set of tables as if it is a single table. You can use views to restrict access to rows. In the main window, click  **View** to open the view object list.

View Designer

View Designer is the basic Navicat tool for working with views. You can edit the view definition as SQL statement (SELECT statement it implements) in the **Definition** tab. To customize the view of the editor and find out more features for SQL editing, see SQL Editor for details. If you want to load SQL statement from a SQL file to the editor, you can choose **File** -> **Import SQL**.

Button	Description
 Preview	Preview the data of the view.
 Explain	Show the Query Plan of the view.
 View Builder	Build the view visually. It allows you to create and edit views without knowledge of SQL. See SQL Builder for details.
 Beautify SQL	Format the codes with the Beautify SQL settings in Editor.

Hint: You can choose to show the preview results below the editor or in a new tab by choosing **View** -> **Result** -> **Show Below Editor** or **Show in New Page**.

View Viewer

When you open a view, **View Viewer** displays data as a grid. Data can be displayed in two modes: Grid View and Form View. See Data Viewer for details.

Note: Transaction is only available for updatable views.

Procedures / Functions

Procedures and functions (stored routines) are supported in MySQL 5.0. A stored routine is a set of SQL statements that can be stored in the server. In the main window, click **Function** to open the function object list.

Function Wizard

Click **New Function** from the object toolbar. **Function Wizard** will pop up and it allows you to create a procedure/function easily.

1. Select the type of the routine: **Procedure** or **Function**.
2. Define the parameters. Set the **Mode**, **Name** and/or **Type** under the corresponding columns.
3. If you create a function, select the **Return Type** from the list and enter the corresponding information: **Length**, **Decimals**, **Character set** and/or **Enum**.
4. Select the additional function options.

Hint: Once click the **Skip** button, you can go to Options to enable the function wizard.

Function Designer

Function Designer is the basic Navicat tool for working with procedures/functions. You can enter a valid SQL statement in the **Definition** tab. This can be a simple statement such as SELECT or INSERT, or it can be a compound statement written using BEGIN and END. Compound statements can contain declarations, loops, and other control structure statements. To customize the view of the editor and find out more features for SQL editing, see SQL Editor for details.

Results

To execute the procedure/function, click **Execute** on the toolbar. If the SQL statement is correct, the statement will be executed and, if the statement is supposed to return data, the **Result** tab opens with the data returned. If an error occurs while executing the procedure/function, execution stops, the appropriate error message is displayed. If the procedure/function requires input parameters, the **Input Parameter** dialog will pop up. Check the **Raw Mode** option to pass the inputted values to the procedure/function without quotation marks.

Note: Navicat supports to return 20 result sets.

Hint: You can choose to show the results below the editor or in a new tab by choosing **View** -> **Result** -> **Show Below Editor** or **Show in New Page**.

Tablespaces

An InnoDB general tablespace is a shared tablespace which can hold multiple tables, and supports all table row formats. An InnoDB undo tablespace contains undo logs. In MySQL NDB Cluster, tablespace can contain one or more data files, providing storage space for NDB Cluster Disk Data table. In the main window, click **Others** -> **Tablespace** to open the tablespace object list.

Tablespace Designer

Tablespace Designer is the basic Navicat tool for working with tablespaces. It allows you to set the table engine, specify the data file, etc.

Events

An event is a task that run according to a schedule. In the main window, click **Others** -> **Event** to open the event object list.

Event Designer

Event Designer is the basic Navicat tool for working with events. You can enter a valid SQL procedure statement in the **Definition** tab. This can be a simple statement such as SELECT or INSERT, or it can be a compound statement written using BEGIN and END. Compound statements can contain declarations, loops, and other control structure statements. To customize the view of the editor and find out more features for SQL editing, see SQL Editor for details.

Maintain Objects

Navicat provides a complete solution for maintaining MySQL / MariaDB objects.

1. In the main window, select objects in the Navigation pane or the Objects tab.
2. Right-click the selected objects.
3. Choose **Maintain**, and then choose a maintain option the from the pop-up menu.
4. Results show in a pop-up window.

Table

Option	Description
Analyze Tables	Analyze and store the key distribution for the table.
Check Tables	Check the table for errors.
Optimize Tables	Optimize the table to reduce storage space and improve I/O efficiency.
Repair Tables	Repair the possibly corrupted table.
Get Rows Count	Count the number of rows in the table.

Tablespace

Option	Description
Set Active	Mark an InnoDB undo tablespace as active.
Set Inactive	Mark an InnoDB undo tablespace as inactive.

Oracle

Schemas

To start working with the server objects, you should create and open a connection. When you create a user account, you are also implicitly creating a schema for that user. A schema is a logical container for the database objects (such as tables, views, triggers, and so on) that the user creates. The schema name is the same as the user name, and can be used to unambiguously refer to objects owned by the user.

Hint: Oracle interprets non-quoted object identifiers as uppercase. In Navicat, all object identifiers will be quoted. That is, Navicat saves exactly what you have inputted.

Tables

Tables are database objects that contain all data in a database. A table is a set of rows and columns, and their intersections are fields. In the main window, click  **Table** to open the table object list.

You can create **Normal** / **External** / **Index Organized** tables. Click the down arrow next to  **New Table** from the object toolbar and choose the table type.

There are two ways to open a table with graphical fields, right-click a table and select:

Option	Description
Open Table	Navicat loads all your BLOB fields (images) while opening the table.
Open Table (Quick)	Faster performance for opening the graphical table, as BLOB fields (images) will not be loaded until you click on the cell. (It is invisible by default until you hold down the SHIFT key when right-clicking the table.)

To empty a table, right-click the selected table and select **Empty Table** from the pop-up menu. This option is only applied when you wish to clear all the existing records without resetting the auto-increment value. To reset the auto-increment value while emptying your table, use **Truncate Table**.

Table Designer

Table Designer is the basic Navicat tool for working with tables. It allows you to create, edit and drop table's fields, indexes, foreign keys, and much more.

In the **Fields** tab, you can search a field name by choosing **Edit** -> **Find** or pressing CTRL+F. When creating a new table, you are allowed to insert fields or rearrange the order of the fields.

Note: The tabs and options in the designer depend on the server version and the table type.

Table Viewer

When you open a table, **Table Viewer** displays data as a grid. Data can be displayed in two modes: Grid View and Form View. See Data Viewer for details.

Views

A view allows users to access a set of tables as if it is a single table. You can use views to restrict access to rows. In the main window, click **View** to open the view object list.

View Designer

View Designer is the basic Navicat tool for working with views. You can edit the view definition as SQL statement (SELECT statement it implements) in the **Definition** tab. To customize the view of the editor and find out more features for SQL editing, see SQL Editor for details. If you want to load SQL statement from a SQL file to the editor, you can choose **File** -> **Import SQL**.

Button	Description
Preview	Preview the data of the view.
Explain	Show the Query Plan of the view.
View Builder	Build the view visually. It allows you to create and edit views without knowledge of SQL. See SQL Builder for details.
Beautify SQL	Format the codes with the Beautify SQL settings in Editor.

Hint: You can choose to show the preview results below the editor or in a new tab by choosing **View** -> **Result** -> **Show Below Editor** or **Show in New Page**.

View Viewer

When you open a view, **View Viewer** displays data as a grid. Data can be displayed in two modes: Grid View and Form View. See Data Viewer for details.

Materialized Views

Materialized Views are schema objects that used to summarize, compute, replicate, and distribute data. In the main window, click **Materialized View** to open the materialized view object list.

To refresh a materialized view, right-click it in the Objects tab and select **Refresh Materialized View** from the pop-up menu.

Materialized View Designer

Materialized View Designer is the basic Navicat tool for working with materialized views. You can edit the view definition as SQL statement (SELECT statement it implements) in the **Definition** tab. To customize the view of the editor and find out more features for SQL editing, see SQL Editor for details. If you want to load SQL statement from a SQL file to the editor, you can choose **File** -> **Import SQL**.

Button	Description
Preview	Preview the data of the materialized view.

Explain	Show the Query Plan of the materialized view.
View Builder	Build the materialized view visually. It allows you to create and edit materialized views without knowledge of SQL. See SQL Builder for details.
Beautify SQL	Format the codes with the Beautify SQL settings in Editor.

Hint: You can choose to show the preview results below the editor or in a new tab by choosing **View** -> **Result** -> **Show Below Editor** or **Show in New Page**.

Materialized View Viewer

When you open a materialized view, **Materialized View Viewer** displays data as a grid. Data can be displayed in two modes: Grid View and Form View. See Data Viewer for details.

Procedures / Functions

Procedures and functions are schema objects that consist a set of SQL statements and stored in the server. In the main window, click **Function** to open the function object list.

Function Wizard

Click **New Function** from the object toolbar. **Function Wizard** will pop up and it allows you to create a procedure/function easily.

1. Specify the **Name** of the routine and select the type of the routine: **Procedure** or **Function**.
2. Define the parameters. Set the **Name**, **Type**, **Mode** and **Default Value** under the corresponding columns.
3. If you create a function, select the **Return Type** from the list.
4. Select the additional function options.

Hint: Once click the **Skip** button, you can go to Options to enable the function wizard.

Function Designer

Function Designer is the basic Navicat tool for working with procedures/functions. You can enter a valid SQL statement in the **Definition** tab. To customize the view of the editor and find out more features for SQL editing, see SQL Editor for details.

The **Code Outline** pane displays information about the procedure/function including parameters, code body, etc. If the Code Outline pane is hidden, choose **View** -> **Code Outline**.

Note: Available only in Non-Essentials Edition.

Button	Description
	Refresh the code outline.
	Show the detail view of the code outline.
	Turn mouse over highlight on or off.

	Expand the selected item.
	Collapse the selected item.
	Toggle sorting by position.

Results

To execute the procedure/function, click **Execute** on the toolbar. If the SQL statement is correct, the statement will be executed and, if the statement is supposed to return data, the **DBMS Output** tab opens with the data returned. If an error occurs while executing the procedure/function, execution stops, the appropriate error message is displayed. If the procedure/function requires input parameters, the **Input Parameter** dialog will pop ups. Check the **Raw Mode** option to pass the inputted values to the procedure/function without quotation marks.

Note: Navicat supports to return 20 result sets.

Hint: You can choose to show the results below the editor or in a new tab by choosing **View** -> **Result** -> **Show Below Editor** or **Show in New Page**.

Debug (Available only in Non-Essentials Edition)

You can add/remove breakpoints for debugging by clicking in the grey area beside each statement.

Before debugging, click **Save As Debug** to save and compile the procedure/function. Then, click **Debug** on the toolbar to launch the Oracle Debugger. Enter the input parameters if necessary.

Packages

Packages are encapsulated collections of related procedures, stored functions, and other program objects stored together in the database. An package consists of two parts: a specification and a body. In the main window, click **Others** -> **Package** to open the package object list.

Package Designer & Package Body Designer

Package Designer and **Package Body Designer** are the basic Navicat tools for working with packages. After saving the package in Package Designer, you can edit its package body by clicking **New Package Body** or **Design Package Body**.

Likewise, you can edit its package specification by clicking **Design Package Specification** in Package Body Designer.

You can enter a valid SQL statement in the **Definition** tab. To customize the view of the editor and find out more features for SQL editing, see SQL Editor for details.

The **Code Outline** pane displays information about the package/package body including function, procedure, parameter, code body, etc. If the Code Outline pane is hidden, choose **View** -> **Code Outline**.

Note: Available only in Non-Essentials Edition.

Button	Description
	Refresh the code outline.
	Show the detail view of the code outline.
	Turn mouse over highlight on or off.
	Expand the selected item.
	Collapse the selected item.
	Toggle sorting by position.

Results

To execute the package, click **Execute** on the toolbar. If the SQL statement is correct, the statement will be executed and, if the statement is supposed to return data, the **DBMS Output** tab opens with the data returned. If an error occurs while executing the package, execution stops, the appropriate error message is displayed. If the package requires input parameters, the **Input Parameter** dialog will pop up.

Hint: You can choose to show the results below the editor or in a new tab by choosing **View** -> **Result** -> **Show Below Editor** or **Show in New Page**.

Debug (Available only in Non-Essentials Edition)

You can add/remove breakpoints for debugging by clicking in the grey area beside each statement.

Before debugging, click **Save As Debug** to save and compile the package. Then, click **Debug** on the toolbar to launch the Oracle Debugger. Enter the input parameters if necessary.

Recycle Bin

Recycle bin contains dropped tables and any associated objects such as indexes, constraints, nested tables. In the main window, click **Others** -> **Recycle Bin** to open the recycle bin object list.

Restore a table

1. Select a table in the Objects tab.
2. Click **Flashback Table**.

Remove an object

1. Select an object for purging in the Objects tab.
2. Click **Purge Object**.
3. Confirm deleting in the dialog window.

Remove all objects

1. Right-click anywhere in the Objects tab and select **Purge Recycle Bin** from the pop-up menu.

2. Confirm deleting in the dialog window.

Remove all objects of any users

1. Log in a user with SYSDBA privilege.
2. Right-click anywhere in the Objects tab and select **Purge DBA Recycle Bin** from the pop-up menu.
3. Confirm deleting in the dialog window.

Other Objects

Navicat also allows you to manage other Oracle objects: Database Link, Index, Java, Materialized View Log, Sequence, Synonym, Trigger, Type, XML Schema, Directory, Public Database Link, Public Synonym and Tablespace. In the main window, click  **Others** and select an object to open the object list.

Maintain Objects

Navicat provides a complete solution for maintaining Oracle objects.

1. In the main window, select objects in the Navigation pane or the Objects tab.
2. Right-click the selected objects.
3. Choose **Maintain**, and then choose a maintain option the from the pop-up menu.
4. Results show in a pop-up window.

Table

Option	Description
Enable Table Lock	Allow DDL operations on the table.
Disable Table Lock	Prevent DDL operations on the table.
Enable Row Movement	Allow the database to move a row, thus changing the rowid.
Disable Row Movement	Prevent the database from moving a row, thus preventing a change of rowid.
Shrink Space	Shrink space in the table.
Move	Relocate data of the table.
Collect Statistics	Analyze the contents of the table.
Validate Structure	Verify the integrity of the structure of the table.

View

Option	Description
Compile	Recompile the view specification or body.

Procedure / Function

Option	Description
Compile	Recompile the specification or body.

Compile for Debug	Recompile the specification or body. Instruct the PL/SQL compiler to generate and store the code for use by the debugger.

Index

Option	Description
Rebuild	Re-create the index or one of its partitions or subpartitions.
Make Unusable	Make the index unusable.
Coalesce	Merge the contents of index blocks where possible to free blocks for reuse.
Compute Statistics	Compute the statistics of the index.
Monitoring Usage	Begin monitoring the index.
No Monitoring Usage	Terminate monitoring the index.

Java

Option	Description
Compile or Resolve	Resolve the primary Java class schema object.
Set AuthID Current User	Set the invoker rights to AUTHID CURRENT_USER.
Set AuthID Definer	Set the invoker rights to AUTHID DEFINER.

Materialized View

Option	Description
Enable Row Movement	Allow the database to move a row, thus changing the rowid.
Disable Row Movement	Prevent the database from moving a row, thus preventing a change of rowid.
Shrink	Compact the materialized view segment.
Compile	Revalidate the materialized view.
Force Refresh	Refresh the materialized view.

Materialized View Log

Option	Description
Enable Row Movement	Allow the database to move a row, thus changing the rowid.
Disable Row Movement	Prevent the database from moving a row, thus preventing a change of rowid.
Shrink Space	Compact the materialized view log segments.

Package

Option	Description
Compile	Recompile the package specification and body.
Compile for Debug	Recompile the package specification and body. Instruct the PL/SQL compiler to generate and store the code for use by the debugger.

Trigger

Option	Description
Enable	Enable the trigger.

Disable	Disable the trigger.
Compile	Recompile the trigger.
Compile for Debug	Recompile the trigger. Instruct the PL/SQL compiler to generate and store the code for use by the debugger.

Type

Option	Description
Compile	Recompile the type specification and body.
Compile for Debug	Recompile the type specification and body. Instruct the PL/SQL compiler to generate and store the code for use by the debugger.

XML Schema

Option	Description
Compile	Recompile the already registered XML schema.
Purge	Removes the XML schema completely from Oracle XML DB.

Tablespace

Option	Description
Read Only	Place the tablespace in transition read-only mode.
Read Write	Allow write operations on a previously read-only tablespace.
Online	Take the tablespace online.
Offline	Take the tablespace offline.
Coalesce	Combine all contiguous free extents into larger contiguous extents for each datafile in the tablespace.
Shrink Space	Reduce the amount of space the tablespace is taking.

PostgreSQL

Databases & Schemas

To start working with the server objects, you should create and open a connection. If the server is empty, you need to create a new database and/or a new schema.

Create a new database

1. In the Navigation pane, right-click a connection and select **New Database**.
2. Enter the database properties in the pop-up window.

Edit an existing database

1. In the Navigation pane, right-click a database and select **Edit Database**.
2. Edit the database properties in the pop-up window.

Create a new schema

1. In the Navigation pane, right-click a database and select **New Schema**.
2. Enter the schema properties in the pop-up window.

Edit an existing schema

1. In the Navigation pane, right-click a schema and select **Edit Schema**.
2. Edit the schema properties in the pop-up window.

Tables

Tables are database objects that contain all data in a database. A table is a set of rows and columns, and their intersections are fields. In the main window, click **Table** to open the table object list.

You can create **Normal** / **Foreign** tables. Click the down arrow next to **New Table** from the object toolbar and choose the table type.

There are two ways to open a table with graphical fields, right-click a table and select:

Option	Description
Open Table	Navicat loads all your BLOB fields (images) while opening the table.
Open Table (Quick)	Faster performance for opening the graphical table, as BLOB fields (images) will not be loaded until you click on the cell. (It is invisible by default until you hold down the SHIFT key when right-clicking the table.)

To empty a table, right-click the selected table and select **Empty Table** from the pop-up menu. This option is only applied when you wish to clear all the existing records without resetting the auto-increment value. To reset the auto-increment value while emptying your table, use **Truncate Table**.

Table Designer

Table Designer is the basic Navicat tool for working with tables. It allows you to create, edit and drop table's fields, indexes, foreign keys, and much more.

In the **Fields** tab, you can search a field name by choosing **Edit** -> **Find** or pressing CTRL+F. When creating a new table, you are allowed to insert fields or rearrange the order of the fields.

Note: The tabs and options in the designer depend on the server version and the table type.

Table Viewer

When you open a table, **Table Viewer** displays data as a grid. Data can be displayed in two modes: Grid View and Form View. See Data Viewer for details.

Views

A view allows users to access a set of tables as if it is a single table. You can use views to restrict access to rows. In the main window, click **View** to open the view object list.

View Designer

View Designer is the basic Navicat tool for working with views. You can edit the view definition as SQL statement (SELECT statement it implements) in the **Definition** tab. To customize the view of the editor and find out more features for SQL editing, see SQL Editor for details. If you want to load SQL statement from a SQL file to the editor, you can choose **File** -> **Import SQL**.

Button	Description
Preview	Preview the data of the view.
Explain	Show the Query Plan of the view.
View Builder	Build the view visually. It allows you to create and edit views without knowledge of SQL. See SQL Builder for details.
Beautify SQL	Format the codes with the Beautify SQL settings in Editor.

Hint: You can choose to show the preview results below the editor or in a new tab by choosing **View** -> **Result** -> **Show Below Editor** or **Show in New Page**.

View Viewer

When you open a view, **View Viewer** displays data as a grid. Data can be displayed in two modes: Grid View and Form View. See Data Viewer for details.

Materialized Views

Materialized Views are schema objects that used to summarize, compute, replicate, and distribute data. In the main window, click **Materialized View** to open the materialized view object list.

To refresh and completely replace the contents of a materialized view, right-click it in the Objects tab and select **Refresh Materialized View With** -> **Data** or **No Data** from the pop-up menu.

Materialized View Designer

Materialized View Designer is the basic Navicat tool for working with materialized views. You can edit the view definition as SQL statement (SELECT statement it implements) in the **Definition** tab. To customize the view of the editor and find out more features for SQL editing, see SQL Editor for details. If you want to load SQL statement from a SQL file to the editor, you can choose **File** -> **Import SQL**.

Button	Description
Preview	Preview the data of the materialized view.
Explain	Show the Query Plan of the materialized view.
View Builder	Build the materialized view visually. It allows you to create and edit materialized views without knowledge of SQL. See SQL Builder for details.

Beautify SQL	Format the codes with the Beautify SQL settings in Editor.

Hint: You can choose to show the preview results below the editor or in a new tab by choosing **View** -> **Result** -> **Show Below Editor** or **Show in New Page**.

Materialized View Viewer

When you open a materialized view, **Materialized View Viewer** displays data as a grid. Data can be displayed in two modes: Grid View and Form View. See Data Viewer for details.

Procedures / Functions

Procedures and functions are schema objects that consist a set of SQL statements and stored in the server.

Procedures are supported in PostgreSQL 11. In the main window, click **Function** to open the function object list.

Function Wizard

Click **New Function** from the object toolbar. **Function Wizard** will pop up and it allows you to create a function easily.

1. Select the type of the routine: **Procedure** or **Function**.
2. Define the parameters. Set the **Mode**, **Type Schema**, **Type**, **Name** and **Default Value** under the corresponding columns.
3. If you create a function, select the **Schema** and **Return Type** from the list.
4. Select the additional function options.

Hint: Once click the **Skip** button, you can go to Options to enable the function wizard.

Function Designer

Function Designer is the basic Navicat tool for working with procedures/functions. You can enter a valid SQL statement in the **Definition** tab. This can be a simple statement such as SELECT or INSERT, or it can be a compound statement written using BEGIN and END. To customize the view of the editor and find out more features for SQL editing, see SQL Editor for details.

Results

To execute the procedure/function, click **Execute** on the toolbar. If the SQL statement is correct, the statement will be executed and, if the statement is supposed to return data, the **Result** tab opens with the data returned. If an error occurs while executing the procedure/function, execution stops, the appropriate error message is displayed. If the procedure/function requires input parameters, the **Input Parameter** dialog will pop up. Check the **Raw Mode** option to pass the inputted values to the procedure/function without quotation marks.

Note: Navicat supports to return 20 result sets.

Hint: You can choose to show the results below the editor or in a new tab by choosing **View** -> **Result** -> **Show Below Editor** or **Show in New Page**.

Debug (Available only in Non-Essentials Edition)

Before debugging PL/pgSQL procedures/functions, you need to install the pldbgapi extension. You can right-click anywhere in the function object list and select **Install pldbgapi Extension**.

Note: This option is only available for PostgreSQL 9.1 or later. If your server is PostgreSQL 8.3 to 9.0, you need to enable the debugger plugin manually in the server.

Then, open a PL/pgSQL procedure/function. You can add/remove breakpoints for debugging by clicking  in the grey area beside each statement.

Click  **Debug** on the toolbar to launch the PostgreSQL Debugger.

Types

Types register new data types for use in the current database. In the main window, click  **Others** -> **Type** to open the type object list.

You can create **Base** / **Composite** / **Enum** / **Range** types. Click the down arrow next to  **New Type** from the object toolbar and choose the type.

Type Designer

Type Designer is the basic Navicat tool for working with types. It allows you to create or edit a type.

Note: The tabs and options in the designer depend on the server version and the type you are chosen.

Foreign Servers

A foreign server typically encapsulates connection information that a foreign-data wrapper uses to access an external data resource. In the main window, click  **Others** -> **Foreign Server** to open the foreign server object list.

To install the postgres_fdw extension for accessing data stored in external PostgreSQL servers, you can right-click anywhere in the foreign server object list and select **Install postgres_fdw Extension**.

Foreign Server Designer

Foreign Server Designer is the basic Navicat tool for working with foreign servers. It allows you to create or edit a foreign server.

Other Objects

Navicat also allows you to manage other PostgreSQL objects: Aggregate, Conversion, Domain, Index, Operator, Operator Class, Sequence, Trigger, Tablespace, Cast and Language. In the main window, click  **Others** and select an object to open the object list.

Maintain Objects

Navicat provides a complete solution for maintaining PostgreSQL objects.

1. In the main window, select objects in the Navigation pane or the Objects tab.
2. Right-click the selected objects.
3. Choose **Maintain**, and then choose a maintain option the from the pop-up menu.
4. Results show in a pop-up window.

Database

Option	Description
Allow	Users can connect to the database.
Disallow	No users can connect to the database.
Analyze Database	Collect statistics about the database.
Vacuum Database	Garbage-collect and optionally analyze the database.
Reindex Database	Recreate all indexes within the database.

Table / Materialized View

Option	Description
Analyze Tables / Analyze Materialized Views	Collect statistics about the contents of the table.
Vacuum Tables / Vacuum Materialized Views	Garbage-collect and optionally analyze the table.
Reindex Tables / Reindex Materialized Views	Recreate all indexes of the table.

SQL Server

Databases & Schemas

To start working with the server objects, you should create and open a connection. If the server is empty, you need to create a new database and/or a new schema.

Create a new database

1. In the Navigation pane, right-click a connection and select **New Database**.
2. Enter the database properties in the pop-up window.

Edit an existing database

1. In the Navigation pane, right-click a database and select **Edit Database**.

2. Edit the database properties in the pop-up window.

Create a new schema

1. In the Navigation pane, right-click a database and select **New Schema**.

2. Enter the schema properties in the pop-up window.

Edit an existing schema

1. In the Navigation pane, right-click a schema and select **Edit Schema**.

2. Edit the schema properties in the pop-up window.

Tables

Tables are database objects that contain all data in a database. A table is a set of rows and columns, and their intersections are fields. In the main window, click  **Table** to open the table object list.

There are two ways to open a table with graphical fields, right-click a table and select:

Option	Description
Open Table	Navicat loads all your BLOB fields (images) while opening the table.
Open Table (Quick)	Faster performance for opening the graphical table, as BLOB fields (images) will not be loaded until you click on the cell. (It is invisible by default until you hold down the SHIFT key when right-clicking the table.)

To empty a table, right-click the selected table and select **Empty Table** from the pop-up menu. This option is only applied when you wish to clear all the existing records without resetting the auto-increment value. To reset the auto-increment value while emptying your table, use **Truncate Table**.

Table Designer

Table Designer is the basic Navicat tool for working with tables. It allows you to create, edit and drop table's fields, indexes, foreign keys, and much more.

In the **Fields** tab, you can search a field name by choosing **Edit** -> **Find** or pressing CTRL+F. When creating a new table, you are allowed to insert fields or rearrange the order of the fields.

Note: The tabs and options in the designer depend on the server version.

Table Viewer

When you open a table, **Table Viewer** displays data as a grid. Data can be displayed in two modes: Grid View and Form View. See Data Viewer for details.

Views

A view allows users to access a set of tables as if it is a single table. You can use views to restrict access to rows. In the main window, click **View** to open the view object list.

View Designer

View Designer is the basic Navicat tool for working with views. You can edit the view definition as SQL statement (SELECT statement it implements) in the **Definition** tab. To customize the view of the editor and find out more features for SQL editing, see SQL Editor for details. If you want to load SQL statement from a SQL file to the editor, you can choose **File** -> **Import SQL**.

Button	Description
Preview	Preview the data of the view.
Explain	Show the Query Plan of the view.
View Builder	Build the view visually. It allows you to create and edit views without knowledge of SQL. See SQL Builder for details.
Beautify SQL	Format the codes with the Beautify SQL settings in Editor.

Hint: You can choose to show the preview results below the editor or in a new tab by choosing **View** -> **Result** -> **Show Below Editor** or **Show in New Page**.

View Viewer

When you open a view, **View Viewer** displays data as a grid. Data can be displayed in two modes: Grid View and Form View. See Data Viewer for details.

Procedures / Functions

Procedures and functions are schema objects that consist a set of SQL statements and stored in the server. In the main window, click **Function** to open the function object list.

Function Wizard

Click **New Function** from the object toolbar. **Function Wizard** will pop up and it allows you to create a procedure/function easily.

1. Select the type of the routine: **Procedure** or **Function**.
2. Specify the **Name** of the routine and select the type of the routine: **Procedure** or **Function**.
3. Define the parameters. Set the **Name**, **Type Schema**, **Type**, **Default Value**, **Output** and/or **Read Only** under the corresponding columns.
4. If you create a function, select the **Function Type** from the list. Then, choose the **Schema** and the **Return Type** if necessary.
5. Set the advanced options.

Hint: Once click the **Skip** button, you can go to Options to enable the function wizard.

Function Designer

Function Designer is the basic Navicat tool for working with procedures/functions. You can enter a valid SQL statement in the **Definition** tab. To customize the view of the editor and find out more features for SQL editing, see SQL Editor for details.

The **Code Outline** pane displays information about the procedure/function including parameters, code body, etc. If the Code Outline pane is hidden, choose **View** -> **Code Outline**.

Note: Available only in Non-Essentials Edition.

Button	Description
	Refresh the code outline.
	Show the detail view of the code outline.
	Turn mouse over highlight on or off.
	Expand the selected item.
	Collapse the selected item.
	Toggle sorting by position.

Results

To execute the procedure/function, click  **Execute** on the toolbar. If the SQL statement is correct, the statement will be executed and, if the statement is supposed to return data, the **Result** tab opens with the data returned. If an error occurs while executing the procedure/function, execution stops, the appropriate error message is displayed. If the procedure/function requires input parameters, the **Input Parameter** dialog will pop up. Check the **Raw Mode** option to pass the inputted values to the procedure/function without quotation marks.

Note: Navicat supports to return 20 result sets.

Hint: You can choose to show the results below the editor or in a new tab by choosing **View** -> **Result** -> **Show Below Editor** or **Show in New Page**.

Other Objects

Navicat also allows you to manage other SQL Server objects: Index, Synonym, Trigger, Backup Device, Linked Server, Server Trigger, Assembly, Database Trigger, Partition Function and Partition Scheme. In the main window, click **Others** and select an object to open the object list.

Maintain Objects

Navicat provides a complete solution for maintaining SQL Server objects.

1. In the main window, select objects in the Navigation pane or the Objects tab.
2. Right-click the selected objects.

3. Choose **Maintain**, and then choose a maintain option the from the pop-up menu.

4. Results show in a pop-up window.

Database

Option	Description
Read Write	Set the database to Read and Write mode.
Read Only	Set the database to Read Only mode.
Online	Bring the database online.
Offline	Take the database offline.
Emergency	Set the database to the Emergency state.
Multi User	Set the database to Multi User mode.
Single User	Set the database to Single User mode.
Restricted User	Set the database to Restricted User mode.

Assembly

Option	Description
Visible	Set the assembly to visible.
Invisible	Set the assembly to not visible.

Index

Option	Description
Rebuild	Rebuild and enable the index.
Reorganize	Reorganize the enabled index.
Disable	Disable the index.

Trigger / Database Trigger / Server Trigger

Option	Description
Enable	Enable the trigger.
Disable	Disable the trigger.

SQLite

Databases

To start working with the server objects, you should create and open a connection. The database file set in the General tab of the Connection window is named as the **main** database.

Attach a database file

1. In the Navigation pane, right-click a connection and select **Attach Database**.

2. Enter the database properties in the pop-up window.

Detach a database

1. In the Navigation pane, right-click an attached database and select **Detach Database**.

Encrypt main database

1. In the Navigation pane, right-click the main database and select **Encrypt Database**.
2. Enter the password in the pop-up window.

Decrypt main database

1. In the Navigation pane, right-click the main database and select **Decrypt Database**.
2. Confirm decrypting in the dialog window.

View the sqlite_master table

1. In the Navigation pane, right-click a database and select **View Master Table**.
2. The sqlite_master table opens in Table Viewer.

Tables

Tables are database objects that contain all data in a database. A table is a set of rows and columns, and their intersections are fields. In the main window, click **Table** to open the table object list.

To empty a table, right-click the selected table and select **Empty Table** from the pop-up menu.

Table Designer

Table Designer is the basic Navicat tool for working with tables. It allows you to create, edit and drop table's fields, indexes, foreign keys, and much more.

In the **Fields** tab, you can search a field name by choosing **Edit** -> **Find** or pressing CTRL+F.

Note: The tabs and options in the designer depend on the server version.

Table Viewer

When you open a table, **Table Viewer** displays data as a grid. Data can be displayed in two modes: Grid View and Form View. See Data Viewer for details.

Views

A view allows users to access a set of tables as if it is a single table. You can use views to restrict access to rows. In the main window, click **View** to open the view object list.

View Designer

View Designer is the basic Navicat tool for working with views. You can edit the view definition as SQL statement (SELECT statement it implements) in the **Definition** tab. To customize the view of the editor and find out more features for SQL editing, see SQL Editor for details. If you want to load SQL statement from a SQL file to the editor, you can choose **File** -> **Import SQL**.

Button	Description
Preview	Preview the data of the view.
Explain	Show the Query Plan of the view.
View Builder	Build the view visually. It allows you to create and edit views without knowledge of SQL. See SQL Builder for details.
Beautify SQL	Format the codes with the Beautify SQL settings in Editor.

Hint: You can choose to show the preview results below the editor or in a new tab by choosing **View** -> **Result** -> **Show Below Editor** or **Show in New Page**.

View Viewer

When you open a view, **View Viewer** displays data as a grid. Data can be displayed in two modes: Grid View and Form View. See Data Viewer for details.

Other Objects

Navicat also allows you to manage other SQLite objects: Index and Trigger. In the main window, click the corresponding button from the main toolbar to open the object list.

Maintain Objects

Navicat provides a complete solution for maintaining SQLite objects.

1. In the main window, select objects in the Navigation pane or the Objects tab.
2. Right-click the selected objects.
3. Choose **Maintain**, and then choose a maintain option the from the pop-up menu.
4. Results show in a pop-up window.

Database

Option	Description
Analyze Database	Collect statistics about the database.
Vacuum Database	Rebuild the database file. It only works on the main database.
Reindex Database	Delete and recreate all indexes within the database.

Table

Option	Description
Analyze Tables	Collect statistics about the contents of the table.

Reindex Tables	Delete and recreate all indexes of the table.
Get Rows Count	Count the number of rows in the table.

Index

Option	Description
Reindex	Delete and recreate the index.

MongoDB

Databases

To start working with the server objects, you should create and open a connection. If the server is empty, you need to create a new database.

Create a new database

1. In the Navigation pane, right-click your connection and select **New Database**.
2. Enter the database properties in the pop-up window.

Collections

Collections are analogous to relational database tables for storing documents. In the main window, click **Collection** to open the collection object list.

To empty a collection, right-click the selected collection and select **Empty Collection** from the pop-up menu.

Collection Designer

Collection Designer is the basic Navicat tool for working with collections. It allows you to set the collection properties, indexes, validation, storage engine, and much more.

Note: The tabs and options in the designer depend on the server version.

Collection Viewer

When you open a collection, **Collection Viewer** displays data as a grid. Data can be displayed in three modes: Grid View, Tree View and JSON View. See Data Viewer for details.

Views

A view is the result of the applying the specified aggregation pipeline to the source collection or view. In the main window, click **View** to open the view object list.

View Designer

View Designer is the basic Navicat tool for working with views.

Button	Description
Preview	Preview the data of the view.
Explain	Show the Query Plan of the view.

In the **Pipeline** tab, you can add, insert or delete aggregation pipeline stages. In the **Operator** column, select an expression operator. An expression template will be generated in the **Expression** column, you can modify the template.

View Viewer

When you open a view, **View Viewer** displays data as a grid. Data can be displayed in three modes: Grid View, Tree View and JSON View. See Data Viewer for details.

Functions

You can store JavaScript functions for reuse. In the main window, click **Function** to open the function object list.

Function Designer

Function Designer is the basic Navicat tool for working with functions. You can enter the function definition in the **Definition** tab. To customize the view of the editor and find out more features for script editing, see Query Editor for details.

Results

To execute the function, click **Execute** on the toolbar. If the script is correct, the **Execute Function** dialog will pop up. Enter input parameters if necessary and click **OK**. If the function is supposed to return data, the **Result** tab opens with the data returned. If an error occurs while executing the function, execution stops, the appropriate error message is displayed.

Indexes

Navicat allows you to manage MongoDB indexes. In the main window, click **Index** to open the index object list.

MapReduce

Map-Reduce is a data processing paradigm for condensing large volumes of data into useful aggregated results. In the main window, click **MapReduce** to open the map-reduce object list.

You can set automation tasks to schedule Map-Reduce jobs.

Map-Reduce Designer

Map-Reduce Designer is the basic Navicat tool for working with Map-Reduce jobs.

Button	Description
Run	Run the Map-Reduce job.
Stop	Stop the running Map-Reduce job.

Preview	Preview the documents by applying Input, Mapper, Reducer or Finalizer.
Import Function	Import an existing function to Mapper, Reducer or Finalizer.

Results

To run the Map-Reduce job, click **Run** on the toolbar. If you set to output the results inline, the **Result** tab opens with the documents returned, the number of documents and the timing information. If you set to write the results to a collection, the results return a document to the specified output collection.

GridFS

GridFS is a specification for storing and retrieving files. In the main window, click **GridFS** to open the GridFS object list.

You can create multiple buckets in a database for storing files. Click **New Bucket** and enter the name of the bucket.

To open the selected bucket, click **Open Bucket**.

Bucket Viewer

Bucket Viewer is the basic Navicat tool for working with GridFS buckets. You can upload, download and view GridFS files that are inside the bucket.

Button	Description
Open File	Open the selected GridFS file.
Delete File	Delete the selected GridFS files.
Upload File	Upload files into the bucket.
Download File	Download the selected GridFS files.
Filter	Filter the GridFS file table by creating and applying filter criteria.
Preview	Preview an image file that is less than 1 MB.
Progress	Check the status of file uploads and downloads.

File Table

The File table displays all the files that are uploaded to the bucket.

You can edit the GridFS file's name, content type, alias or metadata. In the table, right-click the name of the file and select **Modify File Name**, **Modify Content Type**, **Modify Alias** or **Modify Metadata**. Then, enter the information in the pop-up window.

Filter Pane

If you have many files uploaded to the bucket, you can find matching files using a filter. To toggle the Filter pane, click **Filter**.

Progress Pane

The Progress pane displays the status of all file uploads and downloads in the current window. Parallel downloads and uploads are supported. If the window is closed, the list will be cleared.

When a file is starting to upload or download, click the corresponding buttons next to the progress bar to pause, resume and stop the process. After the process is finished, you can click  to open the folder that contains the file, or hover over an item and click  to remove it from the list.

If you want to pause, resume and stop all items that are in progress, right-click the list and select the appropriate options.

To clear the finished items, right-click the list and select **Clear All Finished**.

Maintain Objects

Navicat provides a complete solution for maintaining MongoDB objects.

1. In the main window, select objects in the Navigation pane or the Objects tab.
2. Right-click the selected objects.
3. Choose **Maintain**, and then choose a maintain option the from the pop-up menu.
4. Results show in a pop-up window.

Database

Option	Description
Repair Database	Rebuild the database and indexes by discarding invalid or corrupt data.

Collection

Option	Description
Compact Collection	Rewrite and defragment all data and indexes in the collection.
Validate Collection	Check the structures within a namespace for correctness by scanning the collection’s data and indexes.
Reindex Collection	Drop and recreate all indexes on the collection.

Chapter 6 - Data Viewer

About Data Viewer

Navicat includes a data viewer that allows you to view, update, or delete data. The viewer also includes advanced features and editors that can help you understand the data as you manipulate it. You can use common keyboard navigation to browse your data.

RDBMS

RDBMS Data Viewer

RDBMS Data Viewer displays the data as a grid or a form. To switch the view, click  or  at the bottom.

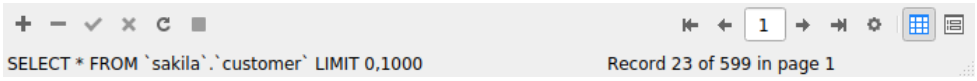
Note: Form View is available only in Non-Essentials Edition.

The toolbar of the data viewer provides the following functions for managing data:

Button	Description
Begin Transaction	Start a transaction. If **Auto begin transaction** is enabled in Options, transaction will be started automatically when opening the data viewer.
Commit	Make permanent all changes performed in the current transaction.
Rollback	Undo work done in the current transaction.
Text	Activate the assistant editors for viewing and editing data.
Filter	Filter records by creating and applying filter criteria for the data grid.
Sort	Sort records by custom order.
Import	Import data from files.
Export	Export data to files.

Use Navigation Bar

Data Viewer provides a convenient way to navigate among the records/pages using the **Navigation Bar** buttons.



Button	Description
+	**Add Record** - enter a new record. At any point when you are working in the data viewer, click on this button to get a blank display for a record.
−	**Delete Records** - delete an existing record.
✓	**Apply Changes** - apply the changes.
✕	**Discard Changes** - remove all edits made to the current record.
↻	**Refresh** - refresh the data.
■	**Stop** - stop when loading enormous data from server.

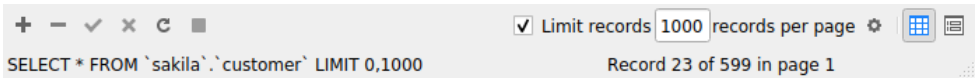
	First Page - move to the first page.
	Previous Page - move to the previous page.
	Next Page - move to the next page.
	Last Page - move to the last page.
	First Record - move to the first record.
	Previous Record - move one record back (if there is one) from the current record.
	Next Record - move one record ahead.
	Last Record - move to the last record.
	Limit Record Setting - set number of records showing on each page.
	Grid View - switch to Grid View.
	Form View - switch to Form View.

Use the **Limit Record Setting** button to enter to the edit mode.

Limit records ☐ **records per page**

Check this option if you want to limit the number of records showed on each page. Otherwise, all records will be displayed in one single page. And, set the value in the edit box. The number representing the number of records showed per page.

Note: This setting mode will take effect on current object only. To adjust the global settings, see Options.



Record a **of** b **in page** c

Display the numbers representing the selected record and page.

a - the selected record.

b - number of records in the current page.

c - the current page.

Edit Records

Grid View

Grid View is a spreadsheet-like view showing records and fields as rows and columns. The navigation bar allows you to switch the records quickly, insert or delete records.

To add a record

1. Make sure that your cursor is situated in the first blank cell on the table, then enter the desired data. If you are adding the new record into an existing table, just simply click on an existing record and click + from the navigation bar or press CTRL+N to get a blank display for a record.

2. Watch the graphics symbol in the record selectors box just to the left of your record. It will change from ▶, which indicates that it is the current record, to I, which indicates that you are editing this record.
3. Just simply move to another record to save the record or click ✔ from the navigation bar.

To edit a record

1. Select the record that you wish to edit by clicking in the specific field you want to change.
2. Type in the new data for that field.
3. Just simply move to another record, the new data will overwrite the previous data or click ✔ from the navigation bar.

Note: Close the table is another way to save the records.

To edit multiple cells with same data

1. Select a block of cells in the data grid.
2. Type in the new data.

Note: Changes will apply to multiple fields with compatible data type.

To delete a record

1. Select the record that you wish to delete.
2. Just simply right-click and select **Delete Record** or click − from the navigation bar.

Form View

Form View displays a single record at a time from a table. The navigation bar allows you to switch the records quickly, insert or delete records.

To add a record

1. Click + from the navigation bar or press CTRL+N to get a blank display for a record.
2. Enter the desired data.
3. Click ✔ from the navigation bar to save the record.

To edit a record

1. Go to the record that you wish to edit.
2. Type in the new data for the specific field you want to change.
3. Click ✔ from the navigation bar. The new data will overwrite the previous data.

Note: Close the table is another way to save the records.

To delete a record

1. Go to the record that you wish to delete.
2. Just simply right-click and select **Delete Record** or click − from the navigation bar.

Edit Records with Special Handling

To set the cell value to an empty string or NULL, right-click the selected cell and select **Set to Empty String** or **Set to NULL**.

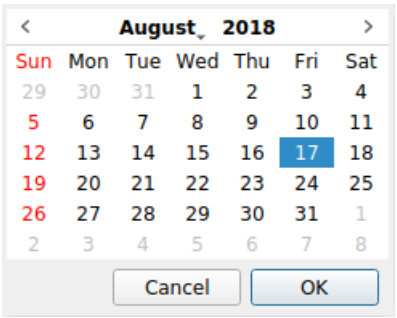
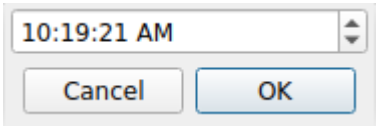
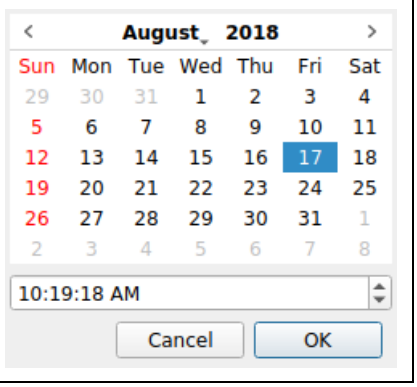
To view images in the grid, just simply choose **View** -> **Display** -> **Show Image In Grid**.

Note: Available only for MySQL, Oracle, PostgreSQL, SQL Server and MariaDB.

Hint: To view/edit images in an ease way, see Image Editor.

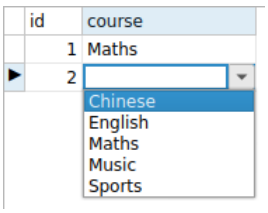
To edit a Date/Time record, just simply click ... to open the editor for editing. Choose/enter the desired data. The editor used in cell is determined by the field type assigned to the column.

Note: Available only for MySQL, Oracle, PostgreSQL, SQL Server and MariaDB.

Date	Time	DateTime/Timestamp
		

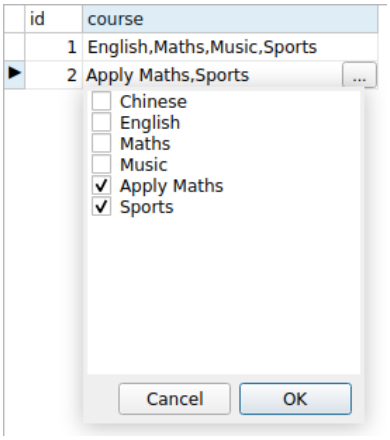
To edit an Enum record, just simply choose the record from the drop-down list.

Note: Available only for MySQL, PostgreSQL and MariaDB.



To edit a Set record, just simply click ... to open the editor for editing. Select the records from the list. To remove the records, uncheck them in the same way.

Note: Available only for MySQL and MariaDB.



To view BFile content, just simply choose **View** -> **Display** -> **Preview BFile**.

Note: Available only for Oracle.

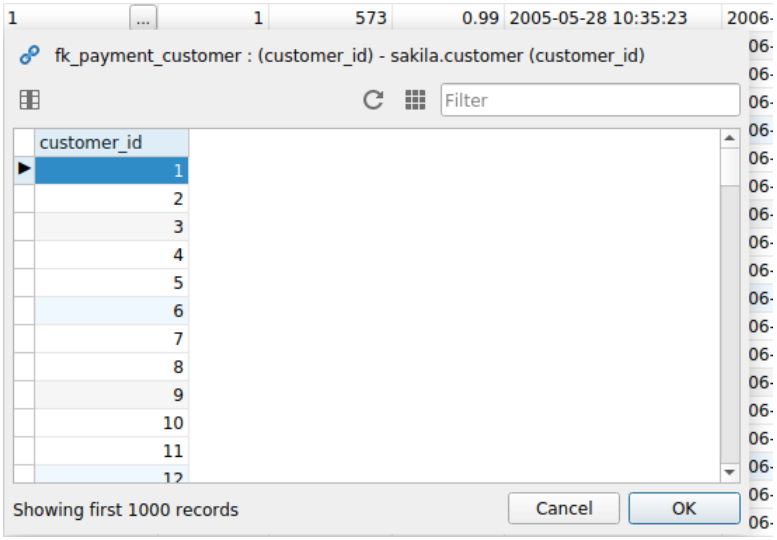
To generate UUID, right-click the selected cell and select **Generate UUID**.

Note: Available only for PostgreSQL.

Edit Records with Foreign Key (Foreign Key Data Selection - Available only in Non-Essentials Edition)

Foreign Key Data Selection is a useful tool for letting you to get the available value from the reference table in an easy way. It allows you to show additional records from the reference table and search for particular records.

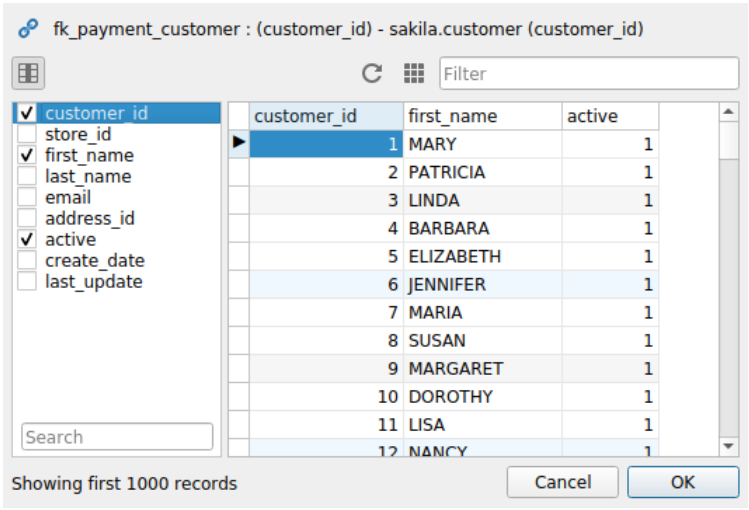
To include data to the record, just simply click ... to open the editor for editing.



Just simply double-click to select the desired data.

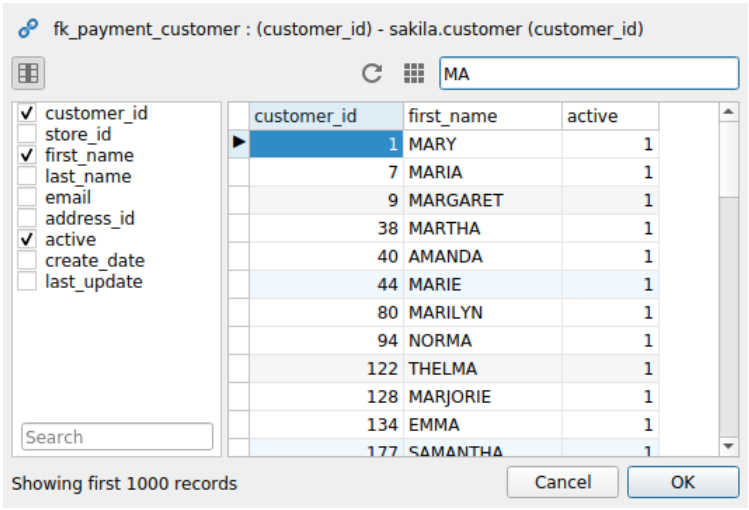
Hint: By default, the number of records showed is **1000**. To show all records, click . To refresh the records, click or press F5.

Click  to open a pane on the left for showing a list of column names. Just simply click to show the additional column. To remove the columns, uncheck them in the same way.



Hint: To set column in ascending or descending mode, right-click anywhere on the column and select **Sort** -> **Sort Ascending** / **Sort Descending**.

Enter a search string into the **Filter** edit box and press ENTER to filter for the particular records.



Hint: To remove the filter results, simply remove the search string and press ENTER.

Copy Data from Grid View

Data that being copied from Navicat goes into the clipboard with the fields delimited by tabs and the records delimited by carriage returns. It allows you to easily paste the clipboard contents into any application you want. Spreadsheet applications in general will notice the tab character between the fields and will neatly separate the clipboard data into rows and columns.

To select data using keyboard shortcuts

CTRL+A	Toggle the selection of all rows and columns in the data grid.
SHIFT+ARROW	Toggle the selection of cells as you move up/down/left/right in the data grid.

To select data using mouse actions

- Select the desired records by holding down the CTRL key while clicking on each row.
- Select range of records by clicking the first row you want to select and holding down the SHIFT key together with moving your cursor to the last row you wish to select.
- Select a block of cells.

Note: After you have selected the desired records, just simply press CTRL+C or right-click it and select **Copy**.

Paste Data into Grid View

Data are copied into the clipboard will be arranged as below format:

- Data are arranged into rows and column.
- Rows and columns are delimited by carriage returns/tab respectively.
- Columns in the clipboard have the same sequence as the columns in the data grid you have selected.

When pasting data into Navicat, you can replace the contents of current records and append the clipboard data into the table. To replace the contents of current records in a table, you must select the cells in the data grid whose contents must be replaced by the data in the clipboard. Just simply press CTRL+V or right-click and select **Paste** from the pop-up menu. Navicat will paste all the content in the clipboard into the selected cells. The paste action cannot be undone if you do not enable transaction.

Copy Records as Insert/Update Statements

To copy records as Insert/Update statement, right-click the selected records and select **Copy As** -> **Insert Statement** or **Update Statement**. Then, you can paste the statements in any editors.

Copy Field Name

To copy field names as tab separated values, right-click the selected columns/data and select **Copy As** -> **Tab Separated Values (Field Name only)**. If you want to copy data only or both field names and data, you can choose **Tab Separated Values (Data only)** or **Tab Separated Values (Field Name and Data)** respectively.

Save Data as a File

You can save the data in the table grid to a file. Simply right-click a cell and select **Save Data As**. Enter the file name and file extension in the Save As dialog.

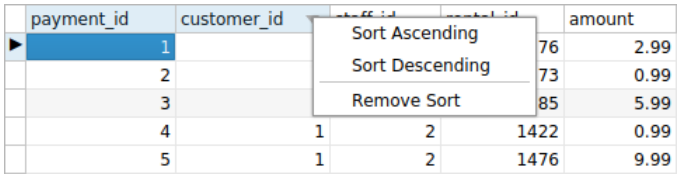
Note: Not available when multiple selection.

Sort / Find / Replace Records

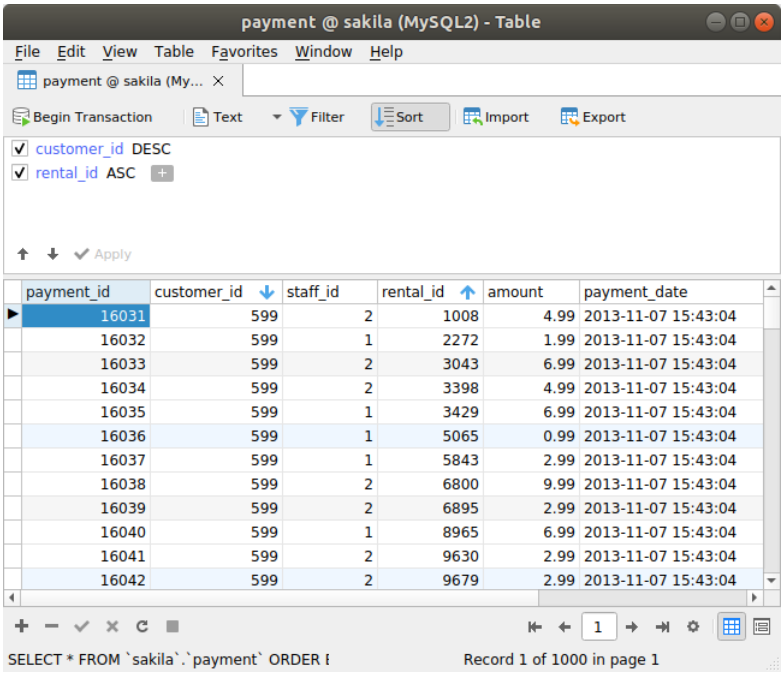
Sort Records

Server stores records in the order they were added to the table. Sorting in Navicat is used to temporarily rearrange records, so that you can view or update them in a different sequence.

Move over the column caption whose contents you want to sort by, click the right side of the column and select **Sort Ascending**, **Sort Descending** or **Remove Sort**.



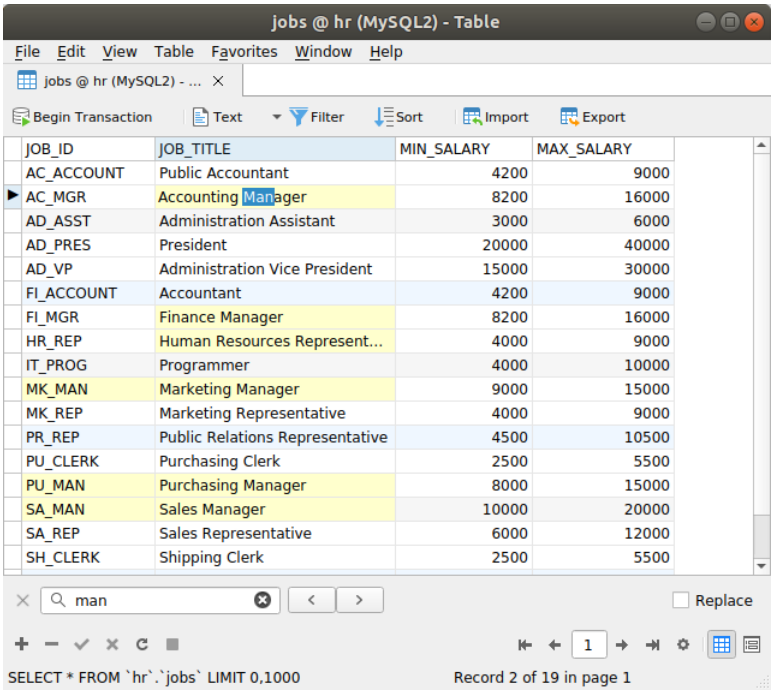
To sort by custom order of multiple columns, click **Sort** from the toolbar.



Find and Replace

Find Records

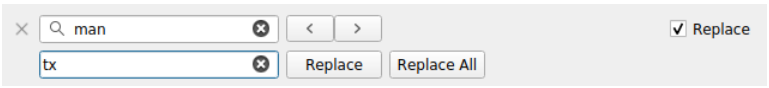
The Find bar is provided for quick searching for the text in the viewer. Just simply choose **Edit** -> **Find** or press CTRL+F. Then, choose **Find Data** and enter a search string. The search starts at the cursor's current position to the end of the file.



To find for the next text, just simply click **Next** or press F3.

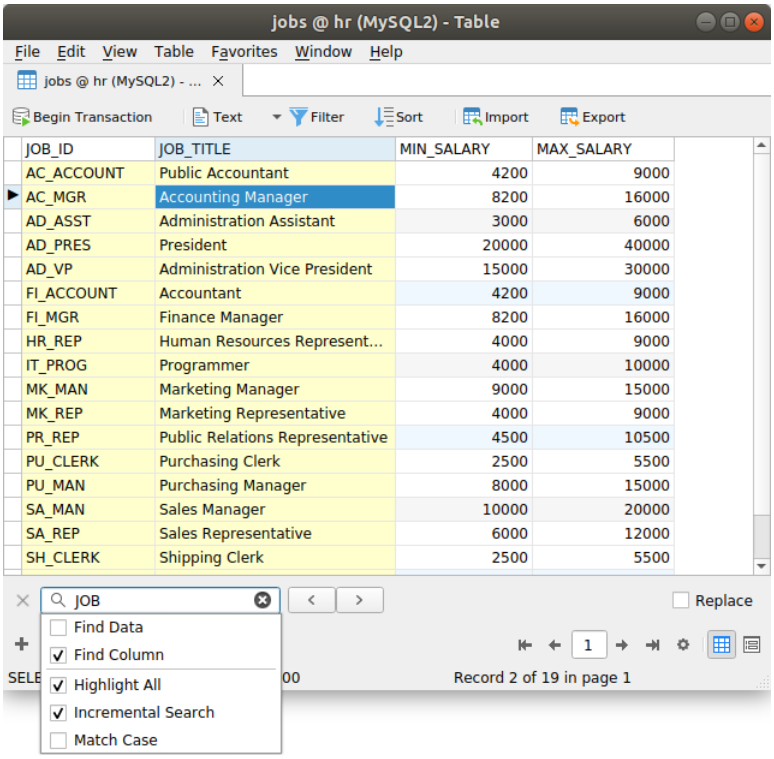
Replace Records

In the Find bar, check the **Replace** box and enter the text you want to search and replace. Click **Replace** or **Replace All** to replace the first occurrence or all occurrences automatically. If you clicked **Replace All**, you can click **Apply** to apply the changes or **Cancel** to cancel the changes.



Find Fields

To search a field, just simply choose **Edit** -> **Find** or press CTRL+F. Then, choose **Find Field** and enter a search string.



There are some additional options for Find and Replace, click :

Option	Description
Highlight All	Highlight all matches in the viewer.
Incremental Search	Find matched text for the search string as each character is typed.
Match Case	Enable case sensitive search.

Filter Records

Use either of the following methods to filter the data in the grid:

- Right-click a cell and select **Filter** -> **Field xxx Value** from the pop-up menu to filter records by the current value in the cell.
- The **Custom Filter** dialog is provided for quick building a simple filter. Just simply right-click the grid and select **Filter** -> **Custom Filter** from the pop-up menu. Use character '_' to represent any single symbol in the condition and use character '**%**' to represent any series of symbols in the condition.
- You can also customize your filter in a more complicated way by right-clicking a field and selecting **Filter** -> **Filter** from the pop-up menu or clicking **Filter** from the toolbar. The Filter Wizard becomes visible at the top of the grid, where you can see the active filtering condition and easily enable or disable it by clicking a check box at the left.

Manipulate Raw Data

Navicat normally recognize what user has input in a table as normal string, any special characters or functions would be processed as plain text (that is, its functionality would be skipped).

Editing data in **Raw Mode** provides an ease and direct method to apply server built-in functions. To access Raw Mode, just simply choose **View** -> **Display** -> **Raw Mode**.

Note: Available only for MySQL, Oracle, PostgreSQL, SQL Server and MariaDB.

JOB_ID	JOB_TITLE	MIN_SALARY	MAX_SALARY
'AC_ACCOUNT'	'Public Accountant'	4200	9000
'AC_MGR'	'Accounting Manager'	8200	16000
'AD_ASST'	CONCAT('Administration', ' ', 'Assistant')	3000	6000
'AD_PRES'	'President'	20000	40000
'AD_VP'	'Administration Vice President'	15000	30000

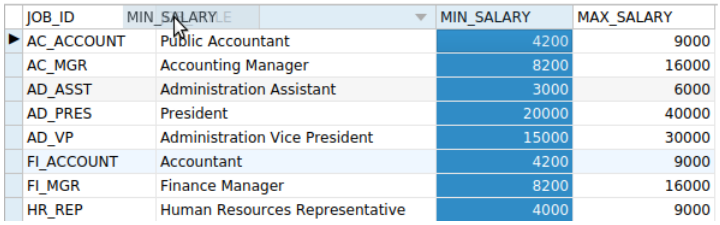
Format Data View

Use the following methods to format the table grid:

Hint: Form View only supports Show/Hide Columns.

Move Columns

1. Click on the column header and hold down the left mouse button.
2. Move the pointer to the desired location.
3. Release the mouse and the column will move.



JOB_ID	MIN_SALARY	MIN_SALARY	MAX_SALARY
AC_ACCOUNT	Public Accountant	4200	9000
AC_MGR	Accounting Manager	8200	16000
AD_ASST	Administration Assistant	3000	6000
AD_PRES	President	20000	40000
AD_VP	Administration Vice President	15000	30000
FI_ACCOUNT	Accountant	4200	9000
FI_MGR	Finance Manager	8200	16000
HR_REP	Human Resources Representative	4000	9000

Freeze Selected Column

If there are many columns in the table and you want to freeze one or more columns to identify the record, just simply right-click the column you want to freeze and select **Display** -> **Freeze Selected Column** or select from the **View** menu.

The frozen columns will move to the leftmost position in the table grid. This action will locks the frozen columns, preventing them from being edited.

To unfreeze the columns, just simply right-click anywhere on the table grid and select **Display** -> **Unfreeze Columns** or select from the **View** menu.

Set Column Width

- Click right border at top of column and drag either left or right.
- Double-click right border at top of column to obtain the best fit for the column.
- Right-click the column you want to set the column width with and select **Display** -> **Set Column Width** or select from the **View** menu. Specify width in the **Set Column Width** dialog.

Hint: The result only applies on the selected column.

Set Row Height

Right-click anywhere on the table grid and select **Display** -> **Set Row Height** or select from the **View** menu. Specify row height in the **Set Row Height** dialog.

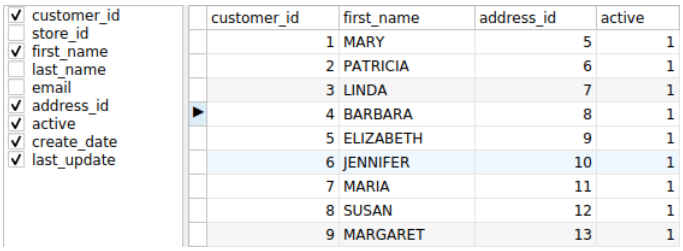
Hint: This action applies on the current table grid only.

Show/Hide Columns

If there are many columns in the table and you want to hide some of them from the grid/form, just simply right-click anywhere on the grid/form and select **Display** -> **Show/Hide Columns** or select from the **View** menu. Select the columns that you would like to hide.

The hidden columns will disappear from the grid/form.

To unhide the columns, just simply right-click anywhere on the grid/form and select **Display** -> **Show/Hide Columns** or select from the **View** menu. Select the columns that you would like to redisplay.



customer_id	first_name	address_id	active
1	MARY	5	1
2	PATRICIA	6	1
3	LINDA	7	1
4	BARBARA	8	1
5	ELIZABETH	9	1
6	JENNIFER	10	1
7	MARIA	11	1
8	SUSAN	12	1
9	MARGARET	13	1

Show/Hide ROWID

If you want to display or hide the rowid (address) of every row, right-click anywhere on the table grid and select **Display** -> **Show/Hide ROWID** or select from the **View** menu.

The ROWID column will be showed in the last column.

Note: Available only for Oracle and SQLite.

MongoDB

MongoDB Data Viewer

MongoDB Data Viewer displays the data as a grid or a tree, or in JSON format. To switch the view, click , , or at the bottom.

The toolbar of the data viewer provides the following functions for managing data:

Button	Description
Begin Transaction	Start a transaction. If **Auto begin transaction** is enabled in Options, transaction will be started automatically when opening the data viewer.
Commit	Make permanent all changes performed in the current transaction.
Rollback	Undo work done in the current transaction.

Text	Activate the assistant editors for viewing and editing data. Available only for Grid View and Tree View.
Filter	Filter records by creating and applying filter criteria for the data grid.
Sort	Sort records by custom order.
Expand All	[Tree View] Expand all embedded documents and arrays.
Collapse All	[Grid View] Collapse all embedded documents. [Tree View] Collapse all embedded documents and arrays.
Type Color	[Grid View] Use the specified type color set on the Type Color pane to highlight cells.
Import	Import data from files.
Export	Export data to files.
Analyze	Analyze the collection.

Use Navigation Bar

Data Viewer provides a convenient way to navigate among the documents/pages using the **Navigation Bar** buttons.

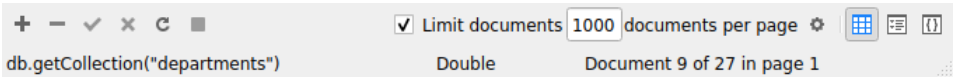
Button	Description
+	**Add Document** - enter a new document. At any point when you are working in the data viewer, click on this button to get a blank display for a document.
−	**Delete Documents** - delete an existing document.
✓	**Apply Changes** - apply the changes.
✕	**Discard Changes** - remove all edits made to the current document.
↻	**Refresh** - refresh the data.
■	**Stop** - stop when loading enormous data from server.
⇤	**First Page** - move to the first page.
←	**Previous Page** - move to the previous page.
→	**Next Page** - move to the next page.
⇥	**Last Page** - move to the last page.
⤒	**First Document** - move to the first document.
↑	**Previous Document** - move one document back (if there is one) from the current document.
↓	**Next Document** - move one document ahead.
⤓	**Last Document** - move to the last document.
⚙	**Limit Document Setting** - set number of documents showing on each page.
▦	**Grid View** - switch to Grid View.
☰	**Tree View** - switch to Tree View.
{}	**JSON View** - switch to JSON View.

Use the **Limit Document Setting** ⚙ button to enter to the edit mode.

Limit documents ☐ **documents per page**

Check this option if you want to limit the number of documents showed on each page. Otherwise, all documents will be displayed in one single page. And, set the value in the edit box. The number representing the number of documents showed per page.

Note: This setting mode will take effect on current object only. To adjust the global settings, see Options.



Document a **of** b **in page** c

Display the numbers representing the selected document and page.

a - the selected document.

b - number of documents in the current page.

c - the current page.

Grid View

Grid View is a spreadsheet-like view showing documents and fields as rows and columns. The navigation bar allows you to switch the documents quickly, insert or delete documents.

To add a document using the grid

1. Click on an existing document and click ✚ from the navigation bar or press CTRL+N to get a blank display for a document.
2. Enter the desired data.
3. Watch the graphics symbol in the document selectors box just to the left of your document. It will change from ▶, which indicates that it is the current document, to I, which indicates that you are editing this document.
4. Just simply move to another document to save the document or click ✔ from the navigation bar.

Note: If your collection is empty, a window will pop up for you to add documents.

To add a document using the pop-up window

1. Right-click the grid and select **Add Document**.
2. Write the document in the pop-up window.
3. Click **Validate** to ensure the document is correct.
4. Click **Add**.

To edit a document using the grid

1. Select the document that you wish to edit by clicking in the specific cell you want to change.
2. Type in the new data for that cell.
3. Just simply move to another document or click ✔ from the navigation bar, the new data will overwrite the previous data.

To edit a document using the pop-up window

1. Right-click the document that you wish to edit and select **Edit Document**.
2. Edit the document in the pop-up window.
3. Click **Validate** to ensure the document is correct.
4. Click **Update**.

Note: Close the collection is another way to save the documents.

To edit multiple cells with same data

1. Select a block of cells in the data grid.
2. Type in the new data.

Note: Changes will apply to multiple cells with compatible data type.

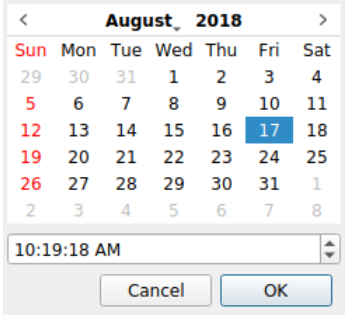
To delete a document

1. Select the document that you wish to delete.
2. Just simply right-click and select **Delete Document** or click ━ from the navigation bar.

Edit Documents with Special Handling

To set the cell value to an empty string or NULL, right-click the selected cell and select **Set to Empty String** or **Set to NULL**.

To edit a DateTime data, just simply click ··· to open the editor for editing. Choose/enter the desired data.



To change the type of a cell value, right-click the selected cell and select **Value Type**. Then, select the desired type.

Copy Data from Navicat

Data that being copied from Navicat goes into the Windows clipboard with the fields delimited by tabs and the documents delimited by carriage returns. It allows you to easily paste the clipboard contents into any application you want. Spreadsheet applications in general will notice the tab character between the fields and will neatly separate the clipboard data into rows and columns.

To select data using keyboard shortcuts

CTRL+A	Toggle the selection of all rows and columns in the data grid.
SHIFT+ARROW	Toggle the selection of cells as you move up/down/left/right in the data grid.

To select data using mouse actions

- Select the desired documents by holding down the CTRL key while clicking on each row.
- Select range of documents by clicking the first row you want to select and holding down the SHIFT key together with moving your cursor to the last row you wish to select.
- Select a block of cells.

Note: After you have selected the desired documents, just simply press CTRL+C or right-click it and select **Copy**.

Paste Data into Navicat

Data are copied into the clipboard will be arranged as below format:

- Data are arranged into rows and column.
- Rows and columns are delimited by carriage returns/tab respectively.
- Columns in the clipboard have the same sequence as the columns in the data grid you have selected.

When pasting data into Navicat, you can replace the contents of current documents and append the clipboard data into the collection. To replace the contents of current documents in a collection, you must select the cells in the data grid whose contents must be replaced by the data in the clipboard. Just simply press CTRL+V or right-click and select **Paste** from the pop-up menu. Navicat will paste all the content in the clipboard into the selected cells. The paste action cannot be undone if you do not enable transaction.

Copy Field Name

To copy field names as tab separated values, right-click the selected fields/documents and select **Copy As** -> **Tab Separated Values (Field Name only)**. If you want to copy data only or both field names and data, you can choose **Tab Separated Values (Data only)** or **Tab Separated Values (Field Name and Data)** respectively.

Save Data as a File

You can save the data in the grid to a file. Simply right-click a cell and select **Save Data As**. Enter the file name and file extension in the Save As dialog.

Note: Not available when multiple selection.

Filter Documents

Use either of the following methods to filter the data in the grid:

- Right-click a cell and select **Filter** -> **Field xxx Value** from the pop-up menu to filter documents by the current value of the selected field.
- The **Custom Filter** dialog is provided for quick building a simple filter. Just simply right-click the grid and select **Filter** -> **Custom Filter** from the pop-up menu. Enter a projection or a query likes: { field1: <value>, field2: <value> ... }.
- You can also customize your filter in a more complicated way by right-clicking a field and selecting **Filter** -> **Filter** from the pop-up menu or clicking **Filter** from the toolbar. The Filter Wizard becomes visible at the top of the grid, where you can see the active filtering condition and easily enable or disable it by clicking a check box at the left.

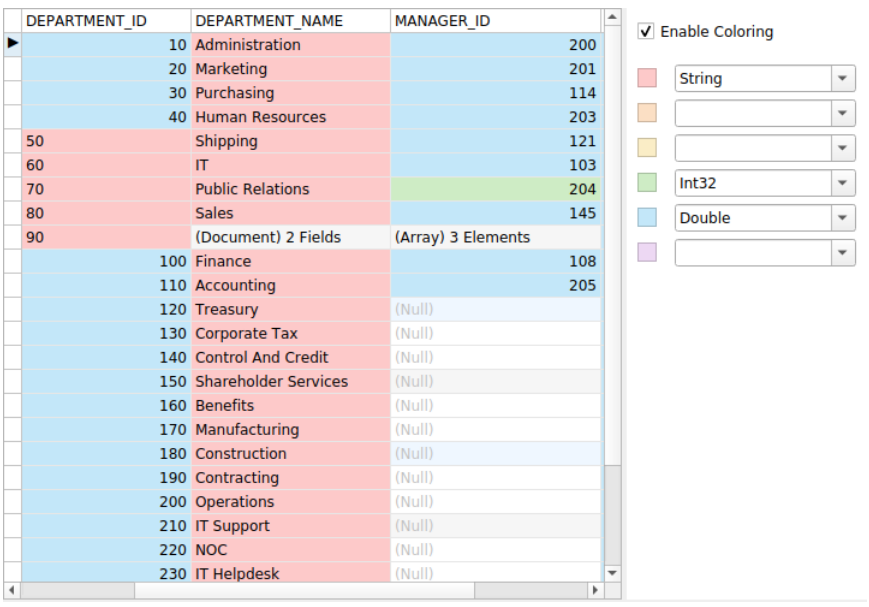
Format Grid View

Use the following methods to format the collection grid:

Highlight Cells based on Types

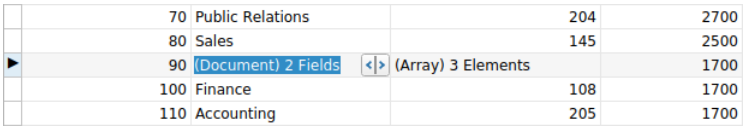
Grid View allows highlighting cells based on data types to make particular cells easy to identify. The Type Color pane is on the right side of the grid. If the grid window is docked to the Navicat main window, you can click the icon in the Information pane to set the color.

To apply the color, click the **Type Color** button on the toolbar or check the **Enable Coloring** option on the Type Color pane.



Expand/Collapse Embedded Documents

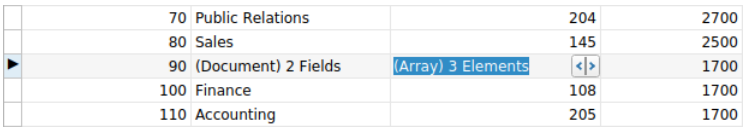
Grid View allows embedded documents to be expanded alongside other columns for easier data analysis. To expand or collapse an embedded document, just simply click on the cell with embedded document and click  or  , or right-click the cell and select **Expand**, **Collapse** or **Collapse All Embedded Documents**.



	70	Public Relations	204	2700
	80	Sales	145	2500
▶	90	(Document) 2 Fields	(Array) 3 Elements	1700
	100	Finance	108	1700
	110	Accounting	205	1700

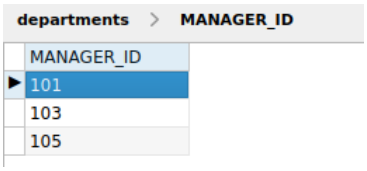
Expand Arrays

Grid View allows showing all elements in an array. To expand array elements, just simply click on the cell with array elements and click  , or right-click the cell with array elements and select **Expand**.



	70	Public Relations	204	2700
	80	Sales	145	2500
▶	90	(Document) 2 Fields	(Array) 3 Elements	1700
	100	Finance	108	1700
	110	Accounting	205	1700

All array elements display on a new grid. You can view, add or delete the elements here. Click the collection name to jump back to the collection grid.

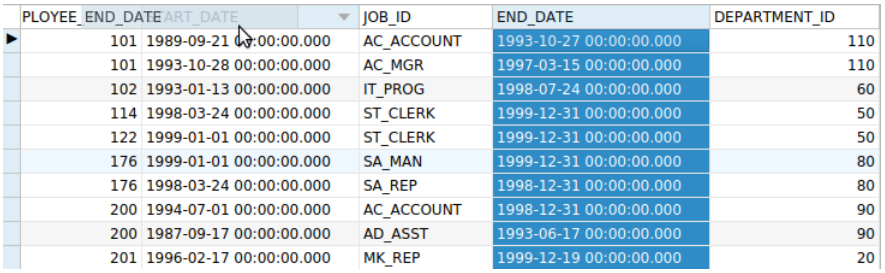


departments > MANAGER_ID

MANAGER_ID
▶ 101
103
105

Move Columns

- Click on the column header and hold down the left mouse button.
- Move the pointer to the desired location.
- Release the mouse and the column will move.



PLOYEE_END_DATE	ART_DATE	JOB_ID	END_DATE	DEPARTMENT_ID
▶ 101	1989-09-21 00:00:00.000	AC_ACCOUNT	1993-10-27 00:00:00.000	110
101	1993-10-28 00:00:00.000	AC_MGR	1997-03-15 00:00:00.000	110
102	1993-01-13 00:00:00.000	IT_PROG	1998-07-24 00:00:00.000	60
114	1998-03-24 00:00:00.000	ST_CLERK	1999-12-31 00:00:00.000	50
122	1999-01-01 00:00:00.000	ST_CLERK	1999-12-31 00:00:00.000	50
176	1999-01-01 00:00:00.000	SA_MAN	1999-12-31 00:00:00.000	80
176	1998-03-24 00:00:00.000	SA_REP	1998-12-31 00:00:00.000	80
200	1994-07-01 00:00:00.000	AC_ACCOUNT	1998-12-31 00:00:00.000	90
200	1987-09-17 00:00:00.000	AD_ASST	1993-06-17 00:00:00.000	90
201	1996-02-17 00:00:00.000	MK_REP	1999-12-19 00:00:00.000	20

Freeze Selected Column

If there are many columns in the collection and you want to freeze one or more columns to identify the document, just simply right-click the column you want to freeze and select **Display**-> **Freeze Selected Column** or select from the **View** menu.

The frozen columns will move to the leftmost position in the collection grid. This action will locks the frozen columns, preventing them from being edited.

To unfreeze the columns, just simply right-click anywhere on the collection grid and select **Display** -> **Unfreeze Columns** or select from the **View** menu.

Set Column Width

- Click right border at top of column and drag either left or right.
- Double-click right border at top of column to obtain the best fit for the column.
- Right-click the column you want to set the column width with and select **Display** -> **Set Column Width** or select from the **View** menu. Specify width in the **Set Column Width** dialog.

Hint: The result only applies on the selected column.

Set Row Height

Right-click anywhere on the collection grid and select **Display** -> **Set Row Height** or select from the **View** menu. Specify row height in the **Set Row Height** dialog.

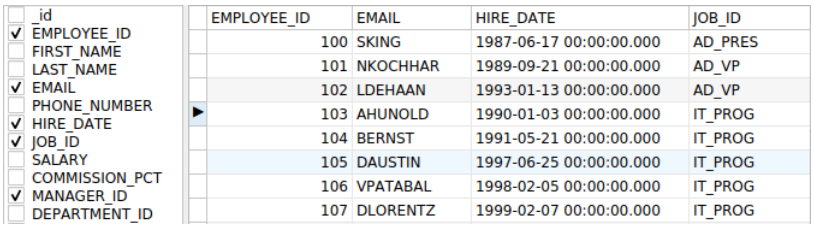
Hint: This action applies on the current collection grid only.

Show/Hide Columns

If there are many columns in the collection and you want to hide some of them from the collection grid, just simply right-click anywhere on the collection grid and select **Display** -> **Show/Hide Columns** or select from the **View** menu. Select the columns that you would like to hide.

The hidden columns will disappear from the collection grid.

To unhide the columns, just simply right-click anywhere on the collection grid and select **Display** -> **Show/Hide Columns** or select from the **View** menu. Select the columns that you would like to redisplay.



Tree View

Tree View displays documents in a hierarchical view. The navigation bar allows you to switch the documents quickly, insert or delete documents.

To add a document

1. Click + from the navigation bar or press CTRL+N to get a blank display for a document.
2. Enter the desired data.
3. Click ✓ from the navigation bar to save the document .

Note: If your collection is empty, you need to click + to add a new field.

To edit a document

1. Go to the document that you wish to edit.
2. Click on a field name, a value or a type to modify.
3. Click ✓ from the navigation bar to apply the changes.

To add a field or an item

1. Go to the document that you wish to edit.
2. Click + to add a new field/item.
3. Enter the desired data.

To delete a field or an item

1. Go to the document that you wish to edit.
2. Right-click the field/item you want to delete and select **Delete Value**.

Note: Close the collection is another way to save the documents.

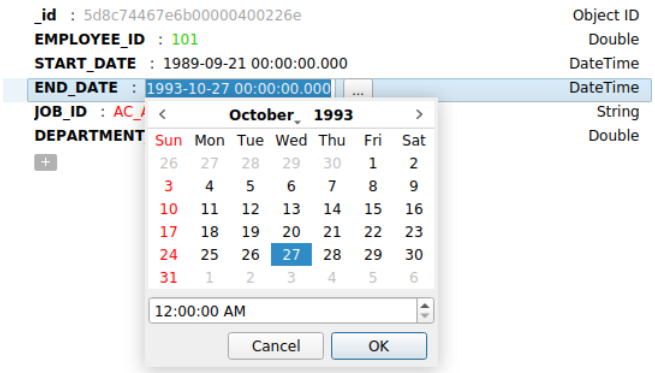
To delete a document

1. Go to the document that you wish to delete.
2. Just simply click − from the navigation bar.

Edit Documents with Special Handling

To set the value to an empty string or NULL, right-click the selected item and select **Set to Empty String** or **Set to NULL**.

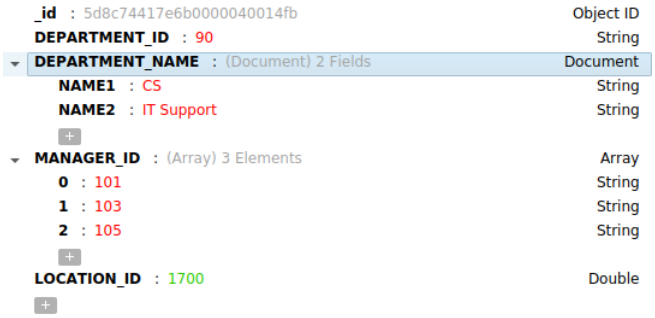
To edit a DateTime data, just simply click ... to open the editor for editing. Choose/enter the desired data.



Format Tree View

Expand/Collapse Embedded Documents & Arrays

All embedded Documents and arrays are represented as nodes. The nodes can be expanded or collapsed by clicking the node icon.



JSON View

JSON View displays documents in JSON format. The navigation bar allows you to switch the documents quickly, insert or delete documents.

To add a document

1. Click ✚ from the navigation bar or press CTRL+N.
2. Write the document in the pop-up window.
3. Click **Validate** to ensure the document is correct.
4. Click **Add**.

To edit a document

1. Right-click the document that you wish to edit and select **Edit Document**.
2. Edit the document in the pop-up window.
3. Click **Validate** to ensure the document is correct.
4. Click **Update**.

To delete a document

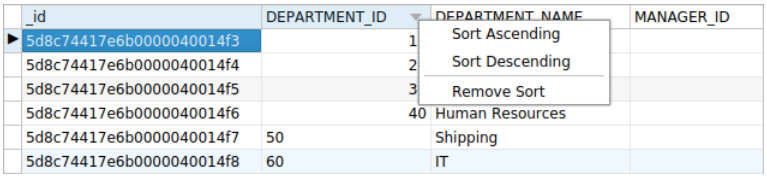
1. Click on the document that you wish to delete.
2. Just simply click − from the navigation bar.

Sort / Find / Replace Documents

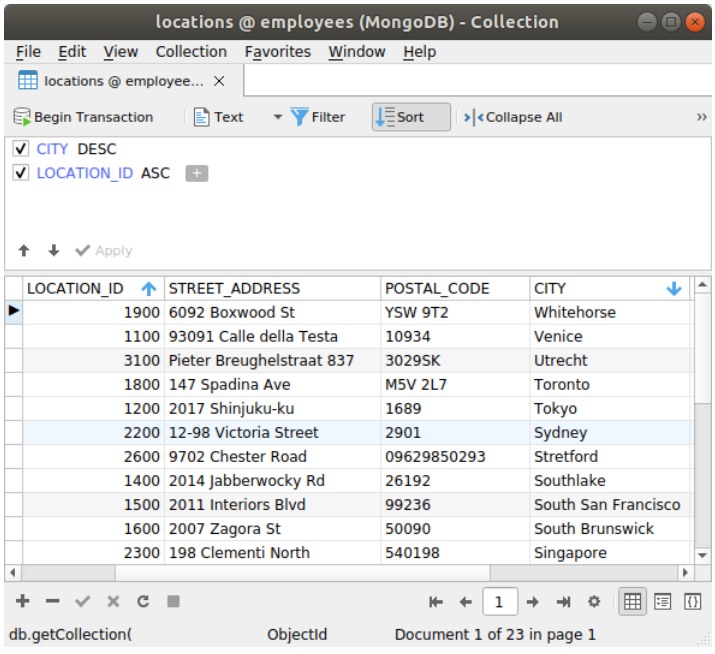
Sort Documents

Server stores documents in the order they were added to the collection. Sorting in Navicat is used to temporarily rearrange documents, so that you can view or update them in a different sequence.

Move over the field caption whose contents you want to sort by, click the right side of the field and select **Sort Ascending**, **Sort Descending** or **Remove Sort**.



To sort by custom order of multiple fields, click **Sort** from the toolbar.

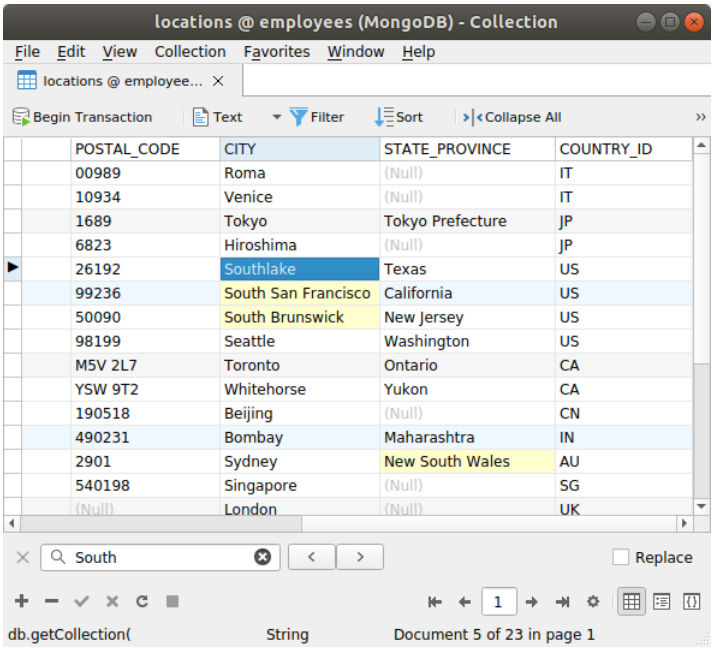


Find and Replace

Find Documents

The Find bar is provided for quick searching for the text in the viewer. Just simply choose **Edit** -> **Find** or press CTRL+F. Then, enter a search string. The search starts at the cursor's current position to the end of the file.

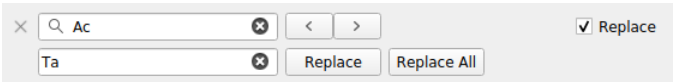
For Grid View or Tree View, you need to choose **Find Data** or **Find Value**.



To find for the next text, just simply click **Next** or press F3.

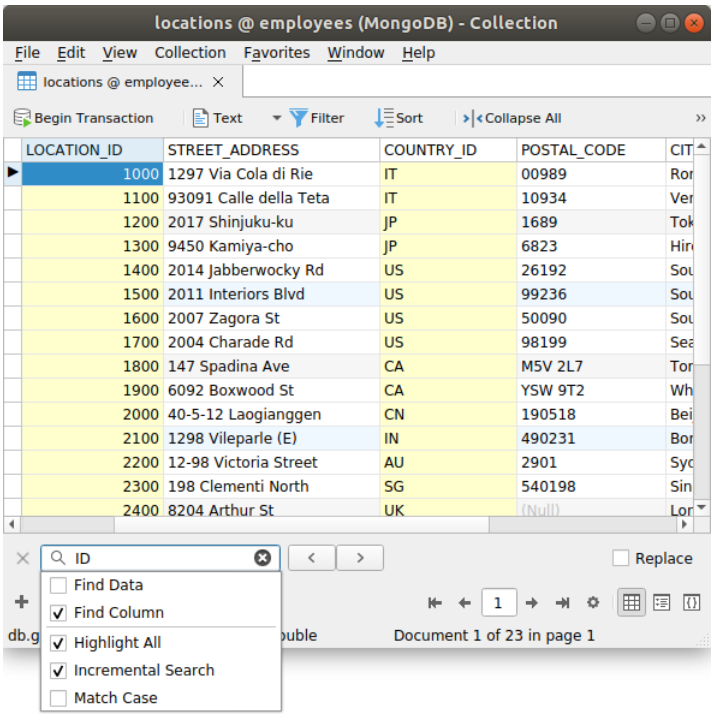
Replace Documents

In the Find bar, check the **Replace** box and enter the text you want to search and replace. Click **Replace** or **Replace All** to replace the first occurrence or all occurrences automatically. If you clicked **Replace All**, you can click **Apply** to apply the changes or **Cancel** to cancel the changes.



Find Fields

In Grid View or Tree View, you can search for fields in the collection. Just simply choose **Edit** -> **Find** or press CTRL+F. Then, choose **Find Field** and enter a search string.



There are some additional options for Find and Replace, click :

Option	Description
Highlight All	Highlight all matches in the viewer.
Incremental Search	Find matched text for the search string as each character is typed.
Match Case	Enable case sensitive search.

Assistant Editors

Navicat provides powerful assistant editors to view and edit TEXT, BLOB and BFile fields content. The editor allows you to view, update, insert, or delete data in a table or a collection. Click **Text**, **Hex** and **Image** from the toolbar to activate the appropriate viewer/editor.

Note: Oracle BFile fields cannot be edited. MongoDB JSON View does not support assistant editors.

The **Text** pane allows you to edit data as a simple text. To change the syntax highlight, simply right-click the empty space and select **Language**. Use the button on the navigation bar to update the changed records or documents.

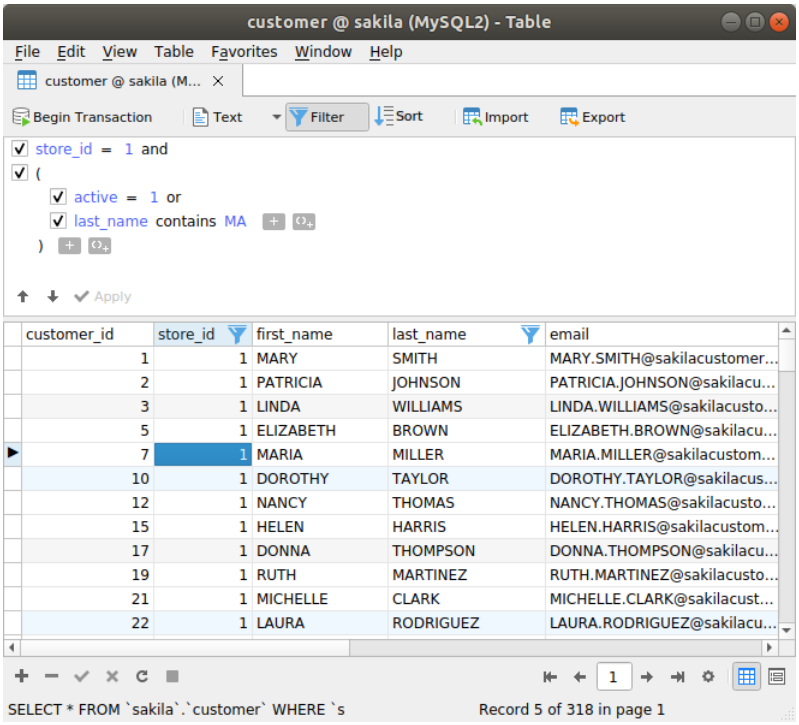
The **Hex** pane allows you to edit data in hexadecimal mode. Use the button on the navigation bar to update the changed records or documents.

Note: Use the INSERT key on the keyboard to switch between Insert and Overwrite modes.

The **Image** pane allows you to show data as image. Use the **Load**, **Save to disk** and **Clear** buttons to load/remove the image from a file, and save the image to a file.

Filter Wizard

Filter Wizard allows you to facilitate creating and applying filter criteria that you specify for the data grid. Moreover, it allows you to save filter criteria as a profile for future use. Click **Filter**from the toolbar to activate the filter.



Create Filter

1. To add a new condition to the criteria, just simply click  . If you need to add conditions in parentheses, click  .

   Hint: To add parentheses to existing conditions, simply right-click on the selected conditions and select **Group with Bracket**. To remove the parentheses, right-click a bracket and select **Delete Bracket** or **Delete Bracket and Conditions**.

2. Click on the field name (next to the checkbox) and choose a field from the list.

3. Click on the operator (next to the field name) and choose a filter operator. You can choose **[Custom]** from the list to enter the condition manually.

Filter Operator	Operator Description
=	The field is equal to 'value'.
!=	The field is not equal to 'value'.
<	The field is less than 'value'.
<=	The field is less than or equal to 'value'.
>	The field is greater than 'value'.
>=	The field is greater than or equal to 'value'.
contains	The field contains 'value'.
contains (case insensitive)	The field contains 'value' (case insensitive). Available only for PostgreSQL.
does not contain	The field does not contain 'value'.
does not contain (case insensitive)	The field does not contain 'value' (case insensitive). Available only for PostgreSQL.
begin with	The field starts with 'value'.

does not begin with	The field does not start with 'value'.
end with	The field ends with 'value'.
does not end with	The field does not end with 'value'.
is null	The field is NULL.
is not null	The field is NOT NULL.
is empty	The field is empty.
is not empty	The field is not empty.
is between	The field is between 'value1' and 'value2'.
is not between	The field is not between 'value1' and 'value2'.
is in list	The field is in the list of ('value1','value2',...).
is not in list	The field is not in the list of ('value1','value2',...).
exists	The field exists. Available only for MongoDB.
does not exist	The field type is not 'value'. Available only for MongoDB.
is field type	The field does not exist. Available only for MongoDB.
is not field type	The field type is not 'value'. Available only for MongoDB.

4. Click on **<?>** to activate the appropriate editor and enter the criteria values. The editor used in the criteria values box is determined by the data type assigned to the corresponding field.

   Hint: For MongoDB, you can change the editor type in the criteria values box.

5. Click on the logical operator (next to the criteria values) to choose **and** or **or**.

6. Repeat step 1-5 to add another new condition.

7. Click ✔ to see the result of the filtering you made.

Hint: If you want to reverse the meaning of the conditions, right-click the selected conditions and select **Toggle Negator**. (Available only for MySQL, Oracle, PostgreSQL, SQLite, SQL Server and MariaDB)

Save Profile

You are allowed to save filter criteria to profiles for future use. Just simply right-click on the Filter Wizard and select **Load Profile**, **Delete Profile**, **Save Profile** or **Save Profile As**.

Chapter 7 - Query

About Query

A query is used to extract data from the database in a readable format according to the user's request. Navicat provides powerful tools for working with queries: Query Editor for editing the query text directly, and Query Builder, Find Builder or Aggregate Builder for building queries visually. You can save your queries for setting automation tasks. In the main window, click **Query** to open the query object list. You can also click **New Query** in the main toolbar to create a new query without opening any connections.

Hint: Queries (.sql or .js) are stored under the Settings Location. To open the folder, right-click a query and select **Open Containing Folder**. If the connection is synchronized to Navicat Cloud, its queries are stored in the Cloud.

Query Designer

Query Designer is the basic Navicat tool for working with queries.

Button	Description
MySQL, Oracle, PostgreSQL, SQLite, SQL Server and MariaDB	
Query Builder	Open the SQL Builder for building queries visually.
Beautify SQL	Format the codes with the Beautify SQL settings in Editor.
MongoDB	
Find Builder	Open the Find Builder for building queries visually.
Aggregate Builder	Open the Aggregate Builder for building queries visually.
Beautify Script	Format the codes in Editor.
Type Color	[Grid View] Use the specified type color set on the Type Color pane to highlight cells.
Common	
Code Snippet	Show the Code Snippet pane.
Text	Activate the assistant editors for viewing and editing data.
Export Result	Export the result of the query.
Run	Execute the query: Run, Run Current Statement, or Run Selected (when highlighted code). MongoDB does not support Run Current Statement.
Stop	Stop the executing query.
Explain	Show the Query Plan of the query: Explain or Explain Selected (when highlighted code).

Open an external file in Navicat

1. Right-click anywhere in the Objects tab and select **Open External Query**. from the pop-up menu.
2. Select the file and choose the encoding.
3. Click **Open**.

Save an opened external file as a Navicat query

1. In Query Designer, choose **File** -> **Save to Navicat**.
2. Enter the query name and choose the save location.
3. Click **OK**.

Save a Navicat query as an external file

1. In Query Designer, choose **File** -> **Save As External File**.
2. Choose the save path and enter the file name.
3. Click **Save**.

RDBMS

SQL Editor

SQL Editor allows you to create and edit SQL text, prepare and execute selected queries. You can define multiple SQL statements in one query window. Drag-and-drop or double-click an identifier in the right **Identifiers** pane to add it to the editor.

Hint: SELECT statement will be automatically generated in SQL Editor while you build in SQL Builder.

Navicat provides a wide range advanced features, such as compelling code editing capabilities, smart code-completion, SQL formatting, and more.

SQL Formatting

To change the SQL statement format, simply choose from the **Format** menu -

Indent

Increase/decrease indent for the selected lines of codes.

Comment

Comment/uncomment the selected lines of codes.

Convert case

Format the selected codes into upper/lower case.

Beautify SQL (Available only in Non-Essentials Edition)

Format the selected codes with the Beautify SQL settings.

Beautify SQL With (Available only in Non-Essentials Edition)

Change the SQL beautifier options.

Option / Button	Description
Short brace length	Set the length of the short brace.
Upper case keywords	Format all the SQL keywords to upper case.
Beautify	Save and apply the SQL beautifier options.

Minify SQL (Available only in Non-Essentials Edition)

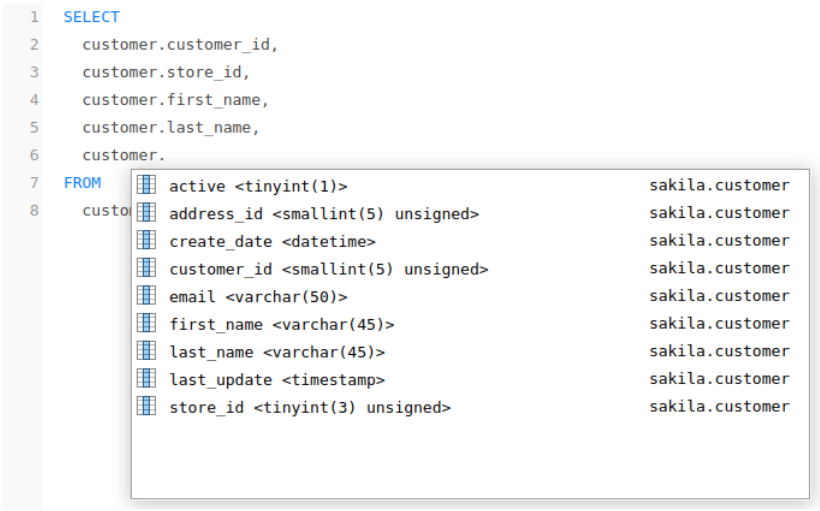
Minify the format of the SQL in the SQL Editor.

Code Completion (Available only in Non-Essentials Edition)

Code completion feature in Navicat pops up a list of suggestions as you type your SQL statement in the editor. It assists you with statement completion and the available properties of database objects, for example databases, tables, fields, views etc with their appropriate icons and information. You can update the code suggestions with latest database information by choosing **Edit** -> **Code Completion** -> **Update Code Completion Info**.

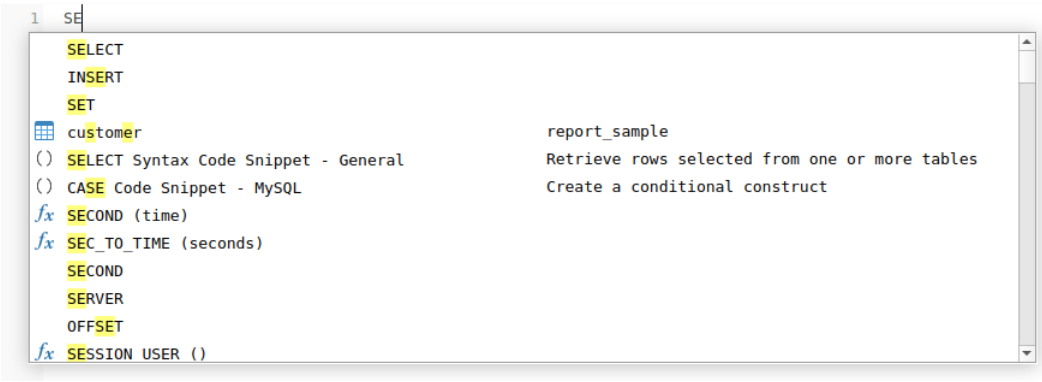
To invoke code completion, just simply press '.' for the available properties of database object currently in the scope.

When the suggestion list appears, press TAB to insert the first item. You can also select the needed item using UPPER ARROW or DOWN ARROW and then press TAB or ENTER.



In addition, code completion can be invoked by typing a character or pressing ESC / CTRL+SPACE on your keyboard for SQL keywords/database objects.

If you select a snippet name from the list, the saved code will be inserted to the editor.



Hint: Resize the suggestion list by dragging the lower right corner.

You can enable or disable the code completion feature in Options.

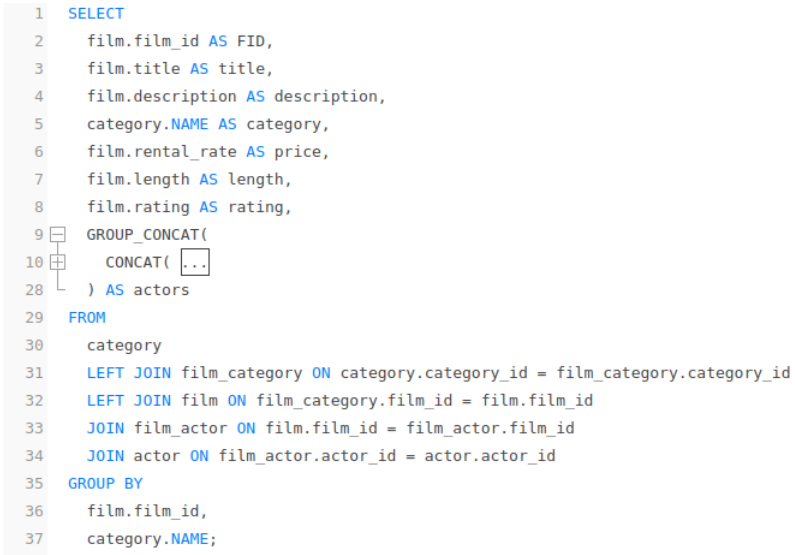
Clipboard Stack

When you copy or cut some codes as usual in the editor, the copied content will also be added to Clipboard Stack. Clipboard Stack can store up to 10 items and use the last-in-first-out logic. To paste an item from Clipboard Stack, you can press CTRL+SHIFT+V. Press CTRL+SHIFT+V multiple times to cycle through Clipboard Stack.

Code Folding

Code folding feature enables you to collapse blocks of code such that only the first line of the block appears in SQL Editor.

A block of code that can be folded is indicated by an icon ⊟ to the left of the first line of the block. A vertical line extends from the icon to the bottom of the foldable code. In contrast, a folded block of code is indicated by an icon ⊞ to left of the code block. You can fold the block by clicking ⊟ or expand it by clicking ⊞.



Brace Highlight

Navicat supports to highlight the matching brace in the editor, i.e. () .

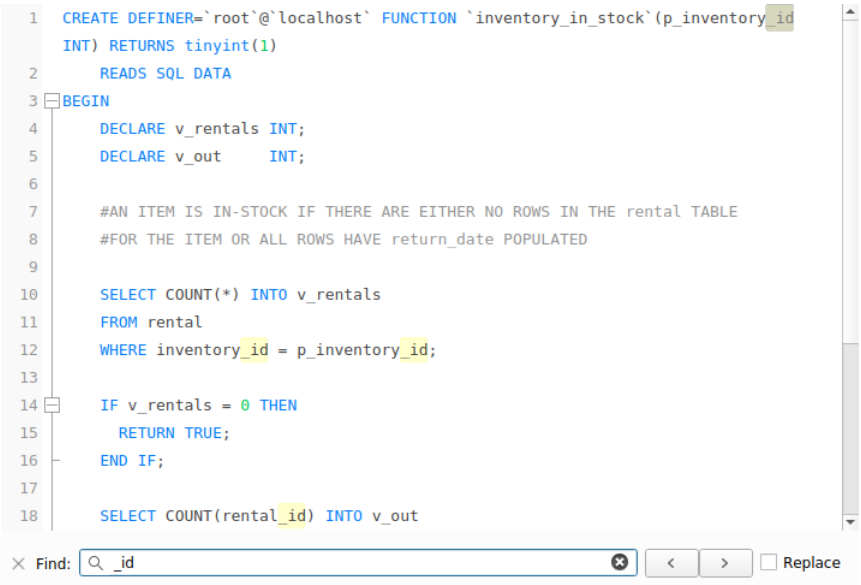
Note: The cursor must be on a brace to show the highlight.

```
GROUP_CONCAT(
  CONCAT(
    CONCAT(
      UCASE(
      SUBSTR( actor.first_name, 1, 1 )),
      LCASE(
        SUBSTR(
          actor.first_name,
          2,
        LENGTH( actor.first_name ))),
```

Find and Replace

Find

The Find bar is provided for quick searching for the text in the editor. Just simply choose **Edit** -> **Find** from the menu or press CTRL+F, and then enter a search string.



The search starts at the cursor's current position to the end of the file.

To find the next occurrence, just simply click **Next** or press F3.

Replace

To open the Replace bar, simply check the **Replace** box. Then, enter the text you want to search and replace.

Click the **Replace** button to replace the first occurrence.

Click the **Replace All** button to replace all occurrences automatically.

There are some additional options for Find and Replace, click :

Option	Description
Highlight All	Highlight all matches in the editor.
Incremental Search	Find matched text for the search string as each character is typed.

Match Case	Enable case sensitive search.
Regular Expression	Search regular expressions.
Whole Word	Return the objects that match the entire word of the search string.

Copy with Quotes

To copy the SQL statement with quotes, just simply right-click the highlighted SQL. Then, select **Copy with quotes** and choose the format.

Word Wrap

In the Word Wrap mode, the horizontal scrollbar is removed. SQL statement that exceed the width of the editor window size wraps to the next line. To enable Word Wrap, choose **View** ->  **Word Wrap**.

Zoom In/Zoom Out

Navicat has the ability to zoom in or zoom out the SQL in the editor. The zooming options are available in **View** -> **Display** -> **Zoom**. The same effect can be achieved with keyboard shortcuts.

Zoom In: [CTRL+=]

Zoom Out: [CTRL+-]

Reset: [CTRL+0]

Note: Editors that are opened in different tabs or windows will not be effected by the zoom.

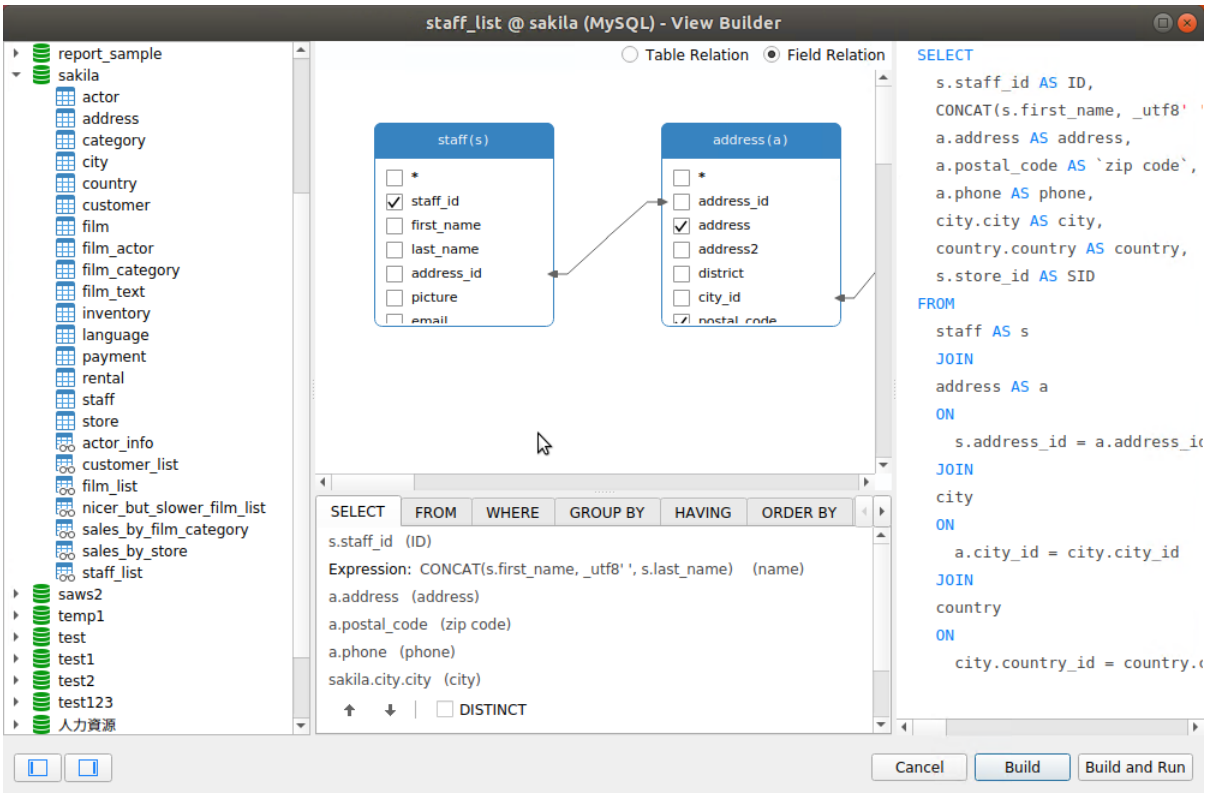
SQL Builder (Available only in Non-Essentials Edition)

Navicat provides a useful tool called **SQL Builder** for building queries, views and materialized views visually. It allows you to create and edit queries without knowledge of SQL. Even if you are familiar with SQL, the convenient and fluent graphical interface makes it easier to create relations and visualize the query.

In Query Designer, click the  **Query Builder** button to open the visual SQL Builder.

All database objects are displayed on the left **Object** pane. Whereas on the middle pane, it is divided into two portions: the upper **Diagram** pane, and the lower **Criteria** pane. When building the query, you can view the auto-generated query on the right **SQL** pane.

Note: SQL Builder supports SELECT statement only. Use SQL Editor for creating other complex queries (e.g. INSERT, UPDATE, DELETE).



Add Objects to Query

The first step is to decide which tables and views you need to add to the query.

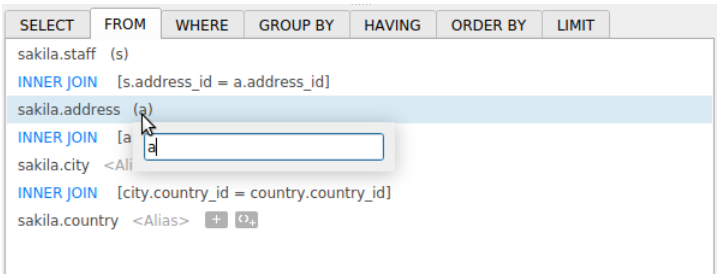
To add tables and views to the query, use one of the following methods:

- Drag them from the Object pane to the Diagram pane.
- Double-click them on the Object pane.

You can set aliases for tables, views and subqueries by double-clicking the object title on the Diagram pane and entering the name to use as an alias for the object name.

After you have added objects to the diagram, you can use the **FROM** tab to adjust the query to your needs.

- To change the object, click the object and select an identifier.
- To add the table alias, click **<Alias>**.



You can right-click an object on the Diagram pane and select **Remove**, or simply press DELETE key to remove the selected object from the query.

When you remove an object, Query Builder automatically removes joins that involve that object.

Choose Output Fields

To include fields in the query, use one of the following methods:

- Check the left checkbox of a field name you want to add to the query on the Diagram pane.
- To include all the fields for an object, check the ***** checkbox on the Diagram pane.
- To add all fields for all objects, click  on the **SELECT** tab and select **All fields(*)**.

The selected fields display on the **SELECT** tab. You can specify additional output field options.

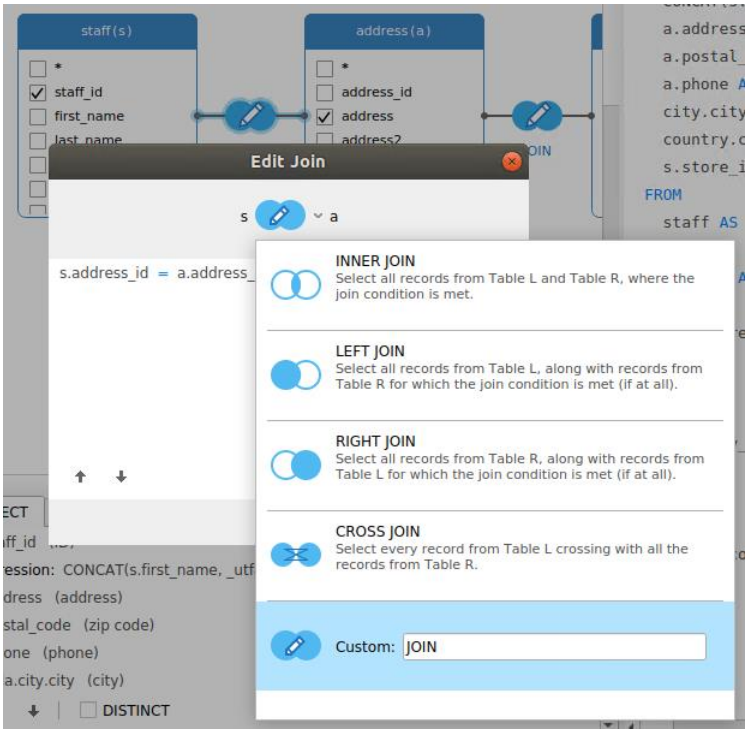
- Check the **DISTINCT** checkbox to force the query to return distinct results.
- To add the field alias, click **<Alias>** and enter the name.
- Click the identifier and select the **Aggregate** function.
- Use the up arrow and down arrow buttons to change the order of fields.

Set Field Association

Query Builder will automatically join the tables as per the foreign key relations. If you want to associate database objects manually, just select a field from an object and drag it to a field in another object. A connector line appears between the two objects to visually represent the relationship and the join type.

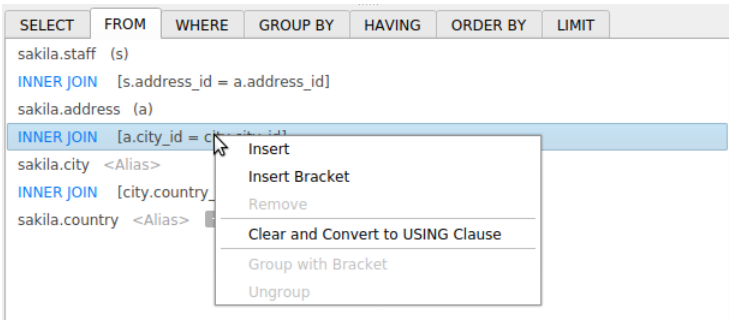
There are two views to show the connector lines: Table Relation and Field Relation. The **Field Relation** view allows you to identify matching fields in two tables, while the **Table Relation** view displays the join relationship between the two tables.

All joins is initially created as INNER JOIN by default. To change the association, click or double-click the connector line on the Diagram pane or click the JOIN keyword on the **FROM** tab, and then select a join type. If a join type is not listed, you can enter a customized one in the **Custom** textbox.



To remove a join, right-click the connector line and select **Remove**.

To modify the join condition, right-click a connector line and select **Edit Join**, or click the condition on the **FROM** tab.



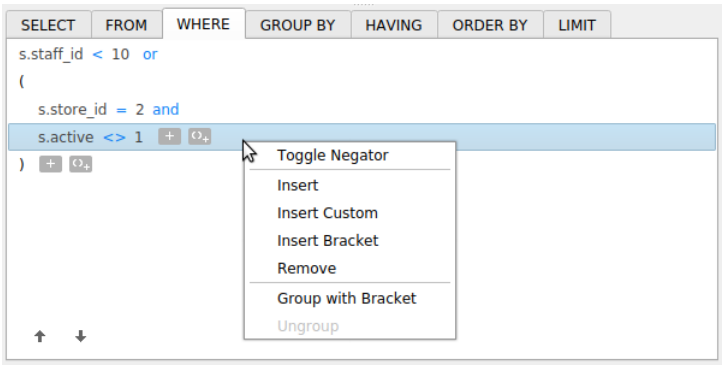
The pop-up menu options of the FROM tab:

Option	Description
Insert	Add an identifier, an expression or a subquery.
Insert Bracket	Add a pair of parentheses.
Remove	Remove the identifier, expression or subquery.
Clear and Convert to USING Clause	Remove the ON condition and convert it to USING clause.
Clear and Convert to ON Clause	Remove the USING condition and convert it to ON clause.
Group with Bracket	Add parentheses to group the selected conditions.
Ungroup	Remove the parentheses.

Set Filter Criteria

When retrieving data, you may want to set up a filtering expression. To filter data returned by the query, right-click a field on the Diagram pane and select **WHERE** and an operator.

The condition is added to the **WHERE** tab. You can edit the value there by clicking **<Value>**. If you want to add a condition with parentheses, click . You can change a logical operator (and/or) by clicking it. Use the up arrow and down arrow buttons to change the order of conditions.



The pop-up menu options of the WHERE tab:

Option	Description
Toggle Negator	Reverse the meaning of the condition.
Insert	Add a condition.
Insert Custom	Add a custom condition.
Insert Bracket	Add a pair of parentheses.
Remove	Remove the condition.
Group with Bracket	Add parentheses to group the selected conditions.
Ungroup	Remove the parentheses.

Group Resulting Data

You can set the conditions for grouping query records by right-clicking a field in the Diagram pane and selecting **GROUP BY** -> **Add Fields**.

The condition is added to the **GROUP BY** tab. Use the up arrow and down arrow buttons to change the order of fields.

On the **HAVING** tab, you can filter summarized data or grouped data. Select the identifiers, operators, aggregate or enter expressions to include in the condition. Use the up arrow and down arrow buttons to change the order of conditions.

The pop-up menu options of the HAVING tab:

Option	Description
Toggle Negator	Reverse the meaning of the condition.
Insert	Add a condition.
Insert Custom	Add a custom condition.
Insert Bracket	Add a pair of parentheses.
Remove	Remove the condition.
Group with Bracket	Add parentheses to group the selected conditions.
Ungroup	Remove the parentheses.

Sort Resulting Data

You can set the way of sorting query records by right-clicking a field on the Diagram pane and selecting **ORDER BY** -> **ASC** or **DESC**. The condition will be added to the ORDER BY tab.

Limit Resulting Data

On the **LIMIT** tab, you can limit your query results to those that fall within a specified range.

Offset

Specify the number of records to be skipped. It is optional.

Limit

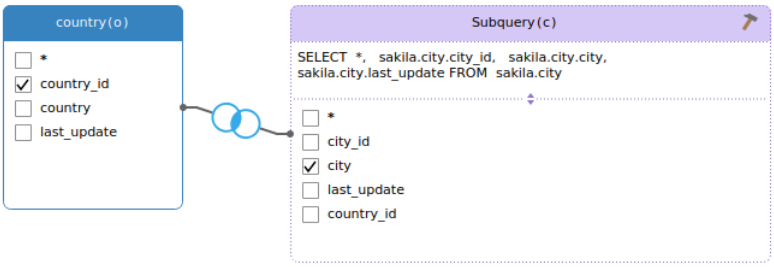
Specify the number of records to be displayed.

Note: Available only for MySQL, PostgreSQL, SQLite and MariaDB.

Add Expressions/Subqueries

You can add an expression or a subquery to further limit the query results. On the **FROM** tab, click  and select the **Expression/Subquery** tab.

After entered an expression or a subquery, confirm editing by pressing the ENTER key. It will be added to the Diagram pane indicates that the statement contains an expression or a subquery and identifies the columns it is on.



By clicking the  button, you will be switched to a subquery layer where you can build it visually in the same way as the main query.

You can always go back to the main query by clicking **(Main Query)**.

View Generated SQL

The **SQL** pane presents a read-only, formatted representation of the SQL generated by Query Builder. You can copy the SQL that appears in the SQL pane for use in other tools. In a subquery layer, you can enable **Show Current Layer Only** to show the subquery SQL.

Zoom In/Zoom Out

Navicat has the ability to zoom in or zoom out the diagram. Right-click anywhere on the Diagram pane and select **Zoom** -> **Zoom In**/**Zoom Out**/**100%**. The same effect can be achieved with keyboard shortcuts.

Zoom In: [CTRL+=]

Zoom Out: [CTRL+-]

Reset: [CTRL+0]

Query Parameters

Query supports using of parameters inside the query text. You can set query parameters to add variable values to a query each time you run it. The parameter should appear as an identifier with **$** at its beginning, quote with **[ ]**, e.g. [$any_name].

Execute the query and the **Input Parameter** dialog is provided for you to enter the desired data you wish to search. Check the **Raw Mode** option to pass the inputted values to the query without quotation marks.

Debug Oracle Query (Available only in Non-Essentials Edition)

To debug an Oracle query, click **Debug** on the toolbar to launch the Oracle Debugger.

Enter the parameters if the query has input parameters.

Query Results

You can run the query in any servers. Select the target connection, database and/or schema from the drop-down list on the toolbar, and then click **Run**. If the query statement is correct, the query executes and, if the query statement is supposed to return data, the **Result** tab opens with the data returned by the query. If an error occurs while executing the query, execution stops, the appropriate error message is displayed.

The **Result** tab displays the result data, returned by the query, as a grid. Data can be displayed in two modes: Grid View and Form View. See Data Viewer for details.

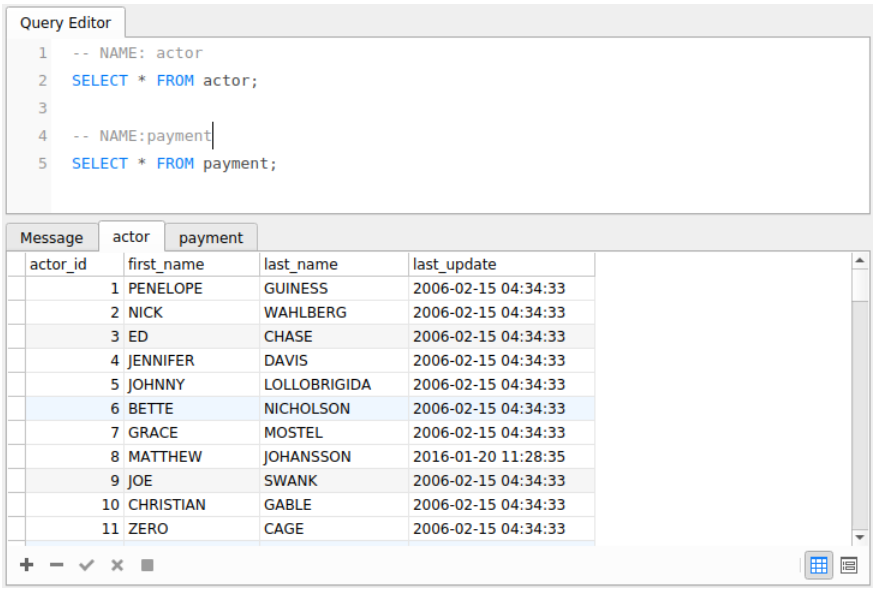
Note: Navicat supports to return 20 result sets.

You can choose to show results below the editor or in a new tab by choosing **View** -> **Result** -> **Show Below Editor** or **Show in New Page**.

You are allowed to run selected portion of query, just simply highlight SQL in SQL Editor and click **Run Selected**. To run the current statement your cursor is on (position the cursor within the desired statement), just simply click the down arrow next to the **Run** button and select **Run Current Statement**.

Custom Tab Name

To customize the names of the result tabs, simply add -- *NAME:tab_name* or */*NAME:tab_name*/* before each SELECT statement in the SQL Editor.



Show Profile and Status (Available only for MySQL and MariaDB)

To show the profile and status when running the query, simply choose **View** -> **Show Profile and Status** and click **Run** on the toolbar.

The **Profile** tab displays the query profile: Table lock, System lock, Statistic, etc.

Note: For MySQL 5.0, supported from 5.0.37. For MySQL 5.1, supported from 5.1.24.

The **Status** tab displays the query status: Bytes received, Bytes sent, etc.

MongoDB

Script Editor

Script Editor allows you to create and edit a script, prepare and execute selected script. Drag-and-drop or double-click an identifier in the right **Identifiers** pane to add it to the editor.

Hint: Script will be automatically generated in Script Editor while you build in Find Builder or Aggregate Builder.

Navicat provides a wide range advanced features, such as compelling code editing capabilities, smart code-completion, script formatting, and more.

Script Formatting

To change the script format, simply choose from the **Format** menu -

Indent

Increase/decrease indent for the selected lines of codes.

Comment

Comment/uncomment the selected lines of codes.

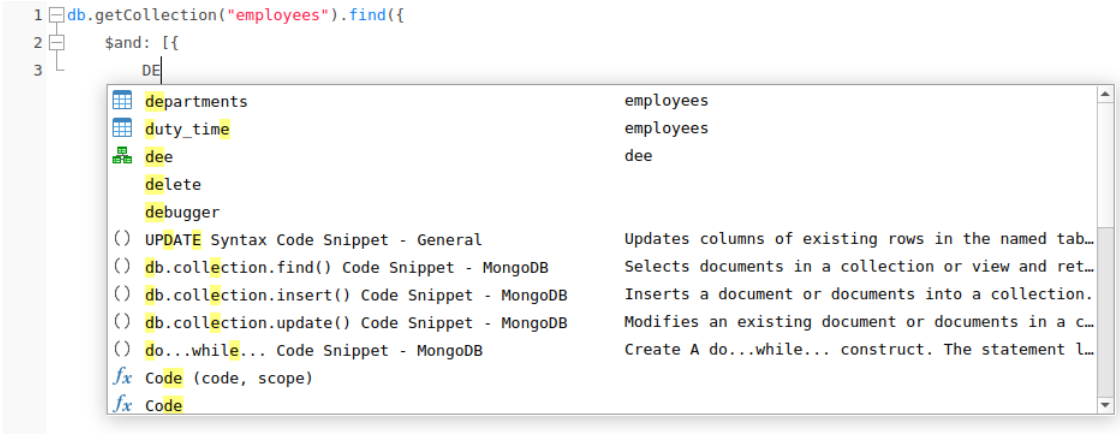
Beautify Script (Available only in Non-Essentials Edition)

Format the selected codes.

Code Completion (Available only in Non-Essentials Edition)

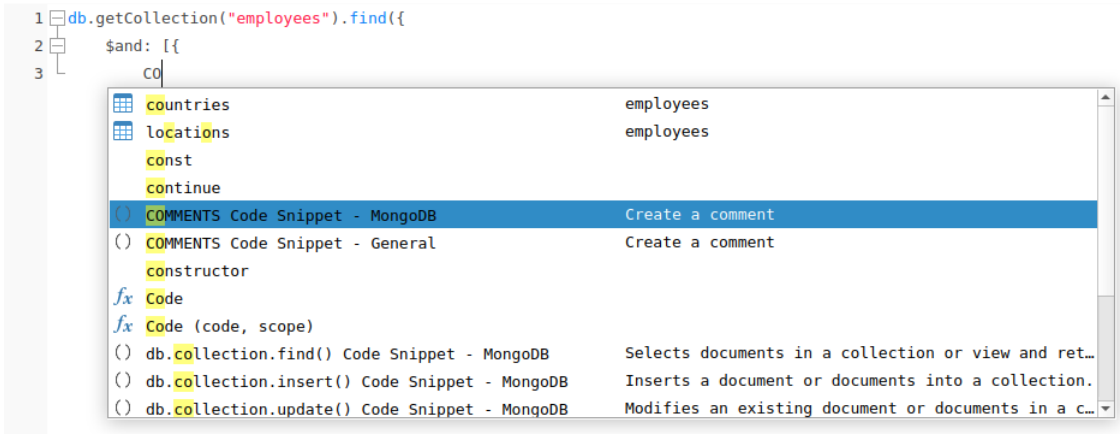
Code completion feature in Navicat pops up a list of suggestions as you type your script in the editor. It assists you with database names, collection names, view names, document field names and shell methods with their appropriate icons and information. You can update the code suggestions with latest database information by choosing **Edit** -> **Code Completion** -> **Update Code Completion Info**.

Code completion can be invoked by typing a dot (.), a character or pressing ESC / CTRL+SPACE.



When the suggestion list appears, press TAB to insert the first item. You can also select the needed item using UPPER ARROW or DOWN ARROW and then press TAB or ENTER.

If you select a snippet name from the list, the saved code will be inserted to the editor.



Hint: Resize the suggestion list by dragging the lower right corner.

You can enable or disable the code completion feature in Options.

Clipboard Stack

When you copy or cut some codes as usual in the editor, the copied content will also be added to Clipboard Stack. Clipboard Stack can store up to 10 items and use the last-in-first-out logic. To paste an item from Clipboard Stack, you can press CTRL+SHIFT+V. Press CTRL+SHIFT+V multiple times to cycle through Clipboard Stack.

Code Folding

Code folding feature enables you to collapse blocks of code such that only the first line of the block appears in Script Editor.

A block of code that can be folded is indicated by an icon ⊟ to the left of the first line of the block. A vertical line extends from the icon to the bottom of the foldable code. In contrast, a folded block of code is indicated by an icon ⊞ to left of the code block. You can fold the block by clicking ⊟ or expand it by clicking ⊞.

Brace Highlight

Navicat supports to highlight the matching brace in the editor, i.e. () .

Note: The cursor must be on a brace to show the highlight.

Find and Replace

Find

The Find bar is provided for quick searching for the text in the editor. Just simply choose **Edit** -> **Find** from the menu or press CTRL+F, and then enter a search string.

The search starts at the cursor's current position to the end of the file.

To find the next occurrence, just simply click **Next** or press F3.

Replace

To open the Replace bar, simply check the **Replace** box. Then, enter the text you want to search and replace.

Click the **Replace** button to replace the first occurrence.

Click the **Replace All** button to replace all occurrences automatically.

There are some additional options for Find and Replace, click :

Option	Description
Highlight All	Highlight all matches in the editor.
Incremental Search	Find matched text for the search string as each character is typed.
Match Case	Enable case sensitive search.
Regular Expression	Search regular expressions.
Whole Word	Return the objects that match the entire word of the search string.

Copy with Quotes

To copy the script with quotes, just simply right-click the highlighted script. Then, select **Copy with quotes** and choose the format.

Word Wrap

In the Word Wrap mode, the horizontal scrollbar is removed. Script that exceed the width of the editor window size wraps to the next line. To enable Word Wrap, choose **View** -> **Word Wrap**.

Zoom In/Zoom Out

Navicat has the ability to zoom in or zoom out the script in the editor. The zooming options are available in **View** -> **Display** -> **Zoom**. The same effect can be achieved with keyboard shortcuts.

Zoom In: [CTRL+=]

Zoom Out: [CTRL+-]

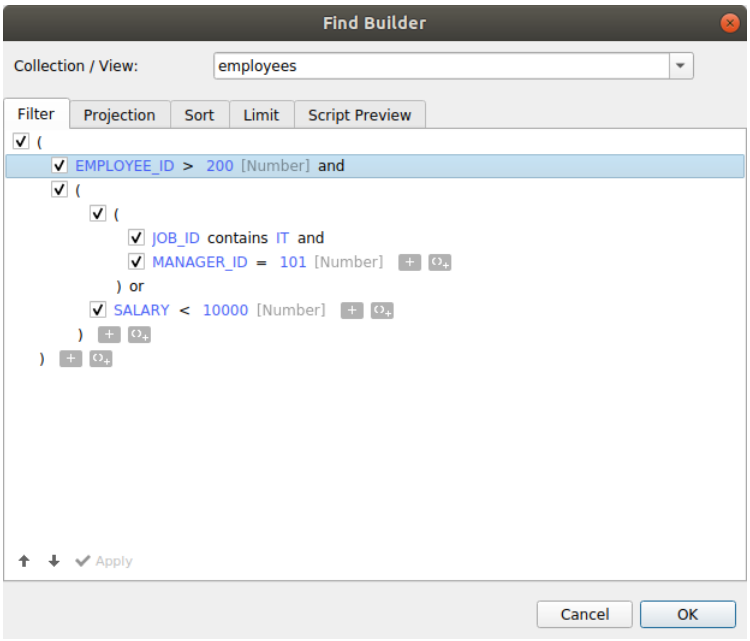
Reset: [CTRL+0]

Note: Editors that are opened in different tabs or windows will not be effected by the zoom.

Find Builder (Available only in Non-Essentials Edition)

Navicat provides Find Builder for building queries visually to select documents in a collection or view. It allows you to create and edit queries without knowledge of the *find* command.

In Query Designer, click the **Find Builder** button to open the visual Find Builder.



Select the name of the collection or view to query from the **Collection/View** drop-down list.

Filter

In this tab, you can specify selection filters for the query. Documents that meet the conditions will be returned. If you not specify the filter, all documents will be returned. See Filter Wizard for details.

Projection

In this tab, you can choose which fields to include or exclude in the returned documents. If you not specify the projection, all fields will be returned.

Sort

In this tab, you can sort the returned documents by fields in ascending or descending order.

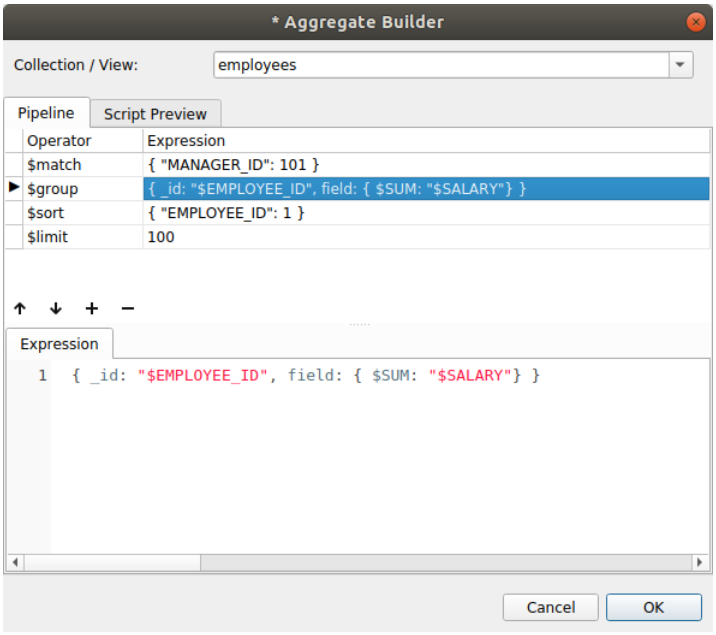
Limit

In this tab, you can limit the maximum number of documents to return and set the number of documents to skip.

Aggregate Builder (Available only in Non-Essentials Edition)

Navicat provides Aggregate Builder for building queries visually to return computed results. It allows you to create and edit queries without knowledge of the *aggregate* command.

In Query Designer, click the **Aggregate Builder** button to open the visual Aggregate Builder.



Select the name of the collection or view to query from the **Collection/View** drop-down list.

Pipeline

In this tab, you can add aggregation pipeline stages. In the **Operator** column, select an expression operator. An expression template will be generated in the **Expression** column, you can modify the template.

Query Results

You can run the query in any servers. Select the target connection and database from the drop-down list on the toolbar, and then click **Run**. If the query script is correct, the query executes and, if the query script is supposed to return data, the **Result** tab opens with the data returned by the query. If an error occurs while executing the query, execution stops, the appropriate error message is displayed.

The **Result** tab displays the result data, returned by the query, as a grid. Data can be displayed in three modes: Grid View, Tree View and JSON View. See Data Viewer for details.

Note: Navicat only returns the last result data.

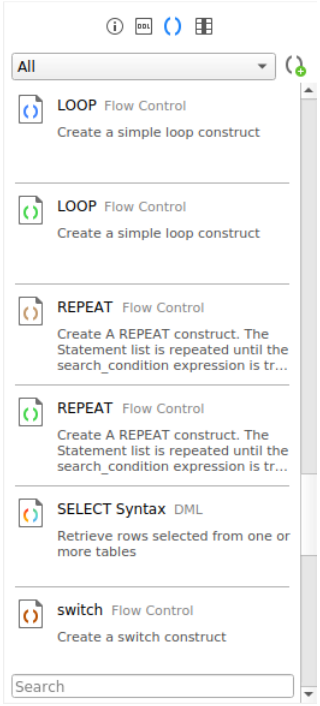
You can choose to show results below the editor or in a new tab by choosing **View** -> **Result** -> **Show Below Editor** or **Show in New Page**.

You are allowed to run selected portion of query, just simply highlight script in the editor and click **Run Selected**.

Code Snippets (Available only in Non-Essentials Edition)

Code Snippets provide a easy way for you to insert reusable code into editor when writing statements or scripts. The Code Snippet pane is on the right side of the editor. If the editor window is docked to the Navicat main window, you can click the ( ) icon in the Information pane to open the library.

The library includes built-in and user-defined snippets. Choose a label from the drop-down list or enter a search string in the Search box to filter the list. If you want to show the available snippets according to your database type, you can right-click anywhere on the library and disable **Show Snippets For Other Database Type**.

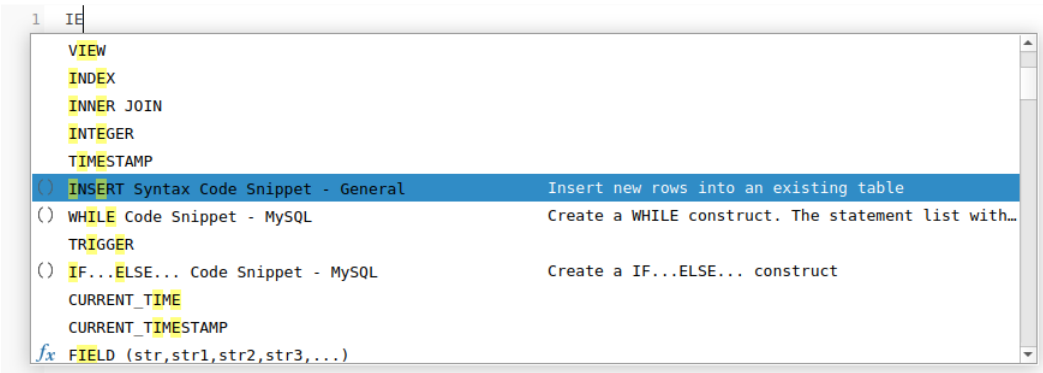


Built-in snippets are non-editable. A user-defined snippet can be edited by double-clicking it in the library. If you want to hide the built-in snippets, you can right-click anywhere on the library and disable **Show Preset Snippets**.

Use Code Snippets

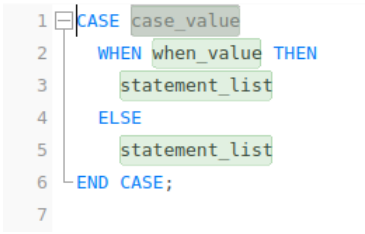
There are two ways to insert a snippet into the editor.

- You can start typing the name of a snippet in the editor. Smart code completion will pop up a list of suggestions for the word completion automatically. Select a snippet name from the list, the saved code will be inserted to the editor.



- You can simply drag and drop a snippet from the library into the editor.

After inserting the snippet with placeholders to the editor, you can easily navigate to them by clicking on one of the placeholders, and then using the TAB key and entering the information.



Create Code Snippets

You can create your own code snippets and add them to the library. To create a code snippet, select your desired code in the editor, then right-click and select **Create Snippet**.

Alternatively, click in the Code Snippet pane. If you use this method, you must manually enter the code in the New Snippet window; code selected in the editor is not automatically added to the Code box.

Hint: Code snippets (.nsnippet) are stored in the default path, e.g. /home/your_username/.config/navicat/Premium/Snippets..

Option / Button	Description
Untitled text box	Enter the name of the snippet that displays in the library and the code completion list.
Database Type	Choose the database server type of the snippet.
Label	Choose an existing label or enter a new label name for the snippet.
Remarks	Enter a description for the snippet that displays in the library.
Code	Enter the code.
	Add a placeholder by highlighting any words in the code and click this button. The placeholder will be highlighted in light green.
	Remove a placeholder by highlighting it in the code and click this button.

Chapter 8 - Model (Available only in Navicat Premium and Enterprise Edition)

About Model

Model is a powerful tool for creating and manipulating physical database models. In the main window, click **Model** to open the model object list.

Note: Available only for MySQL, Oracle, PostgreSQL, SQLite, SQL Server and MariaDB.

Some of key features are listed here:

- Create and manipulate conceptual/logical/physical models.

  Note: Only Navicat Premium supports conceptual and logical models.

- Reverse engineer a database/schema, tables or views to a physical model.
- Forward engineer a physical model to a sql file or database/schema.
- Create and edit table structures directly.

Hint: Model files (.ndm2/.ndml2/.ndmc2) are saved under the default path, e.g. /home/your_username/.config/navicat/Premium/Profiles. To open the folder, right-click a model file and select **Open Containing Folder**. If the model is synchronized to Navicat Cloud, it is stored in the Cloud.

Open an external model file

1. Right-click anywhere in the Objects tab and select **Open External Model** from the pop-up menu.
2. Browse the file and click **Open** in the dialog window.

Save an opened external file as a Navicat model

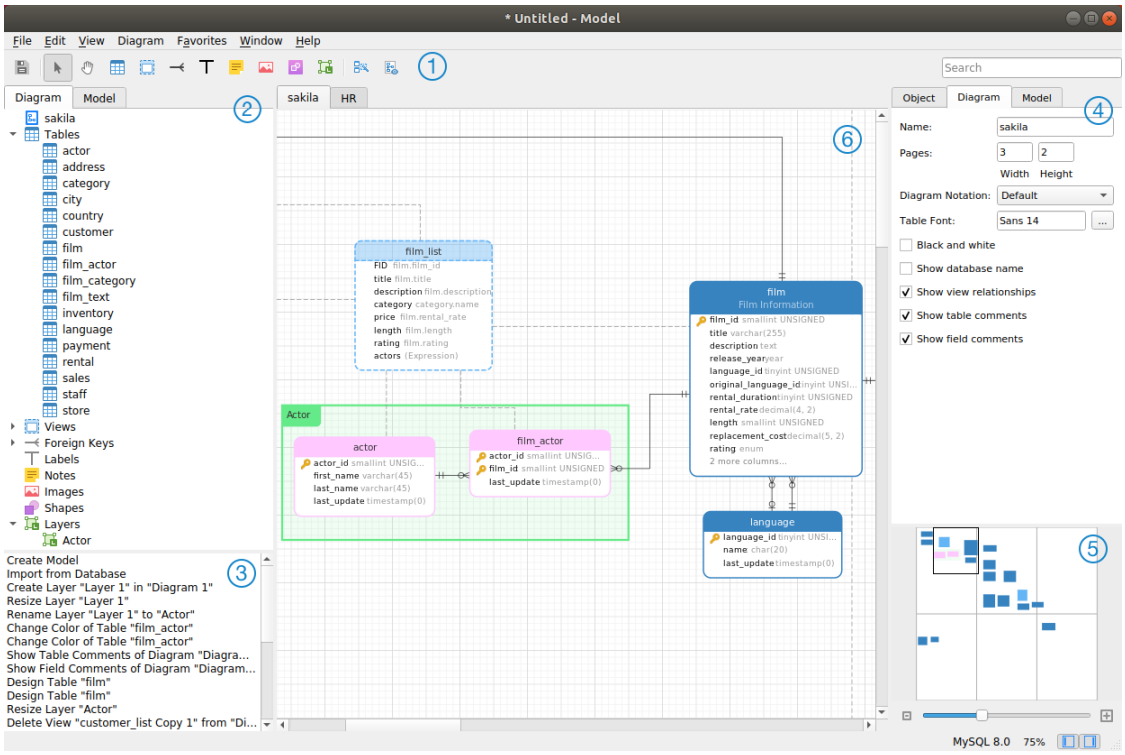
1. In Model Designer, choose **File** -> **Save to Navicat**.
2. Enter the model name and choose the save location.
3. Click **OK**.

Save a Navicat model as an external file

1. In Model Designer, choose **File** -> **Save As External File**.
2. Choose the save path and enter the file name.
3. Click **Save**.

Model Window

The Model Window consists of a toolbar, several panes and a diagram canvas for you to design your model. A model file can have more than one diagram. Each diagram is represented by a tab in the model. To create a new diagram, choose **Diagram** -> **New Diagram** from the menu bar.



① Toolbar

The Toolbar is located near the top of the Model Window. The buttons display in the toolbar depend on the model type (physical, logical and conceptual). You can use the toolbar to perform some basic tasks, such as adding tables, entities or views, applying Auto Layout feature, etc.

② Explorer Pane

The Explorer pane has two tabs: **Model** and **Diagram**. The Model tab holds all schemas, tables, views or entities in the model, including those used in each individual diagram. You can simply drag an object from the Model tab and drop to the active diagram canvas. The Diagram tab holds all the objects (tables, views, foreign keys, layers, notes, images, etc) added to the active diagram. If the Explorer pane is hidden, choose **View** -> **Show Explorer** from the menu bar.

③ History Pane

The History pane shows all the actions that you have taken. Simply click an action to restore that state. If the History pane is hidden, choose **View** -> **Show History** from the menu bar.

④ Properties Pane

The Properties pane includes the **Model**, **Diagram** and **Object** tabs for setting default properties for your model. You can edit the properties settings of the model, the active diagram and the selected objects quickly. If the Properties pane is hidden, choose **View** -> **Show Properties** from the menu bar.

Option	Description
Begin Arrow Style	The style of the arrow's back.
Black and White	Check this box to change the diagram color to black and white.
Bold	Check this box to bold the table, view, entity, foreign key, relation, shape or font.
Border Color	The color of the shape's border.
Cap Style	The cap style of the line/arrow.
Cardinality	The foreign key/relation cardinality of the table/entity.
Case sensitive	The case sensitivity of the table or view names. Available only for MySQL and MariaDB models.
Color	The color of the object.
Dash Style	The dash style of the line/arrow.
Database	The database server type of the model.
Database Version	The database version of the model.
Default Database	The default database of the model.
Default Schema	The default schema of the model.
Diagram Notation	The notation of the diagram. The notation options are depended on the model type.
End Arrow Style	The style of the arrow's front.
Entity Font	The font and font size of the entities.
Font	The font and font size of the note, label or layer.
Font Color	The font color of the note, label or layer.
Italic	Check this box to apply an italic style to the note or label font.
Join Style	The join style of the line/arrow.
Model Type	The type of the model.
Model Version	The version of the model.
Name	The name of the object.
Opacity	The transparency of the image/shape. The value for this can be between 0 and 100. Use 100 for opacity and 0 for transparent.
Pages	The width and height of the diagram (number of papers).
Position	The number of pixels from the object to the left side (X) and the top (Y) of the canvas.
Referenced	The referenced (parent) table or view.
Referencing	The referencing (child) table, view or entity.
Schema	The database/schema name of the table/view.
Show database name	Check this box to show the database names of the tables/views in the diagram.
Show entity comments	Check this box to show the entity comments in the diagram.
Show field comments	Check this box to show the field comments in the diagram.
Show name	Check this box to show the name of the foreign key, relation or shape.
Show Schema Name	Check this box to show the schema names of the tables/views in the

	diagram.
Show table comments	Check this box to show the table comments in the diagram.
Show View Relationships	Check this box to show the relation line of the view.
Size	The width and height of the object.
Table Font	The font and font size of the tables.
Visible	Check this box to show the foreign key/relationship lines.

⑤ **Overview Pane**

The Overview pane displays the whole active diagram in the canvas. To zoom in or zoom out the selected area of the diagram, adjust the slider. Same effect can be achieved with keyboard shortcuts:

Zoom In: [CTRL++]

Zoom out: [CTRL+-]

Reset Zoom: [CTRL+0]

If the Overview pane is hidden, choose **View** -> **Show Overview** from the menu bar.

⑥ **Diagram Canvas**

You can design your diagram on the Diagram Canvas. All added objects can be moved (by dragging them with mouse or by keyboard), resized, aligned to the grid, etc.

Physical Models

Create Physical Models

Navicat allows you to create physical models, including tables, fields, views, foreign key constraints and other physical properties of the database/schema.

In the **New Model** window, choose the **Model Type** and select the target **Database** and **Version** if necessary.

After creating a physical model, you can compare and synchronize it to an existing database/schema or export it to a SQL file.

Add Databases / Schemas

When creating a new model, a database/schema (named Default) is automatically created and it is the default database/schema. All newly added objects (tables and views) are belonged to the default database/schema.

You can view all databases/schemas with their objects as tree structure on the Explorer's Model tab.

The pop-up menu options of a database/schema in the Explorer's Model tab include:

Option	Description
New Database / New	Create a database/schema.

Schema	
Delete Database / Delete Schema	Delete the selected database/schema including its objects from the model. The default database/schema cannot be deleted.
Rename	Change the name of the database/schema.
Set as Default Database / Set as Default Schema	Set the selected database/schema as the default database/schema.

Add Tables

To add a new table, click the button from the toolbar and click anywhere on the canvas. To add an existing table from the Explorer's Model tab, simply drag and drop the selected table from the Model tab to the canvas.

For Default diagram notation, the icon means the field is a primary key. The icon indicates that the field serves as an index.

Note: If you right-click a field, you can choose to add, insert, delete, rename the field and set the field as primary key.

The pop-up menu options of the table object in canvas include:

Option	Description
Design Table	Edit the table structure in a table designer, e.g. fields, indexes, foreign keys, etc. The tabs and options in the designer depend on the diagram database type you are chosen.
Add Related Objects	Add all related tables/views to the selected table.
Add Field	Add fields to the existing table.
Cut	Remove the table from the diagram and put it on the clipboard.
Copy	Copy the table from the diagram to the clipboard.
Paste	Paste the content from the clipboard into the diagram.
Select All Tables	Select all tables in the diagram.
Delete	Delete a table from the diagram or from both diagram and model.
Rename	Change the name of the table.
Color	Change the color of the table.
Size to Fit	Resize the table automatically to fit its contents.
Bring to Front	Bring the table to the foreground.
Send to Back	Move the table to the background.

Add Views

To add a new view, click the button from the toolbar and click anywhere on the canvas. To add an existing view from the Explorer's Model tab, simply drag and drop the selected view from the Model tab to the canvas.

Note: If you right-click the view connector, you can choose to add or delete vertices and change its color, or go to the source view or the target table.

The pop-up menu options of the view object in canvas include:

Option	Description
Design View	Edit the view structure in a view designer. The tabs and options in the designer depend on the diagram database type you are chosen.
Add Related Objects	Add all related tables/views to the selected view.
Cut	Remove the view from the diagram and put it on the clipboard.
Copy	Copy the view from the diagram to the clipboard.
Paste	Paste the content from the clipboard into the diagram.
Select All Views	Select all views in the diagram.
Delete	Delete a view from the diagram or from both diagram and model.
Rename	Change the name of the view.
Color	Change the color of the view.
Size to Fit	Resize the view automatically to fit its contents.
Bring to Front	Bring the view to the foreground.
Send to Back	Move the view to the background.

Add Foreign Keys

To add a foreign key, click the button from the toolbar and drag and drop a field from the child table to the parent table. To show/hide the linked name label, simply check/uncheck the **Show name** option in the Properties pane.

When you move your mouse over a foreign key connecter, the border of the parent and the child tables turn to green and blue respectively. Also, the referenced fields and the referencing fields are highlighted.

The pop-up menu options of the foreign key in canvas include:

Option	Description
Design Relation	Edit the foreign key in a table designer. The options in the designer depend on the diagram database type you are chosen.
Cardinality on table_name1	Set the cardinality on table_name1: None, One and Only One, Many, One or Many, Zero or One, Zero or Many.
Cardinality on table_name2	Set the cardinality on table_name2: None, One and Only One, Many, One or Many, Zero or One, Zero or Many.
Add Vertex	Add a vertex on a foreign key connecter.
Delete Vertex	Delete a vertex on a foreign key connecter.
Delete All Vertices	Delete all vertices on a foreign key connecter.
Go to Source	Go to and select the source (child) table.
Go to Target	Go to and select the target (parent) table.
Paste	Paste the content from the clipboard into the diagram.
Select All Relations	Select all foreign keys in the diagram.
Delete from Diagram and Model	Delete a foreign key from both diagram and model.

Color	Change the color of the foreign key.

Logical Models

Create Logical Models

Navicat Premium allows you to create logical models, including entities, attributes and relations.

In the **New Model** window, choose **Logical** as **Model Type**.

Add Entities

To add a new entity, click the  button from the toolbar and click anywhere on the canvas. To add an existing entity from the Explorer's Model tab, simply drag and drop the selected entity from the Model tab to the canvas.

For Default diagram notation, the  icon means the attribute is a primary key. The  icon indicates that the attribute serves as an index.

Note: If you right-click an attribute, you can choose to add, insert, delete, rename the attribute and set the attribute as primary key.

The pop-up menu options of an entity object in the canvas include:

Option	Description
Design Entity	Edit the entity structure in an Entity Designer, e.g. attributes and relations.
Add Related Objects	Add all related entities to the selected entity.
Add Attribute	Add attributes to the existing entity.
Cut	Remove the entity from the diagram and put it on the clipboard.
Copy	Copy the entity from the diagram to the clipboard.
Paste	Paste the content from the clipboard into the diagram.
Select All Entities	Select all entities in the diagram.
Delete	Delete an entity from the diagram or from both diagram and model.
Rename	Change the name of the entity.
Color	Change the color of the entity.
Size to Fit	Resize the entity automatically to fit its contents.
Bring to Front	Bring the entity to the foreground.
Send to Back	Move the entity to the background.

Add Relations

To add a relation, click the button from the toolbar and drag and drop an attribute from the child entity to the parent entity. To show/hide the linked name label, simply check/uncheck the **Show name** option in the Properties pane.

When you move your mouse over a relation connector, the border of the parent and the child entities turn to green and blue respectively. Also, the referenced attributes and the referencing attributes are highlighted.

The pop-up menu options of the relation in the canvas include:

Option	Description
Design Relation	Edit the relation in an Entity Designer.
Cardinality on entity_name1	Set the cardinality on entity_name1: None, One and Only One, Many, One or Many, Zero or One, Zero or Many.
Cardinality on entity_name2	Set the cardinality on entity_name2: None, One and Only One, Many, One or Many, Zero or One, Zero or Many.
Add Vertex	Add a vertex on a relation connector.
Delete Vertex	Delete a vertex on a relation connector.
Delete All Vertices	Delete all vertices on a relation connector.
Go to Source	Go to and select the source (child) entity.
Go to Target	Go to and select the target (parent) entity.
Paste	Paste the content from the clipboard into the diagram.
Select All Relations	Select all relations in the diagram.
Delete from Diagram and Model	Delete a relation from both diagram and model.
Color	Change the color of the relation.

Conceptual Models

Create Conceptual Models

Navicat Premium allows you to create conceptual models, including entities and relations.

In the **New Model** window, choose **Conceptual** as **Model Type**.

Add Entities

To add a new entity, click the  button from the toolbar and click anywhere on the canvas. To add an existing entity from the Explorer's Model tab, simply drag and drop the selected entity from the Model tab to the canvas.

The pop-up menu options of the entity object in the canvas include:

Option	Description
Add Related Objects	Add all related entities to the selected entity.
Cut	Remove the entity from the diagram and put it on the clipboard.
Copy	Copy the entity from the diagram to the clipboard.
Paste	Paste the content from the clipboard into the diagram.
Select All Entities	Select all entities in the diagram.
Delete	Delete an entity from the diagram or from both diagram and model.
Rename	Change the name of the entity.
Color	Change the color of the entity.
Size to Fit	Resize the entity automatically to fit its contents.

Bring to Front	Bring the entity to the foreground.
Send to Back	Move the entity to the background.

Add Relations

To add a relation, click the button from the toolbar and drag the child entity and drop to the parent entity. To show/hide the linked name label, simply check/uncheck the **Show name** option in the Properties pane.

When you move your mouse over a relation connector, the border of the parent and the child entities turn to green and blue respectively.

The pop-up menu options of the relation in the canvas include:

Option	Description
Cardinality on entity_name1	Set the cardinality on entity_name1: None, One and Only One, Many, One or Many, Zero or One, Zero or Many.
Cardinality on entity_name2	Set the cardinality on entity_name2: None, One and Only One, Many, One or Many, Zero or One, Zero or Many.
Add Vertex	Add a vertex on a relation connector.
Delete Vertex	Delete a vertex on a relation connector.
Delete All Vertices	Delete all vertices on a relation connector.
Go to Source	Go to and select the source (child) entity.
Go to Target	Go to and select the target (parent) entity.
Paste	Paste the content from the clipboard into the diagram.
Select All Relations	Select all relations in the diagram.
Delete from Diagram and Model	Delete a relation from both diagram and model.
Color	Change the color of the relation.

Diagram Layout

Work with Diagram Canvas

Show Grid

To turn the grid on in the diagram canvas, choose **View** -> **Show Grid** from the menu bar.

Snap to Grid

To align objects on the canvas with the grid, choose **View** -> **Snap To Grid** from the menu bar.

Change Diagram Notation

To change the notation of the diagram, choose **Diagram** -> **Diagram Notation** from the menu bar.

Note: The options depend on the diagram type you are chosen.

Option	Description
Default	The default notation style used in Navicat.
Simple	A simple notation style. The table or view will only show the name.
IE (Crow's Foot)	Crow's Foot notation style.
IDEF1X	The ICAM DEFinition language information modeling method.
UML	Universal Modeling Language style.
Classic	A classic notation style.
Black and White	Change the color of the diagram to black and white.
Show Schema Name	Show the schema names of the tables and views in the diagram.

Change Diagram Dimensions

To change the number of pages used in the diagram, choose **Diagram** -> **Diagram Dimensions** from the menu bar and set the **Width** and the **Height**.

Align Objects

To align objects on the canvas, select more than one object (tables, entities, views, notes, labels, images or shapes), then right-click and select **Alignment** -> **Align Left**, **Align Center**, **Align Right**, **Align Top**, **Align Middle** or **Align Bottom**.

Change Objects Distribution

To distribute objects on the canvas, select more than one object (tables, entities, views, notes, labels, images or shapes), then right-click and select **Distribute** -> **Horizontal** or **Vertical**.

Change Page Setup

To change paper size, orientation and margins, choose **File** -> **Page Setup**.

Apply Auto Layout

To automatically arrange objects on the canvas, click the  button. To change the Auto Layout format settings, simply choose **Diagram** -> **Auto Layout with** from the menu bar and set the following options:

Option	Description
Auto Diagram Dimension	Choose the suitable diagram dimension automatically.
Auto Size Tables To Fit	Resize the table to fit its content automatically.
Quality	The quality of the auto layout output.
Object Distance	The distance between the objects in the diagram.

Add Labels

Labels are typically used to help document the diagram design process. For example, to explain a grouping table objects. To add a new label, click the  button from the toolbar and click anywhere on the canvas.

The pop-up menu options of the label object in canvas include:

Option	Description
Edit	Change the content of the label.
Cut	Remove the label from the diagram and put it on the clipboard.
Copy	Copy the label from the diagram to the clipboard.
Paste	Paste the content from the clipboard into the diagram.
Select All Labels	Select all labels in the diagram.
Delete	Delete a label from the diagram.
Size to Fit	Resize the label automatically to fit its contents.
Bring to Front	Bring the label to the foreground.
Send to Back	Move the label to the background.

Add Notes

Notes are typically used to help document the diagram design process. For example, to explain a grouping table objects. To add a new note, click the  button from the toolbar and click anywhere on the canvas.

The pop-up menu options of the note object in canvas include:

Option	Description
Edit	Change the content of the note.
Cut	Remove the note from the diagram and put it on the clipboard.
Copy	Copy the note from the diagram to the clipboard.
Paste	Paste the content from the clipboard into the diagram.
Select All Notes	Select all notes in the diagram.
Delete	Delete a note from the diagram.
Color	Change the color of the note.
Size to Fit	Resize the note automatically to fit its contents.
Bring to Front	Bring the note to the foreground.
Send to Back	Move the note to the background.

Add Images

You can insert images (BMP, JPG, JPEG or PNG files) to your model for design or identification purposes. To add a new image, click the  button from the toolbar and click anywhere on the canvas. Then, select an image file in the Open dialog box.

The pop-up menu options of the image object in canvas include:

Option	Description
Reset Size	Reset the size of the image to its original size.
Reset Aspect Ratio	Maintain the image original width to height ratio.
Cut	Remove the image the diagram and put it on the clipboard.

Copy	Copy the image from the diagram to the clipboard.
Paste	Paste the content from the clipboard into the diagram.
Select All Images	Select all images in the diagram.
Delete	Delete an image from the diagram.
Bring to Front	Bring the image to the foreground.
Send to Back	Move the image to the background.

Add Shapes

Navicat includes some pre-defined shapes for creating database model diagrams: line, arrow, rectangle, ellipse, user, database, cloud, trigger, server, desktop or mobile. To add a new shape, click the  button from the toolbar and choose the type of shape. Then, click anywhere on the canvas. To show/hide the linked name label, simply check/uncheck the **Show name** option in the Properties pane.

The pop-up menu options of the shape object in canvas include:

Option	Description
Reset Aspect Ratio	Maintain the shape original width to height ratio. Only for rectangle, ellipse, user, database, cloud, trigger, server, desktop and mobile.
Cut	Remove the shape from the diagram and put it on the clipboard.
Copy	Copy the shape from the diagram to the clipboard.
Paste	Paste the content from the clipboard into the diagram.
Select All Shapes	Select all the shapes in the diagram.
Delete	Delete a shape from the diagram.
Color	Change the color of the shape.
Border Color	Change the color of the shape's border. Only for rectangle, ellipse, user, database, cloud, trigger, server, desktop and mobile.
Begin Arrow Style	Change the style of the arrow's back. Only for arrow.
End Arrow Style	Change the style of the arrow's front. Only for arrow.
Add Vertex	Add a vertex on a line or arrow. Only for line and arrow.
Delete Vertex	Delete a vertex on a line or arrow. Only for line and arrow.
Delete All Vertices	Delete all vertices on a line or arrow. Only for line and arrow.
Bring to Front	Bring the shape to the foreground.
Send to Back	Move the shape to the background.

Add Layers

Layers are used to help organize objects (e.g. tables, notes, images, etc) on the canvas. You can add all related objects to the same layer. For example, you may choose to add all your sales related tables to one layer. To add a new layer, click the  button from the toolbar and click anywhere on the canvas.

The pop-up menu options of the layer object in canvas include:

Option	Description
Cut	Remove the layer from the diagram and put it on the clipboard.
Copy	Copy the layer from the diagram to the clipboard.
Paste	Paste the content from the clipboard into the diagram.
Select All Layers	Select all layers in the diagram.
Delete	Delete a layer from the diagram.
Color	Change the color of the layer.
Size to Fit	Resize the layer automatically to fit its contents.
Bring to Front	Bring the layer to the foreground.
Send to Back	Move the layer to the background.

Reverse Engineering

Reverse Engineering is one of the key features of Model. This feature allows you to load already existing database structures to create new diagrams. It supports importing databases, schema, tables or views.

Navicat provides a step-by-step wizard for you to complete the task:

1. Choose **File** -> **Import from Database**.
2. Select a connection.
3. Select databases, schemas, tables or views you want to import.
4. Click **Start**.

You can also simply create a new model using reverse engineering in the Navicat main window. Right-click an opened database/schema, tables or views and select **Reverse Database to Model**, **Reverse Schema to Model**, **Reverse Tables to Model** or **Reverse Views to Model** from the pop-up menu.

Forward Engineering

Synchronize to Database

The **Synchronize to Database** feature allows you to compare a model with an existing database or schema, states the differences between their structures, and offers synchronizing the structures in model to the target connection.

Navicat provides a step-by-step wizard for you to complete the task:

1. Choose **File** -> **Synchronize to Database**.
2. Select the source database, schema, and select the target connection, database, schema.
3. Click **Options** and select the compare / advanced options.
4. Click **Compare** to show the differences between source and target objects.
5. Select the objects you want to synchronize.
6. Click **Deploy** to generate a set of scripts.
7. Click **Execute**.

Choose Connections

The first step is to define connections, databases and/or schemas for the source model and the target connection.

Choose Comparing Options

Then, click the **Options** button to select the compare / advanced options for the synchronization process.

Note: The following options depend on the diagram database type you are chosen and sort in ascending order.

Case Sensitivity

Ignore or consider the case of identifiers when mapping, or use the server default setting.

Compare auto increment value

Check this option if you want to compare the auto increment values of tables.

Compare character set

Check this option if you want to compare the character sets of tables.

Compare checks

Check this option if you want to compare checks.

Compare collation

Check this option if you want to compare the collations of tables.

Compare definers

Check this option if you want to compare the definers of views.

Compare excludes

Check this option if you want to compare excludes.

Compare foreign keys

Check this option if you want to compare table foreign keys.

Compare identity last value

Check this option if you want to compare the identity last values of tables.

Compare indexes

Check this option if you want to compare indexes.

Compare owners

Check this option if you want to compare the owners of the objects.

Compare partitions

Check this option if you want to compare table partitions.

Compare primary keys

Check this option if you want to compare table primary keys.

Compare rules

Check this option if you want to compare rules.

Compare storage

Check this option if you want to compare table storages.

Compare table options

Check this option if you want to compare other table options.

Compare tables

Check this option if you want to compare tables.

Compare triggers

Check this option if you want to compare triggers.

Compare uniques

Check this option if you want to compare uniques.

Compare views

Check this option if you want to compare views.

Drop with CASCADE

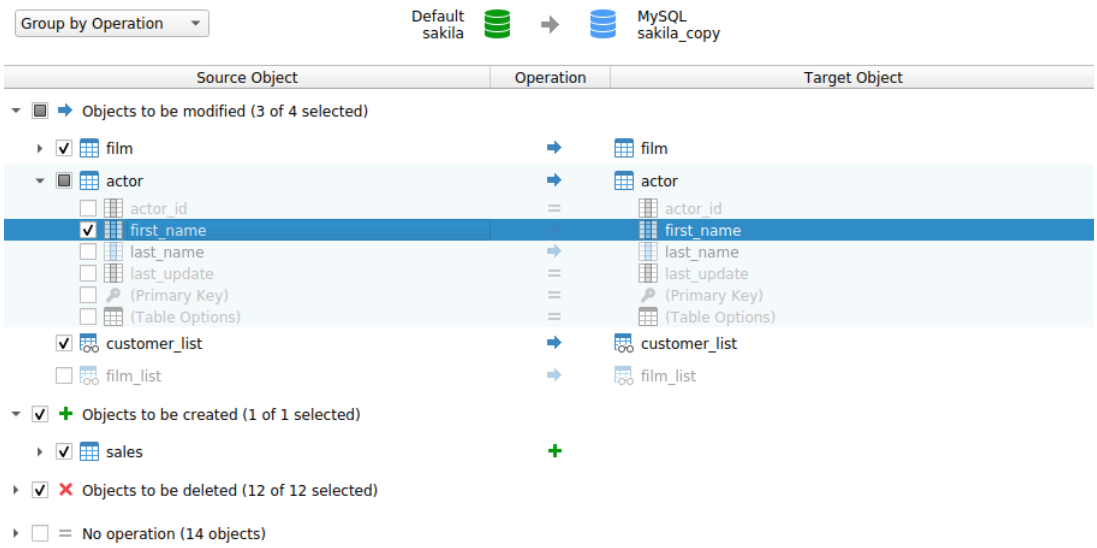
Check this option if you want to drop the dependent database objects with the CASCADE option.

Start Comparison

Click the **Compare** button to compare the source model and the target database.

View Comparison Results

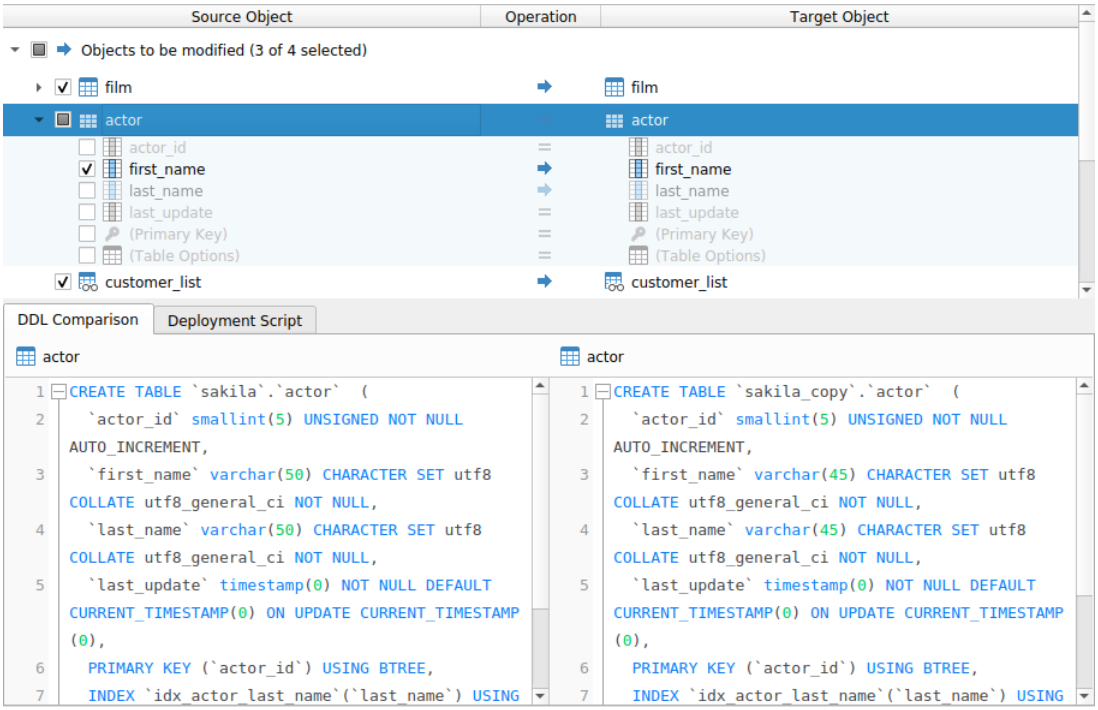
After comparing structures, the tree view shows the differences between the source and target databases or schemas. All objects are checked in the tree view by default. Uncheck the objects you do not want to apply to the target. You can expand the table objects to view the detailed structure.



You can choose to group the objects in the tree views by object types or operations by selecting **Group by object type** or **Group by operation**.

Operation	Description
➡	Object exists in both source and target databases/schemas, but they have different definition. The target object will be modified based on the source object.
✚	Object does not exist in the target database/schema. It will be created in the target.
✖	Object does not exist in the source database/schema. The target object will be deleted.
=	Object exists in both source and target databases/schemas and they have identical definition. No operation will be applied.

When you selected an object in the tree view, the **DDL Comparison** tab shows the DDL statements of that object in the source and the target, and the **Deployment Script** tab shows the detailed SQL statements of the object that will be executed in the target databases.



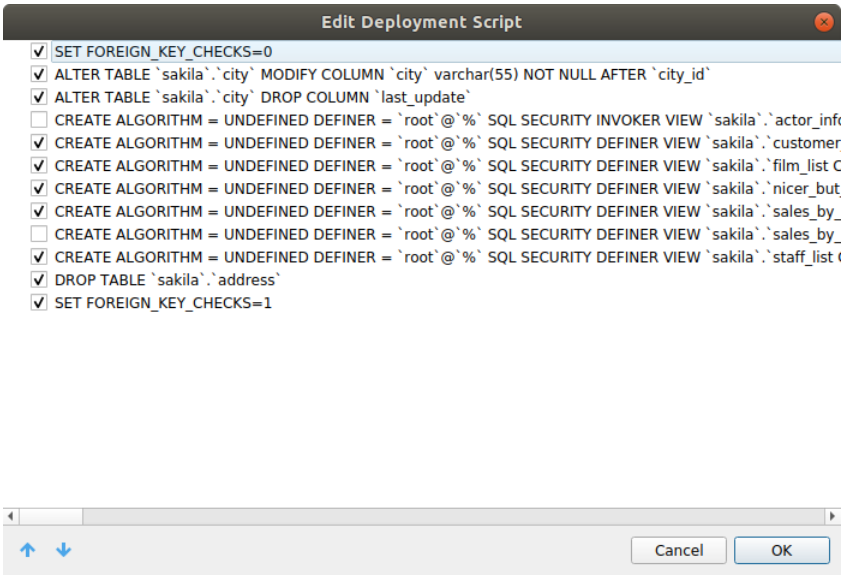
Click the **Deploy** button to show the scripts of all selected objects.

Edit & Execute Selected Scripts

You can view all scripts that will be executed in the target database in the **Deployment Script** tab.

Deployment Options Button	Description
Deployment Options	**Continue on error** - Ignore errors that are encountered during the execution process if necessary.
Edit	Open the **Edit Deployment Script** window to rearrange the order of the scripts.
Copy to Clipboard	Copy all scripts from the Deployment Script tab to the clipboard.
Open in Query Editor	Open a new query window and display the scripts.

In the **Edit Deployment Script** window, use the arrow buttons to move the scripts.



Then, click the **Execute** button to execute the scripts. The window will display the execution progress, execution time, and success or failure messages.

Export SQL

After finishing your model, you can save table structures and relations from the model into a script file. The **Export SQL** feature generates a SQL file for the script. To start the Export SQL feature, choose **File** -> **Export SQL** from the menu bar.

General Properties

File

Set the output file name and location.

Objects

Choose objects in the model you wish to export.

Advanced Properties

Note: The following options depend on the diagram database type you are chosen and sort in ascending order.

Include auto increment

Include table auto increment in the SQL file with this option is on.

Include character set

Include table and field character set in the SQL file with this option is on.

Include checks

Include checks in the SQL file with this option is on.

Include collation

Include table collation in the SQL file with this option is on.

Include Drop SQL

Include drop object SQL statements in the SQL file with this option in on.

Include Drop With CASCADE

Include drop object SQL statements with CASCADE option in the SQL file with this option in on.

Include excludes

Include excludes in the SQL file with this option is on.

Include foreign keys

Include foreign keys in the SQL file with this option is on.

Include indexes

Include indexes in the SQL file with this option is on.

Include primary keys

Include primary keys in the SQL file with this option is on.

Include rules

Include rules in the SQL file with this option is on.

Include schema

Include the schema name in the SQL file with this option is on. Otherwise, only object names are included in SQL statements.

Include triggers

Include triggers in the SQL file with this option is on.

Include uniques

Include uniques in the SQL file with this option is on.

Server Version

Select the server version for the SQL file.

Model Conversion

Navicat allows you to convert your models from one database type to another database type, e.g. MariaDB 10.0 physical model to PostgreSQL 9.0 physical model.

During the conversion, all data types are converted automatically. The conversion process does not change the SQL syntax of views if converting from one database type to another. If the target database version is MySQL 4.0 or below, all views will be removed.

With Navicat Premium, you can also convert your models from one model type to another model type. If you covert a physical model to logical/conceptual model, all views will be converted to entities.

To convert an opened model file, choose **File** -> **Convert Model To**. Then, choose the **Model Type** and select the target **Database** and **Version** if necessary.

Print & Export Model

Preview a model

To preview the pages before printing, simply click the  button. The model can be printed to the printer or exported to various file formats.

Print to a printer

Choose **File** -> **Print** to send your diagram directly to the printer. You can set the printer option in the pop-up window.

Export to a file

Choose **File** -> **Export To** and choose the file format to create a PDF, PNG, SVG or JPG file of your diagram.

Model Hints and Tips

Navicat provides some useful hints to work on the model more effectively.

Locate Object in the Diagram Canvas

Object selected in the Explorer's Diagram tab will be highlighted in the Diagram Canvas.

Double-click an object in the Explorer's Diagram tab will jump to the corresponding object in the Diagram Canvas.

Delete Object from Model

Select an object in the Diagram Canvas and press SHIFT+DELETE.

Open Table/Entity/View Designer

Double-click a table/entity/view in the Explorer's Model Tab or the Diagram Canvas.

Get Table/View Structure (SQL Statement)

Select and copy a table/view in the Diagram Canvas, and paste it to other text editors.

Design Field without Table/Entity Designer

Select and click a table/entity name and press TAB/DOWN ARROW to add/edit fields. Navicat will predict field types according to field names you entered.

INTEGER/int/int4/NUMBER

- suffix "id", "no" (if it is the first column, it will be predicted as a primary key)
- suffix "num"
- "qty", "number"

- exactly "age", "count"

DECIMAL(10,2)/decimal(10,2)/NUMBER/REAL/money

- suffix "price", "cost", "salary"

FLOAT/double/float8/NUMBER/REAL/float

- "size", "height", "width", "length", "weight", "speed", "distance"

DATE/datetime/date/TEXT/datetime2

- "date", "time"

VARCHAR(255)/varchar(255)/VARCHAR2(255)/TEXT

- other field names

Enter * before the field name to recognize as primary key. e.g. *itemNo:int.

Enter : between field name and field type to custom field type, e.g. itemName:varchar(255).

Reorder Field

Select a table/entity in Diagram Canvas, then press and hold the SHIFT key. Use  to drag the field to a desired location.

Delete Field

Select a table/entity in Diagram Canvas, then press and hold the SHIFT key. Use  to drag the desired field out of the table/entity.

Add Vertex to Foreign Key/Relation/Line/Arrow

Select a foreign key/relation/line/arrow in Diagram Canvas. Press and hold the SHIFT key and click on it to add vertex.

Delete Vertex on Foreign Key/Relation/Line/Arrow

Select a foreign key/relation/line/arrow in Diagram Canvas. Press and hold the SHIFT key and click on the vertex.

Switch to Hand Mode

Press and hold the SPACE key, then move the diagram.

Select a Page in Print Preview

Press and hold the SHIFT key, then point to a page to show the page number.

Press and hold the SHIFT key, then click a page to jump to the corresponding page in Diagram Canvas.

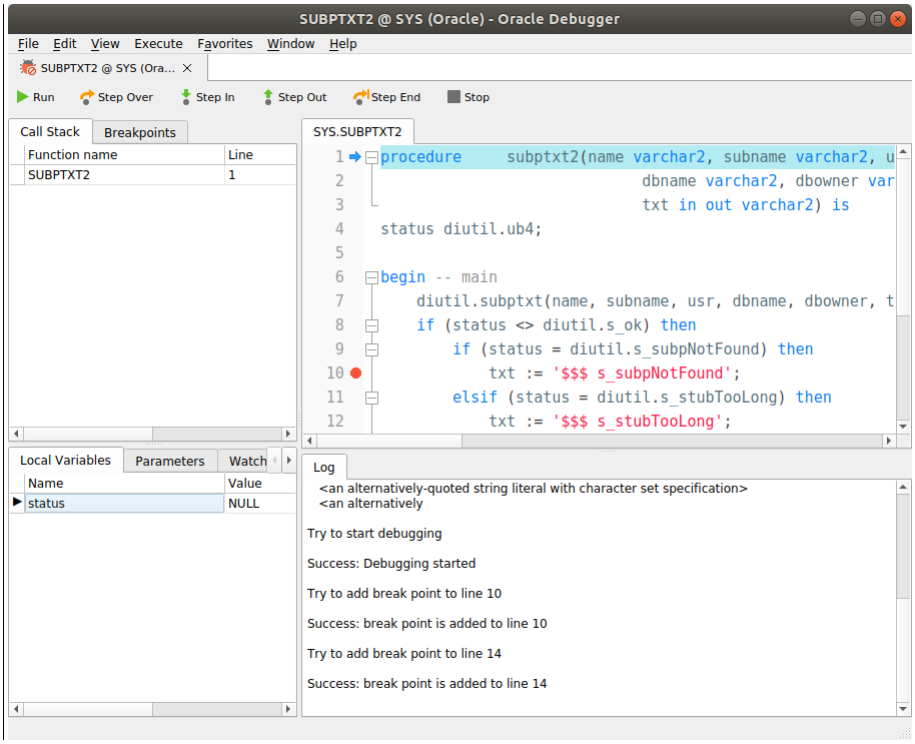
Chapter 9 - Debugger (Available only in Non-Essentials Edition)

About Debugger

Navicat provides two code debuggers: **Oracle PL/SQL Debugger** and **PostgreSQL PL/pgSQL Debugger**. With the debuggers, you can toggle breakpoints, fetch call stacks, view variable values, trace the code, etc.

Oracle PL/SQL Debugger

Oracle PL/SQL Debugger provides step-by-step code debugging for functions, procedures, packages and queries. To launch the debugger, click the **Debug** button in the designer of the mentioned objects.



You can perform the most commonly used actions for debugging on the toolbar or menu:

Button	Description
Run	Start running code in debug mode. Enter the Input Parameters if necessary. The debugger executes your code until the end of the code or the next breakpoint is reached. Keyboard shortcut: F9
Step Over	Resume the execution. The current line will be executed. If the line is a procedure or function call, it will bypass the procedure or function. The counter will then move to the next line of code. Keyboard shortcut: F10
Step In	Resume the execution. The current line will be executed. If the line is a procedure or function call, the counter goes to the first statement in the procedure or function. Otherwise, the counter will move to the next line of code. Keyboard shortcut: F11
Step Out	Resume the execution. The remaining part of the code within the current procedure or

	function will be executed. Subsequently, the counter will jump to the line which is just after the caller of the procedure or function. Keyboard shortcut: SHIFT+F11
Step End	Resume the execution. The counter will jump to the last line of the procedure or function.
Stop	Stop stepping the code. The execution will stop and cannot resume it.

The **Code** pane shows the code of the procedure or function. You can add/remove breakpoints for debugging by clicking in the grey area beside each statement. To add a variable to the watch list, right-click the highlighted code and select **Add to Watch List**.

The **Call Stack** pane displays a list of procedures and functions as they are called. To jump to a procedure or function, right-click it and select **Goto Function**.

The **Breakpoints** pane displays all the breakpoints which allowing you to delete, enable or disable breakpoints. To enable/disable a breakpoint, check/uncheck the check box. Also, you can delete a breakpoint or all breakpoints, right-click a breakpoint and select **Remove Breakpoint** or **Remove All Breakpoints**. To jump to the line of a breakpoint, right-click it and select **Goto Function**.

The **Local Variables** pane displays all local variables and their values. Click on a value in the **Value** column to edit. To add a variable to the watch list, right-click it and select **Add to Watch List**.

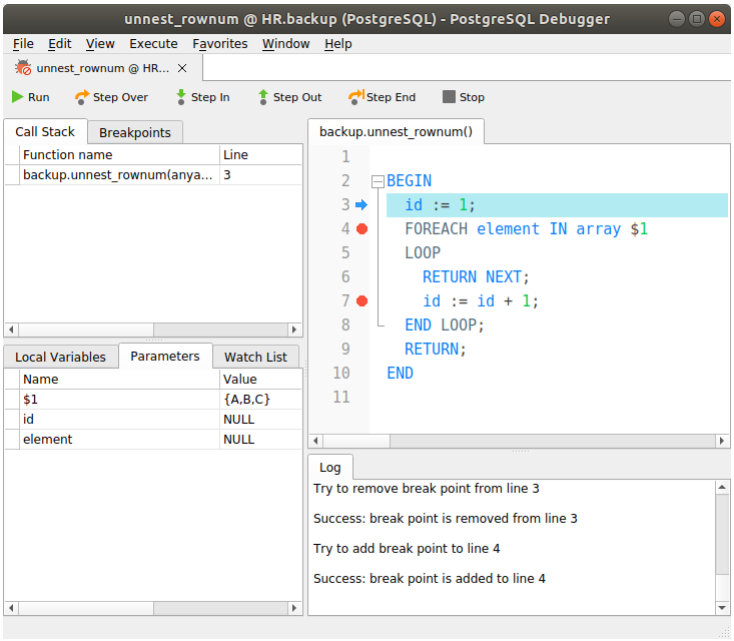
The **Parameters** pane displays the inputted parameters. To add a parameter to the watch list, right-click it and select **Add to Watch List**.

The **Watch List** pane displays information about the variables being watched, allowing you to add, delete or edit watch variables. To add a watch variable, right-click anywhere on the pane and select **Add Variable**. Then, enter the **Variable Name**. Click on a value in the **Value** column to edit. To delete a watch variable or all watch variables, right-click a variable and select **Remove Variable** or **Remove All Variables**.

The **Log** pane displays the message log when debugging the code and the results after the procedure or function has completed the execution.

PostgreSQL PL/pgSQL Debugger

PostgreSQL PL/pgSQL Debugger provides step-by-step code debugging for PL/pgSQL functions. To launch the debugger, click the **Debug** button in the function designer.



You can perform the most commonly used actions for debugging on the toolbar or menu:

Button	Description
Run	Start running code in debug mode. Enter the Input Parameters if necessary. The debugger executes your code until the end of the code or the next breakpoint is reached. Keyboard shortcut: F9
Step Over	Resume the execution. The current line will be executed. If the line is a function call, it will bypass the function. The counter will then move to the next line of code. Keyboard shortcut: F10
Step In	Resume the execution. The current line will be executed. If the line is a function call, the counter goes to the first statement in the function. Otherwise, the counter will move to the next line of code. Keyboard shortcut: F11
Step Out	Resume the execution. The remaining part of the code within the current function will be executed. Subsequently, the counter will jump to the line which is just after the caller of the function. Keyboard shortcut: SHIFT+F11
Step End	Resume the execution. The counter will jump to the last line of the procedure or function.
Stop	Stop stepping the code. The execution will stop and cannot resume it.

The **Code** pane shows the code of the function. You can add/remove breakpoints for debugging by clicking in the grey area beside each statement.

The **Call Stack** pane displays a list of functions as they are called.

The **Breakpoints** pane displays all the breakpoints. You can delete a breakpoint or all breakpoints, right-click a breakpoint and select **Remove Breakpoint** or **Remove All Breakpoints**. To jump to the line of a breakpoint, right-click it and select **Goto Function**.

The **Local Variables** pane displays all local variables and their values. Click on a value in the **Value** column to edit.

The **Parameters** pane displays the inputted parameters.

The **Log** pane displays the message log when debugging the code and the results after the function has completed the execution.

Chapter 10 - Data Migration Tools

About Data Migration Tools

Navicat provides a number of powerful tools for working with data, including Import Wizard, Export Wizard, Data Transfer, Data Synchronization, Structure Synchronization, Dump SQL File and Execute SQL File. With those tools, you can migrate your data between different servers, databases and formats easily.

Import Wizard

About Import Wizard

Import Wizard allows you to import data to tables/collections from CSV, TXT, XML, DBF and more. You can save your settings as a profile for future use or setting automation tasks. To open the Import Wizard window, click **Import Wizard** from the object toolbar.

Note: Navicat Essentials edition only supports to import text-based files, such as TXT, CSV, XML and JSON.

Hint: You can drag a supported file to the Table/Collection's Objects tab or a database/schema in the Navigation pane. Navicat will pop up the Import Wizard window automatically. If an existing table/collection is highlighted, Navicat will import the file to the highlighted table/collection. Otherwise, it will import the file to a new table/collection.

Choose File Format

Select one of the available import types for the source file.

Choose Source File

Browse the source file name. The file extension in the **Import from** text box changes according to the selected import type in the first step. Select the **Encoding** for the source file.

Note: You can select more than one file to import.

Excel

Sheets will be shown in the **Tables** list.

ODBC

Setting Up an ODBC Data Source Connection

1. To setup the connection of the data source, you need to install the corresponding driver.
2. Then, add the DSN (Data Source Name) to the odbc.ini configuration file, e.g. /etc/odbc.ini.

Note: You can consult with the driver provider about how to setup the DSN.

Connecting to ODBC Data Source in Navicat

1. Click ... in **Import from**.
2. Choose the data source from the **Connection** drop-down list and provide valid username and password.
3. All available tables will be included in the list in the next step if connection is success.

Hint: If you are importing from Access or ODBC, the **Add Query** and **Modify Query** buttons open the **Add Query** dialog where you can construct query to import only certain rows from your source tables. In other words, import only rows that satisfy the criteria set by you. Tables and queries will be shown in the **Tables** list. To delete a query, select it and click the **Delete Query** button.

Choose Delimiter - TXT, CSV, XML

TXT, CSV

Field Delimiter

Specify the field separator.

Record Delimiter

Specify the record separator of the file.

Text Qualifier

Specify the character that encloses text values.

XML

Tag that identifies a table row / Tag that identifies a collection row

Define a tag to identify rows.

Consider tag attributes as table field / Consider tag attributes as collection field

For example:

<row age="17">

<id>1</id>

<name>sze</name>

</row>

With this option is on, Navicat will recognizes "age" as a field together with "id" and "name", otherwise, only "id" and "name" will be imported as fields.

Note: Navicat does not support multiple level of XML file.

Choose Additional Options - TXT, CSV, XML, Excel

The following options depend on the file format chose in the first step.

Field Name Row

Indicate which row should Navicat recognize as field names.

First Data Row

Indicate which row should Navicat start reading the actual data.

Last Data Row

Indicate which row should Navicat stop reading the actual data.

Note: If no field names are defined for the file, enter 1 for First Data Row and 0 for Field Name Row.

Date Order, **Date Delimiter**

Specify the format for date and the date separator.

Decimal Symbol

Specify the decimal separator for decimal number.

Time Delimiter

Specify the time separator.

DateTime Order

Specify the order of date and time.

Binary Data Encoding

Set binary data are imported as Base64 encoded or no encoding in the file.

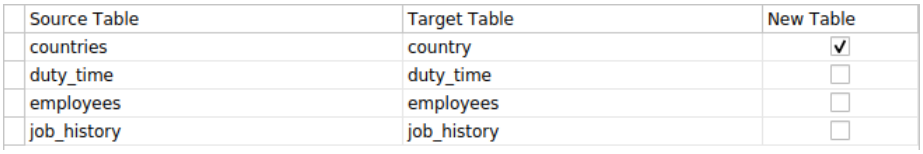
Choose Target Table / Collection

You are allowed to define a new name or choose to import into an existing table/collection from the drop-down list.

Note: If you type a new name in **Target Table** / **Target Collection**, the box in **New Table** / **New Collection** will be checked automatically.

	Source Table	Target Table	New Table
▶	countries	country	☑

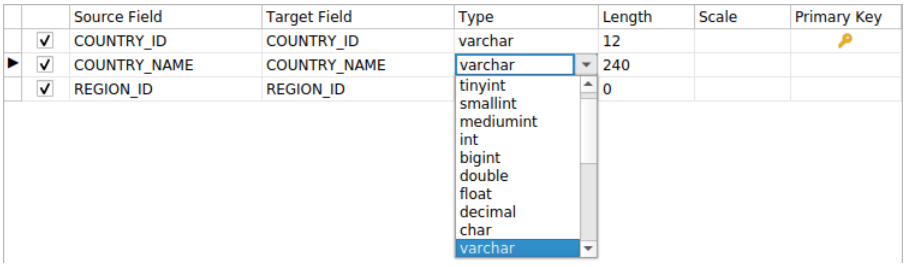
For importing multiple tables/collections, all tables/collections will be shown in the list.



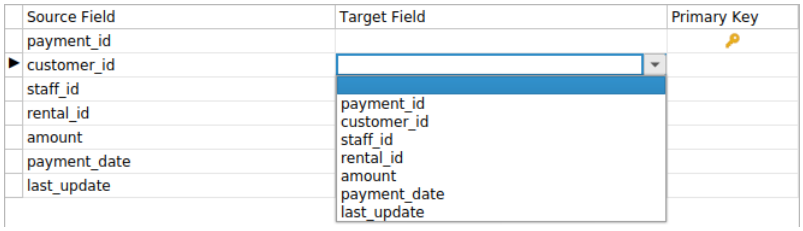
Adjust Field Structures and Map Fields

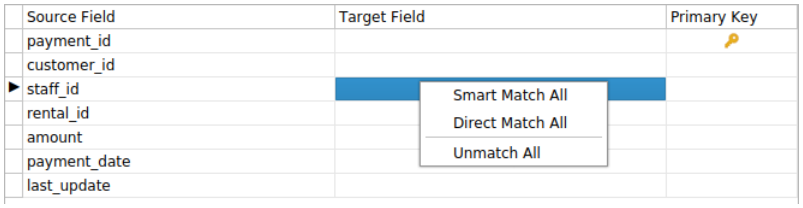
Navicat will make assumption on the field types and length in the source table/collection. You are allowed to choose desired type from the drop-down list.

Hint: For importing multiple tables/collections, select other tables/collections from the **Source Table** / **Source Collection** drop-down list.



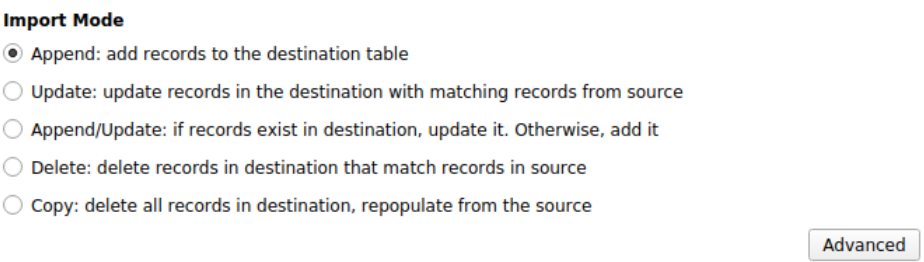
If you are importing data into existing tables/collections, you might need to map the source field names manually to the target, or right-click and select **Smart Match All**, **Direct Match All** and **Unmatch All** from the pop-up menu for quick mapping.





Choose Import Mode

Select the import mode that defines how the data being imported.



Hint: To activate the remaining options, you must enable Primary Key in the previous step.

	Source Field	Target Field	Primary Key
▶	payment_id	payment_id	🔑
	customer_id	customer_id	
	staff_id	staff_id	
	rental_id	rental_id	
	amount	amount	
	payment_date	payment_date	
	last_update	last_update	

Click the **Advanced** button for more settings. The following options depend on the connection server type.

Run multiple queries in each execution

Execute multiple SQL statements at once, which will make the import process faster.

Use extended insert statements

Insert records using extended insert syntax.

Example:

INSERT INTO `users` VALUES ('1', 'Peter McKindsy', '23'), ('2', 'Johnson Ryne', '56'), ('0', 'Katherine', '23');

Use empty string as NULL

Import NULL value if the source data field contains empty string.

Ignore foreign key constraint

Ignore the checking of foreign key constraints during the import process.

Continue on error

Ignore errors that are encountered during the import process.

Include Unique, Index and Foreign Key

Include uniques, indexes and foreign keys during the import process.

Note: Support only when the file type is MS Access database or ODBC.

Create Auto Increment Fields

Create auto increment fields during the import process.

Note: Support only when the file type is MS Access database, Paradox file or DBase file.

Import Deleted Records

Import the deleted records in the DBase file during the import process.

Note: Support only when the file type is DBase file.

Save and Start Import

Click the **Start** button to begin the import process. The wizard will display the import progress, execution time, and success or failure messages.

After the import process finished, you can click the **Log** button to open the log file.

Hint: Click the **Save** button to save your settings as a profile.

Export Wizard

About Export Wizard

Export Wizard allows you to export data from tables, collections, views, or query results to any available formats. You can save your settings as a profile for future use or setting automation tasks. To open the Export Wizard window, click **Export Wizard** from the object toolbar.

Note: Navicat Essentials edition only supports to export text-based files, such as TXT, CSV, HTML, XML, SQL and JSON.

Choose File Format

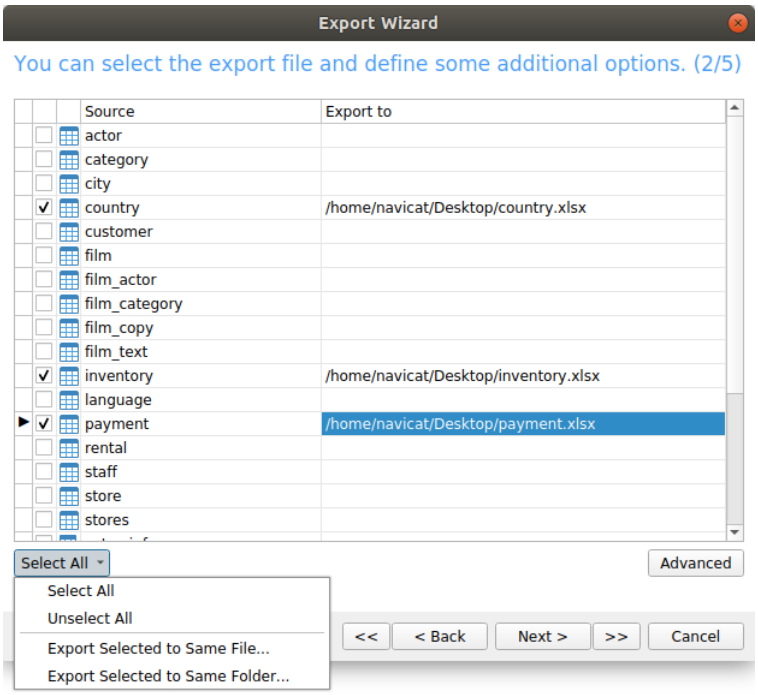
Select one of the available export formats for the target file.

Choose Saving Path

You can set the exported file name and location in this step.

Check the box next to the object name that you want to export. If an existing object is highlighted in the object pane, it will be checked automatically and assigned a default file name and location. The file extension in the **Export to** text box changes according to the selected export type in the first step.

Note: For exporting query results, ensure the query is saved before running Export Wizard. Otherwise, no source object displayed in here.



Select All Button	Description
Select All / Unselect All	Select / unselect all source objects.
Export Selected to Same File	Export the selected objects into the same target file. When the file format is Excel, each object will be exported as a sheet in the Excel file.
Export Selected to Same Folder	Export the selected objects into the same directory.

Advanced Button	Description
Encoding	Select the encoding for the exported file.
Add timestamp	Check this option if you want your file name specifies the timestamp of the export is run. Select the date/time format from the drop-down list.

Choose Columns / Fields for Export

You can select what fields to export. All the fields are selected in the list by default. If you want to omit some fields to be exported, uncheck the **All fields** option first and then uncheck those fields in the list.

Note: For exporting query result, the wizard will skip this step.

Choose Additional Options

The following options depend on the file format chose in the first step.

Include column titles

Field names will be included into the exported file if this option is on.

Append

Append records to the existing file

Continue on error

Ignore errors that are encountered during the export process.

Use Attributes Format in XML

Attributes Format
<RECORDS> <RECORD OrderNo="1003" ItemNo="1" PartNo="1313" Qty="5" Discount="0"></RECORD> <RECORD OrderNo="1004" ItemNo="1" PartNo="1313" Qty="10" Discount="50"></RECORD> </RECORDS>
Non-Attributes Format
<RECORDS> <RECORD> <OrderNo>1003</OrderNo> <ItemNo>1</ItemNo> <PartNo>1313</PartNo> <Qty>5</Qty> <Discount>0</Discount> </RECORD> <RECORD> <OrderNo>1004</OrderNo> <ItemNo>1</ItemNo> <PartNo>1313</PartNo> <Qty>10</Qty> <Discount>50</Discount> </RECORD> </RECORDS>

Record Delimiter, **Field Delimiter**, **Text Qualifier**

Specify the record separator, the field separator and the character that encloses text values.

Date Order, **Date Delimiter**

Specify the format for date and the date separator.

Zero Padding Date

Add a leading zero to pad days and months to two digits if necessary.

Time Delimiter

Specify the time separator.

Decimal Symbol

Specify the decimal separator for decimal number.

Binary Data Encoding

Set binary data are exported as Base64 encoded or no encoding in the file.

Save and Start Export

Click the **Start** button to begin the export process. The wizard will display the export progress, execution time, and success or failure messages.

After the export process finished, you can click the **Open** button to open the exported file or the log file.

Hint: Click the **Save** button to save your settings as a profile.

Data Transfer (Available only in Non-Essentials Edition)

About Data Transfer

Navicat allows you to transfer objects from one database/schema to another, or to a sql file (RDBMS) or a Javascript file (MongoDB). The target database and/or schema can be on the same server as the source or on another server. To open the Data Transfer window, choose **Tools** -> **Data Transfer** from the menu bar.

You can save your settings as a profile for future use or setting automation tasks. To open a saved profile, click the **Load Profile** button and select a profile from the list.

Hint: Profiles are saved under the default path, e.g. /home/your_username/.config/navicat/Premium/Profiles.

Hint: You can drag tables/collections to a database/schema in the Navigation pane. If the target database/schema is within the same connection, Navicat will copy the tables/collections directly. Otherwise, Navicat will pop up the Data Transfer window.

Choose Connections & Advanced Options (Step 1)

Choose Source and Target Connections

In the Data Transfer window, define connections, databases and/or schemas for **Source Database** and **Target Database**. You can click  to swap the source and target settings.

You can also transfer your selected database objects directly to a text file. Select the **File**option. Choose the target path, **SQL Format** and **Encoding** for the file.

Note: Navicat Premium supports transferring table with data across different server types, e.g. from MySQL to Oracle. If the source connection is MongoDB, Navicat Premium only can transfer data to MongoDB server.

Choose Advanced Options

Then, click the **Options** button to set the advanced options. The options depend on the source and target connection server types and sort in ascending order.

Continue on error

Ignore errors that are encountered during the transfer process.

Convert object name to

Check this option if you require convert object names to **Lower case** or **Upper case** during the process.

Create collections

Check this option if you want to create collections in the target database. Suppose this option is unchecked and collections already exist in the target database, then all data will be appended to the destination collections.

Create records

Check this option if you require all records to be transferred to the destination database and/or schema.

Create tables

Check this option if you want to create tables in the target database. Suppose this option is unchecked and tables already exist in the target database/schema, then all data will be appended to the destination tables.

Create target database/schema if not exist

Create a new database/schema if the database/schema specified in the target server does not exist.

Drop target objects before create

Check this option if database objects already exist in the target database and/or schema, the existing objects will be deleted once the data transfer starts.

Drop with CASCADE

Check this option if you want to drop the dependent database objects with the cascade option.

Include auto increment

Include auto increment in the table with this option is on.

Include character set

Include character set in the table with this option is on.

Include checks

Include checks in the table with this option is on.

Include definers

Include the definers of the objects with this option is on.

Include engine/table type

Include table type with this option is on.

Include excludes

Include exclusion constraints in the table with this option is on.

Include foreign key constraints

Include foreign keys in the table with this option is on.

Include indexes

Include indexes in the table with this option is on.

Include other collection options

Include other options in the collection with this option is on.

Include other table options

Include other options in the table with this option is on.

Include owners

Include the owners of the objects with this option is on.

Include rules

Include rules in the table with this option is on.

Include triggers

Include triggers in the table with this option is on.

Include uniques

Include uniques in the table with this option is on.

Lock source tables

Lock the tables in the source database and/or schema during the data transfer process.

Lock target tables

Lock the tables in the target database and/or schema during the data transfer process.

Use complete insert statements

Insert records using complete insert syntax.

Example:

INSERT INTO `users` (`ID Number`, `User Name`, `User Age`) VALUES ('1', 'Peter McKindsy', '23');

INSERT INTO `users` (`ID Number`, `User Name`, `User Age`) VALUES ('2', 'Johnson Ryne', '56');

INSERT INTO `users` (`ID Number`, `User Name`, `User Age`) VALUES ('0', 'katherine', '23');

Use DDL from SHOW CREATE TABLE

If this option is on, DDL will be used from SHOW CREATE TABLE.

Use DDL from sqlite_master

If this option is on, DDL will be used from the SQLITE_MASTER table.

Use delayed insert statements

Insert records using DELAYED insert SQL statements.

Example:

INSERT DELAYED INTO `users` VALUES ('1', 'Peter McKindsy', '23');

INSERT DELAYED INTO `users` VALUES ('2', 'Johnson Ryne', '56');

INSERT DELAYED INTO `users` VALUES ('0', 'katherine', '23');

Use extended insert statements

Insert records using extended insert syntax.

Example: *INSERT INTO `users` VALUES ('1', 'Peter McKindsy', '23'), ('2', 'Johnson Ryne', '56'), ('0', 'Katherine', '23');*

Use hexadecimal format for BLOB

Insert BLOB data as hexadecimal format.

Use single transaction

Check this option if you want to use a single transaction during the data transfer process.

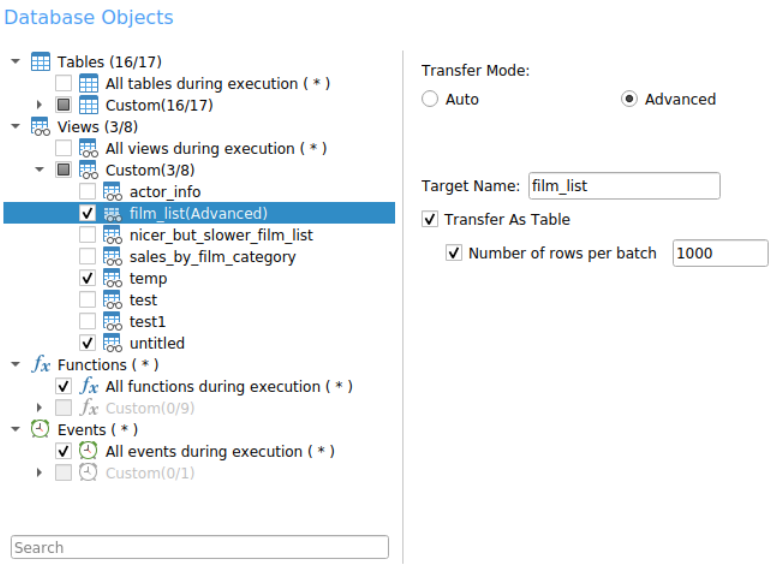
Use transaction

Check this option if you want to use transaction during the data transfer process.

Choose Objects & Transfer Mode (Step 2)

Choose Objects to Transfer

All the database objects are unselected in the **Database Objects** list by default. Check the database objects that you want to transfer.



All <objects> during execution (*)	All the database objects being transferred to the target database/schema, all newly added database objects will also be transferred without amending the data transfer profile.
Custom	Only the checked database objects will be transferred. However, if you add any new database objects in the source database and/or schema after you create your data transfer profile, the newly added database objects will not be transferred unless you manually modify the Database Objects list.

Choose Transfer Mode for Tables / Views

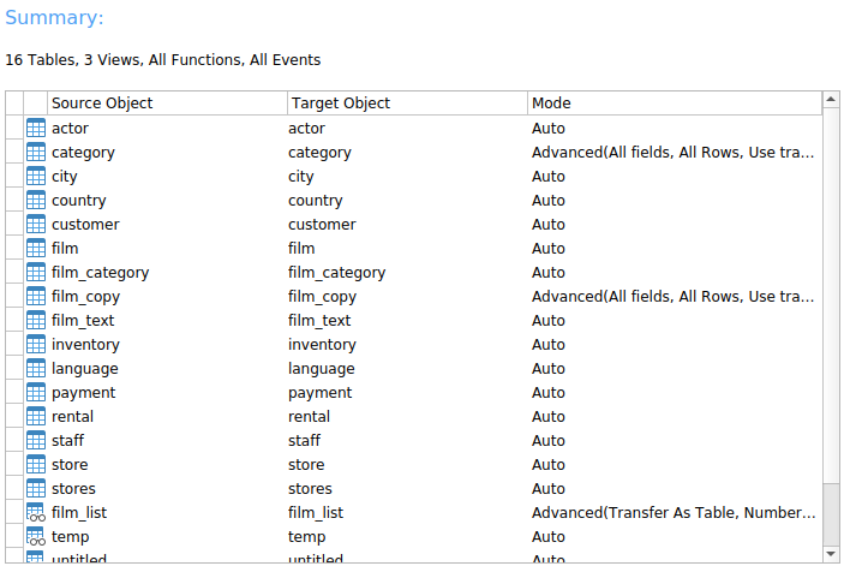
You can customize the **Transfer Mode** for the selected table/view. If you choose **Auto**, Navicat will transfer the table/view using the default settings. If your want to customize the transfer settings, choose **Advanced** and set the following options:

Options	Description
Target Name	Enter the name of the table / view that will be created in the target database.
All fields	Transfer all fields in the table.
Custom fields	You can choose which fields to transfer. Click **+** and select the fields. Change the name of the target field if necessary.
All rows	Transfer all records in the table.
Number of rows per batch	Specify the number of rows of data per batch. If it is not enabled, all data in the table is sent to the target server as a single transaction.
Custom recordsets	Filter the records for transfer. Click **+** and enter a expression.

Recordset Generator	If your table is large, you may want to divide it to several record sets to avoid connection timeout. The Recordset Generator can divide the records into a number of recordsets as evenly as possible between the start and end values of a field. Set **Field Name**, **Start Value**, **End Value** and **Number of Recordsets** in the pop-up window.
SQL Preview	Show the SQL statements for returning the recordsets.
Use transaction for each recordset	Use a transaction for each recordset during the data transfer process.
Transfer as table	The view will be transferred to the target database as a new table.

Confirm & Start Data Transfer (Step 3)

A summary table lists all selected objects that is being transferred to the target database.



Click the **Start** button to execute the data transfer process. The window will display the execution progress, execution time, and success or failure messages.

Data Synchronization (Available only in Non-Essentials Edition)

About Data Synchronization

Navicat allows you to transfer data from one database and/or schema to another with detailed analytical process. In other words, Navicat provides the ability for data in different databases and/or schemas to be kept up-to-date so that each repository contains the same information. To open the Data Synchronization window, choose **Tools** -> **Data Synchronization** from the menu bar.

You can save your settings as a profile for future use or setting automation tasks. To open a saved profile, click the **Load Profile** button and select a profile from the list.

Hint: Profiles are saved under the default path, e.g. /home/your_username/.config/navicat/Premium/Profiles.

Note: SQL Server 2000 does not support this feature. For Oracle server, BLOB, CLOB, NCLOB, LONG and LONG RAW data are skipped during the data synchronization process. TIMESTAMP primary key cannot synchronize (insert, update) with Database Link to 9i server. RAW primary key cannot synchronize (insert, update, delete) with Database Link to any server, without error.

Hint: Navicat Premium and Navicat for MySQL support synchronizing between MySQL and MariaDB.

Choose Connections & Comparing Options (Step 1)

Choose Source and Target Connections

In the Data Synchronization window, define connections, databases and/or schemas for **Source Database** and **Target Database**. You can click  to swap the source and target settings.

Choose Comparing Options

Then, click the **Options** button to set the comparing options.

Insert records

Insert records if the records do not exist in the target.

Delete records

Delete extra records from the target.

Update records

Update the target if the record is different from the source.

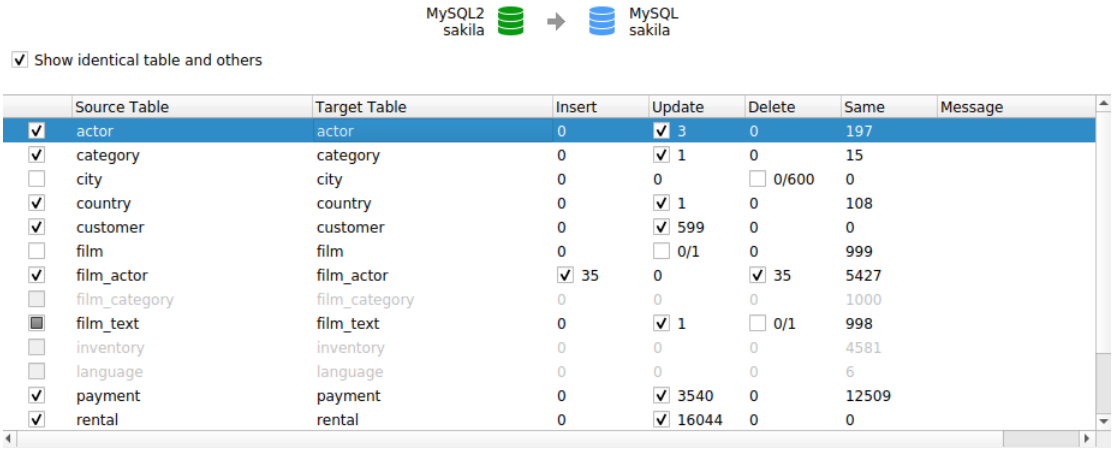
Choose Table / Collection Mapping (Step 2)

In this step, only tables/collections which contain identical names between the source and target are mapped in the list by default. If you do not want some tables/collections to be synchronized, disable them manually from the drop-down list.

Keys and fields which contain identical names are also mapped. You can change the mapping in the **Key Mapping** and **Field Mapping** columns.

View Data Comparison Results (Step 3)

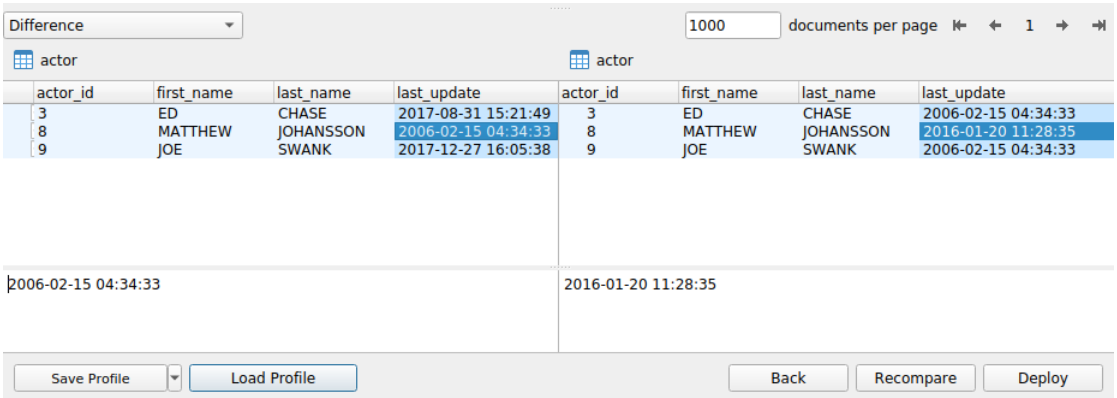
After comparing data, the window shows the number of records that will be inserted, updated or deleted in the target. Uncheck the **Show identical table and others** / **Show identical collection and others** option to hide the tables/collections with identical data and the tables/collections with different structures. All tables/collections with different data and all actions are checked by default. Uncheck the checkbox that you do not want to apply to the target.



When you selected a table/collection in the list, the bottom pane shows data in the source and target. Values that differ between the source and target are highlighted. To view multiple lines data, right-click the grid and select **Show Assistant Viewer**. Uncheck the records that you do not want to apply to the target.

Choose an option from the drop-down list to show the data.

Option	Description
Difference	Show all records that are different in the source and target.
Insert	Only show the records that do not exist in the target.
Update	Only show the records that exist in both source and target, but they have different values.
Delete	Only show the records that do not exist in the source.
Same	Show the records that exist in both source and target and they have identical values.
All Rows	Show all records in the source and target.



Click the **Deploy** button to show the scripts of all selected tables/collections and records.

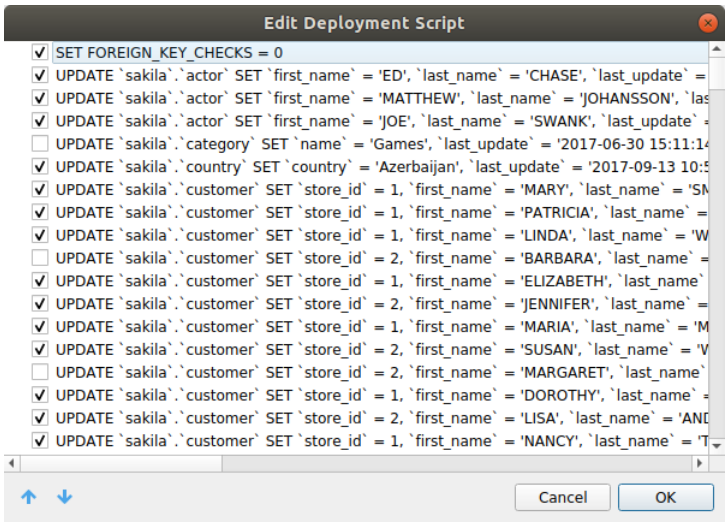
Edit & Execute Selected Scripts (Step 4)

You can view all scripts that will be executed in the target database in the **Deployment Script** tab.

Deployment Options Button	Description
Deployment Options	**Continue on error** - Ignore errors that are encountered during the execution process if necessary.

	Run multiple queries in each execution - Execute multiple SQL statements at once, which will make the synchronization process faster. **Use transaction** - Rollback all data when error occurs.
Edit	Open the **Edit Deployment Script** window to rearrange the order of the scripts.
Copy to Clipboard	Copy all scripts from the Deployment Script tab to the clipboard.
Open in Query Editor	Open a new query window and display the scripts.

In the **Edit Deployment Script** window, use the arrow buttons to move the scripts.



Then, click the **Execute** button to execute the scripts. The window will display the execution progress, execution time, and success or failure messages.

Structure Synchronization (Available only in Non-Essentials Edition)

About Structure Synchronization

Navicat allows you to compare and modify the table structures and other objects with detailed analytical process. In other words, Navicat compares objects between two databases and/or schemas and states the differential in structure. To open the Structure Synchronization window, choose **Tools** -> **Structure Synchronization** from the menu bar.

You can save your settings as a profile for future use. To open a saved profile, click the **Load Profile** button and select a profile from the list.

Hint: Profiles are saved under the default path, e.g. /home/your_username/.config/navicat/Premium/Profiles.

Note: Available only for MySQL, Oracle, PostgreSQL, SQL Server and MariaDB. Navicat Premium and Navicat for MySQL support synchronizing between MySQL and MariaDB.

Choose Connections & Comparing Options (Step 1)

Choose Source and Target Connections

In the Structure Synchronization window, define connections, databases and/or schemas for **Source Database** and **Target Database**. You can click  to swap the source and target settings.

Choose Comparing Options

Then, click the **Options** button to set the database/schema comparing options. The options depend on the connection server type and sort in ascending order.

Case Sensitivity

Ignore or consider the case of identifiers when mapping, or use the server default setting.

Compare auto increment value

Check this option if you want to compare the auto increment values of tables.

Compare character set

Check this option if you want to compare the character sets of tables.

Compare checks

Check this option if you want to compare checks.

Compare collation

Check this option if you want to compare the collations of tables.

Compare definers

Check this option if you want to compare the definers.

Compare events

Check this option if you want to compare events.

Compare excludes

Check this option if you want to compare table excludes.

Compare foreign keys

Check this option if you want to compare table foreign keys.

Compare functions

Check this option if you want to compare functions.

Compare identity last value

Check this option if you want to compare the identity last values of tables.

Compare indexes

Check this option if you want to compare indexes.

Compare owners

Check this option if you want to compare the owners of the objects.

Compare partitions

Check this option if you want to compare table partitions.

Compare primary keys

Check this option if you want to compare table primary keys.

Compare rules

Check this option if you want to compare rules.

Compare sequences

Check this option if you want to compare sequences.

Compare storage

Check this option if you want to compare table storages.

Compare table options

Check this option if you want to compare other table options.

Compare tables

Check this option if you want to compare tables.

Compare tablespace and physical attributes

Check this option if you want to compare tablespace and physical attributes.

Compare triggers

Check this option if you want to compare triggers.

Compare uniques

Check this option if you want to compare table uniques.

Compare views

Check this option if you want to compare views.

Drop with CASCADE

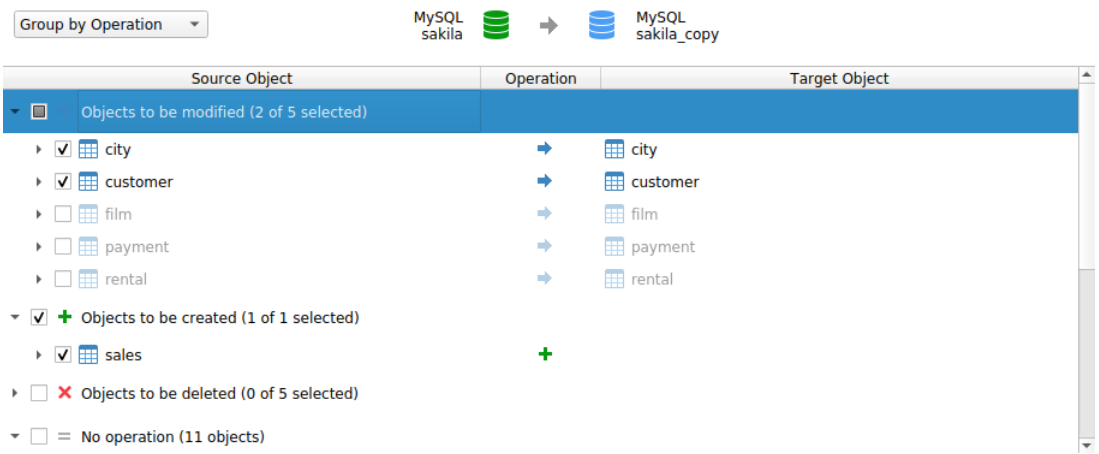
Check this option if you want to drop the dependent database objects with the CASCADE option.

Start Comparison

Click the **Compare** button to compare the source and target databases.

View Structure Comparison Results (Step 2)

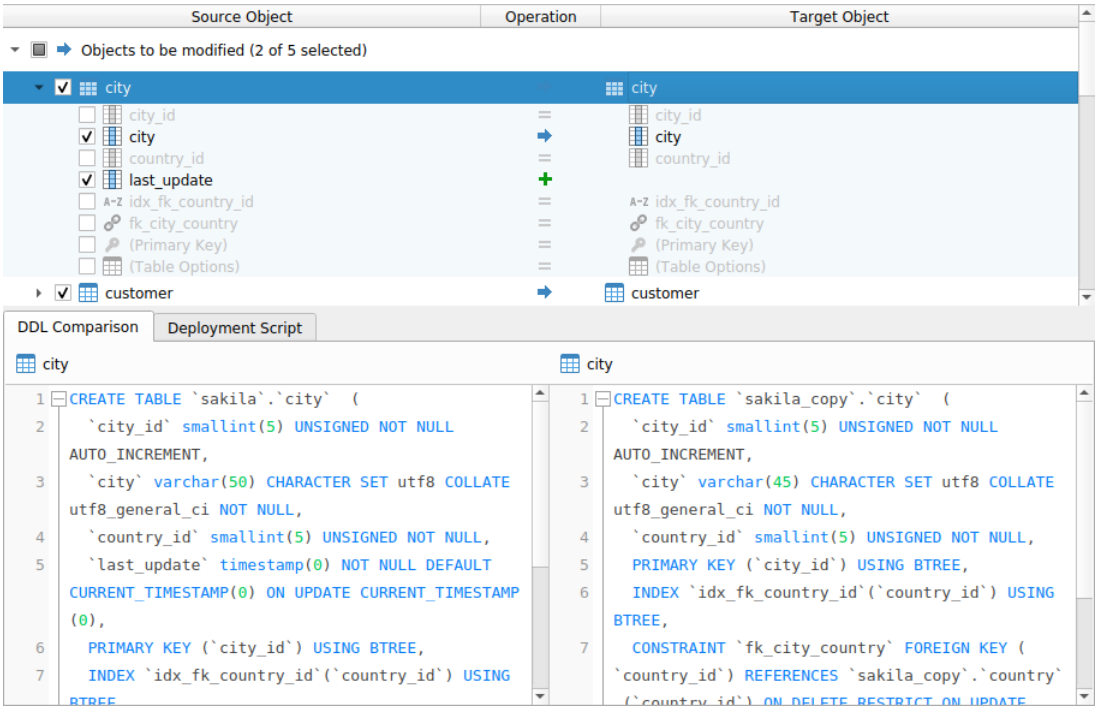
After comparing structures, the tree view shows the differences between the source and target databases or schemas. All objects are checked in the tree view by default. Uncheck the objects you do not want to apply to the target. You can expand the table objects to view the detailed structure.



You can choose to group the objects in the tree views by object types or operations by selecting **Group by object type** or **Group by operation**.

Operation	Description
	Object exists in both source and target databases/schemas, but they have different definition. The target object will be modified based on the source object.
	Object does not exist in the target database/schema. It will be created in the target.
	Object does not exist in the source database/schema. The target object will be deleted.
	Object exists in both source and target databases/schemas and they have identical definition. No operation will be applied.

When you selected an object in the tree view, the **DDL Comparison** tab shows the DDL statements of that object in the source and the target, and the **Deployment Script** tab shows the detailed SQL statements of the object that will be executed in the target databases.



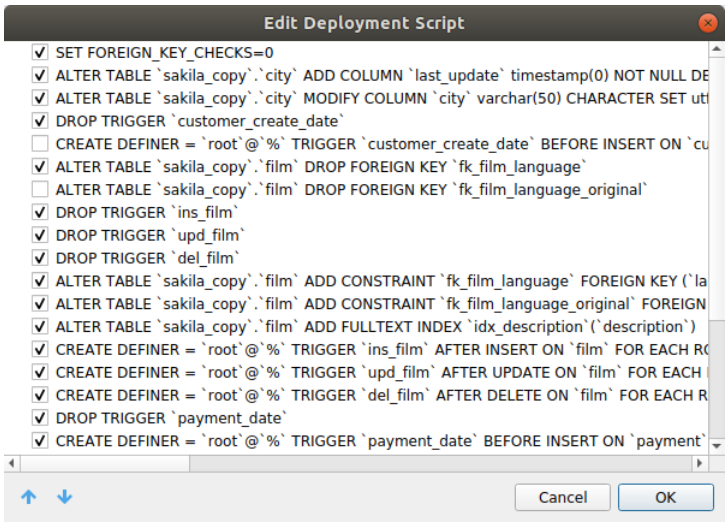
Click the **Deploy** button to show the scripts of all selected objects.

Edit & Execute Selected Scripts (Step 3)

You can view all scripts that will be executed in the target database in the **Deployment Script** tab.

Deployment Options Button	Description
Deployment Options	**Continue on error** - Ignore errors that are encountered during the execution process if necessary.
Edit	Open the **Edit Deployment Script** window to rearrange the order of the scripts.
Copy to Clipboard	Copy all scripts from the Deployment Script tab to the clipboard.
Open in Query Editor	Open a new query window and display the scripts.

In the **Edit Deployment Script** window, use the arrow buttons to move the scripts.



Then, click the **Execute** button to execute the scripts. The window will display the execution progress, execution time, and success or failure messages.

Dump & Execute SQL / Script File

The **Dump SQL File**, **Execute SQL File**, **Dump Script File** and **Execute Script File** features allow you to dump your database, schema, tables or collections to a SQL or .js file or execute SQL or .js files in your connection, database or schema.

To dump a file

1. In the main window, right-click an opened database/schema or right-click the selected tables/collections, and select **Dump SQL File** or **Dump Script File** -> **Structure Only** or **Structure And Data**.
2. Browse the save location and enter a file name.
3. Click **Save**.

To execute a file

1. In the main window, right-click an opened connection, database or schema and select **Execute SQL File** or **Execute Script File**.
2. Browse your SQL or .js file, choose the encoding of the file and enable appropriate options.

Option	Description
Continue on error	Ignore errors that are encountered during the execution process.
Run multiple queries in each execution	Execute multiple SQL statements at once, which will make the execution process faster.
SET AUTOCOMMIT=0 / No Auto Commit	Disable auto commit mode.

3. Click **Start**.

Hint: You can drag and drop a .sql or .js file to an opened connection, database or schema in the Navigation pane. Navicat will pop up the Execute SQL File or Execute Script File window automatically.

MongoImport & MongoExport

About MongoImport & MongoExport

MongoDB provides two utilities for import and export data: MongoImport and MongoExport. You can import or export the data according to the specified conditions.

MongoImport

MongoImport allows you to import data from a JSON, CSV or TSV file into MongoDB database.

Note: You must have mongoimport executable for this feature to work.

To import a file

1. In Navicat main window, right-click your database and select **MongoImport**.
2. In the **General** and **Advanced** tabs, select the input file path, the target collection, the file type, and the appropriate import options.
3. Click the **Start** button to begin the import process. The **Message Log** tab will display the import progress, execution time, and success or failure messages.

You can save your settings as a profile for future use or setting automation tasks. To open a saved profile, click the **Load Profile** button and select a profile from the list.

Hint: Profiles are saved under the default path, e.g. /home/your_username/.config/navicat/Premium/Profiles.

MongoExport

MongoExport allows you to export MongoDB collections to a JSON or CSV file.

Note: You must have mongoexport executable for this feature to work.

To export collections

- In Navicat main window, right-click your database and select **MongoExport**.
- In the **General** and **Advanced** tabs, select the export file path, the source collection, the file type, and the appropriate export options.
- Click the **Start** button to begin the export process. The **Message Log** tab will display the export progress, execution time, and success or failure messages.

You can save your settings as a profile for future use or setting automation tasks. To open a saved profile, click the **Load Profile** button and select a profile from the list.

Hint: Profiles are saved under the default path, e.g. /home/your_username/.config/navicat/Premium/Profiles.

Chapter 11 - Charts (Available only in Navicat Premium and Enterprise Edition)

About Charts

Charts feature allows you to create visual representations of your database data. In the main window, click **Charts** to open the workspace object list.

Note: Available only for MySQL, Oracle, PostgreSQL, SQLite, SQL Server and MariaDB.

Some of key features are listed here:

- Support 20 chart types.
- Customize multiple pages dashboard.
- Visualize live data.
- Add interactive controls.

Hint: Workspace files (.ncharts) are saved under the default path, e.g. /home/your_username/.config/navicat/Premium/Profiles. To open the folder, right-click a workspace file and select **Open Containing Folder**.

Open an external workspace file

1. Right-click anywhere in the Objects tab and select **Open External Workspace** from the pop-up menu.
2. Browse the file and click **Open** in the dialog window.

Save an opened external file as a Navicat workspace

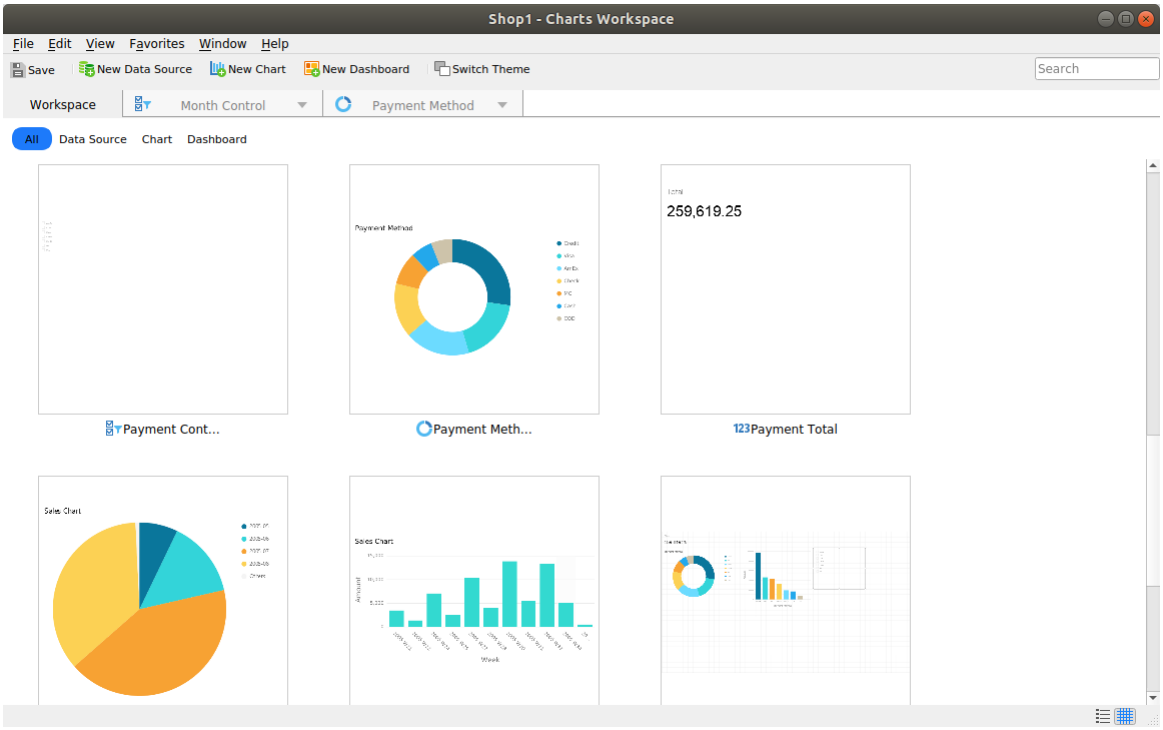
1. In Workspace Designer, choose **File** -> **Save to Navicat**.
2. Enter the workspace name and choose the save location.
3. Click **OK**.

Save a Navicat workspace as an external file

1. In Workspace Designer, choose **File** -> **Save As External File**.
2. Choose the save path and enter the file name.
3. Click **Save**.

Workspace

A workspace is the place that comprises dashboards, charts and data sources. You can create multiple dashboards, charts and data sources in a workspace.



Customize Workspace

You can view and sort items in the workspace. To change from one view to another, click the **List** or **Grid** button at the bottom of the window. Alternatively, choose **View** -> **List** or **Grid**.

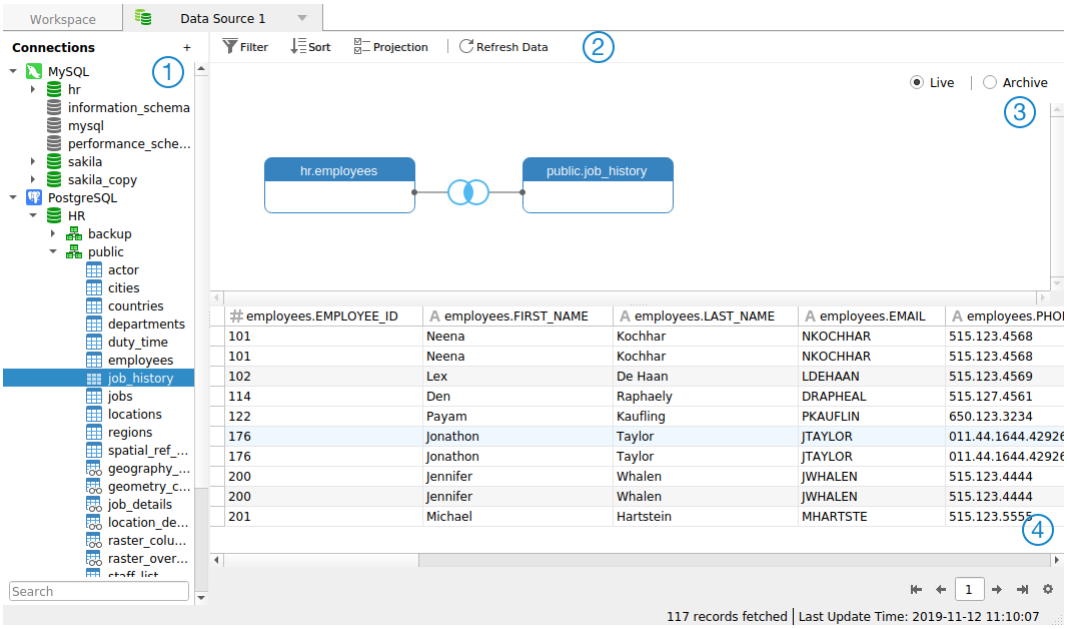
List View displays additional information about each item. You can sort items in List View, click the column header by which you want to sort the items.

Grid View displays your items as a grid of thumbnail images. You can filter the items by clicking a category (All, Data Source, Chart, Dashboard) in this view.

Data Source

About Data Source

Data sources reference tables in your connections and can select data from tables on different server types. The fields in the dataset can be used to construct a chart. When building a chart, you will need to specify the data source that the chart uses.



① Connection Pane

The Connection pane is the basic way to navigate with connections, databases, tables, queries. If the Connection pane is hidden, choose **View** -> **Show Connection** from the menu bar.

② Data Source Toolbar

The Data Source Toolbar provides controls that you can use to manipulate the data.

③ Design Pane

The Design pane allows you to build the data source visually.

Navicat provides two modes for connecting your data: Live and Achieve.

Live mode retrieves data from your servers whenever the data source is being used / loaded. It offers the convenience of real-time updates, with any changes in the underlying data reflected.

Archive mode retrieves data from your servers during the data source creation, and stored the retrieved data in the workspace for later use by building charts.

④ Preview Pane

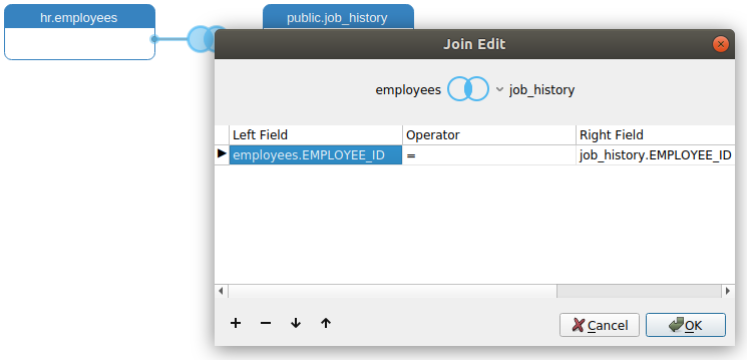
The Preview pane displays the data of the data source.

Create Data Source

The essential steps to create a data source are:

1. In the Workspace window, click **New Data Source**.
2. Enter the name of the data source and select the desired connections or existing data sources.
3. Click **OK**.

4. A tab will open for you to edit the data source.
5. Drag and drop tables / queries from the Connections pane to the Design pane.
6. Drag and drop a node to another to create the join.
7. Configure the join type and join fields if necessary.



Hint: After creating the join, you can change the join settings at any time by clicking the join icon on the connector.

8. Choose **Live** mode or **Archive** mode.
9. Click **Apply and Refresh Data** to view the data.

Add Query to Data Source

You can save query results for creating a new dataset.

To create a new query

1. On the Connections pane, double-click **New Query**.
2. Enter the name of the query and write the statement in SQL Editor. You can also use Query Builder to build the query visually.

To add an existing query

1. On the Connections pane, double-click **New Query**.
2. Click **Existing Queries**.
3. Drag and drop a query from the left pane to the editor.

Filter / Sort / Project Data

If your data source has many data or fields, you may find it easier to limit the data or fields to just the ones you want so you can simplify the data selections.

Filter Data

Filter pane allows you to facilitate creating and applying filter criteria that you specify for the data. Click **Filter** from the toolbar to activate the Filter pane.

1. To add a new condition to the criteria, just simply click . If you want to add a condition with parentheses, click .

   Hint: To add parentheses to existing conditions, simply right-click on the selected conditions and select **Group with Bracket**. To remove the parentheses, right-click a bracket and select **Delete Bracket** or **Delete Bracket and Conditions**.

2. Click on the field name (next to the checkbox) and choose a field from the list.

3. Click on the operator (next to the field name) and choose a filter operator.

Filter Operator	Operator Description
=	The field is equal to 'value'.
!=	The field is not equal to 'value'.
<	The field is less than 'value'.
<=	The field is less than or equal to 'value'.
>	The field is greater than 'value'.
>=	The field is greater than or equal to 'value'.
contains	The field contains 'value'.
does not contain	The field does not contain 'value'.
begin with	The field starts with 'value'.
does not begin with	The field does not start with 'value'.
end with	The field ends with 'value'.
does not end with	The field does not end with 'value'.
is null	The field is NULL.
is not null	The field is NOT NULL.
is empty	The field is empty.
is not empty	The field is not empty.
is between	The field is between 'value1' and 'value2'.
is not between	The field is not between 'value1' and 'value2'.
is in list	The field is in the list of ('value1','value2',...).
is not in list	The field is not in the list of ('value1','value2',...).

4. Click on **<?>** to activate the appropriate editor and enter the criteria values. The editor used in the criteria values box is determined by the data type assigned to the corresponding field.

5. Click on the logical operator (next to the criteria values) to choose **and** or **or**.

6. Repeat step 1-5 to add another new condition.

7. Click **Apply and Refresh Data** to see the result of the filtering you made.

Hint: If you want to reverse the meaning of the conditions, right-click the selected conditions and select **Toggle Negator**.

Sort Data

Navicat offers the ability to sort and order data. Click **Sort** from the toolbar to activate the Sort pane.

1. To add a new criteria, just simply click .
2. Click on the field name (next to the checkbox) and choose a field from the list.
3. Click on the sorting order to choose **ASC** or **DESC**.
4. Repeat step 1-3 to add another new criteria.
5. Click **Apply and Refresh Data** to see the result of the sorting you made.

Project Data

You can choose which fields to include or exclude in the data source. Click **Projection** from the toolbar to activate the Projection pane.

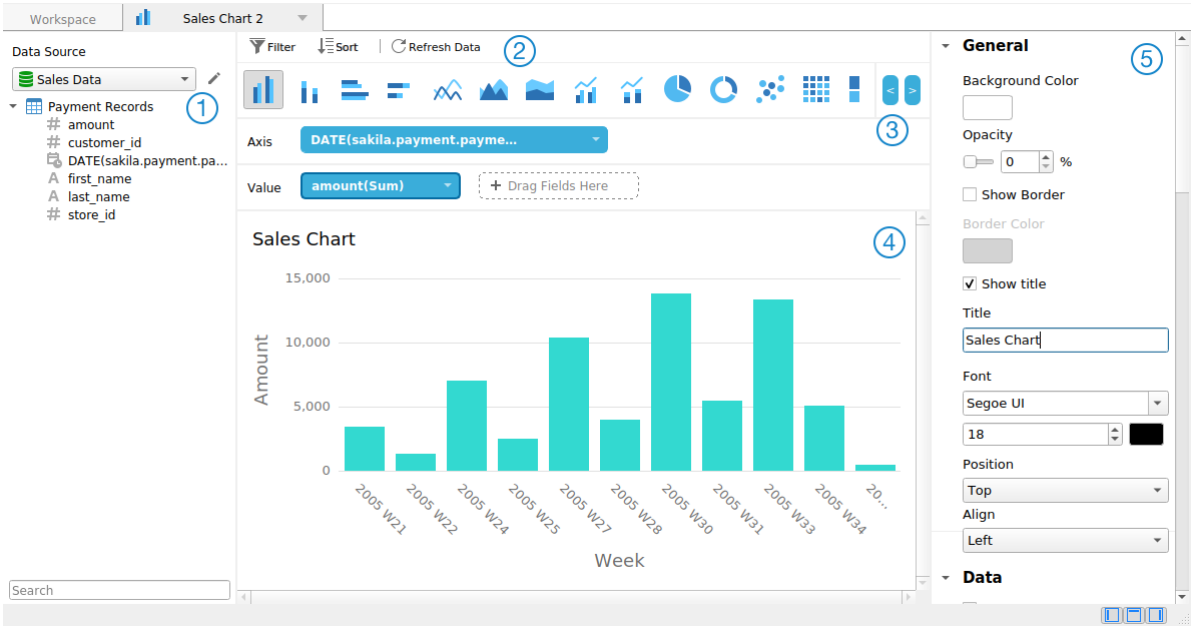
1. Choose to **Include** or **Exclude** fields.
2. To add a new criteria, just simply click .
3. Click on the field name (next to the checkbox) and choose a field from the list.
4. Repeat step 2-3 to add another new criteria.
5. Click **Apply and Refresh Data** to see the result of the projection you made.

Chart

About Chart

A chart provides visual representations of the data in your data source. It maps to a single data source, and can display correlations between several fields in the data. You can even make the chart interactive by adding a control chart.

Note: You must add a data source before you can begin building charts.



① Data Source Pane

The Data Source pane is the basic way to navigate with the data sources. If the Data Source pane is hidden, choose **View** -> **Show Data Source** from the menu bar.

② Chart Toolbar

The Chart Toolbar provides controls that you can use to manipulate the data.

③ Metric Pane

The Metric pane allows you to choose the chart type and add fields to the shelves from the Data Source Pane. If the Metric pane is hidden, choose **View** -> **Show Metric** from the menu bar.

④ Preview Pane

The Preview pane displays the chart.

⑤ Properties Pane

The Properties pane includes the basic layout settings, data format settings and so on. The properties vary with the type of the chart. If the Properties pane is hidden, choose **View** -> **Show Properties** from the menu bar.

Build Chart

The essential steps to create a chart are:

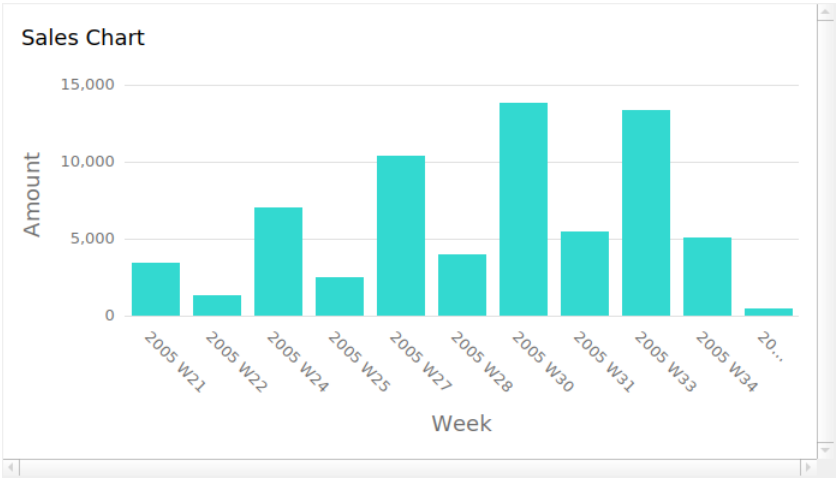
1. In the Workspace window, click **New Chart**.
2. Select the data source and enter the name of the chart.
3. A tab will open for you to edit the chart.
4. Choose the Chart Type on the middle pane.

Hint: The type of chart you will use is normally determined by the type of the data.

5. Drag fields to the corresponding shelf in the Metric pane to set axis, values, etc.
6. Select the properties on the right pane which can be further customized for your chart.

   Hint: Each chart type has different properties.

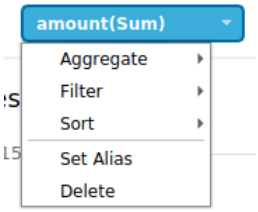
7. The chart shows on the Preview pane.



Set Field Alias

You can create aliases for fields so that their labels appear differently in the chart.

1. Click the down arrow in the field box.
2. Select **Set Alias**.



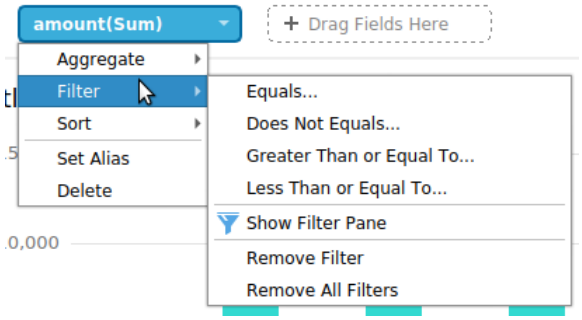
3. Enter the alias name.

Filter / Sort Data

Filter Data

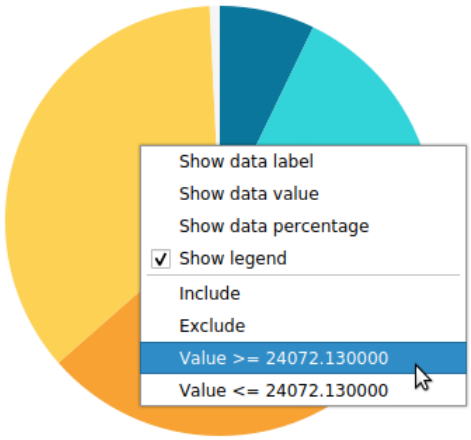
You can filter the data in 3 ways:

1. Click the down arrow in the field box and select **Filter**.



2. Use the Filter pane.

3. Right-click a series / data points on the chart.

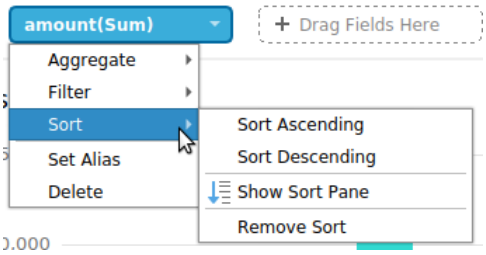


Hint: If you want to clear the filter, you need to use the Filter pane.

Sort Data

You can sort the data in 2 ways:

1. Click the down arrow in the field box and select **Sort**.

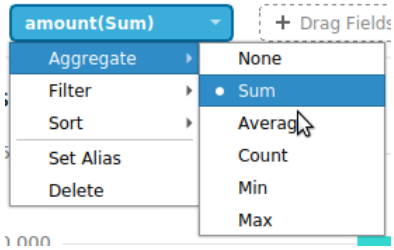


2. Use the Sort pane.

Apply Aggregate Function

Aggregate functions allow you to summarize or change the granularity of your data.

1. Click the down arrow in the field box.



2. Select **Aggregate** and choose a aggregate function.

Function	Description
Number	
Sum	Return the sum of all values. Null values are ignored.
Average	Return the average of all the values. Null values are ignored.
Count	Return the number of items. Null values are not counted.
Count(Distinct)	Return the number of distinct items. Null values are not counted.
Min	Return the minimum value across all records. Null values are ignored.
Max	Return the maximum value across all records. Null values are ignored.
Median	Return the median value across all records. Null values are ignored.
DateTime	
Count	Return the number of items. Null values are not counted.
Count(Distinct)	Return the number of distinct items. Null values are not counted.
Year	Return the year of the date (0000-9999).
Quarter	Return the quarter of the year (Q1-Q4).
Month	Return the month of the date (01-12).
Week	Return the week of the year (W01-W52, start of week is Sunday).
Day	Return the day of the date (01-31).
Hour	Return the hour of the time (00-23).
Minute	Return the minute of the time (00-59).
Second	Return the second of the time (00-59).
String	
First	Return the value of the first record.
Last	Return the value of the last record.
Count	Return the number of items. Null values are not counted.
Count(Distinct)	Return the number of distinct items. Null values are not counted.

Chart Types

About Chart Types

Navicat provides a variety of different chart types so data can be displayed in a meaningful way.

Here is a complete list of available chart types:

- Vertical Bar Chart
- Vertical Stacked Bar Chart
- Horizontal Bar Chart
- Horizontal Stacked Bar Chart
- Line Chart
- Area Chart
- Stacked Area Chart
- Bar and Line Chart
- Stacked Bar and Line Chart
- Pie Chart
- Donut Chart
- Scatter Chart
- Heatmap
- Treemap
- Value
- Trend
- KPI
- Table
- Pivot Table
- Control

Bar Chart

A bar chart provides high-level overviews of data trends by comparing values within a specific category.

- Vertical Bar Chart
- Vertical Stacked Bar Chart
- Horizontal Bar Chart

- Horizontal Stacked Bar Chart

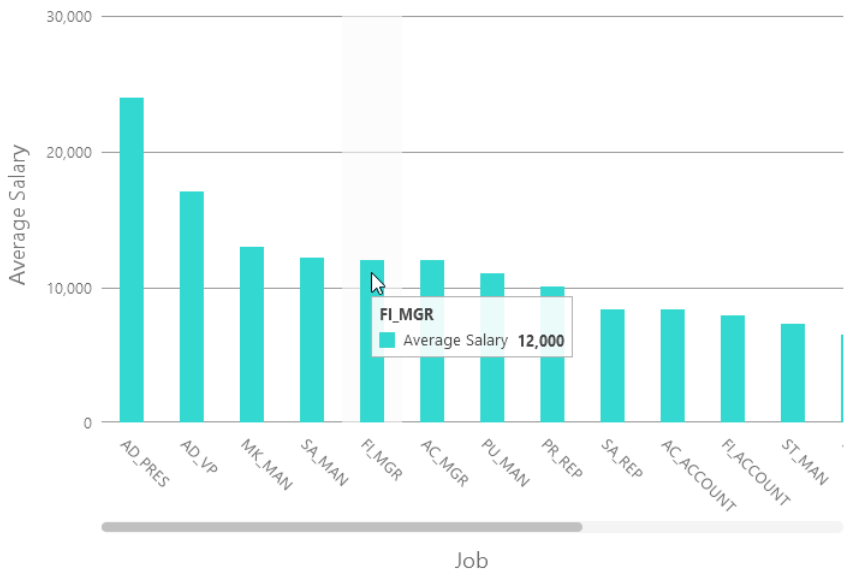


Chart Properties

Once you have selected a chart type, you can customize the chart by changing its properties:

Option	Description
General	
Background Color	Set the background color of the chart area.
Opacity	Set the opacity of the background color.
Show Border	Display the outer chart border.
Border Color	Set the color of the outer chart border.
Show title	Display the chart's main title.
Title	Specify the title of the chart.
Title Font	Set the font style of the title.
Position	Set the position of the title.
Align	Set the horizontal alignment of the title.
Data	
Show data values	Display the values of the data series.
Use 100% stacked	Use 100% stacked bars to show values for hierarchical data. (Each bar height is 100%, and the colored bar segments represent the components' relative contributions to the total bar.)
Show data percentages	Display the data percentages of the bars.
Data Label Color	Set the color of the data labels on the bars.
Value Option	Select the value that will be displayed on the chart.
Show only top #	Only the top # data are displayed.
Color	Set the color palette of the data series.
All Data Colors	Allow setting the color for each series.
Data Formats - Number	

Prefix	Add prefix characters to all the numeric data on the chart.
Unit	Choose the unit to shorten the numeric data.
Suffix	Specify the suffix to label the customized unit.
Divider	Specify the divider for the customized unit.
Thousand Separator	Choose the thousands separator for numeric data.
Decimal Separator	Choose the decimal separator for numeric data.
Decimal Places	Specify decimal places for numeric data.
Negatives	Choose the format negative numbers are displayed.
Data Formats - DateTime	
Date / Time	Choose the date and time format of the data.
Custom	Customize the date and time format.
X-Axis	
Show X-Axis title	Display the title of X-Axis.
X-Axis Title	Specify the title of X-Axis.
Font	Set the font style of X-Axis title.
Show title at the end of axis	Display the title at the end of X-Axis.
Continuous	Use a continuous axis. The data series are positioned according to their domain value.
Show X-Axis labels	Display labels on X-Axis.
Show X-Axis	Display X-Axis line.
X-Axis Color	Set the color of X-Axis line.
Y-Axis	
Show Y-Axis title	Display the title of Y-Axis.
Y-Axis title	Specify the title of Y-Axis.
Font	Set the font style of Y-Axis title.
Show title at the end of axis	Display the title at the end of Y-Axis.
Show Y-Axis labels	Display labels on Y-Axis.
Show Y-Axis	Display Y-Axis line.
Y-Axis Color	Set the color of Y-Axis line.
Show grid line	Display the grid line of Y-Axis.
Use custom range	Set the range of the grid lines. Enter values in **Start** and **End**. The graph drawing beyond this range will be clipped off.
Use Custom Interval	Change the Interval on Y-Axis.
Tick Interval	Set the interval of the tick marks in axis units.
Legend	
Show legend	Display the legend container.
Position	Set the position for the legend.
Align	Set the horizontal alignment of the legend.

Line / Area Chart

A line or area chart displays information as a series of data points connected by straight line segments.

- Line Chart
- Area Chart
- Stacked Area Chart

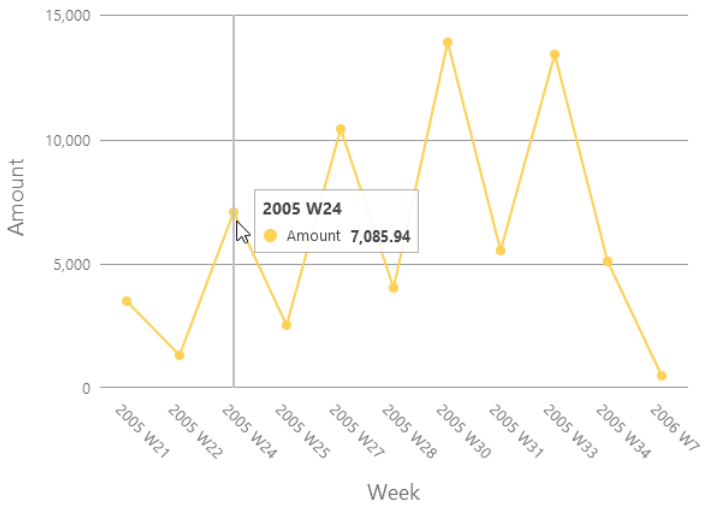


Chart Properties

Once you have selected a chart type, you can customize the chart by changing its properties:

Option	Description
General	
Background Color	Set the background color of the chart area.
Opacity	Set the opacity of the background color.
Show Border	Display the outer chart border.
Border Color	Set the color of the outer chart border.
Show title	Display the chart's main title.
Title	Specify the title of the chart.
Title Font	Set the font style of the title.
Position	Set the position of the title.
Align	Set the horizontal alignment of the title.
Data	
Show Values	Display the values of the data points.
Show Area Values	Display the values of the data points.
Value Option	Select the value that will be displayed on the chart.
Show markers	Display the marker points on the line / area.
Use 100% stacked	Use 100% stacked areas to show values for hierarchical data. (The area height is 100%, and the colored area segments represent the components' relative contributions to the total area.)

Show only top #	Only the top # data are displayed.
Color	Set the color palette of the data series.
Data Formats - Number	
Prefix	Add prefix characters to all the numeric data on the chart.
Unit	Choose the unit to shorten the numeric data.
Suffix	Specify the suffix to label the customized unit.
Divider	Specify the divider for the customized unit.
Thousand Separator	Choose the thousands separator for numeric data.
Decimal Separator	Choose the decimal separator for numeric data.
Decimal Places	Specify decimal places for numeric data.
Negatives	Choose the format negative numbers are displayed.
Data Formats - DateTime	
Date / Time	Choose the date and time format of the data.
Custom	Customize the date and time format.
X-Axis	
Show X-Axis title	Display the title of X-Axis.
X-Axis Title	Specify the title of X-Axis.
Font	Set the font style of X-Axis title.
Show title at the end of axis	Display the title at the end of X-Axis.
Continuous	Use a continuous axis. The data series are positioned according to their domain value.
Show X-Axis labels	Display labels on X-Axis.
Show X-Axis	Display X-Axis line.
X-Axis Color	Set the color of X-Axis line.
Y-Axis	
Show Y-Axis title	Display the title of Y-Axis.
Y-Axis title	Specify the title of Y-Axis.
Font	Set the font style of Y-Axis title.
Show title at the end of axis	Display the title at the end of Y-Axis.
Show Y-Axis labels	Display labels on Y-Axis.
Show Y-Axis	Display Y-Axis line.
Y-Axis Color	Set the color of Y-Axis line.
Show grid line	Display the grid line of Y-Axis.
Use custom range	Set the range of the grid lines. Enter values in **Start** and **End**. The graph drawing beyond this range will be clipped off.
Use Custom Interval	Change the Interval on Y-Axis.
Tick Interval	Set the interval of the tick marks in axis units.
Legend	
Show legend	Display the legend container.

Position	Set the position for the legend.
Align	Set the horizontal alignment of the legend.

Combination Chart

Mixing bar and line chart in the same visual is a good way to emphasize the difference between series while still maintaining their relationship.

- Bar and Line Chart
- Stacked Bar and Line Chart

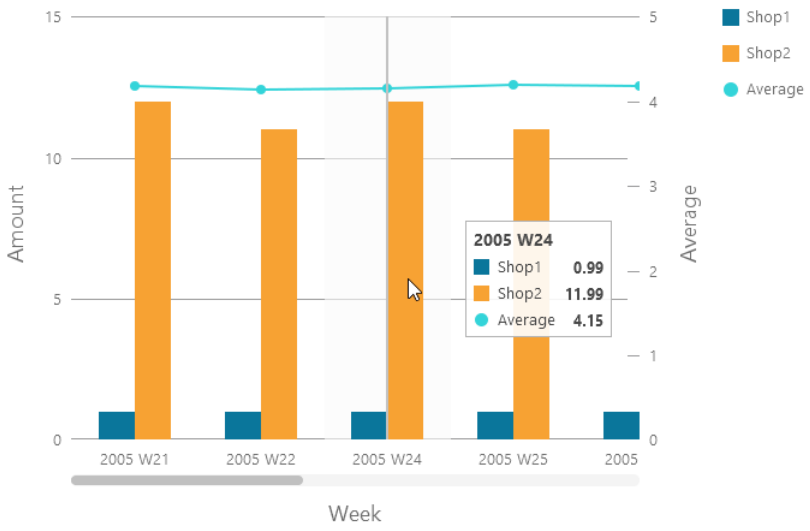


Chart Properties

Once you have selected a chart type, you can customize the chart by changing its properties:

Option	Description
General	
Background Color	Set the background color of the chart area.
Opacity	Set the opacity of the background color.
Show Border	Display the outer chart border.
Border Color	Set the color of the outer chart border.
Show title	Display the chart's main title.
Title	Specify the title of the chart.
Title Font	Set the font style of the title.
Position	Set the position of the title.
Align	Set the horizontal alignment of the title.
Data	
Show bar data values	Display the values of the data series for the bars.
Use 100% stacked bar	Use 100% stacked bars to show values for hierarchical data. (Each bar height is 100%, and the colored bar segments represent the components'

	relative contributions to the total bar.)
Show bar data percentages	Display the data percentages of the bars.
Bar Data Label Color	Set the color of the data labels on the bars.
Show Line Values	Display the data value for the line.
Value Option	Select the values that will be displayed on the chart.
Show line markers	Display the marker points on the line.
Show only top #	Only the top # data are displayed.
Color	Set the color palette of the data series.
All Bar Data Colors	Allow setting the color for each series.
Data Formats - Number	
Prefix	Add prefix characters to all the numeric data on the chart.
Unit	Choose the unit to shorten the numeric data.
Suffix	Specify the suffix to label the customized unit.
Divider	Specify the divider for the customized unit.
Thousand Separator	Choose the thousands separator for numeric data.
Decimal Separator	Choose the decimal separator for numeric data.
Decimal Places	Specify decimal places for numeric data.
Negatives	Choose the format negative numbers are displayed.
Data Formats - DateTime	
Date / Time	Choose the date and time format of the data.
Custom	Customize the date and time format.
X-Axis	
Show X-Axis title	Display the title of X-Axis.
X-Axis Title	Specify the title of X-Axis.
Font	Set the font style of X-Axis title.
Show title at the end of axis	Display the title at the end of X-Axis.
Continuous	Use a continuous axis. The data series are positioned according to their domain value.
Show X-Axis labels	Display labels on X-Axis.
Show X-Axis	Display X-Axis line.
X-Axis Color	Set the color of X-Axis line.
Y-Axis / Secondary Y-Axis	
Show Y-Axis title / Show Secondary Y-Axis title	Display the title of Y-Axis.
Y-Axis title / Secondary Y-Axis title	Specify the title of Y-Axis.
Font	Set the font style of Y-Axis title.
Show Y-Axis title at the end of axis / Show	Display the title at the end of Y-Axis.

Secondary Y-Axis title at the end of axis	
Show Y-Axis labels / Show Secondary Y-Axis labels	Display labels on Y-Axis.
Show Y-Axis / Show Secondary Y-Axis	Display Y-Axis line.
Y-Axis Color / Secondary Y-Axis Color	Set the color of Y-Axis line.
Show grid line	Display the grid line of Y-Axis.
Use custom range	Set the range of the grid lines. Enter values in **Start** and **End**. The graph drawing beyond this range will be clipped off.
Use Custom Interval	Change the Interval on Y-Axis.
Tick Interval	Set the interval of the tick marks in axis units.
Legend	
Show legend	Display the legend container.
Position	Set the position for the legend.
Align	Set the horizontal alignment of the legend.

Pie / Donut Chart

A pie or donut chart displays data in a series of segments of a circle, with larger segments representing larger data values.

- Pie Chart
- Donut Chart

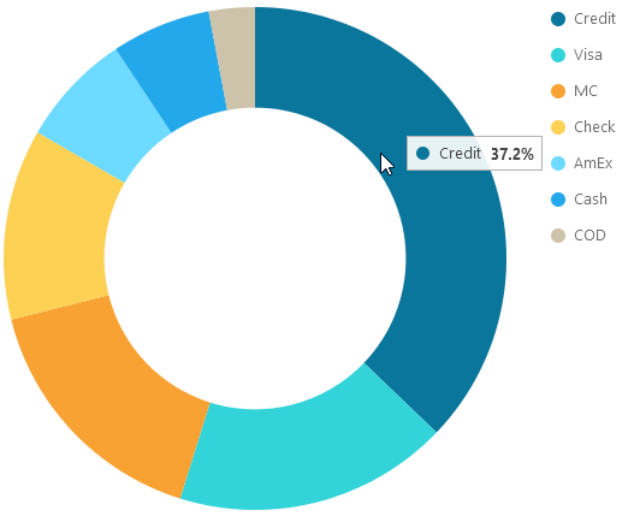


Chart Properties

Once you have selected a chart type, you can customize the chart by changing its properties:

Option	Description
General	
Background Color	Set the background color of the chart area.
Opacity	Set the opacity of the background color.
Show Border	Display the outer chart border.
Border Color	Set the color of the outer chart border.
Show title	Display the chart's main title.
Title	Specify the title of the chart.
Title Font	Set the font style of the title.
Position	Set the position of the title.
Align	Set the horizontal alignment of the title.
Slice Separator	Add white borders between pie / donut slices.
Data	
Show data labels	Display data labels that clarify the data series.
Show data values	Display the values of the data series.
Show data percentages	Display the data percentages of the slices.
Show label inside slice	Position the slice labels inside the slice.
Data Label Color	Set the color of the data label.
Value Option	Select the value that will be displayed on the chart.
Show only top #	Only the top # data are displayed.
Slice	Group the small slices to a single slice (called Others).
Color	Set the color palette of the data series.
Data Formats - Number	
Prefix	Add prefix characters to all the numeric data on the chart.
Unit	Choose the unit to shorten the numeric data.
Suffix	Specify the suffix to label the customized unit.
Divider	Specify the divider for the customized unit.
Thousand Separator	Choose the thousands separator for numeric data.
Decimal Separator	Choose the decimal separator for numeric data.
Decimal Places	Specify decimal places for numeric data.
Negatives	Choose the format negative numbers are displayed.
Data Formats - DateTime	
Date / Time	Choose the date and time format of the data.
Custom	Customize the date and time format.
Group	
Show group title	Display the title of the group.
Group Title	Specify the title of the group.
Group Title Font	Set the font style of the group title.
Legend	
Show legend	Display the legend container.
Position	Set the position for the legend.

Align	Set the horizontal alignment of the legend.

Scatter Chart

A scatter chart plots data with individual data points placed along the X and Y axes.

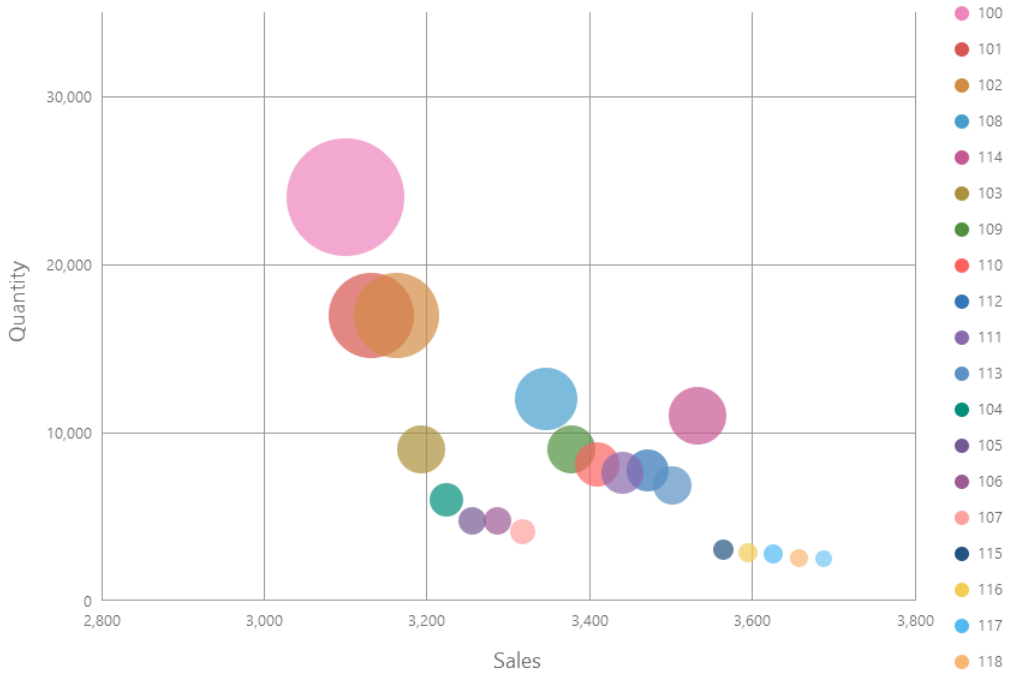


Chart Properties

Once you have selected a chart type, you can customize the chart by changing its properties:

Option	Description
General	
Background Color	Set the background color of the chart area.
Opacity	Set the opacity of the background color.
Show Border	Display the outer chart border.
Border Color	Set the color of the outer chart border.
Show title	Display the chart's main title.
Title	Specify the title of the chart.
Title Font	Set the font style of the title.
Position	Set the position of the title.
Align	Set the horizontal alignment of the title.
Data	
Color	Set the color palette of the data series.
Show size values	Display the size of the bubbles.
Data Formats - Number	
Prefix	Add prefix characters to all the numeric data on the chart.
Unit	Choose the unit to shorten the numeric data.

Suffix	Specify the suffix to label the customized unit.
Divider	Specify the divider for the customized unit.
Thousand Separator	Choose the thousands separator for numeric data.
Decimal Separator	Choose the decimal separator for numeric data.
Decimal Places	Specify decimal places for numeric data.
Negatives	Choose the format negative numbers are displayed.
Data Formats - DateTime	
Date / Time	Choose the date and time format of the data.
Custom	Customize the date and time format.
X-Axis	
Show X-Axis title	Display the title of X-Axis.
X-Axis Title	Specify the title of X-Axis.
Font	Set the font style of X-Axis title.
Show title at the end of axis	Display the title at the end of X-Axis.
Continuous	Use a continuous axis. The data series are positioned according to their domain value.
Show X-Axis labels	Display labels on X-Axis.
Show X-Axis	Display X-Axis line.
X-Axis Color	Set the color of X-Axis line.
Show grid line	Display the grid line of X-Axis.
Use custom range	Set the range of the grid lines. Enter values in **Start** and **End**. The graph drawing beyond this range will be clipped off.
Use Custom Interval	Change the Interval on X-Axis.
Tick Interval	Set the interval of the tick marks in axis units.
Y-Axis	
Show Y-Axis title	Display the title of Y-Axis.
Y-Axis title	Specify the title of Y-Axis.
Font	Set the font style of Y-Axis title.
Show title at the end of axis	Display the title at the end of Y-Axis.
Continuous	Use a continuous axis. The data series are positioned according to their domain value.
Show Y-Axis labels	Display labels on Y-Axis.
Show Y-Axis	Display Y-Axis line.
Y-Axis Color	Set the color of Y-Axis line.
Show grid line	Display the grid line of Y-Axis.
Use custom range	Set the range of the grid lines. Enter values in **Start** and **End**. The graph drawing beyond this range will be clipped off.
Use Custom Interval	Change the Interval on Y-Axis.
Tick Interval	Set the interval of the tick marks in axis units.

Legend	
Show legend	Display the legend container.
Position	Set the position for the legend.
Align	Set the horizontal alignment of the legend.

Heatmap

A heatmap represents data in a tabular format as a range of color. A more intense color represents a larger aggregated value for a particular data point.

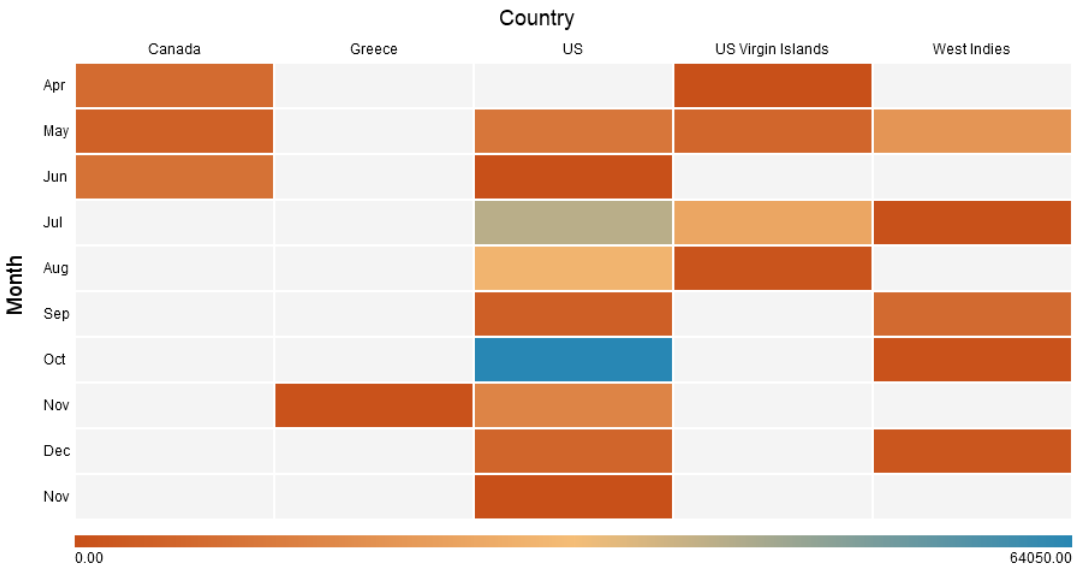


Chart Properties

Once you have selected a chart type, you can customize the chart by changing its properties:

Option	Description
General	
Background Color	Set the background color of the chart area.
Opacity	Set the opacity of the background color.
Show Border	Display the outer chart border.
Border Color	Set the color of the outer chart border.
Show title	Display the chart's main title.
Title	Specify the title of the chart.
Title Font	Set the font style of the title.
Position	Set the position of the title.
Align	Set the horizontal alignment of the title.
Data	
Show data values	Display the values of the data series.
Data Label Color	Set the color of the data label.
Diverging	Use diverging color scale.

Min Color	Set the color of the minimum value in the colormap.
Center Color	Set the color of the value at which to center the colormap.
Max Color	Set the color of the maximum value in the colormap.
Min Value	Specify the minimum value.
Max Value	Specify the maximum value.
Data Formats - Number	
Prefix	Add prefix characters to all the numeric data on the chart.
Unit	Choose the unit to shorten the numeric data.
Suffix	Specify the suffix to label the customized unit.
Divider	Specify the divider for the customized unit.
Thousand Separator	Choose the thousands separator for numeric data.
Decimal Separator	Choose the decimal separator for numeric data.
Decimal Places	Specify decimal places for numeric data.
Negatives	Choose the format negative numbers are displayed.
Data Formats - DateTime	
Date / Time	Choose the date and time format of the data.
Custom	Customize the date and time format.
Column	
Show column title	Display the title of the column.
Column Title	Specify the title of the column.
Column Title Font	Set the font style of the column title.
Show column label	Display the column label.
Column Label Color	Set the color of the column label.
Row	
Show row title	Display the title of the row.
Row Title	Specify the title of the row.
Row Title Font	Set the font style of the row title.
Show row label	Display the row label.
Row Label Color	Set the color of the row label.
Legend	
Show legend	Display the legend container.
Position	Set the position for the legend.

Treemap

A treemap is an alternative way of visualizing the hierarchical structure while also displaying quantities for each category via area size.

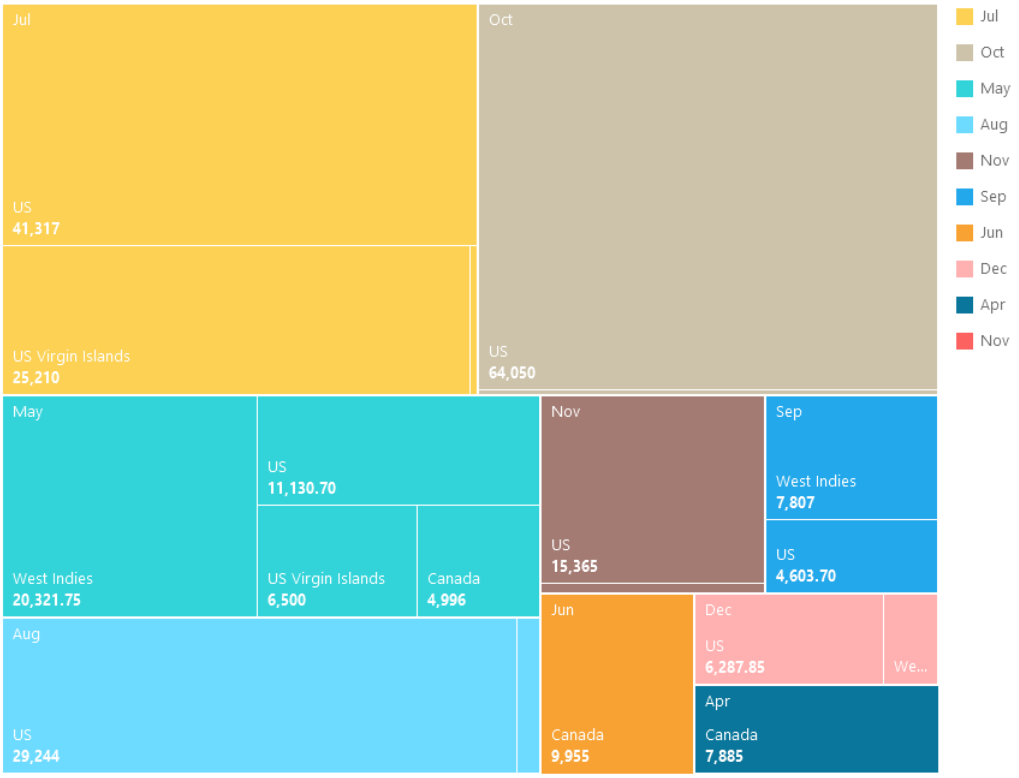


Chart Properties

Once you have selected a chart type, you can customize the chart by changing its properties:

Option	Description
General	
Background Color	Set the background color of the chart area.
Opacity	Set the opacity of the background color.
Show Border	Display the outer chart border.
Border Color	Set the color of the outer chart border.
Show title	Display the chart's main title.
Title	Specify the title of the chart.
Title Font	Set the font style of the title.
Position	Set the position of the title.
Align	Set the horizontal alignment of the title.
Data	
Show data point name	Display the names of the data points.
Show data values	Display the values of the data points.
Show data percentages	Display the data percentages of the data points.
Data Label Color	Set the color of the data label.
Color	Set the color palette of the data points.
Legend	
Show legend	Display the legend container.
Position	Set the position for the legend.
Align	Set the horizontal alignment of the legend.

Data Formats - Number	
Prefix	Add prefix characters to all the numeric data on the chart.
Unit	Choose the unit to shorten the numeric data.
Suffix	Specify the suffix to label the customized unit.
Divider	Specify the divider for the customized unit.
Thousand Separator	Choose the thousands separator for numeric data.
Decimal Separator	Choose the decimal separator for numeric data.
Decimal Places	Specify decimal places for numeric data.
Negatives	Choose the format negative numbers are displayed.
Data Formats - DateTime	
Date / Time	Choose the date and time format of the data.
Custom	Customize the date and time format.

Value

A value displays a single aggregated value from a data field, e.g. total.

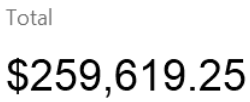


Chart Properties

Once you have selected a chart type, you can customize the chart by changing its properties:

Option	Description
General	
Background Color	Set the background color of the chart area.
Opacity	Set the opacity of the background color.
Show Border	Display the outer chart border.
Border Color	Set the color of the outer chart border.
Show title	Display the chart's main title.
Title	Specify the title of the chart.
Title Font	Set the font style of the title.
Position	Set the position of the title.
Align	Set the horizontal alignment of the title.
Data	
Data Label Font	Set the font style of the data label.
Data Formats - Number	
Prefix	Add prefix characters to all the numeric data on the chart.
Unit	Choose the unit to shorten the numeric data.
Suffix	Specify the suffix to label the customized unit.
Divider	Specify the divider for the customized unit.

Thousand Separator	Choose the thousands separator for numeric data.
Decimal Separator	Choose the decimal separator for numeric data.
Decimal Places	Specify decimal places for numeric data.
Negatives	Choose the format negative numbers are displayed.
Data Formats - DateTime	
Date / Time	Choose the date and time format of the data.
Custom	Customize the date and time format.

Trend

A trend displays that the current value is trending up or down compared to the previous value, and the percentage change.

Chart Properties

Once you have selected a chart type, you can customize the chart by changing its properties:

Option	Description
General	
Background Color	Set the background color of the chart area.
Opacity	Set the opacity of the background color.
Show Border	Display the outer chart border.
Border Color	Set the color of the outer chart border.
Show title	Display the chart's main title.
Title	Specify the title of the chart.
Title Font	Set the font style of the title.
Position	Set the position of the title.
Align	Set the horizontal alignment of the title.
Data	
Show previous value	Display the previous value.
Show difference	Display the **Value** / **Percentage** difference between the current value and the previous value.
Show Indicator	Display the up or down indicator.
Main Label Font	Set the font style of the main label.
Previous Value Color	Set the color of the previous value.
Target Met Color	Set the color of the indicator and the percentage when the value is trending up.
Target Missed Color	Set the color of the indicator and the percentage when the value is trending down.

Data Formats - Number	
Prefix	Add prefix characters to all the numeric data on the chart.
Unit	Choose the unit to shorten the numeric data.
Suffix	Specify the suffix to label the customized unit.
Divider	Specify the divider for the customized unit.
Thousand Separator	Choose the thousands separator for numeric data.
Decimal Separator	Choose the decimal separator for numeric data.
Decimal Places	Specify decimal places for numeric data.
Negatives	Choose the format negative numbers are displayed.

KPI

A KPI displays a comparison between a key value and its target value with a progress bar.

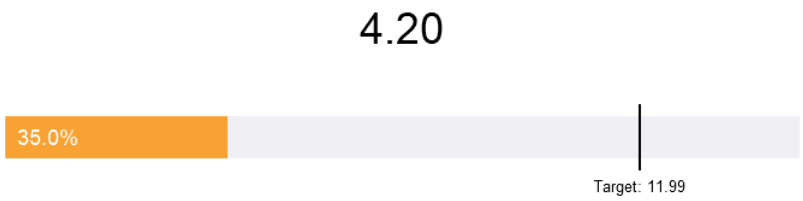


Chart Properties

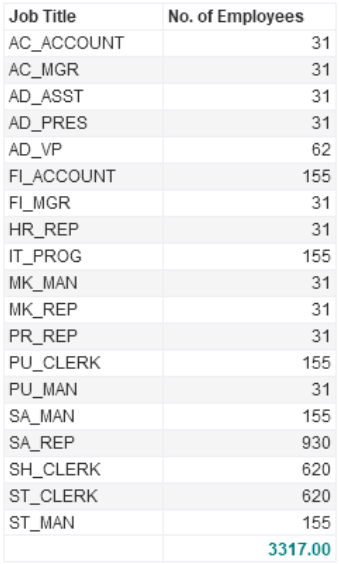
Once you have selected a chart type, you can customize the chart by changing its properties:

Option	Description
General	
Background Color	Set the background color of the chart area.
Opacity	Set the opacity of the background color.
Show Border	Display the outer chart border.
Border Color	Set the color of the outer chart border.
Show title	Display the chart's main title.
Title	Specify the title of the chart.
Title Font	Set the font style of the title.
Position	Set the position of the title.
Align	Set the horizontal alignment of the title.
Data	
Main Label Displayed	Display the **Actual** value or the **Comparison** percentage in the main label.
Main Label Font	Set the font style of the main label.
Sub Label Color	Set the color of the sub-label on the bar.
Target Caption	Specify the caption of the target label.
Target Label Color	Set the color of the target label.
Target Met Color	Set the color of the bar when the value reaches the target.
Target Missed Color	Set the color of the bar when value does not reach the target.

Data Formats - Number	
Prefix	Add prefix characters to all the numeric data on the chart.
Unit	Choose the unit to shorten the numeric data.
Suffix	Specify the suffix to label the customized unit.
Divider	Specify the divider for the customized unit.
Thousand Separator	Choose the thousands separator for numeric data.
Decimal Separator	Choose the decimal separator for numeric data.
Decimal Places	Specify decimal places for numeric data.
Negatives	Choose the format negative numbers are displayed.

Table

A table represents data in a tabular view and calculates the total at the end of each column.



Job Title	No. of Employees
AC_ACCOUNT	31
AC_MGR	31
AD_ASST	31
AD_PRES	31
AD_VP	62
FI_ACCOUNT	155
FI_MGR	31
HR_REP	31
IT_PROG	155
MK_MAN	31
MK_REP	31
PR_REP	31
PU_CLERK	155
PU_MAN	31
SA_MAN	155
SA_REP	930
SH_CLERK	620
ST_CLERK	620
ST_MAN	155
	3317.00

Chart Properties

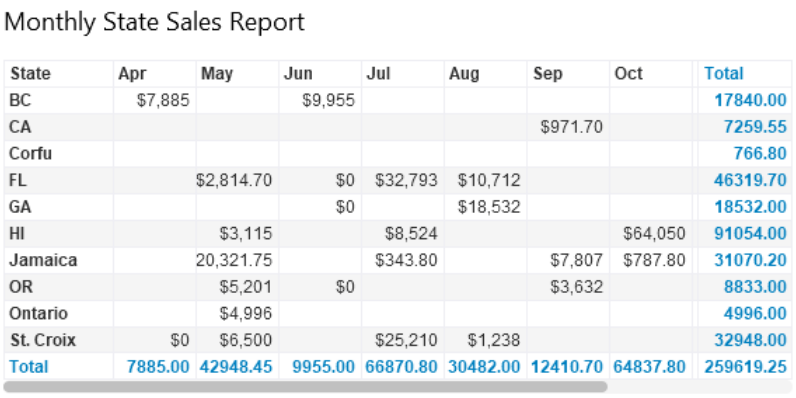
Once you have selected a chart type, you can customize the chart by changing its properties:

Option	Description
General	
Background Color	Set the background color of the chart area.
Opacity	Set the opacity of the background color.
Show Border	Display the outer chart border.
Border Color	Set the color of the outer chart border.
Show title	Display the chart's main title.
Title	Specify the title of the chart.
Title Font	Set the font style of the title.
Position	Set the position of the title.
Align	Set the horizontal alignment of the title.

Data	
Font	Set the font style of the field names and data.
Show Alternate Row Colors	Apply color to alternate rows.
Show Vertical Grid Line	Display the vertical grid line.
Show Horizontal Grid Line	Display the horizontal grid line.
Color	Set the color palette of the data series.
Data Formats - Number	
Prefix	Add prefix characters to all the numeric data on the chart.
Unit	Choose the unit to shorten the numeric data.
Suffix	Specify the suffix to label the customized unit.
Divider	Specify the divider for the customized unit.
Thousand Separator	Choose the thousands separator for numeric data.
Decimal Separator	Choose the decimal separator for numeric data.
Decimal Places	Specify decimal places for numeric data.
Negatives	Choose the format negative numbers are displayed.
Data Formats - DateTime	
Date / Time	Choose the date and time format of the data.
Custom	Customize the date and time format.
Total	
Show Total	Display totals in the last row of the table.
Total Color	Set the color of the total values.

Pivot Table

A pivot table shows measure values for the intersection of two dimensions and represents data in a tabular view.



Monthly State Sales Report

State	Apr	May	Jun	Jul	Aug	Sep	Oct	Total
BC	$7,885		$9,955					17840.00
CA						$971.70		7259.55
Corfu								766.80
FL		$2,814.70	$0	$32,793	$10,712			46319.70
GA			$0		$18,532			18532.00
HI		$3,115		$8,524			$64,050	91054.00
Jamaica		20,321.75		$343.80		$7,807	$787.80	31070.20
OR		$5,201	$0			$3,632		8833.00
Ontario		$4,996						4996.00
St. Croix	$0	$6,500		$25,210	$1,238			32948.00
Total	7885.00	42948.45	9955.00	66870.80	30482.00	12410.70	64837.80	259619.25

Chart Properties

Once you have selected a chart type, you can customize the chart by changing its properties:

Option	Description
General	

Background Color	Set the background color of the chart area.
Opacity	Set the opacity of the background color.
Show Border	Display the outer chart border.
Border Color	Set the color of the outer chart border.
Show title	Display the chart's main title.
Title	Specify the title of the chart.
Title Font	Set the font style of the title.
Position	Set the position of the title.
Align	Set the horizontal alignment of the title.
Data	
Font	Set the font style of the field names and data.
Show Alternate Row Colors	Apply color to alternate rows.
Show Vertical Grid Line	Display the vertical grid line.
Show Horizontal Grid Line	Display the horizontal grid line.
Color	Set the color palette of the data series.
Data Formats - Number	
Prefix	Add prefix characters to all the numeric data on the chart.
Unit	Choose the unit to shorten the numeric data.
Suffix	Specify the suffix to label the customized unit.
Divider	Specify the divider for the customized unit.
Thousand Separator	Choose the thousands separator for numeric data.
Decimal Separator	Choose the decimal separator for numeric data.
Decimal Places	Specify decimal places for numeric data.
Negatives	Choose the format negative numbers are displayed.
Data Formats - DateTime	
Date / Time	Choose the date and time format of the data.
Custom	Customize the date and time format.
Total	
Show Row Total	Display totals in the last row of the table. Enter the name of the row total and set the color of the name and values.
Show Column Total	Display totals in the last column of the table. Enter the name of the column total and set the color of the name and values.

Control

A control allows you to filter the data series of all charts in a dashboard during presentation.

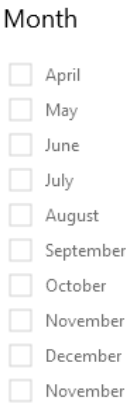


Chart Properties

Once you have selected a chart type, you can customize the chart by changing its properties:

Option	Description
General	
Background Color	Set the background color of the chart area.
Opacity	Set the opacity of the background color.
Show Border	Display the outer chart border.
Border Color	Set the color of the outer chart border.
Show title	Display the chart's main title.
Title	Specify the title of the chart.
Title Font	Set the font style of the title.
Position	Set the position of the title.
Align	Set the horizontal alignment of the title.
Data	
Data Label Color	Set the color of the data label.
Style	Show the data as a list or a range.
Data Formats - Number	
Prefix	Add prefix characters to all the numeric data on the chart.
Unit	Choose the unit to shorten the numeric data.
Suffix	Specify the suffix to label the customized unit.
Divider	Specify the divider for the customized unit.
Thousand Separator	Choose the thousands separator for numeric data.
Decimal Separator	Choose the decimal separator for numeric data.
Decimal Places	Specify decimal places for numeric data.
Negatives	Choose the format negative numbers are displayed.
Data Formats - DateTime	
Date / Time	Choose the date and time format of the data.
Custom	Customize the date and time format.

DateTime Formats

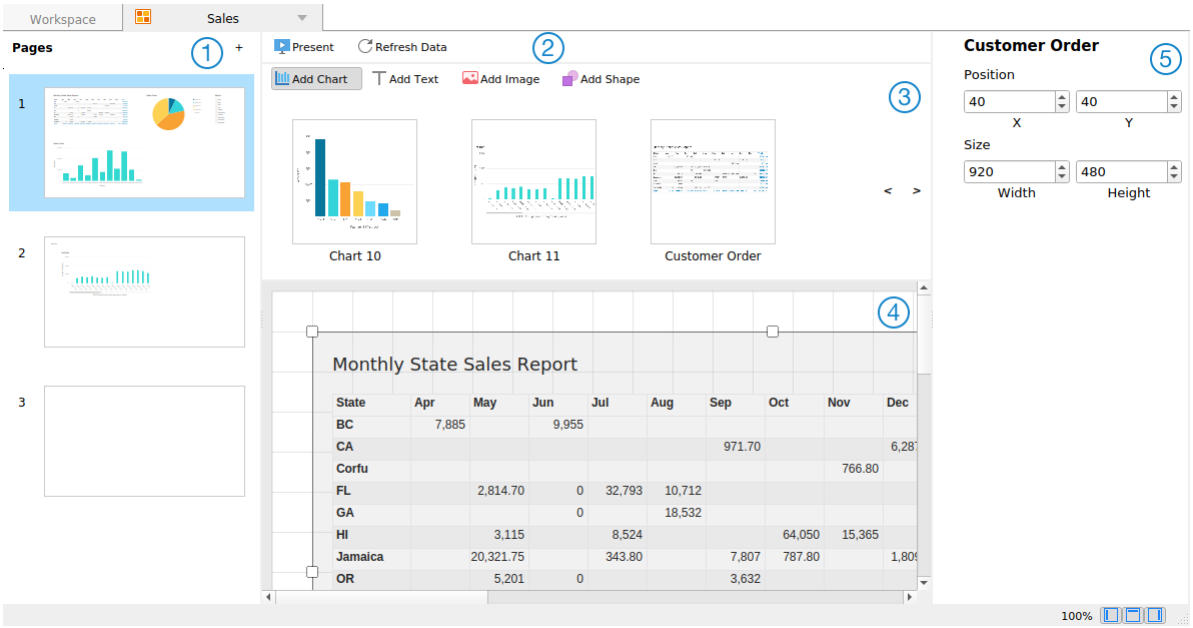
The following table shows specifiers you can use to create user-defined data formats for DateTime fields in a chart.

Specifier	Description
D	Display the day as a number without a leading zero (1-31).
DD	Display the day as a number with a leading zero (01-31).
M	Display the month as a number without a leading zero (1-12).
MM	Display the month as a number with a leading zero (01-12).
MMM	Display the month as an abbreviation (Jan-Dec).
MMMM	Display the month as a full month name (January-December).
YY	Display the year in two-digit numeric format with a leading zero (00-99).
YYYY	Display the year in four-digit numeric format (0000-9999).
h	Display the hour as a number without a leading zero using the 12-hour clock (1-12).
hh	Display the hour as a number with a leading zero using the 12-hour clock (01-12).
H	Display the hour as a number without a leading zero using the 24-hour clock (0-23).
HH	Display the hour as a number with a leading zero using the 24-hour clock (00-23).
m	Display the minute as a number without a leading zero (0-59).
mm	Display the minute as a number with a leading zero (00-59).
S	Display the second as a number without a leading zero (0-59).
SS	Display the second as a number with a leading zero (00-59).
wd	Display the day as a single letter abbreviation (S-S).
Wd	Display the day as an abbreviation (Sun-Sat).
WD	Display the day as a full name (Sunday-Saturday).
w	Display the week of the year (1-52, start of week is Sunday).
WW	Display the week of the year (W01-W52, start of week is Sunday).
q	Display the quarter of the year (1-4).
QQ	Display the quarter of the year (Q1-Q4).
p	Display an uppercase AM with any hour before noon; display an uppercase PM with any hour between noon and 11:59 P.M.

Dashboard

About Dashboard

Dashboard is a collection of charts which allows you to create and view your data visualizations. When you modify a chart, any dashboards containing it will reflect the changes.



① Pages Pane

The Pages pane shows thumbnail images of each page in the dashboard. If the Pages pane is hidden, choose **View** -> **Show Pages** from the menu bar.

② Dashboard Toolbar

The Dashboard Toolbar provides controls that you can use to refresh the data and present the dashboard.

③ Control List Pane

The Control List pane allows you to design the dashboard, such as adding charts, labels, images. If the Control List pane is hidden, choose **View** -> **Show Control List** from the menu bar.

④ Design Pane

You can design your dashboard on the Design pane. All added objects can be moved (by dragging them with mouse or by keyboard), resized, aligned to the grid, etc.

⑤ Properties Pane

The Properties pane includes the basic layout settings. The properties vary with the type of the object. If the Properties pane is hidden, choose **View** -> **Show Properties** from the menu bar.

Build Dashboard

The essential steps to create a dashboard are:

1. In the Workspace window, click **New Dashboard**.
2. Enter the name of the dashboard.
3. Click **OK**.

4. A tab will be opened for your newly created dashboard.
5. Design your dashboard.
6. Select the properties on the right pane which can be further customized for your dashboard.

   Note: Each object has different properties.

Hint: You can refresh dashboard to update data in charts with the most current data from their respective data sources. To manually refresh the dashboard, click **Refresh Data**.

Working with Grids

Show Grid

To turn the grid on in the dashboard, choose **View** -> **Show Grid** from the menu bar.

Snap to Grid

To align objects on the dashboard with the grid, choose **View** -> **Show Grid** from the menu bar.

Arrange Objects

Move Objects Forward / Backward

To send an object to the back of the dashboard, right-click it and select **Send to Back**.

To send an object one step toward the back, right-click it and select **Send Backward**.

To bring an object to the front of the dashboard, right-click it and select **Bring to Front**.

To bring an object one step closer to the front, right-click it and select **Bring Forward**.

Align Objects

To align objects on the dashboard, select more than one object, then right-click and select **Alignment** -> **Align Left**, **Align Center**, **Align Right**, **Align Top**, **Align Middle** or **Align Bottom**.

Change Objects Distribution

To distribute objects on the dashboard, select more than one object, then right-click and select **Distribute** -> **Horizontal** or **Vertical**.

Add Pages

The Pages pane shows all pages in the dashboard. It displays thumbnails of your dashboard pages.

To add a new page

1. On the Dashboard tab, click the **+** button on the Pages pane.

2. A blank page will be added and selected.

Properties

The available properties of a page:

Option	Description
Page Size	Customize the size of pages in the dashboard.
Background	Set the background color of pages. If you choose **Image Fill**, you can choose the image file and the scaling option.
Opacity	Set the opacity of the image.

Add Charts

Charts provide visual representations of the data in your data source.

To add a chart

1. On the Dashboard tab, click **Add Chart**.
2. All available charts in the workspace will be shown as thumbnails. If no charts are available, click **New Chart** to create one. For detailed instructions on creating charts, see Build Charts.
3. Drag a chart to the Design pane.

Properties

The available properties of a chart:

Option	Description
Position	Customize the position of the chart.
Size	Customize the size of the chart.

Add Text Labels

Text labels are typically used to help document the dashboard, such as adding a dashboard title, URL links.

To add a text label

1. On the Dashboard tab, click **Add Text**.
2. Place it on the dashboard.
3. Enter the caption.

Properties

The available properties of a text label:

Option	Description
Position	Customize the position of the label.
Size	Customize the size of the label.
Caption	Enter the caption of the label.
Alignment	Specify the text alignment of the label caption.
Font	Set the font style of the label caption.
Bold	Apply a bold style to the label caption.
Italic	Apply an italic style to the label caption.
Background Color	Set the background color of the label.
Opacity	Set the opacity of the background color.
URL	Enter URL path to display a hyperlink.

Add Images

You can insert images (BMP, JPG, JPEG or PNG files) to your dashboard for design or identification purposes.

To add an image

1. On the Dashboard tab, click **Add Image**.
2. Select an image file in the Open dialog box.

Properties

The available properties of an image:

Option	Description
Opacity	Set the opacity of the image.
Position	Customize the position of the image.
Size	Customize the size of the image.
Original Size	Reset the image to its original size.
URL	Enter URL path to set the image as a hyperlink.

Add Shapes

Navicat includes some pre-defined shapes for creating a dashboard: line, arrow.

To add a shape

1. On the Dashboard tab, click **Add Shape** and choose a shape type.
2. Place it on the dashboard.

Properties

The available properties of a shape:

Option	Description
Position	Customize the position of the shape.
Color	Set the color of the shape.
Line Width	Choose the thickness of the line/arrow.
Cap Style	Choose the cap style of the line/arrow.
Dash Style	Choose the dash style of the line/arrow.
Join Style	Choose the join style of the line/arrow.
Begin Arrow Style	Choose the style of the arrow's back.
End Arrow Style	Choose the style of the arrow's front.

Present Dashboard

You can present the dashboard using the whole screen. The title bar, toolbar, tab bar, Pages pane, Control List and Properties pane will be hidden while in this mode. To open a dashboard in present view, click **Present**.

If you have added a control chart to your dashboard, you can filter the data series of all charts by using the control.

To exit present view, press the ESC key and the workspace window will be returned to its previous state.

Print & Export Dashboard

Print to a printer

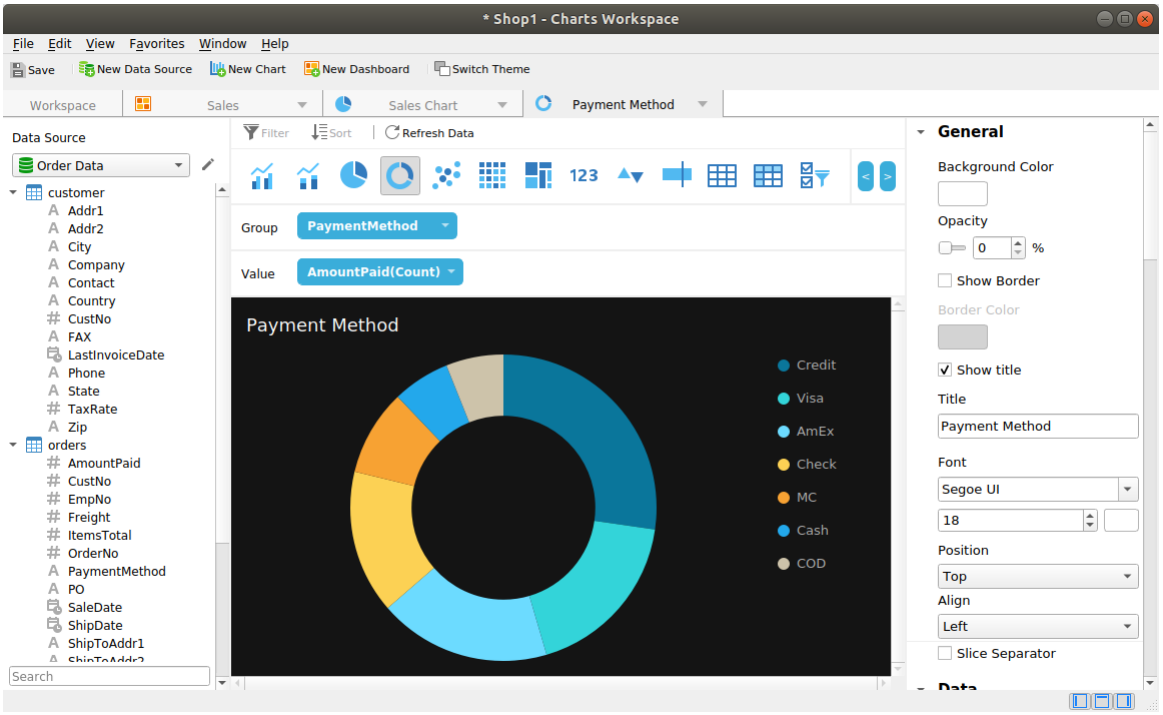
Choose **File** -> **Print** to send your dashboard pages directly to the printer. You can set the printer option in the pop-up window.

Export to a file

Choose **File** -> **Export To** and choose the file format to create a PDF, PNG, SVG or JPG file of your dashboard pages.

Switch Theme

Charts are not affected by the OS system theme. If you want use a Dark theme for your charts, click **Switch Theme** to change the theme.


* Shop1 - Charts Workspace
File Edit View Favorites Window Help
Save New Data Source New Chart New Dashboard Switch Theme
Workspace Sales Sales Chart Payment Method
Data Source
Order Data
customer
Addr1
Addr2
City
Company
Contact
Country
CustNo
FAX
LastInvoiceDate
Phone
State
TaxRate
Zip
orders
AmountPaid
CustNo
EmpNo
Freight
ItemsTotal
OrderNo
PaymentMethod
PO
SaleDate
ShipDate
ShipToAddr1
Search
Filter Sort Refresh Data
Group PaymentMethod
Value AmountPaid(Count)
Payment Method
Credit
Visa
AmEx
Check
MC
Cash
COD
General
Background Color
Opacity
0 %
Show Border
Border Color
Show title
Title
Payment Method
Font
Segoe UI
18
Position
Top
Align
Left
Slice Separator

Chapter 12 - Automation (Available only in Non-Essentials Edition)

About Automation

Navicat allows you to automate executing jobs at one or more regular intervals. Automation can be created for Query, Backup, Data Transfer, Data Synchronization, Import, Export, MongoDump, MongoImport, MongoExport, MapReduce. You can define a list of jobs to be performed within one batch job, either run it manually, at the specified time or periodically. In the main window, click **Automation** to open the automation object list.

Hint: Batch Job files are saved under the default path, e.g. /home/your_username/.config/navicat/Premium/Profiles.

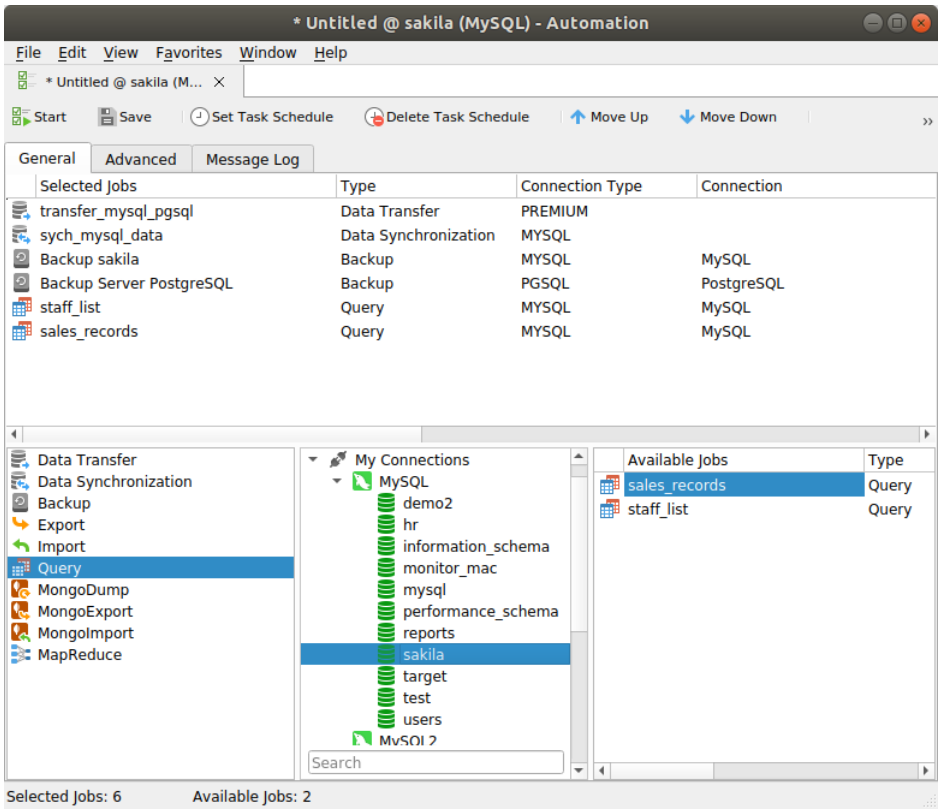
Hint: You can run a batch job in Terminal with this command:
ProgramPath --batch-jobs BatchJobName

Example: *./navicat15-premium-en.AppImage --batchjob job1*

Create Batch Job (Step 1)

Add Jobs to Batch Job

In the bottom pane of the **General** tab, select the job type, and then browse the connection, database and/or schema to locate jobs if necessary.



Move jobs from the **Available Jobs** list to the **Selected Jobs** list by double-clicking or dragging them. To delete the jobs from the Selected Jobs list, remove them in the same way. You are allowed to run profiles from different servers in a single batch job.

To rearrange the sequence of the selected jobs, use the **Move Up** or **Move Down** buttons.

If you want to backup whole server, you can select the connection and select **Backup Server xxx**.

Exported files can be added to the batch job as mail attachment. Select the job in the Selected Jobs list and click **Add Attachment** or **Remove Attachment** to add or remove the mail attachment.

Set Email Notification

Navicat allows you to generate and send personalized emails with results returned from a schedule. The results can be emailed to multiple recipients. Check the **Send Email** option in the **Advanced** tab and enter required information.

From

Specify email address of sender. For example, someone@navicat.com.

To, CC

Specify email addresses of each recipient, separating them with a comma or a semicolon (;).

Subject

Specify the email subject with customized format.

Body

Write email content.

Host (SMTP Server)

Enter your Simple Mail Transfer Protocol (SMTP) server for outgoing messages.

Port

Enter the port number you connect to your outgoing email (SMTP) server.

Use authentication

Check this option and enter **User Name** and **Password** if your SMTP server requires authorization to send email.

Secure connection

Specify the connection to use **TLS**, **SSL** secure connection or **Never**.

Send Test Mail

Navicat will send you a test mail indicating success or failure.

Save / Run Batch Job

Before setting schedule, click the **Save** button to save the batch job.

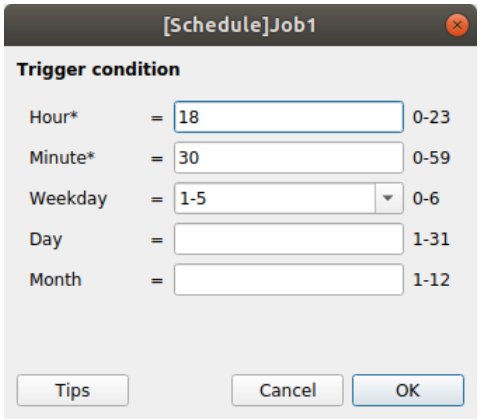
You can run the batch job manually by clicking the **Start** button. The **Message Log** tab displays the execution progress, execution time, and success or failure messages.

Schedule Batch Job (Step 2)

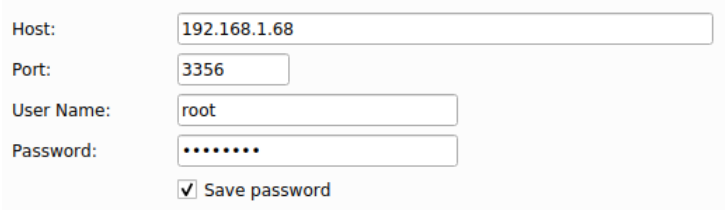
You can click **Set Task Schedule** to set schedule for running a batch job and click **Delete Task Schedule** to remove the schedule.

"Hour" and "Minute" fields must be specified. If a field is left without a value, then all the values will be used. For example, if the "Weekday" field is empty, then the system will treat the field to be entered with "0, 1, 2, 3, 4, 5, 6". Use commas to separate values. For example, "0, 1, 3, 6". Use hyphen, without spaces to indicate values. For example, "0-4".

Example: The batch job will be executed at 6:30pm every weekday.



Note: Please save the batch job before setting schedule. Passwords must be saved in the Connection window before running your schedule.



Chapter 13 - Backup & Restore

About Backup & Restore

A secure and reliable server is closely related to performing regular backups, as failures will probably occur sometimes - caused by attacks, hardware failure, human error, power outages, etc.

Navicat provides a built-in backup and restore tool for users to backup/restore MySQL, PostgreSQL, SQLite and MariaDB database objects. For Oracle, SQL Server and MongoDB, users can use the following features:

- Oracle Data Pump
- SQL Server Backup & Restore
- MongoDump & MongoRestore

Built-in Backup & Restore Tool (Available only in Non-Essentials Edition)

About Built-in Backup & Restore Tool

The built-in backup & restore tool allows you to backup/restore database objects for your database. You can save your settings as a profile for future use or setting automation tasks. In the main window, click **Backup** to open the backup object list.

Hint: Backup files are saved under the Settings Location. To open the folder, right-click a backup file and select **Open Containing Folder**.

Note: Available only for MySQL, PostgreSQL, SQLite and MariaDB.

Backup

General Properties

In this tab, you can view the server and database information. Enter a comment for the backup file if necessary.

Object Selection

In this tab, choose database objects you wish to backup.

All <objects> during execution (*)	All the database objects being backed up, all newly added database objects will also be backed up without amending the backup profile.
Custom	Only the checked database objects will be backed up. However, if you add any new database objects in the database and/or schema after you create your backup profile, the newly added database objects will

	not be backed up unless you manually modify the Objects list.

Advanced Properties

Note: The following options depend on the connection server type and sort in ascending order.

Lock All Tables

Lock all objects while backup is being processed.

Use Single Transaction (InnoDB only)

If a table uses InnoDB storage engine, with this option is on, Navicat uses transaction before the backup process starts.

Use specify file name

Define your file name for backup. Otherwise, your backup file will be named with "YYYYMMDDhhmmss" format.

Restore

Restore feature will firstly drop the selected objects of the database, then recreate the new objects according to your backup. Finally, inserting the data.

Restore a backup to an existing database/schema

1. In the main window, open a database/schema.
2. Click **Backup** and select an existing backup file.
3. Click **Restore Backup** from the object toolbar.
4. Choose the restore options and click **Start**.

Restore a backup to a new database/schema

1. Create and open a new database/schema.
2. Click **Backup**.
3. In the Objects tab, right-click anywhere and select **Restore Backup from**.
4. Browse the backup file.
5. Choose the restore options and click **Start**.

Hint: You can also restore Navicat Windows and macOS backups.

Note: You must have Create, Drop and Insert privileges (MySQL/MariaDB or PostgreSQL) to run the restore.

General Properties

In this tab, you can view the target server and database information and the backup file information.

Object Selection

In this tab, choose database objects you wish to restore.

Advanced Properties

Note: The following options depend on the connection server type, the backup file version and sort in ascending order.

Continue on error

Ignore errors that are encountered during the restore process.

Create indexes

Create indexes for the restored table with this option is on.

Create tables

Create tables during the restore process with this option is on.

Create records

Restore table records with this option is on. Otherwise, only table structures will be restored.

Create triggers

Create triggers for the restored table with this option is on.

Empty table

Delete all table records in the database/schema.

Lock tables for write

Lock the tables to prevent user to modify tables during the restore process.

Insert auto increment values

Insert auto increment values in the database/schema.

Overwrite existing events

Overwrite if events already exist in the database/schema.

Overwrite existing functions

Overwrite if functions already exist in the database/schema.

Overwrite existing indexes

Overwrite if indexes already exist in the database/schema.

Overwrite existing sequences

Overwrite if sequences already exist in the database/schema.

Overwrite existing tables

Overwrite if tables already exist in the database/schema.

Overwrite existing triggers

Overwrite if triggers already exist in the database/schema.

Overwrite existing types

Overwrite if types already exist in the database/schema.

Overwrite existing views

Overwrite if views already exist in the database/schema.

Run multiple queries in each execution

Check this option if you want to run multiple queries in each execution, which will make the restore process faster.

Use extended insert statements

Check this option if you want to insert records using extended insert syntax.

Example: *INSERT INTO `users` VALUES ('1', 'Peter McKindsy', '23'), ('2', 'Johnson Ryne', '56'), ('0', 'Katherine', '23');*

Use transaction

Check this option if you want to rollback all data when error occurs.

Extract SQL

Extract SQL allows extracting SQL into a SQL file from your backup file.

Extract a backup file that is in your database/schema

1. Open a database/schema.
2. Click **Backup** and select an existing backup file.
3. Click **Extract SQL** from the object toolbar.
4. Choose the Extract SQL options and click **Start**.
5. Choose a path for the SQL file.

Extract a backup file that is in any location

1. Open any one of your databases/schemas.
2. Click **Backup**.
3. In the Objects tab, right-click anywhere and select **Extract SQL from**.
4. Click **Extract SQL** from the object toolbar.
5. Browse the backup file.
6. Choose the Extract SQL options and click **Start**.
7. Choose a path for the SQL file.

Oracle Data Pump (Available only in Non-Essentials Edition)

About Oracle Data Pump

Data Pump includes two utilities: Data Pump Export and Data Pump Import. Data Pump Export is for unloading data and metadata into a dump file set. Data Pump Import is for loading an export dump file set into a target system. In the main window, click  **Data Pump** to open the data dump object list.

To change the directory of the dump file set, right-click anywhere in the Objects tab and select **Change Directory**.

Note: Data Pump is added in Oracle 10g or later. You require SYSDBA role to perform it. Dump file sets are stored in servers.

Oracle Data Pump Export

Before executing Data Pump Export, click the **Generate SQL** button to review the SQL statements. Then, you can click the **Execute** button to run the export process.

You can save the Data Pump Export settings to a profile for future use. Data Pump Export profiles (.nbakora) are saved under the Settings Location.

To show the hidden tabs (advanced options), check the **Show Advanced Options** option.

General Properties

Job Name

Specify the name of the job.

Mode

Choose the export mode: FULL, TABLESPACE, SCHEMAS, TABLE.

Content

Choose which data to export.

Export Data

Select which objects to export. If you select the TABLE export mode, choose a schema in the **Export Schema(Table Mode)** drop-down list.

Dump Files

Add dump files to the dump file set for the export.

Metadata Filter

In this tab, you can include or exclude specific objects types.

Data Filter

Query

Specify a subquery that is added to the end of the SELECT statement for a table.

Sample

Specify a percentage for sampling the data blocks to be moved.

Remap Data

In this tab, you can specify remap functions for column data.

Encryption

Encryption Content

Choose what to encrypt in the dump file set.

Encryption Algorithm

Choose a cryptographic algorithm to perform encryption.

Encryption Mode

Choose the encryption mode: Transparent, Encryption Password, Dual.

Encryption Password

If you choose the Encryption Password or Dual encryption mode, enter a password to encrypt data written to the dump file.

Confirm Password

Re-type your password.

Advanced Properties

Thread Number

Enter the maximum number of worker processes that can be used for the job.

Reuse File

Check this option to overwrite a preexisting file.

Enable XMLCLOBS

Check this option to enable data options for XMLCLOBS.

Enable Cluster

Check this option to start workers on instances usable by the job.

Service Name

Specify a service name that used to constrain the job to specific instances or to a specific resource group.

Source Edition

Specify the application edition.

Version

Specify the version of database objects to be extracted.

Compression Type

Specify which data to compress before writing to the dump file set.

Transportable

If you select the TABLE export mode, choose to never or always use the transportable option.

Database Link

Choose a database link to the remote database that will be the source of data and metadata for the job.

Estimate

Choose the estimate method for the size of the tables should be performed before starting the job.

Access Method

Choose an alternative method to unload data if the default method does not work.

Log File Directory

Choose the directory for saving the log file.

Log File Name

Enter the name of the log file.

Flashback SCN

Enter the system change number (SCN) that used to enable the Flashback Query utility.

Flashback Time

Select a timestamp for finding a SCN.

Oracle Data Pump Import

Before executing Data Pump Import, click the **Generate SQL** button to review the SQL statements. Then, you can click the **Execute** button to run the import process.

To show the hidden tabs (advanced options), check the **Show Advanced Options** option.

General Properties

Job Name

Specify the name of the job.

Mode

Choose the import mode: FULL, TABLESPACE, SCHEMAS, TABLE.

Content

Choose which data to import.

Table Exists Action

Specify the action to be performed when data are loaded into a preexisting table.

Import Data

Select which objects to import. If you select the TABLE import mode, specify the schema name in the **Schema** text box.

Dump Files

Add dump files to the dump file set for the import.

Network

Database Link

Choose a database link to the remote database that will be the source of data and metadata for the job.

Estimate

Choose the estimate method for the size of the tables should be performed before starting the job.

Flashback SCN

Enter the system change number (SCN) that used to enable the Flashback Query utility.

Flashback Time

Select a timestamp for finding a SCN.

Transportable

If you select the TABLE export mode, choose to never or always use the transportable option.

DataFile Path

Specify the full file specification for a datafile in the transportable tablespace set.

Filter

Include/Exclude

Include or exclude specific objects types.

Query

Specify a subquery that is added to the end of the SELECT statement for a table.

Remap Data

Remap Data

Specify remap functions for column data.

Remap DataFiles

Specify the remapping for data files.

Remap Objects

Remap Schemas

Specify the remapping for schemas.

Remap TableSpaces

Specify the remapping for tablespaces.

Remap Tables

Specify remap functions for tables.

Advanced Properties

Thread Number

Enter the maximum number of worker processes that can be used for the job.

Reuse datafiles

Check this option to reuse existing data files for creating tablespace.

Skip unusable indexes

Check this option to skip loading tables that have indexes that were set to the Index Unusable state.

Streams configuration

Check this option to import any general Streams metadata that may be present in the export dump file.

Skip const error

Check this option to skip constraint violations and continue the load.

Disable append hint

Check this option to prevent the append hint from being applied to the data load.

Cluster

Check this option to start workers on instances usable by the job.

Service Name

Specify a service name that used to constrain the job to specific instances or to a specific resource group.

Target Edition

Specify the database edition into which objects should be imported.

Version

Specify the version of database objects to be extracted.

Access Method

Choose an alternative method to unload data if the default method does not work.

Partition Options

Choose how to handle partitioned tables during the import operation.

Encryption Password

Enter the password if an encryption password was specified in Data Pump Export.

Segment Attributes, **Segment Creation**, **Storage**, **OID**, **PCTSpace**

Choose the objects that the transformations to be applied to.

Log File Directory

Choose the directory for saving the log file.

Log File Name

Enter the name of the log file.

SQL Server Backup & Restore (Available only in Non-Essentials Edition)

About SQL Server Backup & Restore

The **SQL Server Backup** feature provides an important safeguard for protecting your SQL Server data. In the main window, click  **SQL Server Backup** to open the backup object list.

If you want to backup with the setting of an existing backup file, you can right-click a backup file in the Objects tab and select **Backup From This Setting**.

Note: Backup files are stored in servers.

If you want to restore from a backup file that is not listed in the Objects tab, you can right-click anywhere in the Objects tab and select **Restore From File**.

SQL Server Backup

Before starting the backup process, click the **Generate SQL** button to review the SQL statements. Then, you can click the **Backup** button to run the backup process.

You can save the backup settings to a profile for future use. Backup profiles (.nbakmssql) are saved under the Settings Location.

To show the hidden tabs (advanced options), check the **Show Advanced Options** option.

General Properties

Backup Set Name

Specify the name of the backup set.

Description

Specify the description of the backup set.

Backup Type

Choose the type of the backup that you want to perform: Full Backup, Differential Backup, Transaction-Log Backup.

Copy-only

Check this option to specify that the backup is a copy-only backup.

New Media Set

Create a new media set for this backup. To add backup devices or files to the list, click the **Add device** button.

Existing Media Set

Choose an existing media set for the backup.

Components

In this tab, you can choose to backup the whole database, the partial database, or specific files or groups.

Advanced Properties

Never expire

Specify the backup set never expires.

Expire after

Specify the number of days that must elapse before this backup media set can be overwritten.

Expire on

Specify when the backup set expires and can be overwritten.

Password

Enter a password for the backup set.

Format media set

Check this option to specify that a new media set be created.

New Name

Enter the name of the new media set.

Description

Specify the description of the media set.

Overwrite all backups

Check this option to specify that all backup sets should be overwritten, but preserves the media header.

Check media name and backup set expiration

Check this option to check the expiration date and time of the backup sets on the media before overwriting them.

Media Set Name

Specify the media name for the entire backup media set.

Password

Enter a password for the media set.

Truncate the transaction log

Choose this option to truncate the transaction log.

Backup the tail log and set database to recovery state

Choose this option to back up the tail of the log and leaves the database in the RESTORING state.

Verify backup

Check this option to verify the backup.

Perform checksum

Check this option to enable the backup checksums.

Continue on error

Ignore errors (such as invalid checksums or torn pages) that are encountered during this backup.

Compression

Choose whether backup compression is performed on this backup.

SQL Server Restore

Before starting the restore process, click the **Generate SQL** button to review the SQL statements. Then, you can click the **Restore** button to run the restore process.

General Properties

Restore to database

Select a database to restore.

Source of backup set

If you chose **Restore From File** in the Objects tab, you can add backup devices or files to the list by clicking the **Add device** button.

Latest possible

Choose this option if do not have the restore point.

Specific time

Choose this option to specify that the database be restored to the state it was in as of the date and time.

Marked transaction

Choose this option to recover to a specified recovery point.

Include marked transaction

Check this option to include the specified transaction in the recovery.

Restore plan

If you chose **Restore From File** in the Objects tab, you can choose the database backup files from the list.

Advanced Properties

Restore database files to

Specify that the data or log file should be moved by restoring it to the **Restore To** location.

WITH REPLACE

Check this option to include the WITH REPLACE argument.

WITH RESTRICTED_USER

Check this option to include the WITH RESTRICTED_USER argument.

WITH KEEP_REPLICATION

Check this option to include the WITH KEEP_REPLICATION argument.

RECOVERY

Choose this option to roll back all uncommitted transactions.

NORECOVERY

Choose this option to not roll back the uncommitted transactions.

STANDBY

Specify a **Standby file** that allows the recovery effects to be undone.

MongoDump & MongoRestore

About MongoDump & MongoRestore

MongoDB provides two utilities for backup and restore operations: MongoDump and MongoRestore. They are useful for creating backups of small database and restoring data.

MongoDump

MongoDump can read data from a MongoDB database and create high fidelity BSON files.

Note: You must have mongodump executable for this feature to work.

To dump a file

1. In Navicat main window, right-click your database or collection and select **MongoDump**.
2. In the **General** and **Advanced** tabs, select the output path and the appropriate dump options.
3. Click the **Start** button to begin the dump process. The **Message Log** tab will display the dump progress, execution time, and success or failure messages.

You can save your settings as a profile for future use or setting automation tasks. To open a saved profile, click the **Load Profile** button and select a profile from the list.

Hint: Profiles are saved under the default path, e.g. /home/your_username/.config/navicat/Premium/Profiles.

MongoRestore

MongoRestore can load data from a binary database dump created by MongoDump into a MongoDB database.

Note: You must have mongorestore executable for this feature to work.

To restore database

1. In Navicat main window, right-click your database and select **MongoRestore**.
2. In the **General** and **Advanced** tabs, select the input file/directory path and the appropriate restore options.
3. Click the **Start** button to begin the restore process. The **Message Log** tab will display the restore progress, execution time, and success or failure messages.

You can save your settings as a profile for future use. To open a saved profile, click the **Load Profile** button and select a profile from the list.

Hint: Profiles are saved under the default path, e.g. /home/your_username/.config/navicat/Premium/Profiles.

Chapter 14 - Server Security

About Server Security

Navicat provides a powerful tool for you to manage server user accounts and the privileges of database objects. All information of users and privileges are stored in the server. In the main window, click **User** or **Role** to open the user/role object list.

MySQL / MariaDB User & Role Management

User Designer

General Properties

User Name

Define a name for the user account.

Host

Enter a host name or an IP address where the user connected from. % means any host.

Plugin

Select the account authentication plugin for the user.

Password

Specify a login password for the user.

Confirm Password

Re-type the login password.

Expire Password Policy

Select the password expiration policy for the user account.

Advanced Properties

Max queries per hour, **Max updates per hour**, **Max connections per hour**

Specify the maximum number of queries, updates, and connections that a user can perform during any given one-hour period. 0 means no limit.

Max user connections

Specify the maximum number of simultaneous connections that a user can make.

Use OLD_PASSWORD encryption

Use the OLD_PASSWORD() function to generate a hash value for storing user password.

SSL Type

Specify the SSL/TLS-related options for the user account.

ANY	Require SSL encryption when the user connects.
SPECIFIED	Require a valid certificate when the user connects. Provide Certificate **Issuer**, Certificate **Subject**, or SSL **Cipher**.
X509	Require a valid certificate when the user connects.

Member Of

Note: Roles are available for MySQL 8.0 or later or MariaDB 10.0.5 or later.

In the grid, check the **Granted** or **Default** option against the role listed in **Name** to assign this user to be a member of the selected role.

Server Privileges

In the grid, check the **Granted** option against the server privilege listed in **Privilege** to assign this user to have that privilege. To grant or revoke all privileges, right-click on the grid and select **Grant All** or **Revoke All**.

Privileges

To edit specific object privileges for the user, click  **Add Privilege** to open the window and follow the steps below:

1. Expand the node in the tree view until reaching to the target object.
2. Check the object to show the grid on the right pane.
3. In the grid, check the **State** option against the privilege listed in **Privilege** to assign this user to have that privilege. To grant or revoke all privileges, right-click on the grid and select **Grant All** or **Revoke All**.

Role Designer

Note: Roles are available for MySQL 8.0 or later or MariaDB 10.0.5 or later.

General Properties

Role Name

Define a name for the role.

Member Of

In the grid, check the **Granted** option against the role listed in **Name** to assign this role to be a member of the selected role.

Members

In the grid, check the **Granted** option against the role/user listed in **Name** to assign the selected role/user to be a member of this role.

Server Privileges

In the grid, check the **Granted** option against the server privilege listed in **Privilege** to assign this role to have that privilege. To grant or revoke all privileges, right-click on the grid and select **Grant All** or **Revoke All**.

Privileges

To edit specific object privileges for the role, click  **Add Privilege** to open the window and follow the steps below:

1. Expand the node in the tree view until reaching to the target object.
2. Check the object to show the grid on the right pane.
3. In the grid, check the **State** option against the privilege listed in **Privilege** to assign this role to have that privilege. To grant or revoke all privileges, right-click on the grid and select **Grant All** or **Revoke All**.

Oracle User & Role Management

User Designer

General Properties

User Name

Define a name for the user.

Authentication

Select the authentication method.

PASSWORD	Create a user. Specify a **Password** and re-type it in **Confirm Password**. Check the **Expire Password** option to force the user to change the password on the first attempted login.
EXTERNAL	Create a user authorised by an external service. Enter the certificate distinguished name or the Kerberos principal name in **External Name**.
GLOBAL	Create a user authorised by the enterprise directory service. Enter the X.509 name at the enterprise directory service that identifies the user in **X.500 Name**.

Default Table Space

Choose the default tablespace for objects that the user creates.

Temporary Table Space

Choose the tablespace or tablespace group for the user's temporary segments.

Profile

Choose the profile that assign to the user.

Lock Account

Lock the user's account and disable access.

Member Of

In the grid, check the **Granted**, **Admin Option** or **As Default** option against the role listed in **Role Name** to assign this user to be a member of the selected role.

Quotas

In the grid, specify the maximum amount of space that the user can allocate in the tablespaces. Enter the **Quota** and choose the **Unit**. **Unlimited** lets the user allocate space in the tablespace without bound. Multiple tablespaces can be set.

Server Privileges

In the grid, check the **Granted** or **Admin Option** option against the server privilege listed in **Privilege** to assign this user to have that privilege. To grant or revoke all privileges, right-click on the grid and select **Grant All**, **Grant All With Grant Option** or **Revoke All**.

Privileges

To edit specific object privileges for the user, click **Add Privilege** to open the window and follow the steps below:

1. Expand the node in the tree view until reaching to the target object.
2. Check the object to show the grid on the right pane.
3. In the grid, check the **Granted** or **Grant Option** option against the privilege listed in **Privilege** to assign this user to have that privilege. To grant or revoke all privileges, right-click on the grid and select **Grant All**, **Grant All With Grant Option** or **Revoke All**.

Role Designer

General Properties

Role Name

Define a name for the role.

Authentication

Select the authentication method.

PASSWORD	Create a role. Specify a **Password** and re-type it in **Confirm Password**.
EXTERNAL	Create a role authorised by an external service.
GLOBAL	Create a role authorised by the enterprise directory service.
NOT IDENTIFIED	Create a role without a password.

Member Of

In the grid, check the **Granted** or **Admin Option** option against the role listed in **Role Name** to assign this role to be a member of the selected role.

Members

In the grid, check the **Granted** or **Admin Option** option against the user listed in **Member** to assign the selected user to be a member of this role.

Server Privileges

In the grid, check the **Granted** or **Admin Option** option against the server privilege listed in **Privilege** to assign this role to have that privilege. To grant or revoke all privileges, right-click on the grid and select **Grant All**, **Grant All With Grant Option** or **Revoke All**.

Privileges

To edit specific object privileges for the role, click  **Add Privilege** to open the window and follow the steps below:

1. Expand the node in the tree view until reaching to the target object.
2. Check the object to show the grid on the right pane.
3. In the grid, check the **Granted** option against the privilege listed in **Privilege** to assign this role to have that privilege. To grant or revoke all privileges, right-click on the grid and select **Grant All** or **Revoke All**.

Maintain User

Navicat provides a complete solution for maintaining Oracle users.

1. In the main window, select users in the Objects tab.
2. Right-click the selected users.
3. Choose **Maintain**, and then choose a maintain option the from the pop-up menu.

Option	Description

Expire Password	Set the password of the user account to expire.
Lock Account	Lock the user account and disable access.
Unlock Account	Unlock the user account and enable access.

PostgreSQL User, Group & Role Management

User Designer

Note: Users are available for PostgreSQL 8.0 or below.

General Properties

User Name

Define a name for the user.

User ID

Specify an ID for the user.

Password

Specify a login password for the user.

Confirm Password

Re-type the login password.

Password Encryption

Choose whether the password is stored ENCRYPTED or UNENCRYPTED in the system catalogs.

Expiry Date

Set a datetime that the user's password will expire. If this option is omitted, the password will be valid for all time.

Superuser

Check this option to determine the user is a superuser.

Can create database

Check this option to allow the user to create databases.

Member Of

In the grid, check the **Granted** option against the group listed in **Group Name** to assign this user to be a member of the selected group.

Privileges

To edit specific object privileges for the user, click  **Add Privilege** to open the window and follow the steps below:

1. Expand the node in the tree view until reaching to the target object.
2. Check the object to show the grid on the right pane.
3. In the grid, check the **Granted** or **Grant Option** option against the privilege listed in **Privilege** to assign this user to have that privilege. To grant or revoke all privileges, right-click on the grid and select **Grant All**, **Grant All With Grant Option** or **Revoke All**.

Group Designer

Note: Groups are available for PostgreSQL 8.0 or below.

General Properties

Group Name

Define a name for the group.

Group ID

Specify an ID for the group.

Members

In the grid, check the **Granted** option against the user listed in **Member** to assign the selected user to be a member of this group.

Privileges

To edit specific object privileges for the group, click  **Add Privilege** to open the window and follow the steps below:

1. Expand the node in the tree view until reaching to the target object.
2. Check the object to show the grid on the right pane.
3. In the grid, check the **Granted** option against the privilege listed in **Privilege** to assign this group to have that privilege. To grant or revoke all privileges, right-click on the grid and select **Grant All** or **Revoke All**.

Role Designer

Note: Roles are available for PostgreSQL 8.1 or later.

General Properties

Role Name

Define a name for the role.

Role ID

Specify an ID for the role.

Can login

Check this option to allow the role to log in.

Password

Specify a login password for the role.

Confirm Password

Re-type the login password.

Password Encryption

Choose whether the password is stored ENCRYPTED or UNENCRYPTED in the system catalogs.

Connection Limit

Specify how many concurrent connections the role can make. -1 means no limit.

Expiry Date

Set a datetime that the role's password will expire. If this option is omitted, the password will be valid for all time.

Superuser

Check this option to determine the role is a superuser.

Can create database

Check this option to allow the role to create databases.

Can create role

Check this option to allow the role to create roles.

Inherit privileges

Check this option to determine the role inherits the privileges of roles it is a member of.

Can update system catalog

Check this option to allow the role to update system catalog.

Can replicate

Check this option to allow the role to initiate streaming replication or put the system in and out of backup mode.

Can bypass RLS

Check this option to allow the role to bypasses every row-level security (RLS) policy.

Member Of

In the grid, check the **Granted** or **Admin Option** option against the role listed in **Role Name** to assign this role to be a member of the selected role.

Members

In the grid, check the **Granted** or **Admin Option** option against the role listed in **Member** to assign the selected role to be a member of this role.

Privileges

To edit specific object privileges for the role, click  **Add Privilege** to open the window and follow the steps below:

1. Expand the node in the tree view until reaching to the target object.
2. Check the object to show the grid on the right pane.
3. In the grid, check the **Granted** or **Grant Option** option against the privilege listed in **Privilege** to assign this role to have that privilege. To grant or revoke all privileges, right-click on the grid and select **Grant All**, **Grant All With Grant Option** or **Revoke All**.

SQL Server Login, Role & User Management

Login Designer

Note: The following options and tabs depend on the server version and the authentication type.

General Properties

Login Name

Define a name for the login.

Authentication Type

Select the authentication type of the login.

Password

Specify a password for the login.

Confirm Password

Re-type the login password.

Specify Old Password

Check this option to enter the old password used by this account when editing the login.

Enforce Password Policy

Check this option to force password to follow password policy of SQL Server.

Enforce Password Expiration

Check this option to force password to have expiry date.

User Must Change Password at Next Login

Check this option to force user to change password every time when login.

Default Database

Select the default database when login.

Default Language

Select the default display language when login.

Certificate Name

Select the certificate to be used for the login.

Asymmetric Key Name

Select the asymmetric key to be used for the login.

Enabled

Check this option to enable the login.

Credential

Select the credentials to be mapped to the login.

Roles

In the list, assign this server login to be a member of the selected server role.

User Mapping

In the grid, check the **Database** and enter the **User** and **Default Schema** to create user for login the database and specify the first schema will be searched by the server.

Server Permissions

In the grid, check the **Grant**, **With Grant Option** or **Deny** option against the server permissions listed in **Permission** to assign this login to have that permission. To grant, deny or revoke all permissions, right-click on the grid and select **Grant All**, **Grant All With Grant Option**, **Deny All** or **Revoke All**.

Endpoint Permissions

In the grid, check the permissions against the endpoint listed in **Endpoint** to assign this login to have that endpoint permission. Click the checkbox twice to grant the permission with Grant Option. Click the checkbox three times to deny the permission.

Login Permissions

In the grid, check the permissions against the endpoint listed in **Login** to assign this login to have that login permission. Click the checkbox twice to grant the permission with Grant Option. Click the checkbox three times to deny the permission.

Server Role Designer

Note: Azure SQL Database does not support Server Role.

In the **Members** tab, assign the selected login to be a member of this server role.

Database User Designer

Note: The following options and tabs depend on the server version and the user type.

General Properties

User Name

Define a name for the database user.

Authentication

Select the security type for database user.

Login Name

Assign a SQL Server login that the database user uses.

Default Schema

Select the default schema that will own objects created by the database user.

Certificate Name

Select the certificate to be used for the database user.

Asymmetric Key Name

Select the asymmetric key to be used for the database user.

Roles

In the list, assign this database user to be a member of the selected database role.

Owned Schemas

In the list, check the schemas that are owned by the database user.

Database Permissions

In the grid, check the **Grant**, **With Grant Option** or **Deny** option against the database permissions listed in **Permission** to assign this database user to have that permission. To grant, deny or revoke all permissions, right-click on the grid and select **Grant All**, **Grant All With Grant Option**, **Deny All** or **Revoke All**.

Object Permissions

To edit specific object permissions for the database user, click  **Add Permission** to open the window and follow the steps below:

1. Expand the node in the tree view until reaching to the target object.
2. Check the object to show the grid on the right pane.
3. In the grid, check the **Grant**, **With Grant Option** or **Deny** option against the permission listed in **Privilege** to assign this database user to have that permission. To grant, deny or revoke all permissions, right-click on the grid and select **Grant All**, **Grant All With Grant Option**, **Deny All** or **Revoke All**.

Database Role Designer

Note: The following options and tabs depend on the server version.

General Properties

Role Name

Define a name for the database role.

Owner

Assign the owner for the database role.

Member Of

In the list, assign this database role to be a member of the selected database roles.

Members

In the list, assign the selected database users and roles to be a member of this database role.

Owned Schemas

In the list, check the schemas that are owned by the database role.

Database Permissions

In the grid, check the **Grant**, **With Grant Option** or **Deny** option against the database permissions listed in **Permission** to assign this database role to have that permission. To grant, deny or revoke all permissions, right-click on the grid and select **Grant All**, **Grant All With Grant Option**, **Deny All** or **Revoke All**.

Object Permissions

To edit specific object permissions for the database role, click  **Add Permission** to open the window and follow the steps below:

1. Expand the node in the tree view until reaching to the target object.
2. Check the object to show the grid on the right pane.
3. In the grid, check the **Grant**, **With Grant Option** or **Deny** option against the permission listed in **Privilege** to assign this database role to have that permission. To grant, deny or revoke all permissions, right-click on the grid and select **Grant All**, **Grant All With Grant Option**, **Deny All** or **Revoke All**.

Application Role Designer

Note: Azure SQL Database does not support Application Role. The following options and tabs depend on the server version.

General Properties

Role Name

Define a name for the application role.

Default Schema

Select the default schema that will own objects created by the application role.

Password

Specify a password for the application role.

Confirm Password

Re-type the password.

Owned Schemas

In the list, check the schemas that are owned by the application role.

Database Permissions

In the grid, check the **Grant**, **With Grant Option** or **Deny** option against the database permissions listed in **Permission** to assign this application role to have that permission. To grant, deny or revoke all permissions, right-click on the grid and select **Grant All**, **Grant All With Grant Option**, **Deny All** or **Revoke All**.

Object Permissions

To edit specific object permissions for the application role, click  **Add Permission** to open the window and follow the steps below:

1. Expand the node in the tree view until reaching to the target object.
2. Check the object to show the grid on the right pane.
3. In the grid, check the **Grant**, **With Grant Option** or **Deny** option against the permission listed in **Privilege** to assign this application role to have that permission. To grant, deny or revoke all permissions, right-click on the grid and select **Grant All**, **Grant All With Grant Option**, **Deny All** or **Revoke All**.

SQLite User Management

Note: By default, a SQLite database does not require user authentication (no-authentication-required database). After you created a user, the database will be marked as requiring authentication (authentication- required database). Then, user need to provide username and password when connecting to the database file.

General Properties

User Name

Define a name for the user account.

Password

Specify a login password for the user.

Confirm Password

Re-type the login password.

Administrator

Check this option to give the admin privilege to the user.

MongoDB User & Role Management

User Designer

General Properties

User Name

Define a name for the user.

Password

Specify a login password for the user.

Confirm Password

Re-type the login password.

Password Digestor

Indicate whether the server or the client digests the password.

Mechanisms

Specify the SCRAM mechanisms for creating SCRAM user credentials.

Custom Data

In this tab, you can enter any information associated with this user.

Built-In Roles

In the list, assign this user to be a member of the selected built-in role.

User-Defined Roles

In the list, assign this user to be a member of the selected user-defined role.

Authentication Restrictions

To edit specific authentication restrictions that the server enforces on the user, click  **Add Restriction**.

Client Source

Specify a list of IP addresses or CIDR ranges to restrict the client's IP address.

Server Address

Specify a list of IP addresses or CIDR ranges to which the client can connect.

Role Designer

General Properties

Role Name

Define a name for the role.

Built-In Roles

In the list, assign this role to be a member of the selected built-in role.

User-Defined Roles

In the list, assign this role to be a member of the selected user-defined role.

Members (Roles)

In the list, assign the selected role to be a member of this role.

Members (Users)

In the list, assign the selected user to be a member of this role.

Authentication Restrictions

To edit specific authentication restrictions that the server enforces on the role, click  **Add Restriction**.

Client Source

Specify a list of IP addresses or CIDR ranges to restrict the client's IP address.

Server Address

Specify a list of IP addresses or CIDR ranges to which the client can connect.

Privileges

To edit specific object privileges for the role, click  **Add Privilege** to open the window and follow the steps below:

1. Expand the node in the tree view until reaching to the target object.
2. Check the objects that you want to grant the privileges on.
3. In the grid, check the **State** option against the privilege listed in **Privilege** to assign this role to have that privilege. To grant or revoke all privileges, right-click on the grid and select **Grant All** or **Revoke All**.

Privilege Manager

Besides setting privileges in each user, **Privilege Manager** provides another view on privileges in a connection and its database objects.

Note: Available only for MySQL, Oracle, PostgreSQL, SQL Server, MariaDB and MongoDB.

To add privileges, click **Privilege Manager** from the user object toolbar and follow the steps below:

1. Expand the node in the tree view until reaching to the target object.
2. Choose the object and click  **Add Privilege** to open the window.
3. Check the user on the left pane.
4. In the grid, check the relevant options against the privileges listed in **Privilege** to assign the selected user to have that object privilege.

Chapter 15 - Other Advanced Tools

Server Monitor (Available only in Non-Essentials Edition)

Navicat provides **Server Monitor** to view properties of selected servers. Choose **Tools** -> **Server Monitor** and choose the preferred server type from the menu bar.

Note: Available only for MySQL, Oracle, PostgreSQL, SQL Server, MariaDB and MongoDB.

Process List

This tab displays a list of processes from all selected servers. The process list provides the following detailed information. It depends on the database type you are chosen.

- Server name that is given while setting the connection.
- Process ID on the server.
- Serial number of the process.
- Current user who log in to the server.
- Host from which the user is connected.
- Database that the user is currently used.
- Last command that was issued by the user.
- Time, state and info of the process.
- CPU time and state of the process.

If you want to take action on auto-refreshing the process list in assigned seconds, choose **Server Monitor** -> **Set Auto Refresh Time** and enter a refresh time value. To enable or disable the Auto Refresh feature, choose **Server Monitor** -> **Auto Refresh**.

Note: Effect will take once you assign the value.

To set a selected process always show on the top of the grid, right-click and select **Set Always On Top** -> **Always On Top**. To cancel this setting, choose **Cancel** / **Cancel All**.

To stop a selected process, click the  **End Process** button.

Variables

Note: Available only for MySQL, Oracle, PostgreSQL, MariaDB and MongoDB.

This tab displays a list of all server variables and their values.

You can edit MySQL, MariaDB and Oracle variable values here. Click ... to open an editor for editing.

Status

Note: Available only for MySQL, Oracle, PostgreSQL, MariaDB and MongoDB.

This tab displays a list of all server status and their values.

Schema Analysis (Available only in Non-Essentials Edition)

Schema Analysis is used for verifying your schemas, visualizing data distributions and identifying data outliers. To start, select a collection or a view in the Objects tab and click **Analyze Schema**, or click **Analyze** in the data viewer.

Note: Available only for MongoDB.

Hint: Schema Analysis Profiles (.nsatmongodb) are stored under the Settings Location.

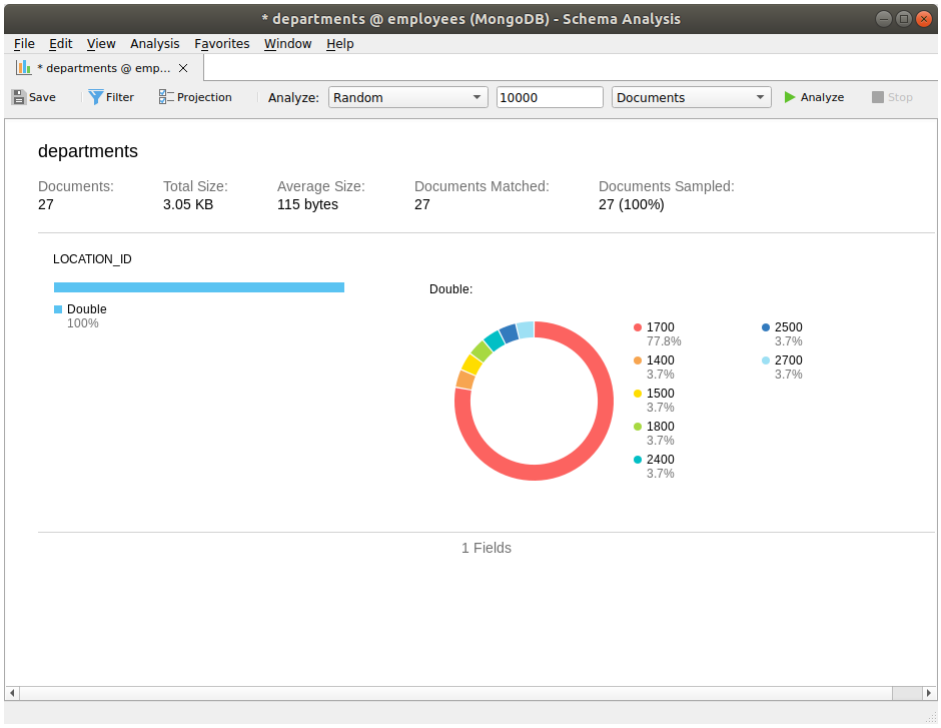
Toolbar

Option / Button	Description
Filter	Filter the documents for analyzing.
Projection	Include or exclude fields for analyzing.
Analyze:	Select the sample documents from the collection for analyzing.
Analyze	Start analyzing the sample documents.
Stop	Stop analyzing the sample documents.

Results

After the analysis has completed, you will see the schema analysis results. The results visually display information about the type and data distribution of all fields.

If a field has multiple field types, you can click the field type bar on the left, and the chart will show the data distribution chart of that type.



Virtual Grouping (Available only in Non-Essentials Edition)

Virtual Group aims to provide a platform for logical grouping objects by categories, so that all objects are effectively preserved. It can be applied on Connection, Table, Collection, View, Materialized View, Function, Index, Trigger, MapReduce, GridFS, Query, Backup, Automation, Model and Charts.

Hint: The vgroup.json file is saved under the default path, e.g. /home/your_username/.config/navicat/Premium/Profiles.

If you want to hide the group structure, choose **View** -> **Navigation Pane** -> **Flatten Connection** and choose **View** -> **Flatten Object List**.

Create a new group

1. In the main window, right-click on the Navigation pane or the Objects tab and select **New Group** or **Manage Group** -> **New Group**.
2. Enter a name for the new group.

Move an object to a group

1. In the main window, right-click an object and select **Manage Group** -> **Move To**.
2. Select an existing group.

Move an object to the top-level

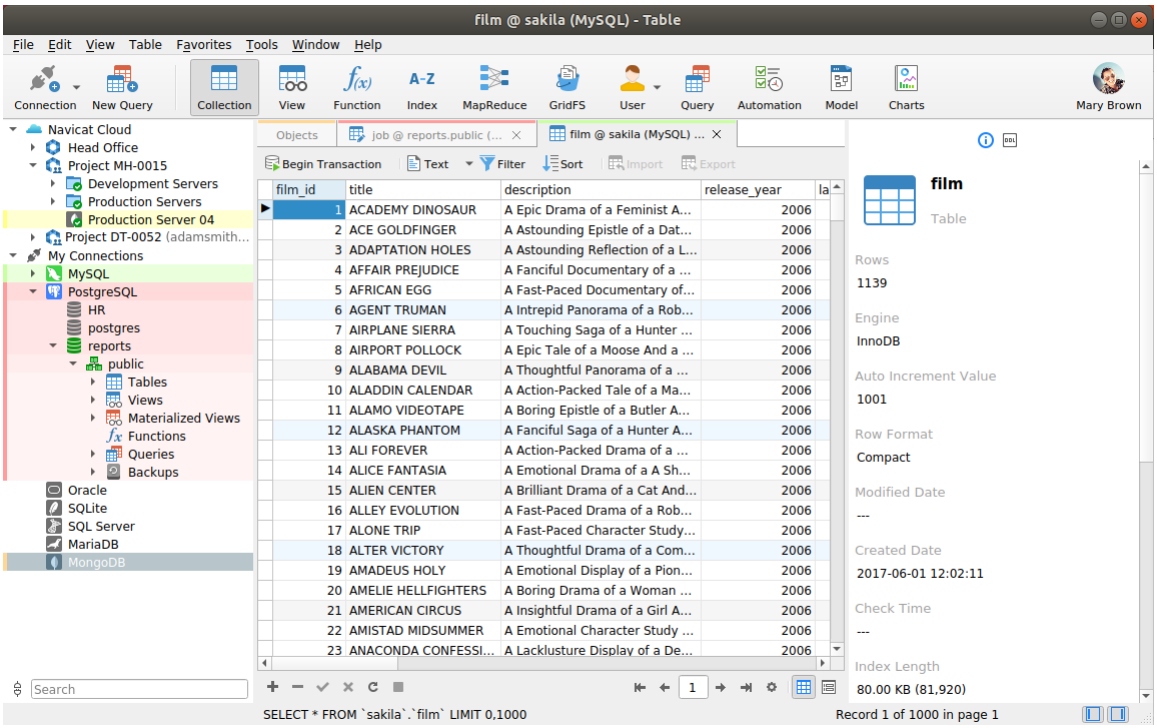
1. In the main window, right-click an object and select **Manage Group** -> **Exclude From Group**.

Hint: You can also use the drag and drop method to move objects.

Connection Colorings

Navicat provides highlighting connections by colors for identifying connections and their database objects. It lets you immediately know which connection you're connected to when you working on database objects. The highlighted color displays in the Navigation pane and the menu bar or the tab of its object window.

To highlight a connection, right-click a connection in the Navigation pane and select **Color**.



Find in Database/Schema (Available only in Non-Essentials Edition)

Navicat provides a **Find in Database/Schema** feature offers searching table and view records or object structures within a database and/or schema. To open the Find in Database/Schema window, choose **Tools** -> **Find in Database/Schema** from the menu bar.

1. Select a target **Connection**, **Database** and/or **Schema**.
2. Enter the search string in **Find what**.
3. Choose to find Data or Structure in the **Look in** drop-down list.
4. Choose the **Search Mode**: Contains, Whole Word, Prefix or Regular Expression.
5. Check the **Case Insensitive** box to disable case sensitive search if necessary.
6. When finding Structure, you can choose to search different objects: Tables, Collections, Views, Functions, Queries, Indexes, Triggers, Events and/or Materialized Views.

7. Click the **Find** button and then double-click an object in the **Find Results** list to view the record or the structure.

Print Structure (Available only in Non-Essentials Edition)

Navicat allows you to view and print database, schema and table structures, including table names, field names, field types and other field properties. In the main window, right-click a database, a schema or tables and select **Print Database** or **Print Schema** or **Print Tables**. A structure report window will pop up. You can send the structures to printer or print it to other file formats, such as PDF, HTML.

Note: Available only for MySQL, Oracle, PostgreSQL, SQLite, SQL Server and MariaDB.

Console

Console allows you to use a command-line interface to work with your server. In other words, it provides interactive text-based screen for you to query input and result output from databases. To open the Console window, open a connection and choose **Tools** -> **Console** from the menu bar or press F6.

Hint: You are allowed to open multiple console windows which each represents a different connection.

Oracle

For Oracle servers, you must have **SQL*Plus** executable for this feature to work. By default, Navicat will look for SQL*Plus under client folder (e.g. ORACLE_HOME\bin). However, if Navicat cannot locate SQL*Plus under the SQL*Plus default path, you are prompted to locate the executable.

Note: SQL*Plus does not support Unicode.

MongoDB

For MongoDB servers, you must have **Terminal** for this feature to work. If Navicat cannot locate Terminal under the Terminal default path, you are prompted to locate one.

Favorites (Available only in Non-Essentials Edition)

Favorites are links to database objects that you visit frequently. By adding a path to your favorites list, you can go to that database objects with a single click, instead of having to navigate the connection, database and/or schema in the Navigation pane.

Add a link to Favorites

1. Open an object, e.g. table.

2. Choose **File** / **Favorites** -> **Add to Favorites** or press SHIFT+CTRL+#. If the object is opened in tabbed window, you can right-click the tab and select **Add to Favorites**.

3. Enter **Favorite Name** and select **Favorite ID** if the **Add to Favorites** window pops up.

Open an object from Favorites

1. Choose **Favorites** -> **favorite_name** or press CTRL+#.

Remove links from Favorites

- Choose **Favorites** -> **Clear Favorites** -> **favorite_name** to remove a link.
- Choose **Favorites** -> **Clear Favorites** -> **Clear All** to remove all links from the favorites list.

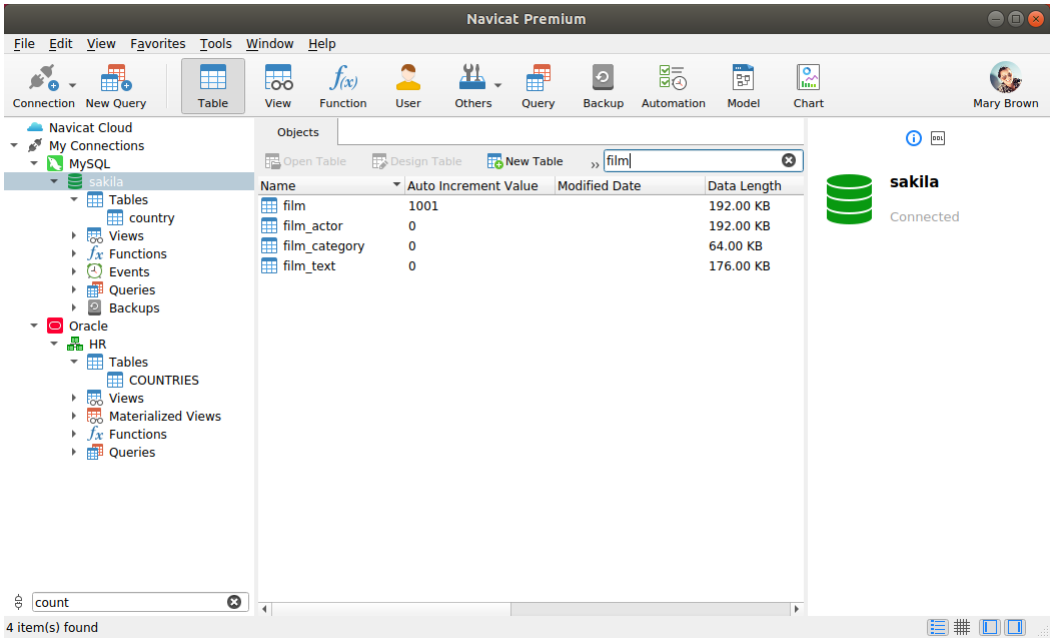
Note: # represents 1, 2, 3, 4, 5, 6, 7, 8 or 9.

Search Filter

Navicat provides search filters for searching your objects in the Navigation pane, the Objects tab, the Model Designer window and other tree structures.

Simply enter a search string in the **Search** text box directly. If connections have opened in the Navigation pane, the filter will also apply to their database objects.

You can remove the filter by deleting the search string.



Chapter 16 - Configurations

Options Settings

Navicat provides a complete user interface customization with various options for all tools.

To open the Options window, choose **Tools** -> **Options** from the menu bar.

General

General

Allow opening multiple forms for same object

Check this option to allow opening multiple instances of an object.

Show objects under schema in navigation pane

Display database objects using the tree structure in the Navigation pane. To expand a node, simply double-click it.

Hint: Reopen the database/schema to take effect.

Show function wizard

Display the function wizard (MySQL, Oracle, PostgreSQL, SQL Server or MariaDB) when you create a new function/procedure.

Check for updates on startup

Check this option to allow Navicat checks for new version when it starts.

Usage Data

Share usage data

Check this option to let your device sends us information about how you use Navicat to help us improve it. You can view the information being shared by clicking the **Usage Data** button.

High DPI

Scaling method

Choose the scaling method: As is, UI Controls, UI Controls + Font.

Scaling factor

Specify a scale factor (from 100% through 400%, in 25% increments) for scaling the UI controls or fonts.

Hint: Restart Navicat to take effect.

Tabs

Open new tab in

Set new pop-up windows to open as:

Option	Description
Main Window	Open a new tab in the main window.
Last Tab Window	Open a new tab in the last opened window, or a new window if there isn't any opened windows.
New Window	Open a new window.

On Startup

Control what tabs appear when you launch Navicat:

Option	Description
Open Objects tab only	Open the Objects tab only, and no other tabs.
Continue where you left off	Open the Objects tab, and reopen the same tabs you were opened when you last quit Navicat.
Open a specific tab or set of tabs	Open the Objects tab, and open the tabs you choose in **Set Tabs**.

Hint: Restart Navicat to take effect.

Query

Use code completion (Available only in Non-Essentials Edition)

When you type the . (dot) symbol or a character, the editor will offer you a pop-up list that showing some suggestions for the code completion.

Auto update code completion info (Available only in Non-Essentials Edition)

With this option is on, Navicat will get the latest database information for the code completion from your server automatically when you open the database/schema. Otherwise, you will need to update it manually in the Query window. You can click **Clear Code Completion Info** to delete the information for code completion feature that stored on your device.

Ask to save new queries/profiles before closing

With this option is on, Navicat will prompt you to save new queries or profiles every time when you quit the relevant sub-window.

Use Auto Save

Save automatically after modifications in Query Editor by defining the **Auto Save Interval (s)** (e.g. 30).

Editor

General

Show line number

Display line numbers at the left side of the editor for easily reference.

Use code folding

Code folding allows codes to collapse as a block and only the first line displayed in the editor.

Use brace highlighting

Highlight the pair of braces when your cursor moves to either one brace for easily reference.

Use syntax highlighting

Syntax highlight helps viewing codes clearly. Codes are highlighted in the editor with different colors and fonts according to the categories they belong to. This feature can be limited by setting the maximum file size (e.g. 10) in **Disable if file size is larger than (MB)** to increase performance.

Use word wrap

Enable the word wrap mode in the editor.

Tab Width

Enter the number of characters that a tab occupies, e.g. 5.

See SQL Editor or Script Editor.

Font and Colors

Editor Font

Define the font and its size used by editors.

Colors

Format your queries in the editor with colored syntax highlighting to improve readability. Set font colors to mark out different text fragments: Common, Keyword, String, Number, Comment and Background. Click on the color boxes and choose your desired color from the Color-Selection dialog window.

Records

Records

Limit records ☐ **records per page**

Check this option if you want to limit the number of records showed on each page in the grid/foreign key data selection globally. Otherwise, all records will be displayed in one single page.

Note: To adjust the settings for particular table/collection, see Data Viewer.

Auto begin transaction

Check this option to start a new transaction automatically when changing records in the table/collection. Otherwise, auto commit is on and you need click the **Begin Transaction** button in Data Viewer to start a transaction manually.

When starting a transaction in Data Viewer, you can use the **Commit** or **Rollback** buttons to commit or rollback the changes. See Data Viewer.

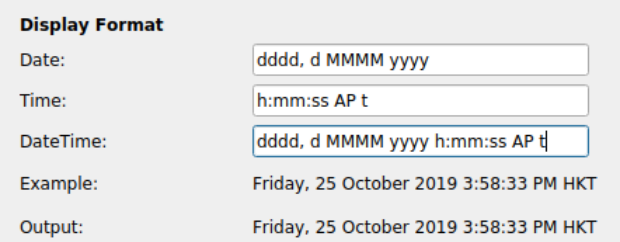
Grid

Grid Font

Define the font and its size used by grid in Data Viewer.

Display Format

Data of types date, time and datetime can be formatted when displayed on data grids. Type the format here to change the format. If the formats are left blank, default format will be used. Default formats will be the system datetime formats.



The following table shows specifiers you can use to create user-defined datetime formats.

Date Time Fields

Specifier	Description
d	Display the day as a number without a leading zero (1-31).
dd	Display the day as a number with a leading zero (01-31).
ddd	Display the day as an abbreviation (Sun-Sat).
dddd	Display the day as a full name (Sunday-Saturday).

M	Display the month as a number without a leading zero (1-12).
MM	Display the month as a number with a leading zero (01-12).
MMM	Display the month as an abbreviation (Jan-Dec).
MMMM	Display the month as a full month name (January-December).
yy	Display the year in two-digit numeric format with a leading zero (00-99).
yyyy	Display the year in four-digit numeric format (0000-9999).
h	Display the hour as a number without a leading zero using the 12-hour clock (1-12).
hh	Display the hour as a number with a leading zero using the 12-hour clock (01-12).
H	Display the hour as a number without a leading zero using the 24-hour clock (0-23).
HH	Display the hour as a number with a leading zero using the 24-hour clock (00-23).
m	Display the minute as a number without a leading zero (0-59).
mm	Display the minute as a number with a leading zero (00-59).
s	Display the second as a number without a leading zero (0-59).
ss	Display the second as a number with a leading zero (00-59).
AP	Display an uppercase AM with any hour before noon; display an uppercase PM with any hour between noon.
t	Display the time zone abbreviation.
/	Date separator. In some locales, other characters may be used to represent the date separator.
:	Time separator. In some locales, other characters may be used to represent the time separator.

Show Thousands Separator

Check this option to show the thousands separator for numeric data.

Proxy

Use Proxy

Check this option to use proxy for the activation process. Choose the **Proxy Type** and enter **Host**, **Port**, **User Name** and **Password**.

Environment

Executables

SQL*Plus Executable Path (Available only for Oracle)

Specify the location of SQL*Plus used in the console of Oracle connections. SQL*Plus is included in Oracle Client / Oracle Instant Client.

SQLite3 Dynamic Library Path

Specify the location for SQLite3 Dynamic Library.

Hint: Restart Navicat to take effect.

MongoDump Executable Path (Available only for MongoDB)

Specify the location of the mongodump executable that used for MongoDump.

MongoRestore Executable Path (Available only for MongoDB)

Specify the location of the mongorestore executable that used for MongoRestore.

MongoImport Executable Path (Available only for MongoDB)

Specify the location of the mongoimport executable that used for MongoImport.

MongoExport Executable Path (Available only for MongoDB)

Specify the location of the mongoexport executable that used for MongoExport.

External Editor

Choose the file path of an external editor for opening queries.

Terminal Path

Choose the file path of Terminal that used for MongoDB Console.

OCI Environment (Available only for Oracle)

OCI library (libclntsh.so)

Specify the location of the OCI library (libclntsh.so) for Oracle connection.

Use bundled instant client

Oracle Instant Client has already included in Navicat. Check this option to use the bundled one in Navicat.

Hint: Restart Navicat to take effect.

Oracle Instant Client is the simplest way to deploy a full Oracle Client application built with OCI, OCCI, JDBC-OCI, or ODBC drivers. It provides the necessary Oracle Client libraries in a small set of files. You can also download Oracle Client / Oracle Instant Client through -

Oracle Client

Oracle Instant Client

Download the appropriate Instant Client packages for your platform and the CPU. All installations REQUIRE the Basic or Basic Lite package. Unzip the packages and set the path points to it.

Chapter 17 - Hot Keys

Navicat Hot Keys

Common

Keys	Action
SHIFT+CTRL+# (# represents 1 to 9)	Add to Favorites
F8	Navicat Main Window / Objects Tab
CTRL+TAB or SHIFT+CTRL+TAB	Next Window / Tab
CTRL+Q	New Query
F1	Help

Navicat Main Window

Keys	Action
CTRL+# (# represents 1 to 9)	Open Favorites Link
F6	Console
CTRL+L	History Log
F12	Show Only Active Objects
CTRL+N	New Object
CTRL+SHIFT+T	Close Connection / Database / Schema
CTRL+SHIFT+F	Find in Database/Schema

ER Diagram View

Keys	Action
F5	Refresh
ESC	Select
H	Move Diagram
R	New Foreign Key
DELETE	Delete Selected Foreign Key
CTRL+=	Zoom In
CTRL+-	Zoom Out
CTRL+0	Reset Zoom

Table / Collection Designer

Keys	Action
CTRL+O	Open Table / Collection
CTRL+F	Find Field
F3	Find Next Field
SHIFT+F3	Find Previous Field

Data Viewer

Keys	Action
CTRL+D	Design Object (Table, Collection, View, Materialized View)
CTRL+Q	Query Object (Table, Collection, View, Materialized View)
CTRL+F	Find Text
F3	Find Next Text
CTRL+G	Go to Row
CTRL+HOME	Move to First Column and First Row of Current Page
CTRL+END	Move to Last Column and Last Row of Current Page
CTRL+PAGE UP	Move to First Row of Current Page
CTRL+PAGE DOWN	Move to Last Row of Current Page
SHIFT+ARROW	Select Cells
CTRL+N	Add Record
DELETE	Delete Records
CTRL+S	Apply Record Changes
ESC	Discard Record Changes
CTRL+T	Stop Loading Data

View / Materialized View Designer

Keys	Action
CTRL+E	Switch to Definition
CTRL+R	Preview
ALT+# (# represents 1 to 9)	Switch to Result 1 - 9

Query Designer

Keys	Action
CTRL+R	Run / Run Selected
CTRL+SHIFT+R	Run Current Statement
CTRL+T	Stop
ALT+# (# represents 0 to 9)	Switch to Result Tab

Query Editor

Keys	Action
CTRL+SHIFT+V	Paste from Clipboard Stack
CTRL+/	Comment / Uncomment Line
CTRL+F	Find Text
CTRL+G	Find Next Text
CTRL+H	Replace Text
CTRL+=	Zoom In
CTRL+-	Zoom Out

CTRL+0	Reset Zoom

SQL Builder

Keys	Action
CTRL+=	Zoom In
CTRL+-	Zoom Out
CTRL+0	Reset Zoom

Debugger

Keys	Action
F9	Run
F10	Step Over
F11	Step In
SHIFT+F11	Step Out

Model

Keys	Action
CTRL+D	New Diagram in Model
CTRL+P	Print Diagram
ESC	Select
H	Move Diagram
T	New Table/Entity
V	New View
R	New Foreign Key/Relation
A	New Label
N	New Note
I	New Image
L	New Layer
CTRL+B	Bold Selected Table, Entity, View, Foreign Key, Relation or Shape
CTRL+=	Zoom In
CTRL+-	Zoom Out
CTRL+0	Reset Zoom

Charts

Keys	Action
CTRL+D	Design Object
F5	Refresh Data
F11	Present Dashboard
CTRL+P	Print Dashboard

Chapter 18 - Trace Logs

Log Files

Navicat provides number of log files to keep track on the actions have been performed in Navicat and they are located in the default folder, e.g. /home/your_username/.config/navicat/Premium/Logs.

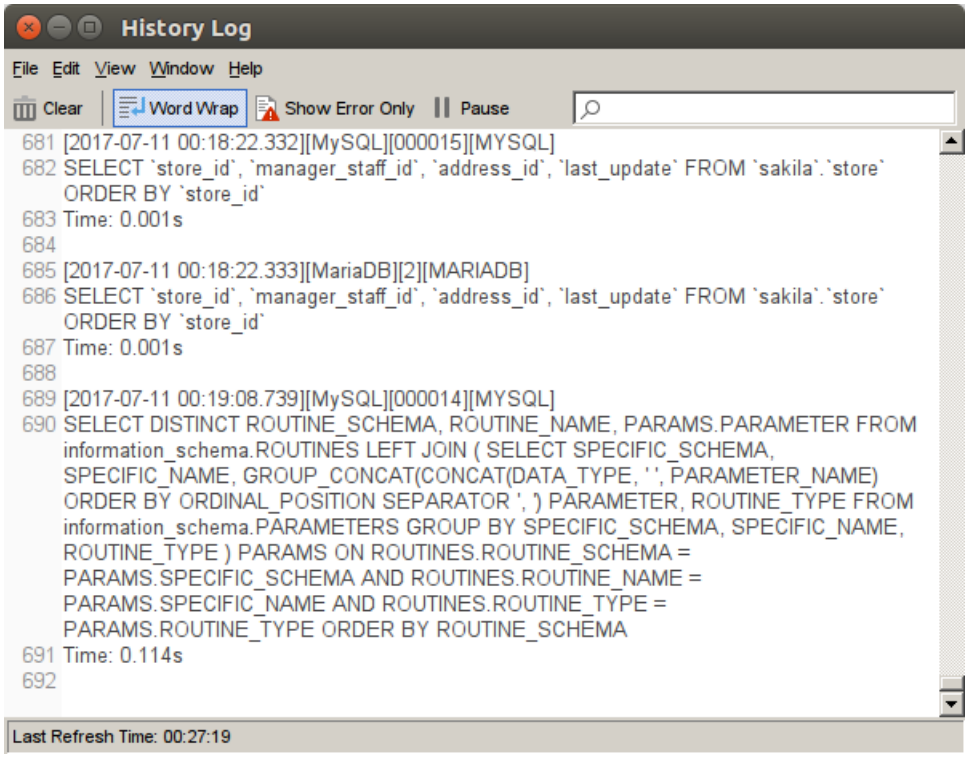
File	Description
QueryExec.log	Store the statements or scripts of all operations executed over databases and database objects in Navicat. To open the QueryExec.log file in the **History Log Viewer**, choose **Tools** -> **History Log** or press CTRL+H. **Note:** This log will be overwritten while Navicat is being restarted.
CmdLine.log	Store information for Navicat command line process and all operations while running batch jobs.
LogImport.txt	Record detailed information on every error (indicating success or failure) that occurred during the import process. **Note:** This log will be overwritten on each import.
LogExport.txt	Record detailed information on every error (indicating success or failure) that occurred during the export process. **Note:** This log will be overwritten on each export.

History Log Viewer

History Log Viewer shows the statements or scripts that are executed or executing in Navicat. If you just want to display error messages, click  **Show Error Only**. You can also change the information shown by choosing from the **View** menu -

- Show Date
- Show Time
- Show Server Name
- Show Session ID
- Show Connection Type
- Show Execute Time

Note: When you click  **Pause**, any actions that you do while history is paused will show after resuming.


History Log
File Edit View Window Help
Clear
Word Wrap
Show Error Only
Pause
681 [2017-07-11 00:18:22.332][MySQL][000015][MYSQL]
682 SELECT `store_id`, `manager_staff_id`, `address_id`, `last_update` FROM `sakila`.`store` ORDER BY `store_id`
683 Time: 0.001s
684
685 [2017-07-11 00:18:22.333][MariaDB][2][MARIADB]
686 SELECT `store_id`, `manager_staff_id`, `address_id`, `last_update` FROM `sakila`.`store` ORDER BY `store_id`
687 Time: 0.001s
688
689 [2017-07-11 00:19:08.739][MySQL][000014][MYSQL]
690 SELECT DISTINCT ROUTINE_SCHEMA, ROUTINE_NAME, PARAMS.PARAMETER FROM information_schema.ROUTINES LEFT JOIN (SELECT SPECIFIC_SCHEMA, SPECIFIC_NAME, GROUP_CONCAT(CONCAT(DATA_TYPE, ' ', PARAMETER_NAME) ORDER BY ORDINAL_POSITION SEPARATOR ', ') PARAMETER, ROUTINE_TYPE FROM information_schema.PARAMETERS GROUP BY SPECIFIC_SCHEMA, SPECIFIC_NAME, ROUTINE_TYPE) PARAMS ON ROUTINES.ROUTINE_SCHEMA = PARAMS.SPECIFIC_SCHEMA AND ROUTINES.ROUTINE_NAME = PARAMS.SPECIFIC_NAME AND ROUTINES.ROUTINE_TYPE = PARAMS.ROUTINE_TYPE ORDER BY ROUTINE_SCHEMA
691 Time: 0.114s
692
Last Refresh Time: 00:27:19