Navicat
Version 12.1

User Guide

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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, 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 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

macOS

- Mac OS X 10.10 Yosemite, Mac OS X 10.11 El Capitan, macOS 10.12 Sierra, macOS 10.13 High Sierra, macOS 10.14 Mojave

Linux

- Ubuntu 12.04, Ubuntu 14.04, Ubuntu 16.04, Ubuntu 18.04, CentOS 6.7, CentOS 7, Fedora 22, Fedora 23, Fedora 26, Linux Mint 13, Linux Mint 17.3, openSUSE 13.2, openSUSE 42.1, Debian 9

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

- MariaDB 5.1 or later

- MongoDB 3.0 to 4.0

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 MariaDB

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 Database for MySQL

- Microsoft Azure Database for PostgreSQL

MongoDB Cloud Services

- MongoDB Atlas

Alibaba Cloud

- Alibaba Cloud ApsaraDB for RDS (MySQL)

- Alibaba Cloud ApsaraDB for RDS (PostgreSQL)

- Alibaba Cloud ApsaraDB for MongoDB

Tencent Cloud

- TencentDB for MySQL

- TencentDB for PostgreSQL

- TencentDB for MariaDB

- TencentDB for MongoDB

Huawei Cloud

- Huawei Cloud RDS for MySQL

- Huawei Cloud RDS for PostgreSQL

- Huawei Cloud Document Database Service

Installation

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

Note: Installing Navicat does not include the server installation. You should download and install the server manually. For user who has been trying our unregistered version, just simply key in the **Registration Key** (16 digit) on the pop up Registration screen.

Installation for Download Version

1. Download Navicat Linux version.

2. Open the **gzip** file.

3. Extract the file into anywhere you wish.

4. Run the **start_navicat** file to start your Navicat. Please note that it would take a while for starting-up.

5. A Registration screen will then pop up, key in the **Registration Key** (16 digit) and click **Activate** to online activate the key.

Installation for CD Version

1. Load the Navicat CD Installation disk into the CD-ROM drive.

2. Open the **gzip** file.

3. Extract the file into anywhere you wish.

4. Run the **start_navicat** file to start your Navicat. Please note that it would take a while for starting-up.

5. A Registration screen will then pop up, key in the **Registration Key** (16 digit) and click **Activate** to online activate the key.

Migrate Navicat to 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** and click **Deactivate** to online deactivate the key.

4. Uninstall Navicat from the existing computer.

5. Re-install Navicat in the new computer.

6. Open Navicat and choose **File** -> **Import Connections** in the new computer.

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 profiles. To look for the path, choose **Tools** -> **Options** -> **File Locations** -> **Profiles Location**.

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.
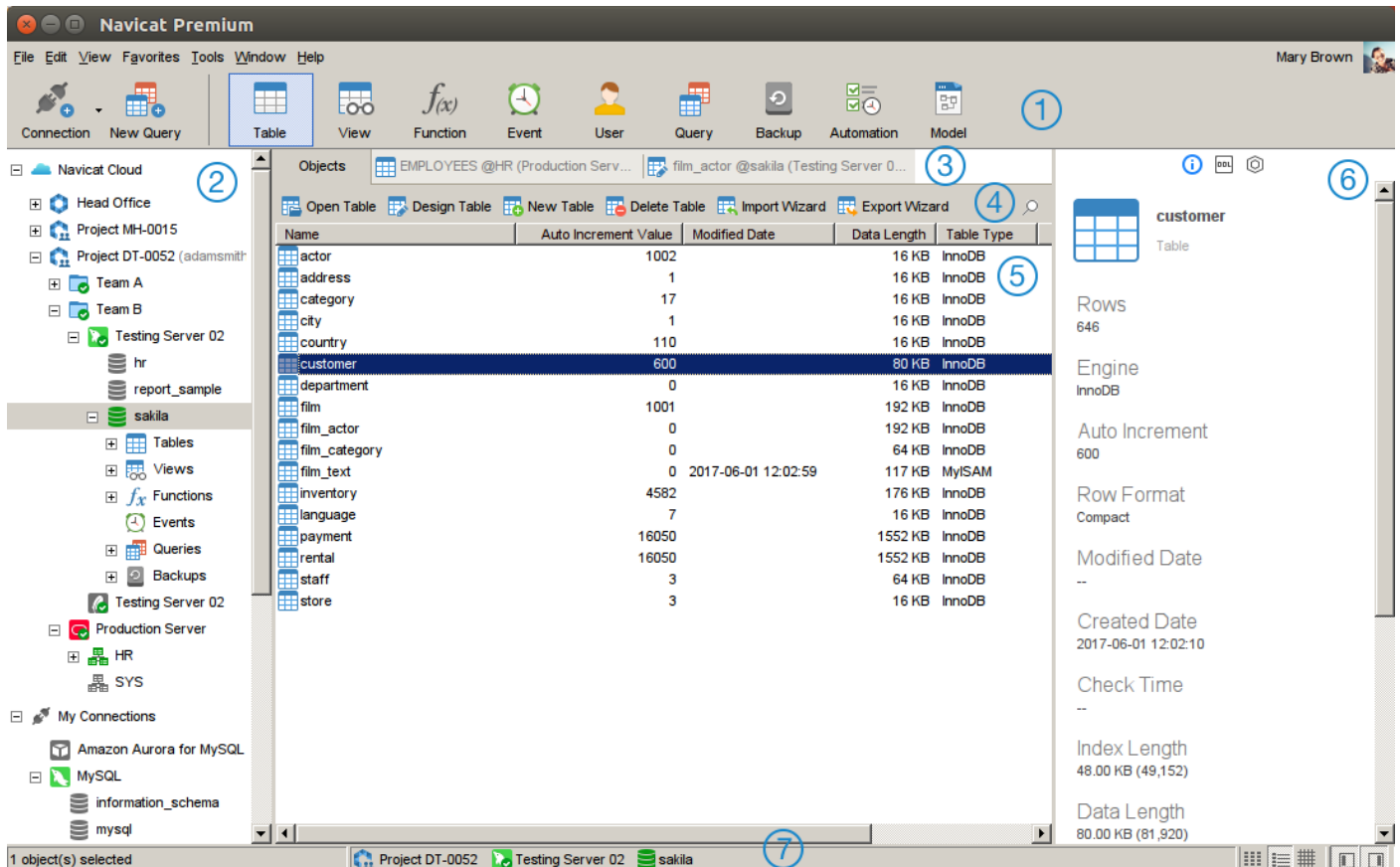
① Main Toolbar

The Main Toolbar allows you to access basic objects and features, such as connections, users, tables, collections, backup, automation and more. To use small icons or hide the captions, right-click on the toolbar and disable **Use Big Icons** or **Show Caption**.

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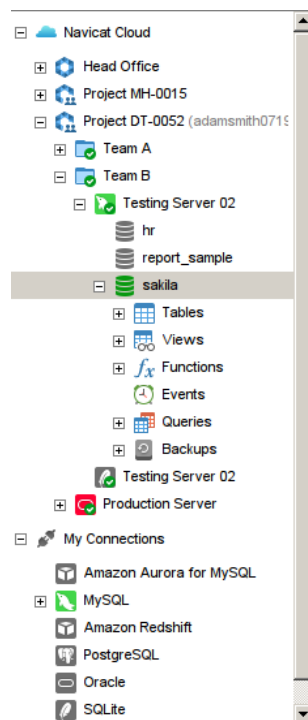
You can filter the tree by focusing the tree and type a search string. To show the opened objects only, choose **View** -> **Navigation Pane** -> **Show Only Active Objects** from the menu bar.

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 ⊞ **List**, ☰ **Detail** and ⊞ **ER Diagram** buttons to change the object view.

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

List View

By default, Navicat uses the **List** view. It only shows the names of objects.

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 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.
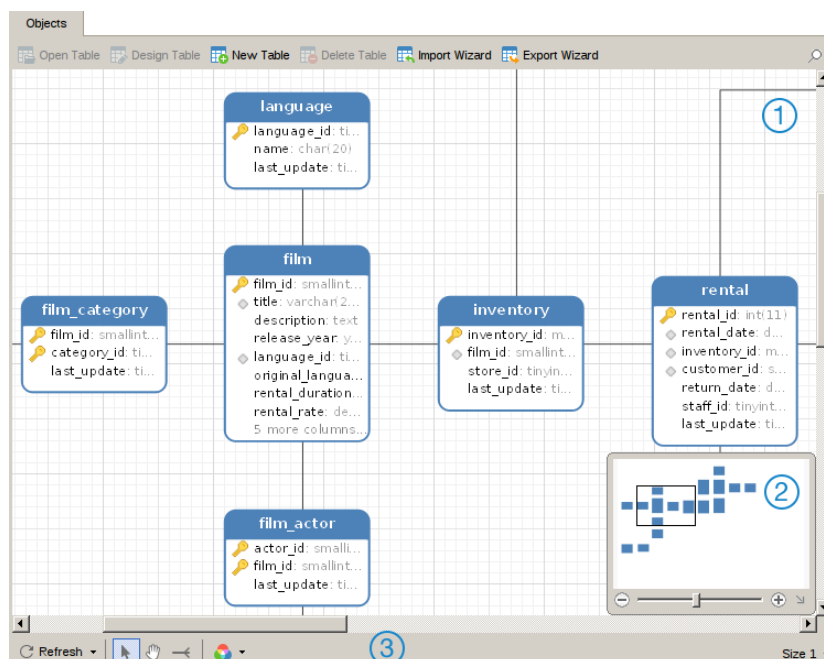
① **Diagram Canvas**

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++] or [CTRL+Mousewheel up]

Zoom Out: [CTRL+-] or [CTRL+Mousewheel down]

③ **Bottom Toolbar**

C **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	**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.
⬡	**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

- 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.

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.

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.

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, 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
	MariaDB	.nbakmariadb
Data Pump Export Profile	Oracle	.nbakora
ER Diagram File	MySQL, Oracle, PostgreSQL, SQLite and MariaDB	.ned
Export Materialized View Profile	Oracle	.nexpmora
	PostgreSQL	.nexpmpgsql
Export Query Result Profile	MySQL	.nexpqmysql
	Oracle	.nexpqora
	PostgreSQL	.nexpqpgsql
	SQLite	.nexpqsqlite
	MariaDB	.nexpqmariadb
	MongoDB	.nexpqmongodb
Export Table/Collection Profile	MySQL	.nexptmysql
	Oracle	.nexptora
	PostgreSQL	.nexptpgsql
	SQLite	.nexptsqlite
	MariaDB	.nexptmariadb
	MongoDB	.nexptmongodb
Export View Result Profile	MySQL	.nexpvmysql
	Oracle	.nexpvora
	PostgreSQL	.nexpvpgsql
	SQLite	.nexpvsqlite
	MariaDB	.nexpvmariadb

	MongoDB	.nexpvmongodb
Import Table/Collection Profile	MySQL	.nimpmysql
	Oracle	.nimpora
	PostgreSQL	.nimppgsql
	SQLite	.nimpsqlite
	MariaDB	.nimpmariadb
	MongoDB	.nimpmongodb
MapReduce	MongoDB	.mapreduce
Query	MySQL, Oracle, PostgreSQL, SQLite and MariaDB	.sql
	MongoDB	.js

Use compression

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

Use named pipe, socket

Use socket file for localhost connection.

Databases / Attached Databases Settings

MySQL, Oracle, PostgreSQL, 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 $f_{(x)}$ **Function** to open the function object list.

Function Wizard

Click $f_{\odot}$ **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**.

Hint: Once uncheck the **Show wizard next time** option, you can go to Options to enable it.

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 $f_{\triangleright}$ **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 10 result sets.

Events

An event is a task that run according to a schedule. In the main window, click 🕒 **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.

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 $f(x)$ **Function** to open the function object list.

Function Wizard

Click f **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.

Hint: Once uncheck the **Show wizard next time** option, you can go to Options to enable it.

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 10 result sets.

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
C	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.

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.

Functions

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

Function Wizard

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

1. Define the parameters. Set the **Mode**, **Type Schema**, **Type**, **Name** and **Default Value** under the corresponding columns.

2. Select the **Schema** and **Return Type** from the list.

Hint: Once uncheck the **Show wizard next time** option, you can go to Options to enable it.

Function Designer

Function Designer is the basic Navicat tool for working with 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 function, click *f▶* **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 function, execution stops, the appropriate error message is displayed. If the function requires input parameters, the **Input Parameter** dialog will pop up. Check the **Raw Mode** option to pass the inputted values to the function without quotation marks.

Note: Navicat supports to return 10 result sets.

Debug (Available only in Non-Essentials Edition)

Before debugging PL/pgSQL 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 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.

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.

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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 $f_{(x)}$ **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 f **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 A-Z **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.
$f_{\uparrow}$	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**.
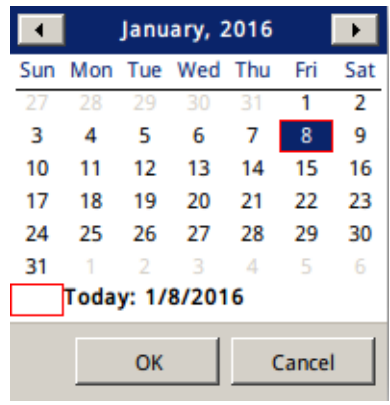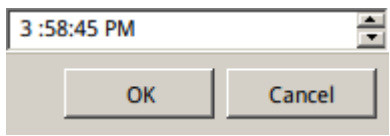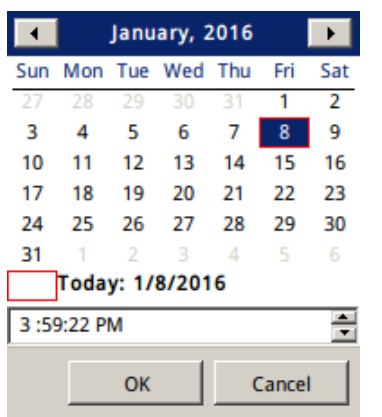
Note: Available only for MySQL, Oracle, PostgreSQL and MariaDB.

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

To edit a Date/Time record, just simply click ⋯ or press CTRL+ENTER 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 and MariaDB.

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 ![...] or press CTRL+ENTER 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.
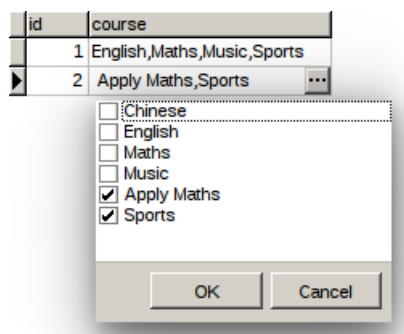
To view BFile content, just simply choose **View** -> **Display** -> **Preview BFile**.

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 ![...] or press CTRL+ENTER to open the editor for editing.
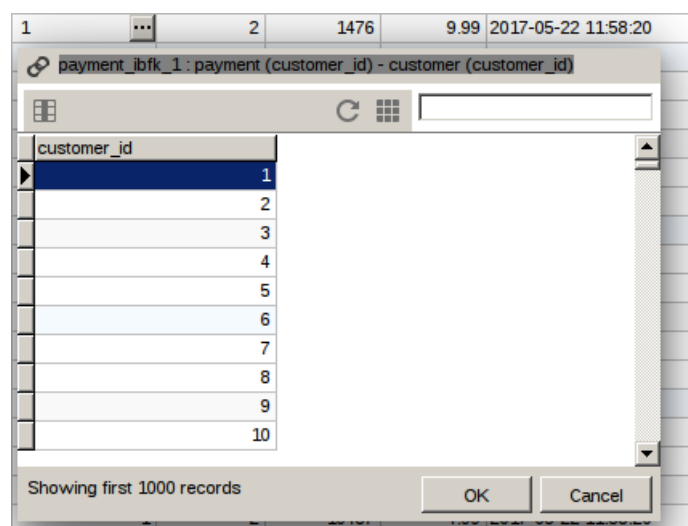
Just simply double-click to select the desired data.

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

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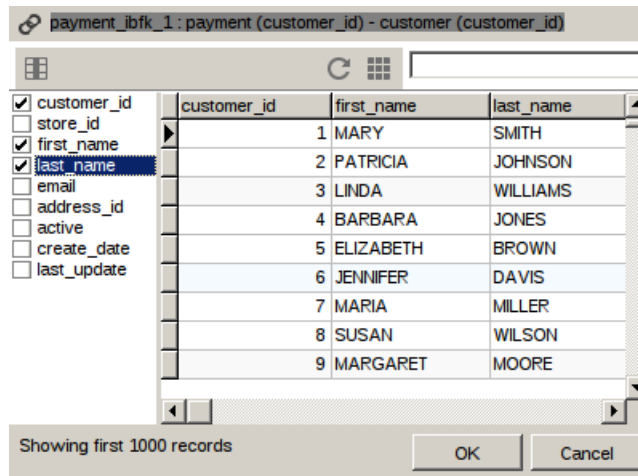
Hint: To set column in ascending or descending mode, right-click anywhere on the column and select **Sort** -> **Sort Ascending** / **Sort Descending**.

Enter a search string into the **Filter** edit box and press ENTER to filter for the particular records.
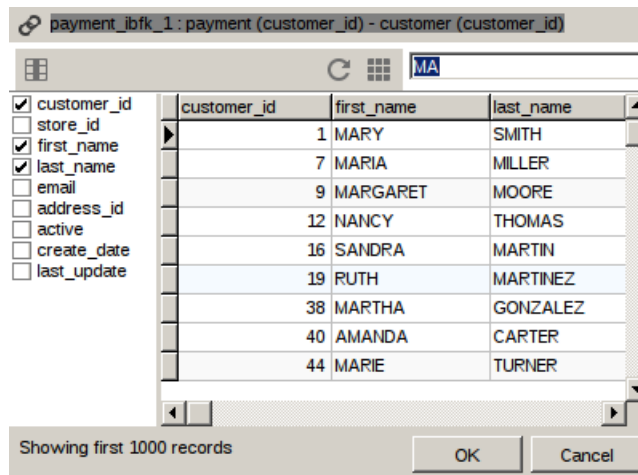
Hint: To remove the filter results, simply remove the search string and press ENTER.

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 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
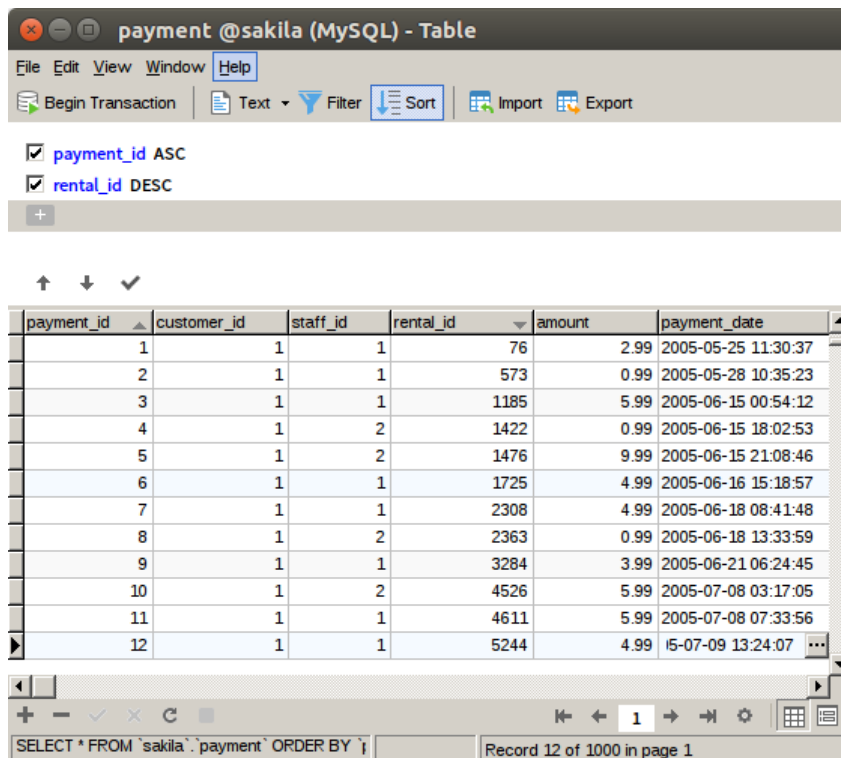
Sort Records

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.
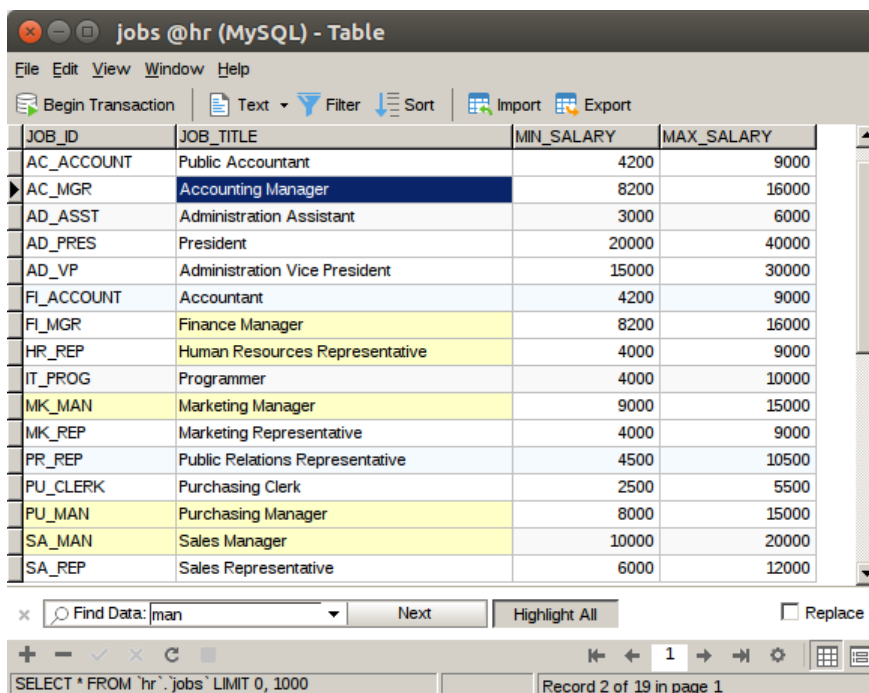
Find and Replace

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.
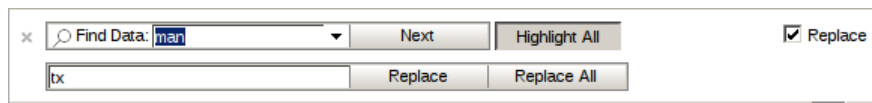
Find Fields

To search a field, just simply choose **Edit** -> **Find** or press CTRL+F. Then, choose **Find Field** and enter a search string.
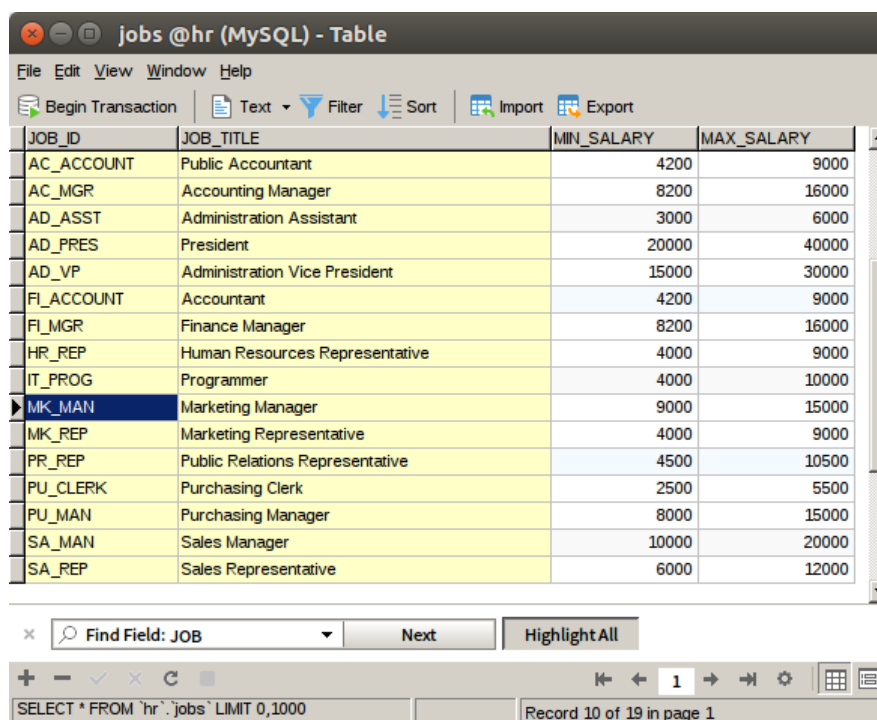
There are some additional options for Find and Replace, click 🔍:

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, PostgreSQL, SQLite 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

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 until a double black line appears in the desired location.

3. Release the mouse and the column will move.

JOB_ID	JOB_TITLE	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

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.

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.
C	**Refresh** - refresh the data.
■	**Stop** - stop when loading enormous data from server.
I←	**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.
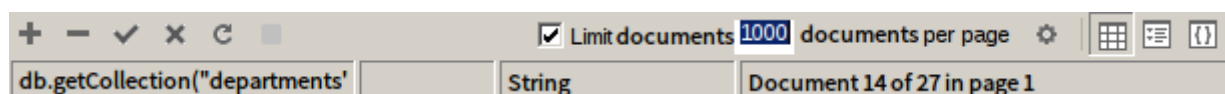
Document a **of** b **in page** c

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 [...] or press CTRL+ENTER to open the editor for editing. Choose/enter the desired data.
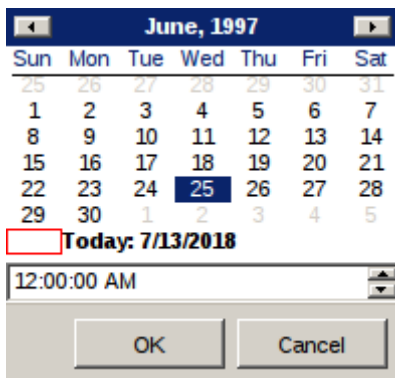
To change the type of a cell value, right-click the selected cell and select **Value Type**. Then, select the desired type.

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 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.
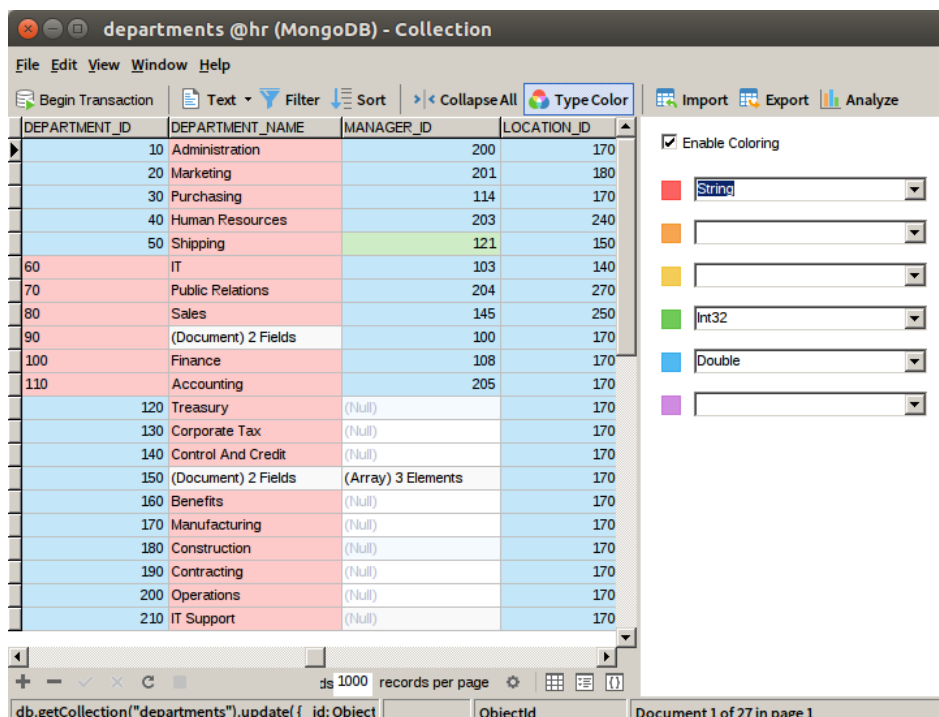
Expand/Collapse Embedded Documents

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**.

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**.

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.
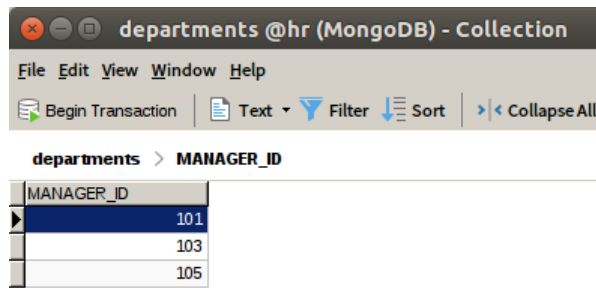
Move Columns

- Click on the column header and hold down the left mouse button.

- Move the pointer until a double black line appears in the desired location.

- Release the mouse and the column will move.

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.

	DEPARTMENT_ID	DEPARTMENT_NAME	LOCATION_ID
☐ _id			
☑ DEPARTMENT_ID	10	Administration	1700
☑ DEPARTMENT_NAME	20	Marketing	1800
☐ MANAGER_ID	30	Purchasing	1700
☑ LOCATION_ID	40	Human Resources	2400
	50	Shipping	1500
▶ 60		IT	1400

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.

```
_id :    5b3c34124348b20a10003a9c                                    Object ID
DEPARTMENT_ID :    150                                               Double
☐ DEPARTMENT_NAME :    (Document) 2 Fields                          Document
        NAME1 :    CS                                                String
        NAME2 :    IT Support                                        String
        ⊞
☐ MANAGER_ID :    (Array) 3 Elements                                Array
        0 :    101                                                  Double
        1 :    103                                                  Double
        2 :    105                                                  Double
        ⊞
LOCATION_ID :    1700                                                Double
        ⊞
```

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
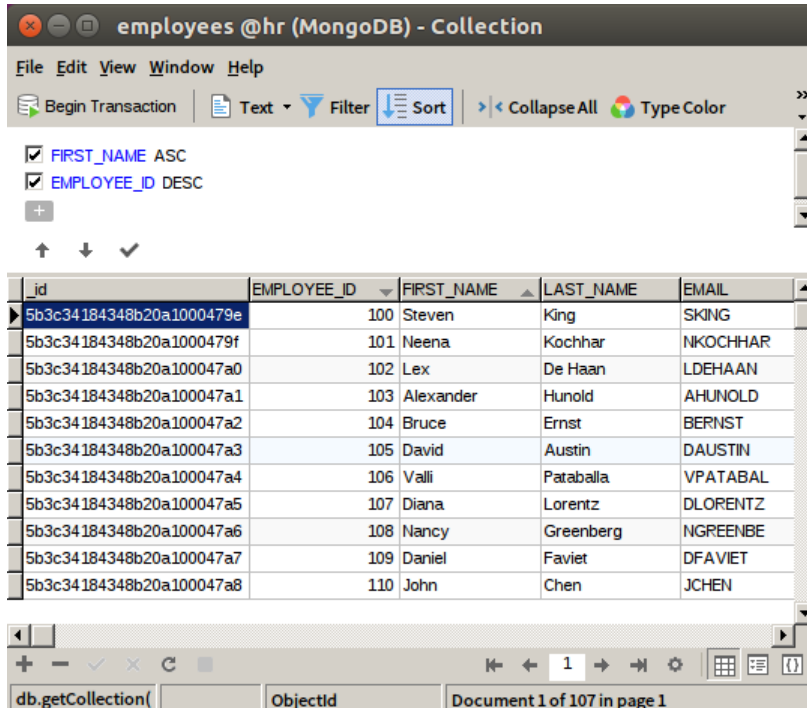
Sort Documents

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**.

_id	DEPARTMENT_ID ▾	DEPARTMENT_NAME	MANAGER_ID
b3c34124348b20a10003a8e		Sort Ascending	200
5b3c34124348b20a10003a8f		Sort Descending	201
5b3c34124348b20a10003a90			114
5b3c34124348b20a10003a91		Remove Sort	203
5b3c34124348b20a10003a92	50	Shipping	121
5b3c34124348b20a10003a93	60	IT	103

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

_id	EMPLOYEE_ID ▾	FIRST_NAME ▴	LAST_NAME	EMAIL
5b3c34184348b20a1000479e	100	Steven	King	SKING
5b3c34184348b20a1000479f	101	Neena	Kochhar	NKOCHHAR
5b3c34184348b20a100047a0	102	Lex	De Haan	LDEHAAN
5b3c34184348b20a100047a1	103	Alexander	Hunold	AHUNOLD
5b3c34184348b20a100047a2	104	Bruce	Ernst	BERNST
5b3c34184348b20a100047a3	105	David	Austin	DAUSTIN
5b3c34184348b20a100047a4	106	Valli	Pataballa	VPATABAL
5b3c34184348b20a100047a5	107	Diana	Lorentz	DLORENTZ
5b3c34184348b20a100047a6	108	Nancy	Greenberg	NGREENBE
5b3c34184348b20a100047a7	109	Daniel	Faviet	DFAVIET
5b3c34184348b20a100047a8	110	John	Chen	JCHEN

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.
Regular Expression	Search regular expressions.
Whole Word	Return the objects that match the entire word of the search string.

Assistant Editors

Navicat provides powerful assistant editors to view and edit TEXT, BLOB, BFile and Dynamic Column fields content. The editor allows you to view, update, insert, or delete data in a table or a collection. Click 📄 **Text**, ▦ **Hex**, 🖼 **Image**, 🌐 **Web** and ▦ **Dynamic Column** 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.

The **Web** pane allows you to show data with HTML codes as in a web browser.

The **Dynamic Column** pane allows you to edit dynamic column data in MariaDB. Use the ➕ and ➖ buttons on the left to add and delete values.

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.
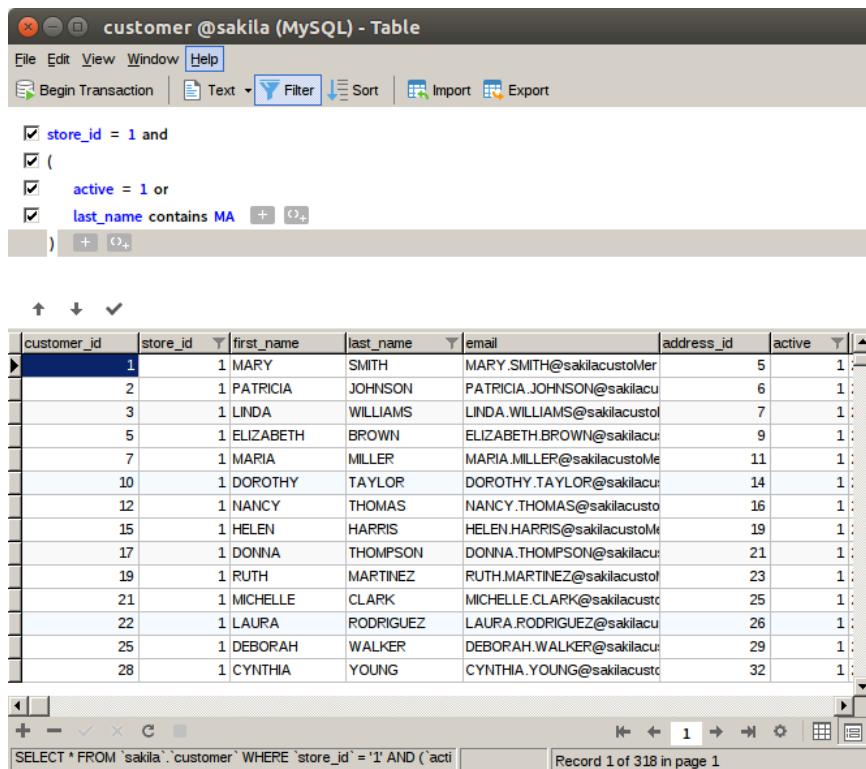
Create Filter

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 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 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. In the main window, click ⊞ **New Query**.

2. In Query Designer, choose **File** -> **Open External File**.

3. Select the file and choose the encoding.

4. Click **Open**.

Save an opened external file as a Navicat query

1. In Query Designer, choose **File** -> **Save As Navicat Query**.

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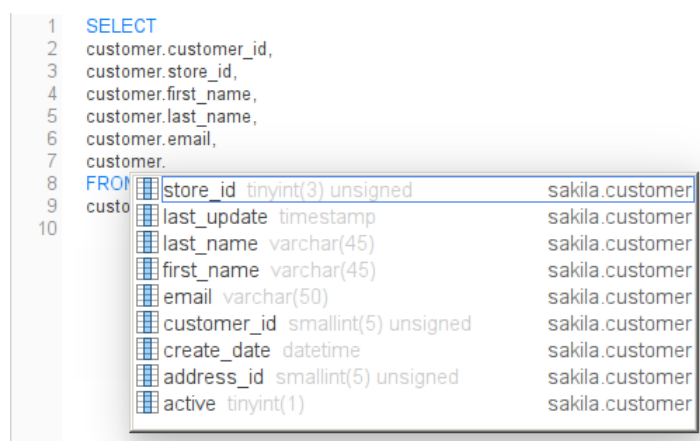
In addition, code completion can be invoked by typing a character or pressing ESC / CTRL+SPACE on your keyboard for SQL keywords/database objects.

If you select a snippet name from the list, the saved code will be inserted to the editor.
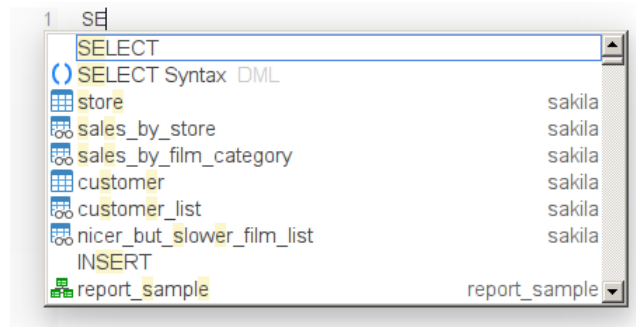
Hint: Resize the suggestion list by dragging the lower right corner.

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

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.

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 SQL Builder for building queries visually. It allows you to create and edit queries without knowledge of SQL. The database objects are displayed in left pane. Whereas in the right pane, it is divided into two portions: the upper **Diagram Design** pane, and the lower **Syntax** pane.

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

Note: SQL Builder supports SELECT statement only. Use SQL Editor for creating complex queries.

Drag a table/view from the left pane to the Diagram Design pane or double-click it to add it to query. To include a field in the query, check the left of the field name in the Diagram Design pane. To include all the fields, click at the left of the object caption.

To remove the object from the Diagram Design pane, click the cross button at the object caption.

To add the table/view alias, simply double-click the table/view name and enter the alias in the Diagram Design pane.

Hint: You are also allowed to set criteria by right-click any fields from the Diagram Design pane.
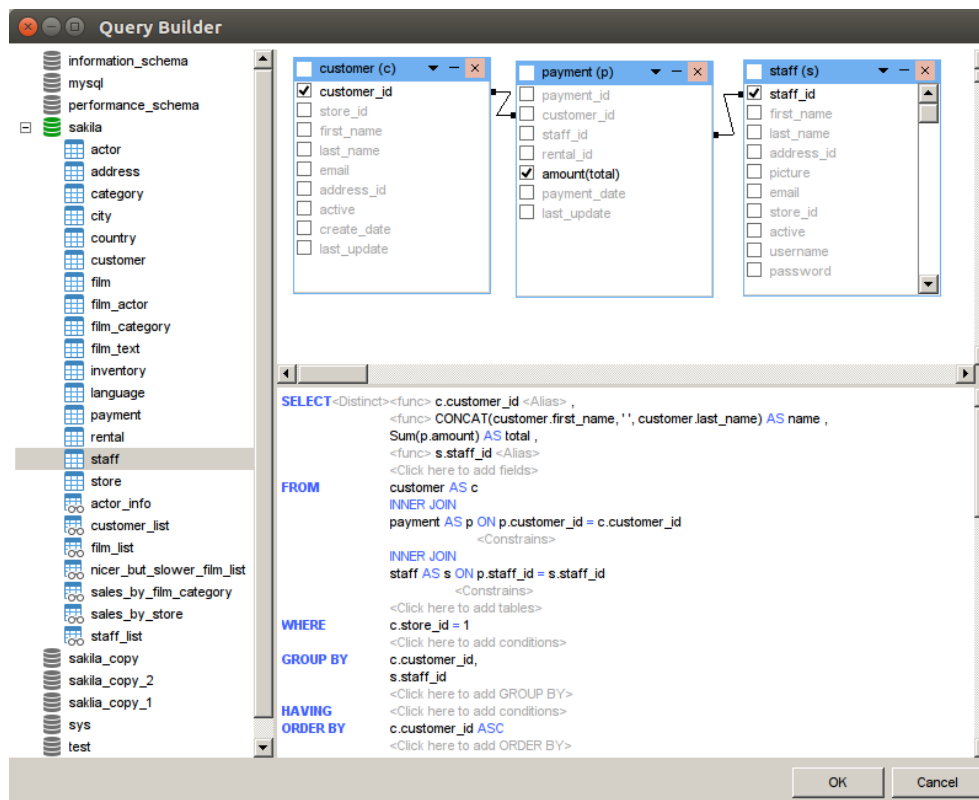
Set Field Association

To associate database objects by two fields, just drag one field from the object to another and a line will appear between the linked fields.

Hint: To delete all the links of some object, click button '-' next to the object alias.

Go to the Syntax pane to change the association between the links, click the operator and choose the properties item from the pop-up menu. You can change the association condition by choosing it from the list (=, <>, <, <=, >, >=). Click **OK** to confirm the changes you made. Also you can change the type of Join.

Set Output Fields

The fields you have selected in the Diagram Design pane will be displayed in the Syntax pane which allows you to set their displaying order and modify the output fields of the query using **<Distinct>**, **<func>** and **<Alias>**.

<Distinct>

Enable this option if you wish the repeated records are not included into the query result.

<Func>

Set the aggregate functions (SUM, MAX, MIX, AVG, COUNT) for each field.

<Alias>

Change the output query field name.

Set Criteria

To add a condition, click the **<--> = <-->** from the **WHERE** clause in the Syntax pane. Click **<-->** to choose the field from the list of all the table fields, available in the query. To define your own criteria, type your values directly in the Edit Tab. Clicking **=** to set condition operator.

Set Grouping Criteria

You can set the conditions for grouping query records from the **GROUP BY** clause in the Syntax pane. They are set in the same way as setting criteria. The conditions will be included into the **HAVING** statement of the current query.

Set Sorting Criteria

You can set the way of sorting query records from the **ORDER BY** clause in the Syntax pane. To change the sorting direction, click on either **ASC** or **DESC**.

Set Limit Criteria

LIMIT clause is used to limit your query results to those that fall within a specified range. You can use it to show the first X number of results, or to show a range X - Y results.

It is phrased as Limit X, Y and included at the end of your query. X is the starting point (remember the first record is 0) and Y is the duration (how many records to display).

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

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 10 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.
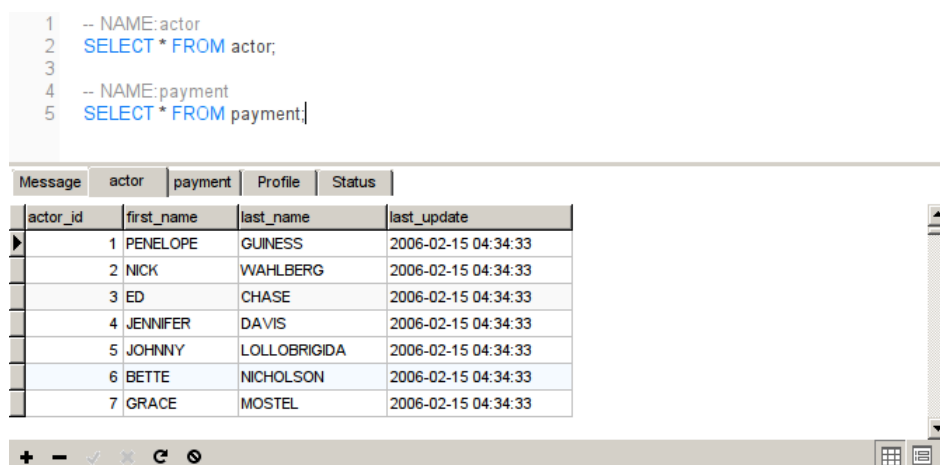
Show Profile and Status (Available only for MySQL and MariaDB)

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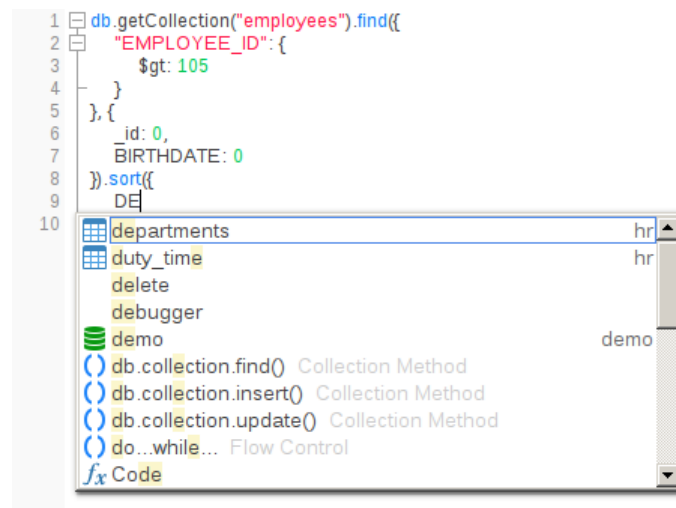
When the suggestion list appears, press TAB to insert the first item. You can also select the needed item using UPPER ARROW or DOWN ARROW and then press TAB or ENTER.

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.

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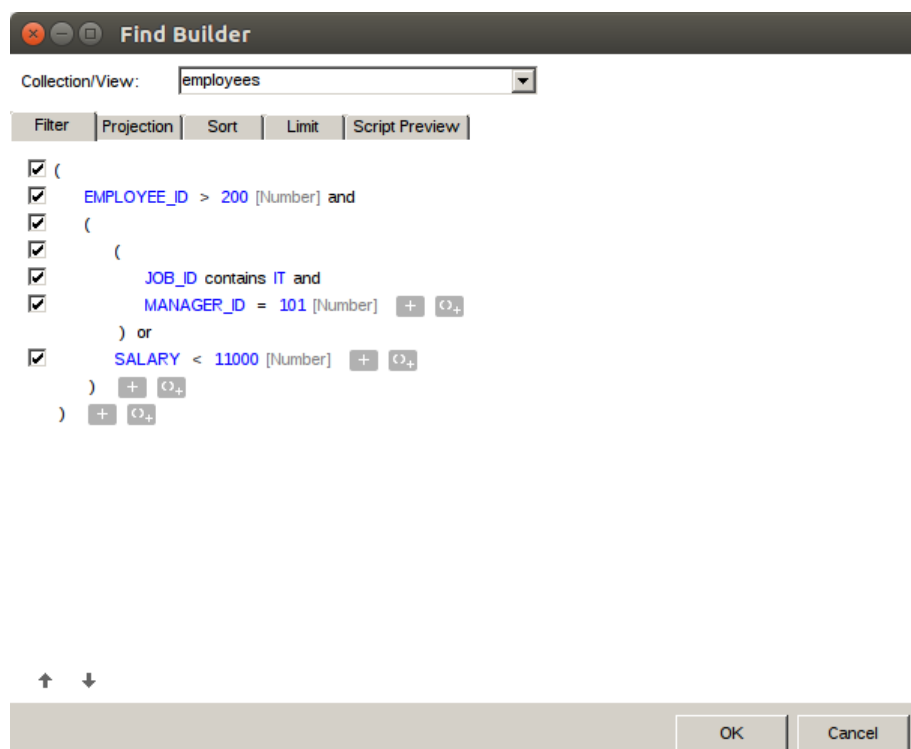
Select the name of the collection or view to query from the **Collection/View** drop-down list.

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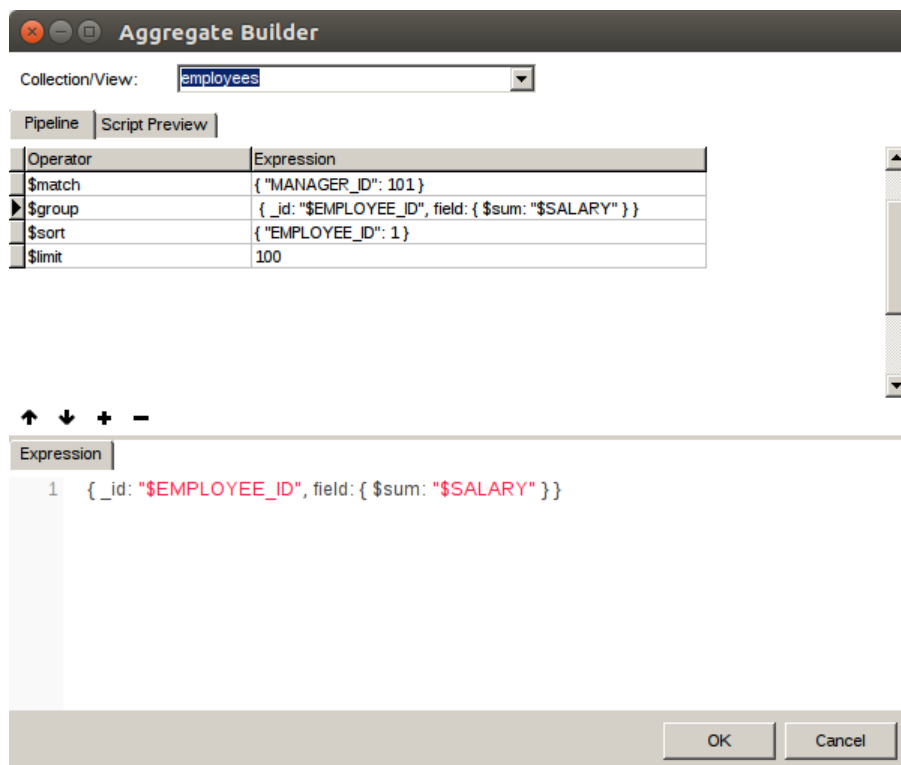
Select the name of the collection or view to query from the **Collection/View** drop-down list.

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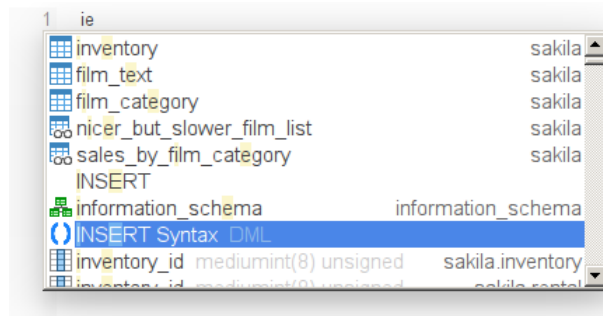
- You can simply drag and drop a snippet from the library into the editor.

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 **snippets** folder under the Profiles Location.

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 and MariaDB.

Some of key features are listed here:

- Create and manipulate a physical model graphically.

- 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.

To create a model, click ▣ **New Model** from the object toolbar. The New Model window will pop up for you to select the **Database** and **Version**.

Hint: Model files (.ndm) are saved under the Profiles Location. 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.

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.
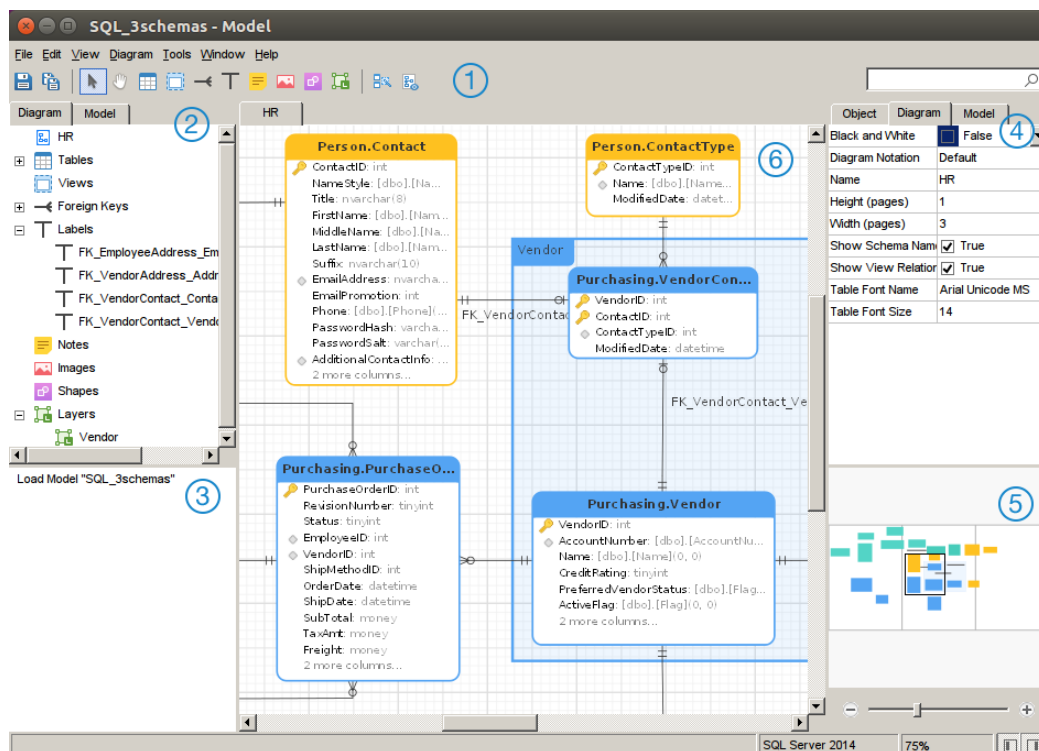
① Toolbar

The Toolbar is located near the top of the Model Window. You can use the toolbar to perform some basic tasks, such as adding tables or views, applying Auto Layout feature, etc.

② Explorer Pane

The Explorer pane has two tabs: **Model** and **Diagram**. The Model tab holds all tables or views 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 Explorer** and **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 or press CTRL+B to bold the table, view, foreign key or shape.
Border Color	The color of the shape's border.
Cap Style	The cap style of the line/arrow.

Case Sensitivity	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 Type	The database type of the model.
Database Version	The database version of the model.
Diagram Notation	The notation of the diagram. The value for this can be Default, Simple, IDEF1X, UML, IE (Crow's Foot) or Classic.
End Arrow Style	The style of the arrow's front.
Font Bold	Check this box to bold the note/label font.
Font Color	The font color of the note, label or layer.
Font Italic	Check this box to apply an italic style to the note or label font.
Font Name	The font name of the note, label or layer.
Font Size	The font size of the note, label or layer.
Height	The height of the object.
Height (pages)	The height of the diagram (number of papers).
Join Style	The join style of the line/arrow.
Left	The number of pixels from the object to the left side of the canvas.
Model Type	The type 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.
Referenced Cardinality	The foreign key cardinality of the referenced (parent) table.
Referencing Cardinality	The foreign key cardinality of the referencing (child) table.
Schema Name	The schema names of the table/view.
Show Name	Check this box to show the name of the foreign key or shape.
Show Schema Name	Check this box to show the schema names of the tables/views in the diagram.
Show View Relationships	Check this box to show the relationship line of the view.
Table Font Name	The font name of the tables.
Table Font Size	The font size of the tables.
Top	The number of pixels from the object to the top of the canvas.
Visible	Check this box to show the foreign key/relationship lines.
Width	The width of the object.
Width (pages)	The width of the diagram (number of papers).

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. If the Overview pane is hidden, choose **View** -> **Show Properties** and **Show Overview** from the menu bar. Same effect can be achieved with keyboard shortcuts:

Zoom In: [CTRL++] or [CTRL+Mousewheel Up]

Zoom out: [CTRL+-] or [CTRL+Mousewheel Down]

⑥ **Diagram Canvas**

You can design your diagram on the Diagram Canvas.

Build Diagram

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.

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 T 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

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

To add a new shape (line, arrow, rectangle, ellipse, user, database, cloud, trigger, server, desktop or mobile), 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.

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.

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, 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, 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.

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 synchronization type.

3. Select the source databases, schemas, tables or views and the target connection from existing connections.

4. Select the compare and execution options.

5. Click **Compare** to generate a set of scripts that show the differences between source and target objects.

6. Select the scripts you want to run.

7. Click **Run Query**.

Select Synchronization Type

Sync with selected schemas

Set the synchronization to work on all objects in the selected schemas.

Sync with selected objects

Set the synchronization to work on the selected objects only.

Select Schemas/Objects and Connection

In this step, choose one or more schemas or objects in model to compare to the target schemas or objects. If objects in model are from existing schemas, you can select the existing schemas. Otherwise, enter a target schema name in **Objects without schema will synchronize to this schema** for the source model objects to compare to.

Then, choose target connection and database from existing connections.

Select Compare and Advanced Options

Note: The following options depend on the diagram database type you are chosen and sort in ascending order.

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 identifier with case sensitive

Check this option if you want to compare table identifier with case sensitive option.

Compare indexes

Check this option if you want to compare indexes.

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 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.

Continue on error

Ignore errors that are encountered during the synchronization process.

SQL for objects to be changed

Check this option to include all related SQL statements if database objects will be changed in the target.

SQL for objects to be created

Check this option to include all related SQL statements if new database objects will be created in the target.

SQL for objects to be dropped

Check this option to include all related SQL statements if database objects will be dropped from the target.

View Comparison Result

The **Source Objects** and **Target Objects** views show the differences between model and database/schema objects after the comparison of their structures, providing with the detailed SQL statements shown in the **Queries for Modification** list.

The red item represents the non-existence for the other database/schema. The blue item represents the existence for the other database/schema, but different definition detected.
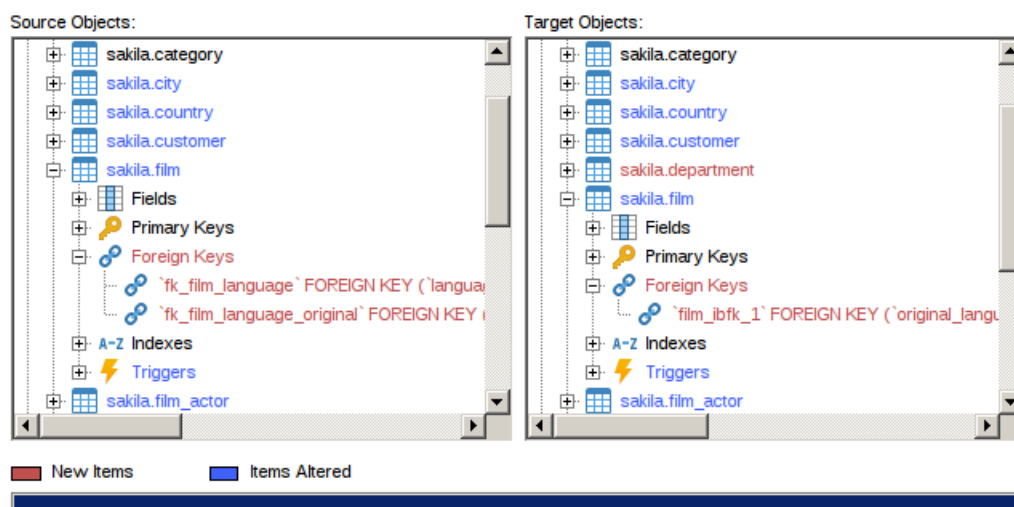
All the scripts are unchecked in the **Queries for Modification** list by default. Check the scripts you want to apply to the target.

You can highlight multiple lines of scripts, and then right-click to show the pop-up menu. Choose **Checked Scripts Detail** to view the full SQL statements you selected.
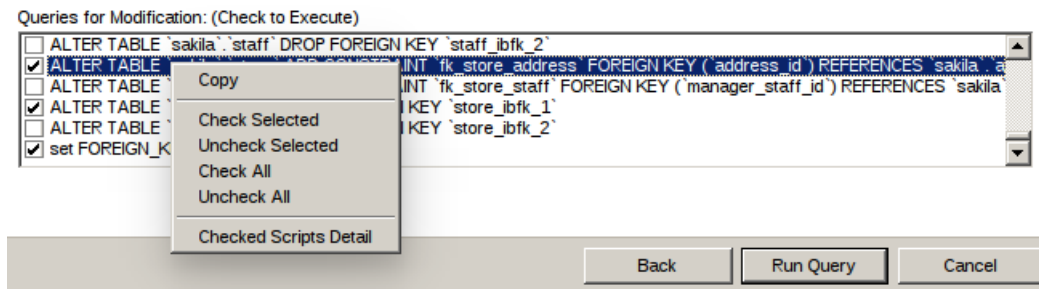
Click the **Run Query** button to execute the selected query.

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.

Default Schema

Set the schema name for the objects without schema settings.

Include auto increment

Include table auto increment in file with this option is on.

Include character set

Include table and field character set in file with this option is on.

Include checks

Include checks in file with this option is on.

Include collation

Include table collation in file with this option is on.

Include Drop SQL

Include drop object SQL statements in file with this option in on.

Include Drop With CASCADE

Include drop object SQL statements with cascade option in file with this option in on.

Include excludes

Include excludes in file with this option is on.

Include foreign keys

Include foreign keys in file with this option is on.

Include indexes

Include indexes in file with this option is on.

Include primary keys

Include primary keys in file with this option is on.

Include rules

Include rules in file with this option is on.

Include schema

Include the schema name in file with this option is on. Otherwise, only object names are included in SQL statements.

Include triggers

Include triggers in file with this option is on.

Include uniques

Include uniques in 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.

To convert an opened model file, choose **File** -> **Convert Model To**. Then, select the target **Database** and **Version**.

Preview and Print Model

To preview the pages before printing, simply click the button. The model can be printed to the printer or 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.

Print to a file

Choose **File** -> **Print As** and choose the file format to create a PDF, PNG or SVG 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

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/View Designer

Double-click a table/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 Designer

Select and click a table 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 in Diagram Canvas, then press and hold the SHIFT key. Use ⌒ to drag the field to a desired location.

Delete Field

Select a table in Diagram Canvas, then press and hold the SHIFT key. Use ⌒ to drag the desired field out of the table.

Add Vertex to Foreign Key/Line/Arrow

Select a foreign key/line/arrow in Diagram Canvas. Press and hold the SHIFT key and click on it to add vertex.

Delete Vertex on Foreign Key/Line/Arrow

Select a foreign key/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
■ 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.

Choose Delimiter - TXT, CSV, XML

TXT, CSV

Record Delimiter

Specify the record separator of the file.

Delimited

Import the text file with delimited format.

Field Delimiter, **Text Qualifier**

Specify the field separator and the character that encloses text values.

Fixed Width

Import the text file with fixed-width format. To delimit the source column bounds, click on the desired position to create a break line. Simply drag it to move it or double-click it to remove it.
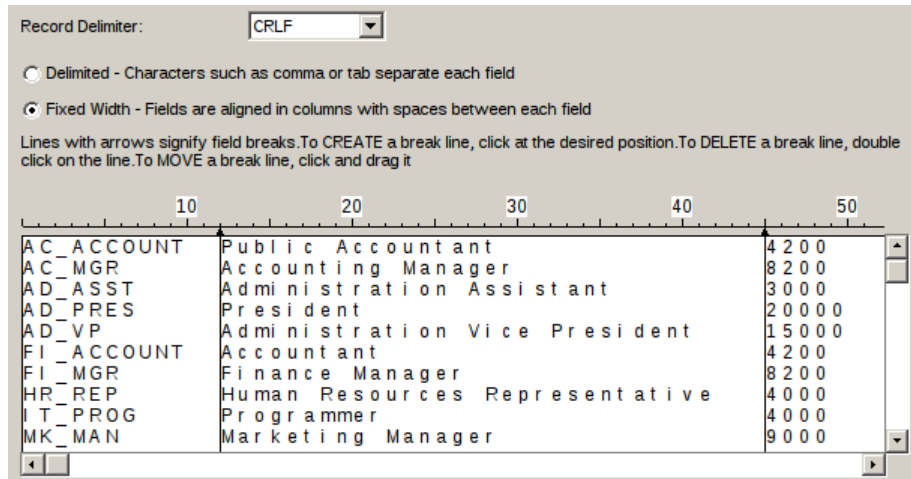
XML

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

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.

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.

Click the **Advanced** button for more settings. The following options depend on the connection server type.

Run multiple queries in each execution

Check this option if you want to run multiple queries in each execution.

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.

Create Auto Increment Fields

Create auto increment fields during the import process.

Note: Support only when the file type is 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.
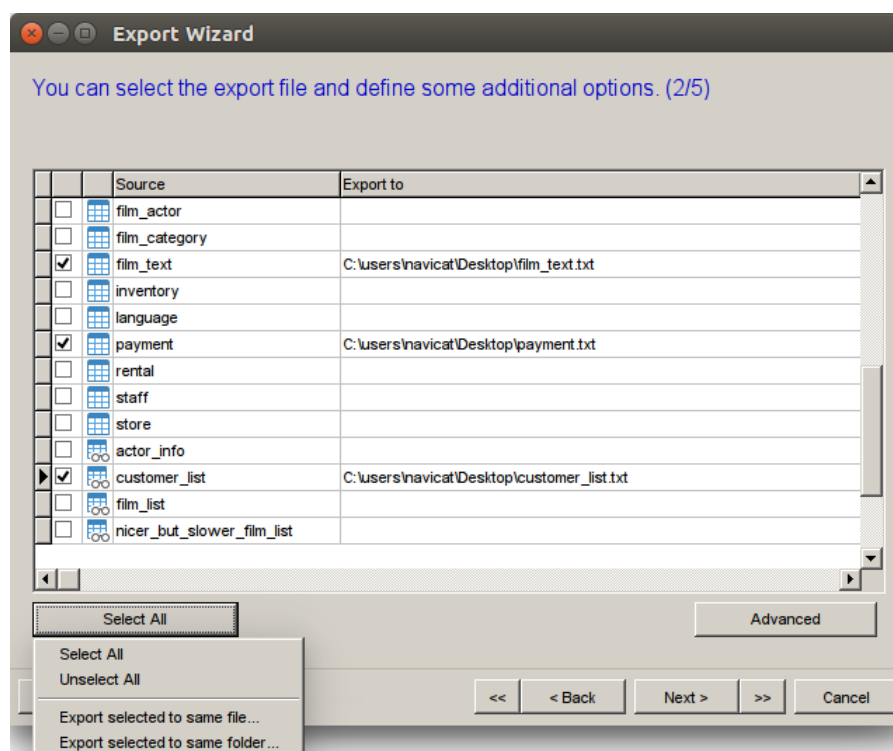
Select All Button	Description
Select All / Unselect All	Select / unselect all source objects.
Export selected to same file	Export the selected objects into the same target file. When the file format is Excel, each object will be exported as a sheet in the Excel file.
Export selected to same folder	Export 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 menu.

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 Profiles Location.

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 **General** tab, 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

In the **Options** tab, 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 & Start Data Transfer (Step 2)

All the database objects are selected in the **Database Objects** list by default. If you do not want some database objects to be transferred, uncheck them.
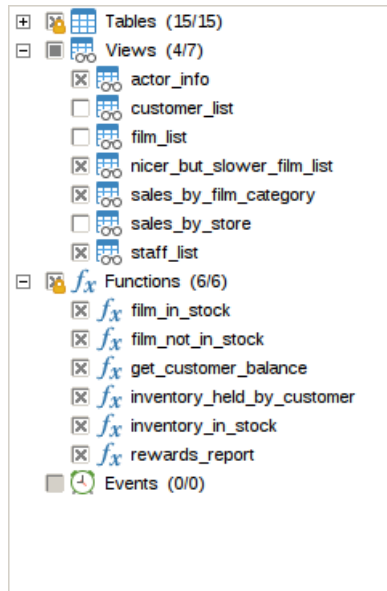
◪	Only the checked database objects will be transferred. However, if you add any new database objects in the source database and/or schema after you create your data transfer profile, the newly added database objects will not be transferred unless you manually modify the Database Objects list.
🔒	All 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.

Then, 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.

For RDBMS, all tables must contain primary keys and all structures must be identical between the source and target. You could apply Structure Synchronization before Data Synchronization.

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 Profiles Location.

Note: 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 **General** tab, 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

In the **Options** tab, set the comparing options.

Use transaction

Rollback all data when error occurs.

Show synchronization detail

Check this option if you want to list the details process in the message log during the synchronization.

Insert records, **Delete records**, **Update records**

Check these options to compare such actions.

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.

For MongoDB, 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.
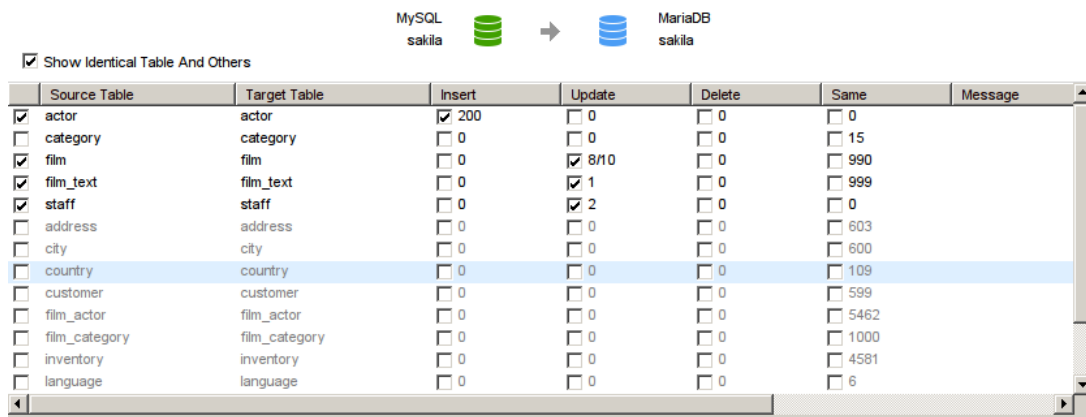
When you selected a table/collection in the list, the bottom pane shows data in the source and target. Values that differ between the source and target are highlighted. To view multiple lines data, right-click the grid and select **Show Assistant Viewer**. Uncheck the records that you do not want to 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 Script Button	Description
Edit	Open the **Edit Deployment Script** window to rearrange the order of the scripts. It is the same as clicking the **Deployment Script** button.
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.

Check the **Continue on error** option to ignore errors that are encountered during the execution process if necessary. 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 Profiles Location.

Note: Available only for MySQL, Oracle, PostgreSQL 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 **General** tab, 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

In the **Options** tab, set the database/schema comparing options. The options depend on the connection server type and sort in ascending order.

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 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 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 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.
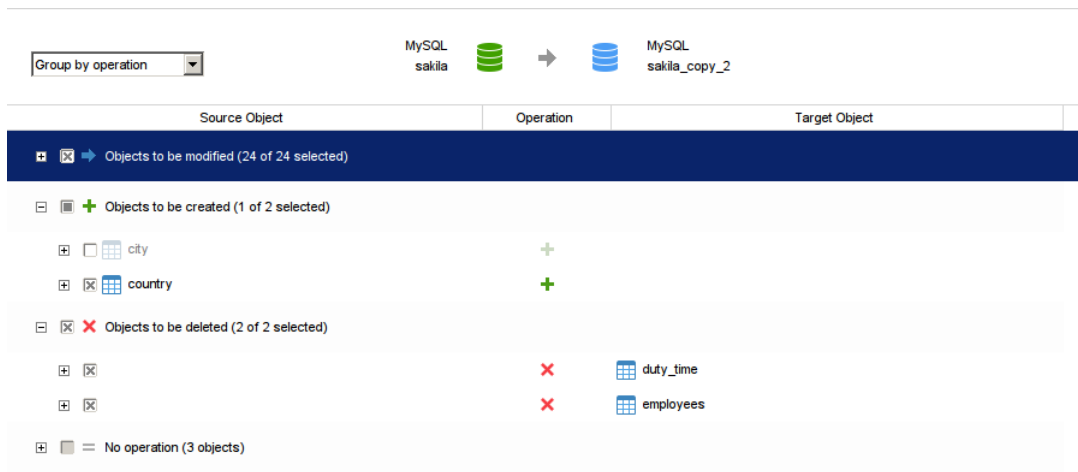
You can choose to group the objects in the tree views by object type or operation by selecting **Group by object type** or **Group by operation**.

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.
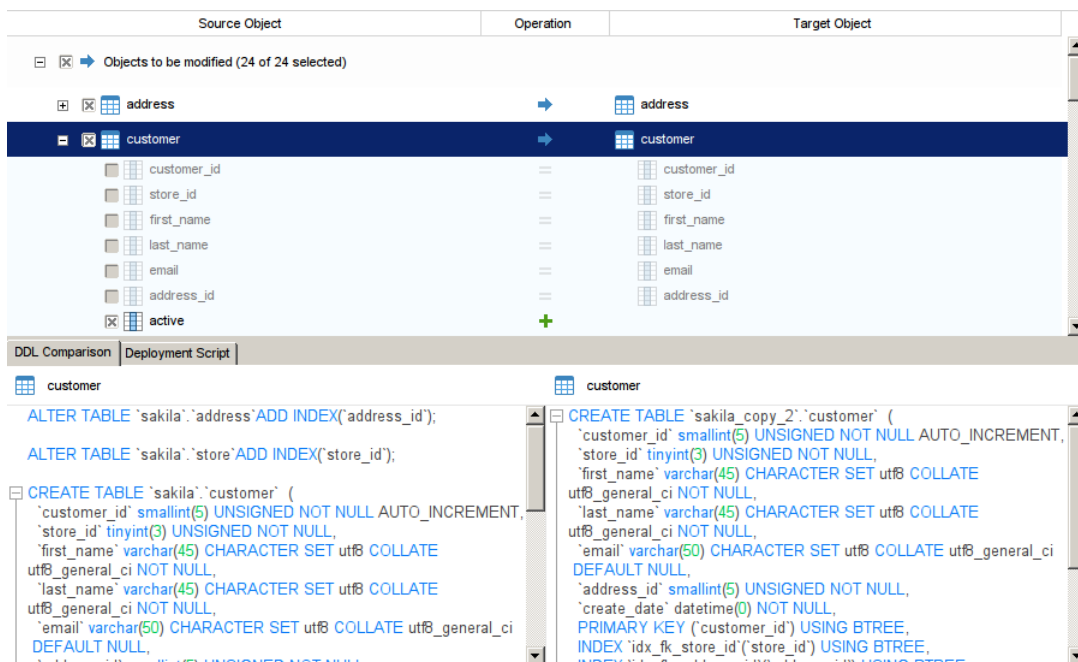
Click the **Deploy** button to show the scripts of all selected objects.

Edit & Execute Selected Scripts (Step 3)

You can view all scripts that will be executed in the target database in the **Deployment Script** tab.

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Deployment Script Button	Description
Edit	Open the **Edit Deployment Script** window to rearrange the order of the scripts. It is the same as clicking the **Deployment Script** button.
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.

Check the **Continue on error** option to ignore errors that are encountered during the execution process if necessary. 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.
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.

Chapter 11 - 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, 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 Profiles Location.

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.
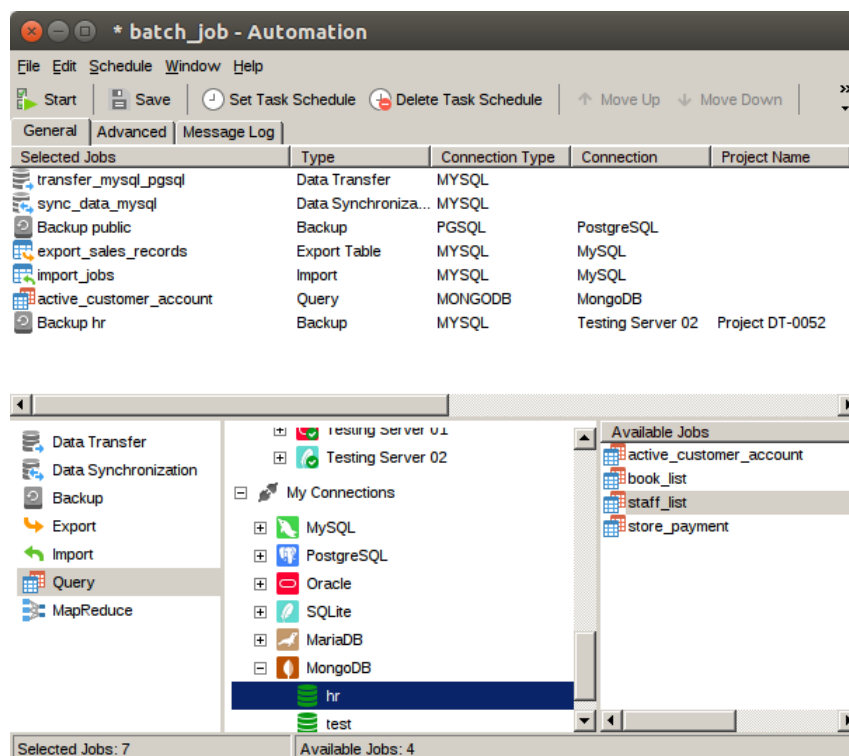
Move jobs from the **Available Jobs** list to the **Selected Jobs** list by double-clicking or dragging them. To delete the jobs from the Selected Jobs list, remove them in the same way. You are allowed to run profiles from different servers in a single batch job.

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.
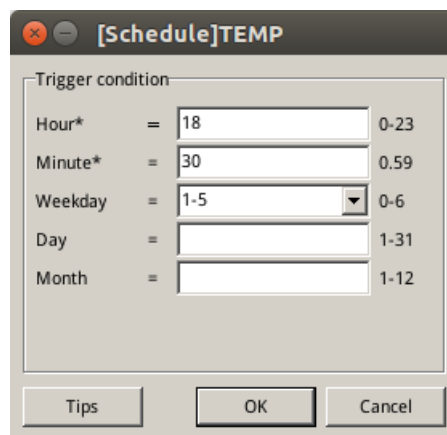
You can run the batch job manually by clicking the ▶ **Start** button. The **Message Log** tab displays the execution progress, execution time, and success or failure messages.

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.
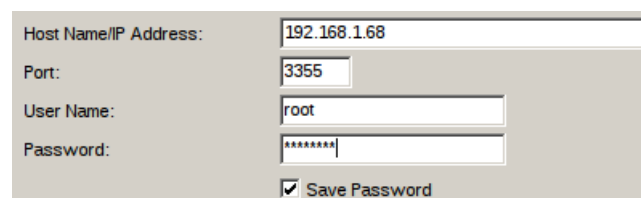
Note: Please save the batch job before setting schedule. Passwords must be saved in the Connection window before running your schedule.

Chapter 12 - 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, users can use Oracle Data Pump feature.

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.

	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.
	All the database objects being backed up, all newly added database objects will also be backed up without amending the backup profile.

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.

Chapter 13 - 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**.

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, 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 14 - 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, 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 **View** -> **Set Auto Refresh Time** and enter a refresh time value. To enable or disable the Auto Refresh feature, choose **View** -> **Auto Refresh**.

Note: Effect will take once you assign the value.

To set a selected process always show on the top of the grid, choose **View** -> **On Top**. To cancel this setting, select the process and choose **View** -> **Cancel On Top**.

To stop a selected process, click the **End Process** button.

Variables

This tab displays a list of all server variables and their values.

You can edit MySQL, MariaDB and Oracle variable values here. Click or press CTRL+ENTER to open an editor for editing.

Status

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.

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.
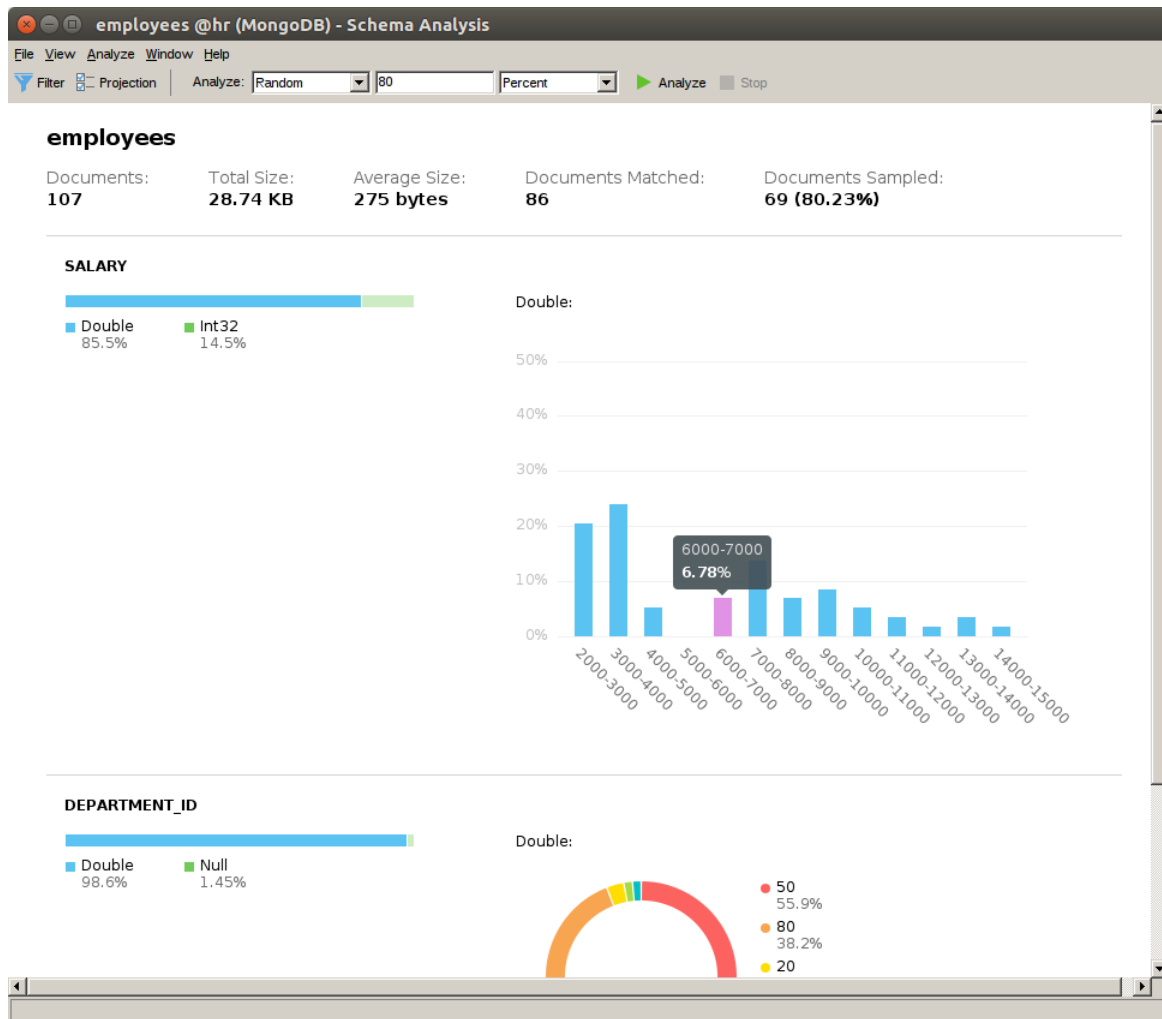
Virtual Grouping (Available only in Non-Essentials Edition)

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 and Model.

Hint: The vgroup.json file is saved under the Profiles Location.

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**.
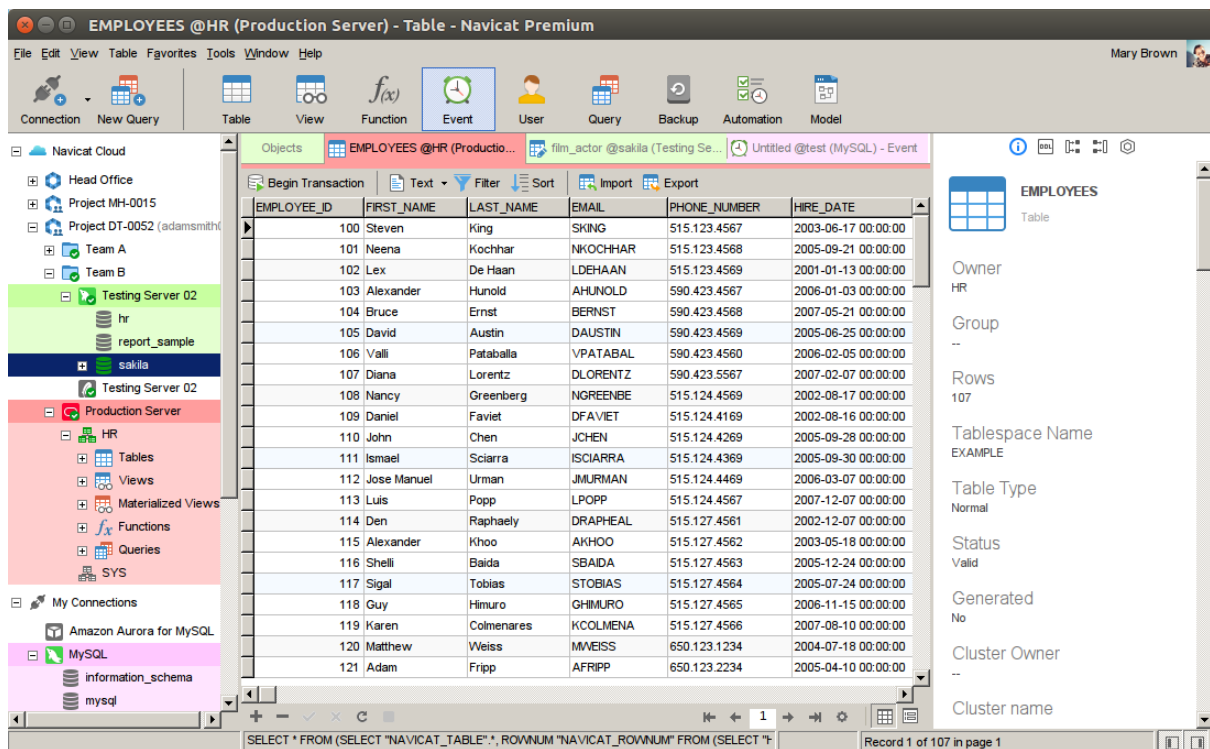
Find in Database/Schema (Available only in Non-Essentials Edition)

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 and MariaDB.

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 0, 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.

In the Navigation pane or other tree structures, click on the tree to focus and enter a search string directly. If connections have opened in the Navigation pane, the filter will also apply to their database objects.

In the Objects tab, click ⌕ and enter a search string in the **Search** text box.

In the Model Designer window, simply enter a search string in the **Search** text box.

You can remove the filter by deleting the search string.
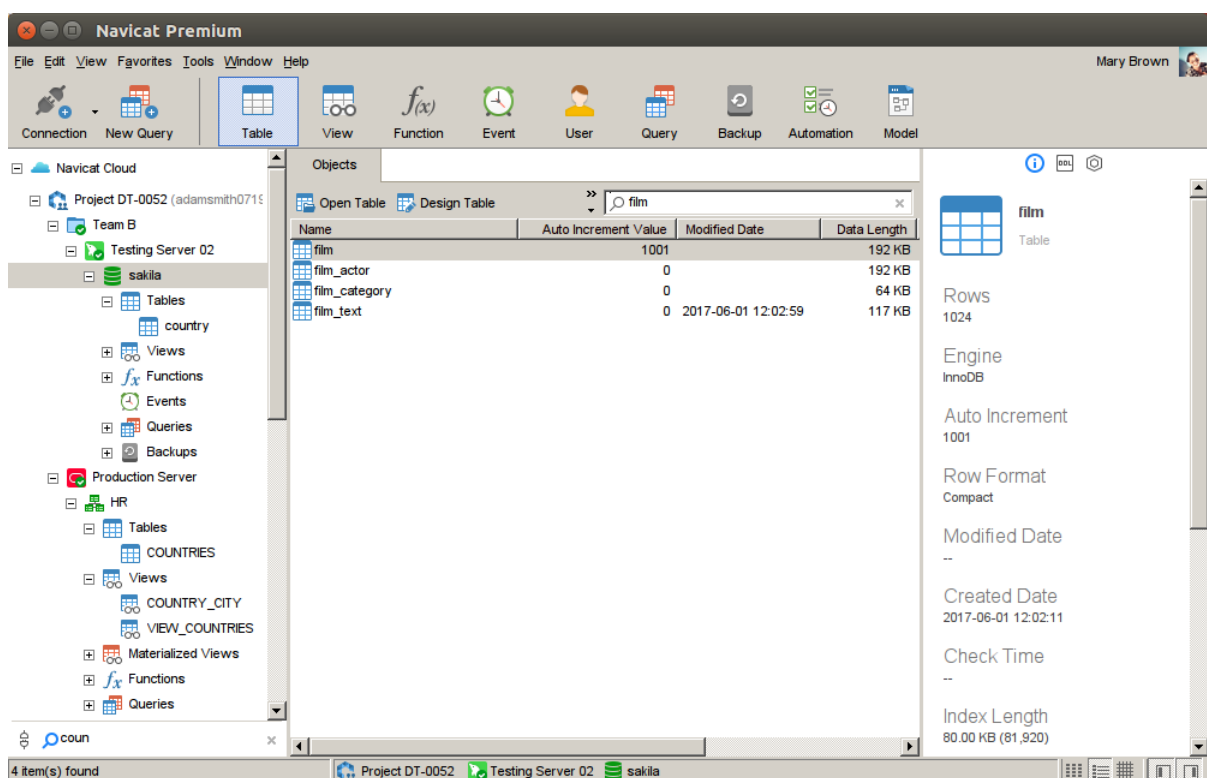
Chapter 15 - Configurations

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 multiple Navicat instances

Check this option to allow opening multiple instances of Navicat. Uncheck this item means that clicking on the Navicat shortcut will re-activate the running instance of Navicat and not launch a new copy.

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 toolbar caption

Show text on toolbar buttons in sub-windows. Otherwise, only buttons will be presented.

Hint: Restart Navicat to take effect.

Show function wizard

Display the function wizard (MySQL, Oracle, PostgreSQL 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.

GUI Font

Define the font and its size used by Navicat interface.

Hint: Restart Navicat to take effect.

Anti Alias

Check this option to improve the quality of the displaying fonts.

Query

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).

Database Items

Show auto index (SQLite)

Check this option to show auto index generated for SQLite table in the Index's Objects tab.

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.

Editor

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 code completion from your server automatically when you open the database/schema. Otherwise, you will need to update it manually in the Query window.

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.

Formats are defined by constructing a string using these format specifiers:

Date Time fields

Specifier	Represent
c	The date using the format given by the ShortDateFormat global variable, followed by the time using the format given by the LongTimeFormat global variable. The time is not displayed if the fractional part of the DateTime value is zero.
d	The day as a number without a leading zero (1-31).
dd	The day as a number with a leading zero (01-31).
ddd	The day as an abbreviation (Sun-Sat) using the strings given by the ShortDayNames global variable.
dddd	The day as a full name (Sunday-Saturday) using the strings given by the LongDayNames global variable.
ddddd	The date using the format given by the ShortDateFormat global variable.
dddddd	The date using the format given by the LongDateFormat global variable.
m	The month as a number without a leading zero (1-12). If the m specifier immediately follows an h or hh specifier, the minute rather than the month is displayed.
mm	The month as a number with a leading zero (01-12). If the mm specifier immediately follows an h or hh specifier, the minute rather than the month is displayed.
mmm	The month as an abbreviation (Jan-Dec) using the strings given by the ShortMonthNames global variable.
mmmm	The month as a full name (January-December) using the strings given by the LongMonthNames global variable.
yy	The year as a two-digit number (00-99).
yyyy	The year as a four-digit number (0000-9999).
h	The hour without a leading zero (0-23).
hh	The hour with a leading zero (00-23).
n	The minute without a leading zero (0-59).
nn	The minute with a leading zero (00-59).
s	The second without a leading zero (0-59).
ss	The second with a leading zero (00-59).
t	The time using the format given by the ShortTimeFormat global variable.
tt	The time using the format given by the LongTimeFormat global variable.
am/pm	The time using the 12-hour clock for the preceding h or hh specifier, followed by "am" for any hour before noon, or "pm" for any hour after noon. The am/pm specifier can use lower, upper, or mixed case, and the result is displayed accordingly.
a/p	The time using the 12-hour clock for the preceding h or hh specifier, followed by "a" for any hour before noon, or "p" for any hour after noon. The a/p specifier can use lower, upper, or mixed case, and the result is displayed accordingly.
ampm	The time using the 12-hour clock for the preceding h or hh specifier, followed

	by the contents of the TimeAMString global variable for any hour before noon, or the contents of the TimePMString global variable for any hour after noon.
/	The date separator character given by the DateSeparator global variable.
:	The time separator character given by the TimeSeparator global variable.
'xx'/"xx"	Characters enclosed in single or double quotes are displayed as-is, with no formatting changes.

Format specifiers may be written in uppercase or lowercase letters; both produce the same result.

Show Thousands Separator

Check this option to show the thousands separator for numeric data.

File Locations

You can change the folder for different types of files. By default, most of the files are stored in Settings Location. However, some files and profiles are located in the **Profiles Location** path and all the log files are stored in the **Logs Location** path.

File in Profiles Location	Server Type	File Extension
Automation	MySQL	.nbatmysql
	Oracle	.nbatora
	PostgreSQL	.nbatpgsql
	SQLite	.nbatsqlite
	MariaDB	.nbatmariadb
	MongoDB	.nbatmongodb
	Premium (Cross Server)	.nbatpremium
Code Snippet	All	.nsnippet
Data Synchronization	MySQL	.ndsymysql
	Oracle	.ndsyora
	PostgreSQL	.ndsypgsql
	SQLite	.ndsysqlite
	MariaDB	.ndsymariadb
	MongoDB	.ndsymongodb
Data Transfer	MySQL	.ndtfmysql
	Oracle	.ndtfora
	PostgreSQL	.ndtfpgsql
	SQLite	.ndtfsqlite
	MariaDB	.ndtfmariadb
	MongoDB	.ndtfmongodb
	Premium (Cross Server)	.ndtfpremium
Model	MySQL, Oracle, PostgreSQL, SQLite and MariaDB	.ndm

Structure Synchronization	MySQL	.nssymysql
	Oracle	.nssyora
	PostgreSQL	.nssypgsql
	MariaDB	.nssymariadb
Virtual Grouping	All	vgroup.json - stores how the objects are categorized.

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

OCI Environment (Available only for Oracle)

OCI library (oci.dll)

Specify the location for the OCI library (oci.dll) for Oracle connection. By default, it is set to the bundled one in Navicat installation folder.

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 16 - Commands (Available only in Non-Essentials Edition)

Navicat Commands

Navicat has some very useful command line processing options for those who want to execute certain database tasks in Terminal.

Navicat Object	Command Line
Automation	start_navicat -batchjob BatchJobName
Backup (MySQL, PostgreSQL, SQLite and MariaDB)	start_navicat -backup [ProfileName] -u NavicatID -p ProjectName -t ConnectionType -c ConnectionName -d DatabaseName -s SchemaName
Data Synchronization	start_navicat -datasync ProfileName -t ConnectionType
Data Transfer	start_navicat -datatransfer ProfileName -t ProfileType
Export Materialized View Result (Oracle and PostgreSQL)	start_navicat -exportmview ProfileName -u NavicatID -p ProjectName -t ConnectionType -c ConnectionName -d DatabaseName -s SchemaName
Export Query Result	start_navicat -exportquery ProfileName -u NavicatID -p ProjectName -t ConnectionType -c ConnectionName -d DatabaseName -s SchemaName
Export Table/Collection	start_navicat -export ProfileName -u NavicatID -p ProjectName -t ConnectionType -c ConnectionName -d DatabaseName -s SchemaName
Export View Result	start_navicat -exportview ProfileName -u NavicatID -p ProjectName -t ConnectionType -c ConnectionName -d DatabaseName -s SchemaName
Import	start_navicat -import ProfileName -u NavicatID -p ProjectName -t ConnectionType -c ConnectionName -d DatabaseName -s SchemaName
MapReduce (MongoDB)	start_navicat -mapreduce ProfileName -u NavicatID -p ProjectName -t ConnectionType -c ConnectionName -d DatabaseName
Query Execution	start_navicat -query QueryName -u NavicatID -p ProjectName -t ConnectionType -c ConnectionName -d DatabaseName -s SchemaName

NavicatID - if the connection stores in Navicat Cloud, Navicat ID is required, e.g. user@example.com

ProjectName - if the connection stores in Navicat Cloud, project name is required

ConnectionType - type of the connection: MySQL, Oracle, PostgreSQL, SQLite, MariaDB or MongoDB

ProfileType - type of the data transfer profile: MySQL, Oracle, PostgreSQL, SQLite, MariaDB, MongoDB or Premium

Example:

start_navicat -exportquery MyQueryExport1 -u test@navicat.com -p Project1 -t MySQL -c "MySQL 5.6" -d sakila

Chapter 17 - Hot Keys

Navicat Hot Keys

Navicat Main Window

Keys	Action
CTRL+# (# represents 0 to 9)	Open Favorites Link
CTRL+H	History Log
CTRL+Q	New Query
F12	Show Only Active Objects
CTRL+N	New Object

ER Diagram View

Keys	Action
F5	Refresh
ESC	Select
H	Move Diagram
R	New Foreign Key
SHIFT+DELETE	Delete Selected Foreign Key
CTRL+= or CTRL+Mousewheel Up	Zoom In
CTRL+- or CTRL+Mousewheel Down	Zoom Out
CTRL+0	Reset Zoom

Common

Keys	Action
SHIFT+CTRL+# (# represents 0 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

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+LEFT ARROW	Move to First Column of Current Record
CTRL+RIGHT ARROW	Move to Last Column of Current Record
CTRL+HOME	Move to First Row of Current Column
CTRL+END	Move to Last Row of Current Column
CTRL+PAGE UP or CTRL+UP ARROW	Move to First Row of Current Screen
CTRL+PAGE DOWN or CTRL+DOWN ARROW	Move to Last Row of Current Screen
CTRL+R	Apply Filter / Apply Sort
SHIFT+ARROW	Select Cells
CTRL+ENTER	Edit Data with Opening Editor
INSERT or CTRL+N	Add Record
CTRL+DELETE	Delete Records
CTRL+S	Apply Record Changes
ESC	Discard Record Changes
CTRL+T	Stop Loading Data

View / Materialized View Designer

Keys	Action
CTRL+O	Import SQL
CTRL+E	Switch to Definition
CTRL+R	Preview

Query Designer

Keys	Action
CTRL+O	Open External SQL File
CTRL+E	Switch to Query Editor
CTRL+R	Run
SHIFT+CTRL+R	Run Selected
CTRL+T	Stop

Query Editor

Keys	Action
CTRL+/	Comment / Uncomment Line
CTRL+F	Find Text
F3	Find Next Text

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
V	New View
R	New Foreign Key
A	New Label
N	New Note
I	New Image
L	New Layer
CTRL+B	Bold Selected Table, View, Foreign Key or Shape
CTRL+= or CTRL+Mousewheel Up	Zoom In
CTRL+- or CTRL+Mousewheel Down	Zoom Out
CTRL+0	Reset Zoom

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 **logs** directory, e.g. Y:\.navicat\Navicat\MySQL\logs\. You are allowed to change the log files location under Options.

File	Description
history.log	Store the statements or scripts of all operations executed over databases and database objects in Navicat. To open the history.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.

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 ![icon] **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 ![icon] **Pause**, any actions that you do while history is paused will show after resuming.