Navicat

Version 18

User Guide

PremiumSoft™
PremiumSoft CyberTech Ltd.

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Chapter 1 - Getting Started

Navicat is the leading all-in-one solution for database development and administration, providing a centralized interface to manage multiple database systems simultaneously, including MySQL, PostgreSQL, MongoDB, MariaDB, SQL Server, Oracle, SQLite, Redis, and Snowflake.

Beyond traditional on-premises deployments, Navicat provides extensive support for cloud databases, enabling seamless integration with major providers such as Amazon RDS, Microsoft Azure, Google Cloud and Oracle Cloud.

Available natively on Microsoft Windows, macOS, and Linux, Navicat offers a high-performance environment for interacting with both local and remote servers, ensuring a consistent and efficient workflow across your organization. Whether you are a database administrator, developer, or data analyst, Navicat provides a powerful and intuitive environment to manage your data across multiple platforms and database systems.

Comprehensive Toolset

Navicat's extensive feature set is designed to support every stage of the database lifecycle:

- **Object Designer** - Manage database objects through a clear, intuitive graphical interface.
- **Data Editor** - Edit, filter, and manage records directly.
- **Data Profiling** - Gain a holistic view of your data quality and distribution to inform better decision-making.
- **Data Masking** - Protect sensitive information and maintain regulatory compliance through advanced obfuscation techniques.
- **AI Assistant** - Leverage artificial intelligence to generate SQL from natural language prompts and streamline your development workflow.
- **Query Builder and Editor** - Compose and execute SQL queries using visual tools or a sophisticated code editor.
- **Import and Export** - Exchange data efficiently across a wide variety of file formats.
- **Data Transfer** - Move data seamlessly between different database systems or platforms.
- **Data and Structure Synchronization** - Maintain parity between environments by identifying and resolving discrepancies in data or schema definitions.
- **Data Modeling** - Visualize and design complex database structures with professional modeling tools.
- **Business Intelligence (BI)** - Transform raw datasets into interactive dashboards and actionable visual insights.
- **Data Generation** - Create high-quality, realistic synthetic data for comprehensive testing and development.

- **Data Dictionary** - Generate comprehensive documentation to maintain transparency across your data metadata.
- **Backup and Restore** - Ensure business continuity with robust data protection and recovery utilities.
- **Automation** - Schedule repetitive tasks to optimize productivity and reduce manual effort.
- **Collaboration** - Synchronize your files with team members through integrated collaboration features.

For further assistance, video tutorials, and technical support, please visit our official website at https://www.navicat.com.

Requirements

Navicat is designed to deliver high performance across a wide range of operating systems and database environments. Please ensure your system meets the following specifications.

Supported Operating Systems

Platform	Supported Versions
Windows	Microsoft Windows 8, Windows 8.1, Windows 10, Windows 11, Server 2012, Server 2012 R2, Server 2016, Server 2019, Server 2022, Server 2025
macOS	macOS 14 Sonoma, macOS 15 Sequoia, macOS 26 Tahoe, macOS 14 Sonoma, macOS 27 Golden Gate
Linux	**Flatpak:** Flatpak supported distributions. **AppImage (x86_64):** Debian 10, Debian 11, Debian 12, Debian 13, Ubuntu 20.04, Ubuntu 22.04, Ubuntu 24.04, Ubuntu 26.04, Fedora 44, Linux Mint 20, Linux Mint 21, Linux Mint 22, Deepin 20, Deepin 23, Deepin 25, KylinOS Desktop 10, Pop!_OS 20.04, Pop!_OS 22.04 **AppImage (aarch64):** Debian 11, Debian 12, Debian 13, Ubuntu 22.04, Ubuntu 24.04, Ubuntu 26.04, Fedora 44, Linux Mint 20, Linux Mint 21, Linux Mint 22, Deepin 23, Deepin 25, KylinOS Desktop 10, Pop!_OS 20.04, Pop!_OS 22.04

Supported On-Premises Databases

Database Category	Supported Servers & Versions
Relational (SQL)	MySQL 3.23 or later PostgreSQL 7.3 or later Oracle 8i or later SQL Server 2000 or later MariaDB 5.1 or later SQLite 2 and 3

NoSQL & Caching	MongoDB 3.0 or later Redis 2.8 or later, Redis Cluster, Redis Sentinel, Microsoft Garnet
Enterprise & Distributed	GaussDB 3.2 or later, openGauss OceanBase Community and Enterprise 3.1.0 or later TiDB 7 or later Dameng 8 or later KingbaseES V8R6 or later Fujitsu Enterprise Postgres 9.5 or later IvorySQL 1 or later **Note:** GaussDB, openGauss, Dameng and OceanBase Enterprise Oracle Mode are currently unavailable in the macOS Edition.
Specialized & Forks	Drizzle, OurDelta, Percona Server

Supported Cloud Databases

Provider & Vendor	Supported Services
Amazon AWS	Amazon Redshift Amazon Aurora for MySQL Amazon Aurora for PostgreSQL Amazon RDS for MySQL Amazon RDS for PostgreSQL Amazon RDS for Oracle Amazon RDS for SQL Server Amazon RDS for MariaDB Amazon DocumentDB Amazon ElastiCache for Redis
Google Cloud	Google Cloud SQL for MySQL Google Cloud SQL for PostgreSQL Google Cloud SQL for SQL Server Google Memorystore (Redis)
Oracle Cloud	Oracle Database Cloud Service Oracle MySQL Cloud Service
Microsoft	Microsoft Azure SQL Database Microsoft Azure Database for MySQL Microsoft Azure Database for PostgreSQL Microsoft Azure Database for MariaDB Azure Cosmos DB for MongoDB Microsoft Azure Cache for Redis
MongoDB Cloud Services	MongoDB Atlas
Redis Enterprise Cloud	Redis Enterprise Cloud
Alibaba Cloud	Alibaba Cloud ApsaraDB RDS for MySQL Alibaba Cloud ApsaraDB RDS for PostgreSQL Alibaba Cloud ApsaraDB RDS for SQL Server

	Alibaba Cloud ApsaraDB for MongoDB Alibaba Cloud ApsaraDB for Redis Alibaba Cloud ApsaraDB for OceanBase (MySQL Mode) Alibaba Cloud ApsaraDB for OceanBase (Oracle Mode) Alibaba Cloud PolarDB for MySQL Alibaba Cloud PolarDB for PostgreSQL Alibaba Cloud PolarDB for Xscale **Note:** Alibaba Cloud ApsaraDB for OceanBase (Oracle Mode) is currently unavailable in the macOS Edition.
Tencent Cloud	Tencent Cloud TencentDB for MySQL Tencent Cloud TencentDB for PostgreSQL Tencent Cloud TencentDB for SQL Server Tencent Cloud TencentDB for MariaDB Tencent Cloud TencentDB for MongoDB Tencent Cloud TencentDB for Redis
Huawei Cloud	Huawei Cloud RDS for MySQL Huawei Cloud RDS for PostgreSQL Huawei Cloud RDS for SQL Server Huawei Cloud Document Database Service Huawei Cloud Distributed Cache Service for Redis Huawei Cloud GaussDB Centralized Huawei Cloud GaussDB Distributed Huawei Cloud GaussDB(DWS) **Note:** Huawei Cloud GaussDB Centralized, Huawei Cloud GaussDB Distributed and Huawei Cloud GaussDB(DWS) are currently unavailable in the macOS Edition.
Snowflake	Snowflake

Installation

Setting up Navicat on your system is a quick and straightforward process. Following a few simple steps will have your database management environment up and running in no time.

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

Installation for Download Version

1. Download Navicat macOS version.

2. Open the **.dmg** file.

3. Drag Navicat to your Applications folder to install.

Registration

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

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

Perpetual License

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

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

Manual Activation

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

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

Subscription Plan

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

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

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

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

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

Migration / Upgrade

Migrate Navicat to New Computer

If you are moving to a new workstation, follow these steps to transfer your license and connection settings seamlessly:

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 **Navicat XXX** -> **Registration**.
4. [Perpetual License] Click **Deactivate** to online deactivate the license key.
5. [Subscription Plan] Click **Sign Out** to sign out your Navicat ID.
6. Uninstall Navicat from the existing computer.
7. Re-install Navicat in the new computer.
8. Open Navicat and choose **File** -> **Import Connections** in the new computer to import the connection settings (.ncx).

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

Moreover, all your saved profiles are stored under the default path, e.g. ~/Library/Application Support/PremiumSoft CyberTech/Navicat CC/Navicat Premium/Profiles.

Upgrade Navicat

If you want to upgrade an installed copy of Navicat to the latest release, please choose **Navicat XXX** -> **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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Note: For the License Agreement of Navicat Cloud service, please click here.

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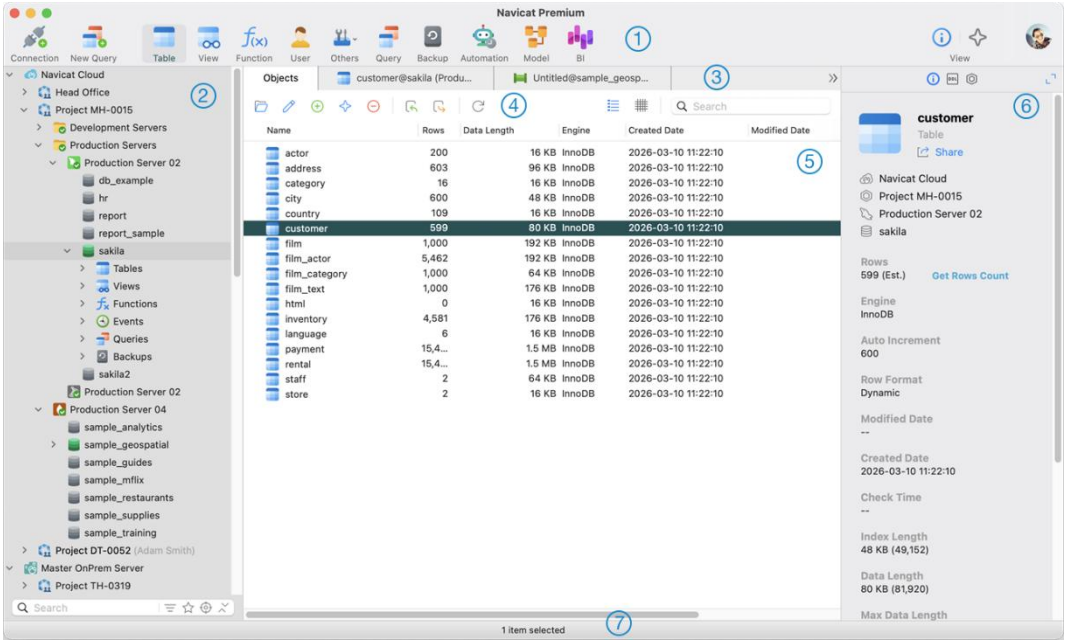
Chapter 2 - Main UI

The main window is a comprehensive workspace designed for efficiency. It consists of several integrated toolbars and panes that allow you to manage connections, database objects, and advanced utilities from a single interface.



Main Window Components

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 hide text captions or icons, control-click on the toolbar and select your preferred display mode. If the Main Toolbar is hidden, choose **View** -> **Show Toolbar**.

② Navigation Pane

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

③Tab 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 COMMAND-{ or COMMAND-} to easily switch to other tabs. See also Settings.

④ Object Toolbar

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

⑤ Object Pane

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

⑥ Information & AI Chat Pane

This shared pane provides a versatile area for both database auditing and intelligent development. Use the top buttons to switch between the Information Pane (comprehensive metadata, object dependencies, DDL, etc.) and the AI Chat Pane (intelligent SQL generation and optimization via natural language). If the pane is hidden, choose **View** -> **Information Pane** -> **Show Information Pane**.

⑦ Status Bar

The Status Bar provides real-time updates on active processes, connection states, and specific window information. If the Status Bar is hidden, choose **View** -> **Show Status Bar**.

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 Settings 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 Navicat Cloud or On-Prem Server, you can find it in the Navigation pane, and all connections stored locally will be located under the **My Connections** section.

Table elements, such as fields, indexes and foreign keys, are display under each table. Click the arrow to the left of the table name to expand the list. If the elements are hidden, enable the **Show objects under table in navigation pane** option in the Settings window.

You can simply rename a field by using the pop-up menu, or you can double-click an element to open the table designer.

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**.

Filter Navigation Pane

You can use the Filter bar at the bottom of the Navigation pane to quickly isolate, search, and manage your connections and database objects.

If you prefer the Filter bar at the top of the Navigation pane, choose **View** -> **Navigation Pane** -> **Show Filter On Top**.

Option / Button	Description
Search box	Enter a search string to instantly filter and display only the objects, groups, or connections that contain that string. Matching

	categories will automatically expand to show their filtered results.
	Click to filter your view by specific connection types, database vendors, or active database objects.
	Toggle to isolate and display only your starred connections.
	Instantly locate and highlight the database object of your currently active tab within the Navigation pane.
	Collapse all expanded connections, schemas, objects, and groups back into their top-level.

Object Pane

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

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

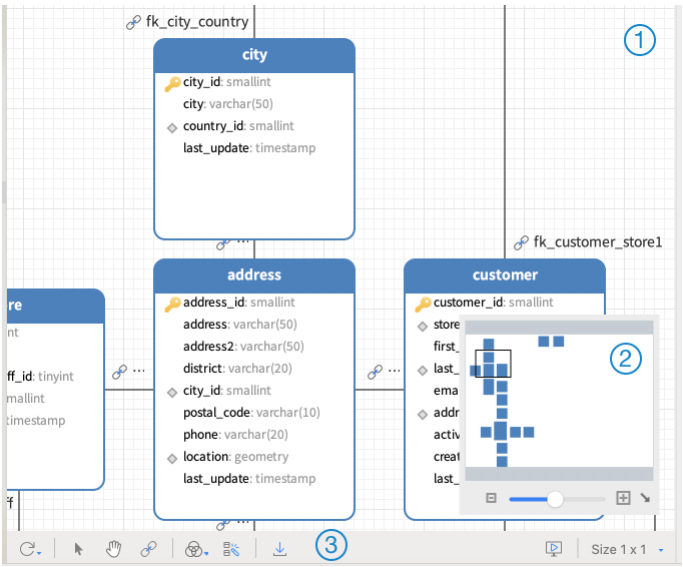
Detail View

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

ER Diagram View (Available only in Enterprise and Standard Edition)

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

Graphically display table fields and the relationships between tables in a database or schema.

Action	Description
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	Control-click a relation line and select **Design Foreign Key** or **Delete Foreign Key**.
Quick Access	Double-click a table in the ER Diagram view will open the Table Designer, while double-click a table in the Detail view will open the Table Viewer.

② **Overview**

Adjust the slider in the Overview pane to zoom in or out of the selected diagram area. You can also use the following keyboard shortcuts:

Zoom In: COMMAND-Mousewheel up

Zoom Out: COMMAND-Mousewheel down

Reset: COMMAND-0

③ **Bottom Toolbar**

Button	Description
	Refresh - Refresh the ER diagram. **Regenerate ER Diagram** - Regenerate the ER diagram using the auto layout feature.
	Switch the cursor to the Select mode.
	Switch the cursor to the hand mode for moving the diagram. Or, you can press and hold the SPACE key, then move the diagram.
	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.
	Set the color of the selected tables or relations.
	Automatically arrange all tables or just the selected tables on the canvas.
	Export the ER diagram to a PNG file.
	Preview the diagram in fullscreen mode.
Size	Select a paper size from the drop-down menu. The corresponding paper size will reflect in the Overview pane.

Information Pane

The Information Pane displays comprehensive metadata, including detailed object information, project activities, the DDL of database objects, object dependencies, and user/role memberships. It also provides a read-only preview of query statements. If the pane is hidden, choose **View** -> **Information Pane** -> **Show Information Pane**.

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

Button	Description

	General - Show the general information of the object/project.
	Preview - Show the SQL statements in the query.
	DDL - Show the DDL statements of the object. Press COMMAND-F to open the search box.
	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.
	Identifiers - Show all available tables, collections, views or fields in the selected database or schema. **Field** - Show the information of the selected field in Table Viewer.
	Privileges - Show the privileges granted to the user.
	Project - Show the project members and the project activities done by the members. Click **+** to add members to the project.
	Type Color - Set the color of particular types for highlighting cells in Grid View. (Available only for MongoDB)
	Pub/Sub Info - Show which channels are active on the Redis server.

Expand and Collapse Pane

The Information Pane's width can be quickly adjusted for optimal viewing, providing a convenient alternative to manually dragging the pane's border:

- Click the icon at the top right of the pane to instantly maximize its size.
- Click the icon to return the pane to its original width.

Chapter 3 - Collaboration

Navicat Cloud

Navicat Cloud is a cloud service provided by PremiumSoft for synchronizing connection settings, queries, aggregation pipelines, snippets, model workspaces, BI workspaces, virtual group information, as well as your personalized configuration profiles.

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

Note: You can only sign in to one Navicat Cloud account in the software. 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 Navicat Cloud Account

1. In the menu bar, choose **Navicat XXX** -> **Manage Cloud**.
2. In the Manage Cloud window, select **Navicat Cloud**.
3. Click **Create Navicat ID**.
4. Enter the required information and click **Sign Up**. A verification email will send to your email address.
5. 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 menu bar, choose **Navicat XXX** -> **Manage Cloud**.
2. In the Manage Cloud window, select **Navicat Cloud**.
3. Enter your **Navicat ID** and **Password**.
4. Click **Sign In**.
5. If you enabled two-step verification in Navicat Cloud Portal, 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, control-click **Navicat Cloud** and select **Close All Connections** to close all connections under Navicat Cloud.
2. At the top right, click your avatar.

3. In the Manage Cloud window, select **Navicat Cloud**.

4. Click **Sign Out**.

View Usage

1. At the top right, click your avatar.

2. In the Manage Cloud window, select **Navicat Cloud**.

3. Your usage and current plan will be shown.

Change Your Picture

1. At the top right, click your avatar.

2. In the Manage Cloud window, select **Navicat Cloud**.

3. Click your avatar.

4. Choose an image file.

Manage Your Account

You can change your password, enable Two-Step Verification, upgrade Cloud Plan, etc in Navicat Cloud Portal.

1. At the top right, click your avatar.

2. In the Manage Cloud window, select **Navicat Cloud**.

3. Click **Manage Account**.

4. A web browser will automatically open up to Navicat Cloud Portal.

On-Prem Server

Navicat On-Prem Server is an on-premise solution that provides you with the option to host a cloud environment for storing Navicat objects (connection settings, queries, aggregation pipelines, snippets, model workspaces, BI workspaces, virtual group information, as well as your personalized configuration profiles) internally at your location.

Before you can add an On-Prem Server, you must first set up Navicat On-Prem Server in your environment.

Note: You can add multiple On-Prem Server in the software.

Add New On-Prem Server

1. In the menu bar, choose **Navicat XXX** -> **Manage Cloud**.

2. In the Manage Cloud window, click **+ New On-Prem Server** -> **New On-Prem Server**.

3. Enter your On-Prem Server login information.

Option	Description
Host	The host name or IP address of your On-Prem Server.
Port	The port number of your On-Prem Server.
Verify Server Certificate	Enable this option to verify the server certificates.
Enable Push Synchronization	Navicat receives a silent push notification whenever its files stored in your On-Prem Server changes.

4. Click **OK**.

Add New On-Prem Server with URI

1. In the menu bar, choose **Navicat XXX** -> **Manage Cloud**.
2. In the Manage Cloud window, click **+ New On-Prem Server** -> **New On-Prem Server with URI**.
3. Paste your On-Prem Server URI.
4. Click **OK**.

Note: The URI can be copied from your On-Prem Server portal site.

Sign In On-Prem Server

1. In the menu bar, choose **Navicat XXX** -> **Manage Cloud**.
2. In the Manage Cloud window, select the On-Prem Server.
3. Enter your **Username** and **Password**.
4. Click **Sign In**.
5. If you enabled two-step verification, a code will be sent to you via the verification method you have selected. Enter the received code to sign in.

Sign Out On-Prem Server

1. In the main window, control-click the On-Prem Server and select **Close All Connections** to close all connections in your server.
2. At the top right, click your avatar.
3. In the Manage Cloud window, select the On-Prem Server.
4. Click **Sign Out**.

Edit On-Prem Server

1. In the main window, control-click the On-Prem Server and select **Close All Connections** to close all connections in your server.
2. At the top right, click your avatar.
3. In the Manage Cloud window, select the On-Prem Server.
4. Click **Sign Out**.
5. Control-click your server and select **Edit On-Prem Server**.
6. Edit the On-Prem Server information.
7. Sign in your server.

Rename On-Prem Server

1. In the main window, control-click the On-Prem Server and select **Close All Connections** to close all connections in your server.
2. At the top right, click your avatar.
3. In the Manage Cloud window, select the On-Prem Server.
4. Click **Sign Out**.
5. Control-click your server and select **Rename**.
6. Enter the name to describe your On-Prem Server.
7. Sign in your server.

Remove On-Prem Server

1. In the main window, control-click the On-Prem Server and select **Close All Connections** to close all connections in your server.
2. At the top right, click your avatar.
3. In the Manage Cloud window, select the On-Prem Server.
4. Click **Sign Out**.
5. Control-click your server and select **Remove On-Prem Server**.
6. Click **Delete**.

View Usage

1. At the top right, click your avatar.

2. In the Manage Cloud window, select the On-Prem Server.

3. Your usage will be shown.

Change Your Picture

1. At the top right, click your avatar.

2. In the Manage Cloud window, select the On-Prem Server.

3. Click your avatar.

4. Choose an image file.

Manage Your Account

You can change your password, enable Two-Step Verification, etc in your On-Prem Server web portal.

1. At the top right, click your avatar.

2. In the Manage Cloud window, select the On-Prem Server.

3. Click **Manage Account**.

4. A web browser will automatically open up to your On-Prem Server web portal.

Push & Cache Management

Push Synchronization

Push Synchronization enables Navicat to receive a silent push notification whenever the files stored in Navicat Cloud or On-Prem Server changes.

Enable Push Synchronization

1. At the top right, click your avatar.

2. In the Manage Cloud window, control-click Navicat Cloud or your On-Prem Server.

3. Turn on **Enable Push Synchronization**.

Disable Push Synchronization

1. At the top right, click your avatar.

2. Turn off **Enable Push Synchronization**.

Cache and Local Copies

When you logged into Navicat Cloud or your On-Prem Server, Navicat saves the cloud object files and some information in the local computer. The cache and local copies use to make sure your changes are saved in the cloud.

Clear Cache and Local Copies

1. At the top right, click your avatar.
2. In the Manage Cloud window, select Navicat Cloud or your On-Prem Server.
3. Click **Sign Out**.
4. Control-click Navicat Cloud or your On-Prem Server and select **Clear Cache and Local Copies**.
5. Click **Clear**.

Show In Finder

1. In the main window, select Navicat Cloud or your On-Prem Server.
2. Open your project, connection, database and/or schema.
3. Click the Query, Model or BI icon.
4. Control-click anywhere in the Objects tab and select **Show In Finder**.

Work With Projects

A project is a way to structure and organize Navicat objects. You can put related objects in one project, and then share the project with other accounts for collaboration if necessary.

Create New Projects

1. In the main window, control-click **Navicat Cloud** or your On-Prem Server.
2. Select **New Project**.
3. Enter the name of the new project.
4. Click **OK**.

Manage Existing Projects

To rename a project

1. In the main window, control-click the project and select **Rename**.
2. Enter a new project name.

Note: Only the project owner and the members with the *Can Manage & Edit* right can rename the project.

To delete a project

1. In the main window, control-click the project and select **Delete Project**.
2. Click **Delete**.

Note: Only the project owner can delete the project.

Note: Before you delete the project, you must remove all objects in the project.

To quit a project

1. In the main window, control-click the project and select **Quit Project**.
2. Click **Quit**.

Add Members

1. In the main window, control-click the project and select **Manage Members**.
2. Click **Add Members**.
3. [Navicat Cloud] Enter the member's Navicat ID and press ENTER.
4. [On-Prem Server] Check the boxes of the users that you want to add.
5. Select the member right.
6. Click **Add**.

Member Rights	Privileges
Can Manage & Edit	Read Objects, Write Objects, Manage Members and Rename Projects
Can Edit	Read Objects and Write Objects
Can View	Read Objects

Manage Existing Members

1. **To edit the right of a member**
2. In the main window, control-click the project and select **Manage Members**.
3. Use the drop-down menu next to the member to change the right.
4. Click **Apply**.

To remove a member from a project

1. In the main window, control-click the project and select **Manage Members**.

2. Click the **X** icon next to the member.

3. Click **Apply**.

Synchronize Personal Profiles

You can synchronize your connection profiles, table profiles, connection coloring configurations, and starred or hidden connection settings across all your devices.

Turn On Synchronization

To start syncing your personal configurations across devices:

1. At the top right, click your avatar.

2. In the Manage Cloud window, select Navicat Cloud or your On-Prem Server.

3. Click **Turn On Sync**.

4. Toggle on the specific profiles and configurations you want to synchronize.

Manage Synchronization Settings

To adjust or update your sync preferences at any time:

1. At the top right, click your avatar.

2. In the Manage Cloud window, select Navicat Cloud or your On-Prem Server.

3. Click **Manage Sync**.

4. Modify your active synchronization preferences as needed.

Chapter 4 - Connection

Establish Connection

To begin managing your databases in Navicat, you must first establish a connection to your target server using the Connection window. Navicat supports connections to remote servers across multiple platforms (including Windows, macOS, Linux, and UNIX) and supports advanced authentication methods such as PAM, Kerberos, and LDAP.

Note: Kerberos authentication is only available in Enterprise and Standard Editions.

Create Standard Connection

1. In the main window, click **Connection**.
2. In the New Connection window, select your server type and click **Next**.
3. Enter the necessary information.
4. Click **OK**.

Create Connection with URI

1. In the main window, click **Connection**.
2. In the New Connection window, click **New Connection with URI**.
3. Paste your Navicat URI or MongoDB URI.
4. Click **Apply**.
5. Navicat automatically fills out the options in the connection window. Modify your connection information if necessary.
6. Click **OK**.

Hint: The Navicat URI can be copied from the Edit Connection window.

Edit Connection Settings

1. In the main window, control-click your connection and select **Edit Connection**.
2. In the Edit Connection window, modify your connection information.
3. Click **OK**.

Hint: You can view / copy your Navicat URI or MongoDB URI by clicking **URI**.

Move / Copy Connection to Project

If you have logged in to Navicat Cloud or On-Prem Server, you can synchronize the connection in My Connections to a project.

1. In the main window, control-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. Choose whether to include all queries and virtual groups in the connection and click **OK**.
4. The connection will be moved or copied to the project.

Hint: You can move / copy a connection in a project to My Connections in a similar way.

Flush MySQL/MariaDB Connection

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

Manage Azure SQL Database Firewall Rules

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

To manage these settings directly within Navicat:

1. In the main window, control-click your Azure SQL Database connection and select **SQL Azure Firewall Rules**.
2. Add a new security rule by providing your authorized IP address range.
3. Click **Close**.

Testing Account

Navicat provides dedicated evaluation accounts for users who wish to test the software's capabilities without connecting to their own production databases. You can use the following credentials to establish a test connection:

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

To successfully establish a new connection to a local or remote server, you must configure the primary login parameters within the **General** tab. If your Internet Service Provider (ISP) restricts direct access to the server, Navicat provides alternative routing solutions such as Secure Tunneling Protocol (SSH) or HTTP tunneling depending on the database.

Below are the configuration options available for each supported database system.

MySQL / MariaDB

Support SSL, SSH, and HTTP Tunneling.

Option	Description
Connection Name	Enter a friendly name to best describe your connection.
Add To	After you logged in Navicat Cloud or On-Prem Server, you can choose to save the connection to My Connections or a project.
Host	A host name where the database is situated or the IP address of the server.
Endpoint	The Endpoint for connecting to the Amazon Web Services instance.
Port	A TCP/IP port for connecting to the database server.
User Name	User name for connecting to the database server.
Password	Password for connecting to the database server.

Oracle

Support SSH Tunneling.

Option	Description
Connection Name	Enter a friendly name to best describe your connection.
Add To	After you logged in Navicat Cloud or On-Prem Server, you can choose to save the connection to My Connections or a project.
Connection Type	**Basic** - In Basic mode, it connects to Oracle through the Oracle Call Interface (OCI). **TNS** - In TNS mode, it connects to Oracle server using an alias

	entry from a tnsnames.ora file through the Oracle Call Interface (OCI).
Host	A host name where the database is situated or the IP address of the server.
Endpoint	The Endpoint for connecting to the Amazon Web Services instance.
Port	A TCP/IP port for connecting to the database server.
Service Name	Enter the Service Name or SID. Select the corresponding radio button.
Role	Indicate that the database user is connecting with either the Default, SYSOPER or SYSDBA system privilege.
OS authentication	Use OS user login credentials to authenticate database users.
User Name	User name for connecting to the database server.
Password	Password for connecting to the database server.

Note: 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

PostgreSQL

Support SSL, SSH, and HTTP Tunneling.

Option	Description
Connection Name	Enter a friendly name to best describe your connection.
Add To	After you logged in Navicat Cloud or On-Prem Server, you can choose to save the connection to My Connections or a project.
Host	A host name where the database is situated or the IP address of the server.
Endpoint	The Endpoint for connecting to the Amazon Web Services instance.
Port	A TCP/IP port for connecting to the database server.
Initial Database	Set the initial database which user connects when making connection.
User Name	User name for connecting to the database server.
Password	Password for connecting to the database server.

SQL Server

Support SSH Tunneling.

Option	Description
Connection Name	Enter a friendly name to best describe your connection.
Add To	After you logged in Navicat Cloud or On-Prem Server, you can

	choose to save the connection to My Connections or a project.
Host	A host name where the database is situated or the IP address of the server.
Endpoint	The Endpoint for connecting to the Amazon Web Services instance.
Initial Database	Set the initial database which user connects when making connection.
Authentication	**SQL Server Authentication** - Use login records to validate the connection. **Windows Authentication** - When a user connects through a Windows user account, SQL Server validates the account name and password using the Windows principal token in the operating system. **Windows Authentication (Kerberos)** - Validate credentials over Windows user domains leveraging Kerberos security principal tokens. **Microsoft Entra - Password** - Use an identity and password in Microsoft Entra ID to connect the server. **Microsoft Entra - Integrated** - Use Windows identity federated with Microsoft Entra ID to connect the server. **Microsoft Entra - Managed Identity** - Authenticate to the database in SQL Database or SQL Managed Instance with Microsoft Entra managed identities. **Microsoft Entra - Service Principal** - Authenticate to the database in SQL Database or SQL Managed Instance with Microsoft Entra service principals (Microsoft Entra applications).
User Name	User name for connecting to the database server.
Password	Password for connecting to the database server.

SQLite

Support HTTP Tunneling.

Option	Description
Connection Name	Enter a friendly name to best describe your connection.
Add To	After you logged in Navicat Cloud or On-Prem Server, you can choose to save the connection to My Connections or a project.
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**.

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.
User Name	User name for connecting to the database.
Password	Password for connecting to the database.

MongoDB

Support SSL and SSH Tunneling.

Option	Description
Connection Name	Enter a friendly name to best describe your connection.
Add To	After you logged in Navicat Cloud or On-Prem Server, you can choose to save the connection to My Connections or a project.
Type	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 where the database is situated or the IP address of the server.
Endpoint	The Endpoint for connecting to the Amazon Web Services instance.
Port	A TCP/IP port for connecting to the database 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	**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.

Redis

Support SSL and SSH Tunneling.

Option	Description
Connection Name	Enter a friendly name to best describe your connection.

Add To	After you logged in Navicat Cloud or On-Prem Server, you can choose to save the connection to My Connections or a project.
Type	The type of your Redis server: Standalone, Cluster or Sentinel.
Role	The role of your Redis instance: Master or Replica.
Host	A host name where the database is situated or the IP address of the server.
Port	A TCP/IP port for connecting to the database server.
Authentication	None - No authentication. Password - Enter the **Password** if the Redis server is password protected via the requirepass option. Username & Password - Enter the **User Name** and **Password** if Redis ACLs are used.
Sentinel Host	The IP address of the Sentinel instance.
Sentinel Port	A TCP/IP port for connecting to the Sentinel instance.
Sentinel Authentication	None - No authentication. Password - Enter the **Sentinel Password** for the Sentinel instance. Username & Password - Enter the **Sentinel User Name** and **Sentinel Password** for the Sentinel instance.
Group Name	The group of Redis instances composed of a master and one or more slaves.
Group Authentication	None - No authentication. Password - Enter the **Group Password** for the group. Username & Password - Enter the **Group User Name** and **Group Password** for the group.

Sentinels Settings

If you are connecting to a Redis Sentinel architecture, you can provide additional configuration options within the **Sentinel** tab to ensure high availability.

To enhance redundancy and failover capabilities, you can enable the **Use extra sentinels** option. This allows you to easily specify additional Sentinel nodes to associate with your connection.

Sentinel SSL

If your Redis Sentinels are configured to use SSL/TLS for secure, encrypted communication, you can manage these strict security options within the **Sentinel SSL** tab.

First, enable the **Use SSL** option to instruct Navicat to communicate over a secure channel.

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

Option	Description
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.
Allow any server SSL certificates	Check this option if your Redis server allows any server SSL certificates.
CA Certificate	The path to a file in PEM format that contains a list of trusted SSL certificate authorities.
Server Name Indication	The Server Name Indication (SNI) value used when establishing the SSL connection to the Redis server.

Snowflake

Option	Description
Connection Name	Enter a friendly name to best describe your connection.
Add To	After you logged in Navicat Cloud or On-Prem Server, you can choose to save the connection to My Connections or a project.
Configuration Method	Choose the configuration method of the database server. Either using user credentials (Default), data source names (DSN), Native SSO or Browser-Based SSO.
Host	A host name where the database is situated or the IP address of the server.
Warehouse	The warehouse to use once connected.
Role	The default access control role to use.
Port	A TCP/IP port for connecting to the database server.
User Name	User name for connecting to the database server.
Password	Password for connecting to the database server.
Use MFA passcode	Check this option if your user account has multi-factor authentication (MFA) enabled.
Data Source	Choose the data source you have set.
Native SSO URL	The Okta URL endpoint for your Okta account.

Advanced Settings

While basic login credentials get you connected, complex networks and strict security policies often require deeper customization. The **Advanced** tab provides granular control over timeouts, security, and driver configurations.

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

Option	Description
Auto connect	Open the connection at application startup automatically.
Cipher Name	Choose the encryption algorithm when connecting to an encrypted SQLite database.
Client Character Set	Choose the session client character set used in Navicat.
Client Driver Version	Choose the client driver used to connect the server. If the

	default driver does not work, you can change this setting to Legacy.
Compatibility	Enable the Compatibility tab for setting the compatibility mode for MySQL connection.
Connection Parameters	Enter advanced parameters that don't have an equivalent option exposed in any other tab, e.g. Trusted_Connection=yes;ApplicationIntent=ReadOnly;
Connection Timeout	Specify the amount of time to wait for a connection to be established before timing out.
Encoding	Choose a codepage for converting data to display in Navicat UI.
Encrypt	Enable this option and provide **Password** when connecting to an encrypted SQLite database.
Execution Timeout	Specify the amount of time to wait before execution of a task is completed on the server.
Initial Queries	Specify the initial query commands to be executed when connecting to the server.
Keepalive interval	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.
Read Timeout	Specify the amount of time to wait for more data from a connection before aborting the read.
Retryable Reads	Disable this option to specify "retryReads=false" in the connection string.
Retryable Writes	Disable this option to specify "retryWrites=false" in the connection string.
Server Selection Timeout	Specify the amount of time to block for server selection before throwing an exception.
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.
Socket Timeout	Specify the amount of time to wait for an inactive socket before closing it.
Trust Server Certificate	Skip the step that validates the server certificate. The server certificate is automatically trusted.
Use compression	Use compression protocol. It is used if both client and server support zlib compression, and the client requests compression.
Use encryption	Use encryption for SQL Server connection.
Use socket file	Use socket file for localhost connection.
Write Timeout	Specify the amount of time to wait for a block to be written to a connection before aborting the write.

File in Settings Location

Additionally, Navicat saves your profiles locally in a dedicated **Settings Location**, so you can easily manage and back up your work.

File in Settings Location	Server Type	File Extension
Aggregation Pipeline	MongoDB	.nagg
Backup	MySQL, PostgreSQL, SQLite, MariaDB and Snowflake	.nb3
	Redis	.nbr
Backup Profile	MySQL	.nbakmysql
	PostgreSQL	.nbakpgsql
	SQLite	.nbaksqlite
	SQL Server	.nbakmssql
	MariaDB	.nbakmariadb
	Redis	.nbakredis
	Snowflake	.nbaksnowflake
Collection Profile	MongoDB	.ntablep
Data Pump Export Profile	Oracle	.nbakora
Data View Profile	Redis	.ndvredis
ER Diagram File	MySQL, Oracle, PostgreSQL, SQLite, SQL Server, MariaDB and Snowflake	.nmodel
Export Materialized View Profile	Oracle	.nexpmora
	PostgreSQL	.nexpmpgsql
	Snowflake	.nexpmsnowflake
Export Query Result Profile	MySQL	.nexpqmysql
	Oracle	.nexpqora
	PostgreSQL	.nexpqpgsql
	SQLite	.nexpqsqlite
	SQL Server	.nexpqmssql
	MariaDB	.nexpqmariadb
	MongoDB	.nexpqmongodb
	Snowflake	.nexpqsnowflake
Export Table/Collection Profile	MySQL	.nexptmysql
	Oracle	.nexptora
	PostgreSQL	.nexptpgsql
	SQLite	.nexptsqlite
	SQL Server	.nexptmssql
	MariaDB	.nexptmariadb
	MongoDB	.nexptmongodb
	Snowflake	.nexptsnowflake
Export View Result Profile	MySQL	.nexpvmysql

	Oracle	.nexpvora
	PostgreSQL	.nexpvpgsql
	SQLite	.nexpvsqlite
	SQL Server	.nexpvmssql
	MariaDB	.nexpvmariadb
	MongoDB	.nexpvmongodb
	Snowflake	.nexpvsnowflake
Import Table/Collection Profile	MySQL	.nimpmysql
	Oracle	.nimpora
	PostgreSQL	.nimppgsql
	SQLite	.nimpsqlite
	SQL Server	.nimpmssql
	MariaDB	.nimpmariadb
	MongoDB	.nimpmongodb
	Snowflake	.nimpsnowflake
MapReduce	MongoDB	.mapreduce
Pub/Sub	Redis	.npsbredis
Pub/Sub Archive File	Redis	.nrpsbmlog
Query	MySQL, Oracle, PostgreSQL, SQLite, SQL Server, MariaDB and Snowflake	.sql
	MongoDB	.js
	Redis	.redis
Schema Analysis	MongoDB	.nsatmongodb
Table Profile	MySQL, Oracle, PostgreSQL, SQLite, SQL Server, MariaDB and Snowflake	.ntablep

Compatibility Settings

If your server is a variant of MySQL or has proxy middleware installed, you can enable compatibility mode and set the corresponding settings for the connection.

Option	Description
Force lower_case_table_names as	Set the value of the lower_case_table_name system variable.
Force sql_mode as	Set the value of the sql_mode system variable.
Force NDB cluster support as	Include or exclude the support for the NDBCLUSTER storage engine.
Force database listing method as	Use the SHOW DATABASES statement to retrieve the information for listing databases, or select the information from the INFORMATION_SCHEMA database.
Force view listing method as	Use the SHOW FULL TABLES statement to retrieve the information for listing tables, or select the information from the INFORMATION_SCHEMA database.

Databases Settings

Navicat provides flexible options to manage how databases are displayed and accessed within your connection environment. Depending on your server type, you can use these settings to declutter your Navigation Pane by filtering which databases are visible, or, for SQLite users, link external database files directly to your connection.

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

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.

Enable custom database settings

1. Check the **Use custom database list** option.
2. Check your preferred databases within the **Database** column.
3. (Optional) Check the **Auto Open** box if you want Navicat to automatically open the selected databases upon connection.

Add a hidden database to the list

1. Click the **+** 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 **-** button.

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

SQLite

In the **Databases** tab, you can attach SQLite database files to the connection.

Attach a database

To attach a database, click the **+** button and enter the information:

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

	is encrypted.

Detach a database

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

SSL

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, MongoDB and Redis. Support from PostgreSQL 8.4 or later.

MySQL / MariaDB

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

Option	Description
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

Choose the **SSL Mode**:

Mode	Description
allow	First try a non-SSL connection; if that fails, try an SSL connection.
prefer	First try an SSL connection; if that fails, try a non-SSL connection.
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:

Option	Description

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

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

Option	Description
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.
Allow any server SSL certificates	Check this option if your MongoDB server allows any server SSL certificates.
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.

Redis

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

Option	Description
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.
Allow any server SSL certificates	Check this option if your Redis server allows any server SSL certificates.
CA Certificate	The path to a file in PEM format that contains a list of trusted SSL certificate authorities.
Server Name Indication	The Server Name Indication (SNI) value used when establishing the SSL connection to the Redis server.

SSH Tunneling

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

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

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

Server Configuration

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.

SSH Configuration Settings

To establish an SSH tunnel, enable **Use SSH tunnel** and fill in the required information:

Option	Description
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.)
Authentication Method	Password - Authenticate using a password for the SSH server user. Public Key - Authenticate using a cryptographic key pair. Password & Public Key - Authenticate using both password and cryptographic key pair.
Password	Provide the password for the SSH server user.
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 Tunneling

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.

Upload 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: Click the **Export Tunnel Script** button to extract the script file, **ntunnel_mysql.php** (for both MySQL and MariaDB), **ntunnel_pgsql.php** or **ntunnel_sqlite.php**.

Set 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 the tunneling script is hosted in a password protected server, you can provide the required authentication details.
4. If your server installed a Web Application Firewall, you can check the **Encode outgoing query with base64** option.
5. If you have to access internet over a proxy server, click the **Proxy Settings** button and provide the details.

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

Connect with Different Profiles

You can have multiple profiles for each connection, with slightly different connection settings. For example, different database users.

Create Connection Profile

1. In the connection window, click .
2. Click .
3. Enter the name of the profile.

4. Enter the connection settings.

5. Click **OK**.

Hint: You can synchronize your profiles to Navicat Cloud or Navicat On-Prem Server. See Synchronize Personal Profiles.

Switch Profile

1. In the main window, control-click a connection and select **Switch Connection Profile**.

2. Select the profile name.

Hint: You can also set the default active profile in the connection window.

Manage Connections

The Manage Connections feature is a centralized way to manage connections in My Connections or projects. To open the manager, you can hover over **My Connections** or a project and click .

Note: Changes made in the Manage Connection window will be immediately applied to the Navigation pane.

Create Connection

1. In the Manage Connections window, click .

2. In the New Connection window, select your server type and click **Next**.

3. Enter the necessary information.

4. Click **OK**.

Edit Connection Settings

1. In the Manage Connections window, select your connection.

2. Click .

3. In the Edit Connection window, modify your connection information.

4. Click **OK**.

Hint: You can view / copy your Navicat URI or MongoDB URI by clicking **URI**.

Star / Unstar Connections

1. In the Manage Connections window, select the connections you want to add or remove stars.

2. Click .

Hint: You can synchronize your settings to Navicat Cloud or Navicat On-Prem Server. See Synchronize Personal Profiles.

Hide / Unhide Connections

1. In the Manage Connections window, select the connections you want to hide or unhide.
2. Click .

Hint: You can synchronize your settings to Navicat Cloud or Navicat On-Prem Server. See Synchronize Personal Profiles.

Delete Connections

1. In the Manage Connections window, select the connections you want to delete.
2. Click .
3. Click **Delete**.

Search Connection Information

Navicat allows you to quickly search for specific connection information within the application. It helps you locate specific connections by searching for keywords related to the connection details. You can search for connection information such as connection names, host names, IP addresses, port numbers and other relevant settings.

In the Manage Connections window, simply enter the search string in the **Search connection info** box. As you type, search results automatically update and all matching text strings are highlighted.

Chapter 5 - Server Objects

MySQL / MariaDB

Navicat provides comprehensive management tools for MySQL and MariaDB environments. From designing database schemas and querying tables to configuring scheduled events and executing routine maintenance, the intuitive interface streamlines both basic data operations and advanced administrative workflows.

Supported server objects include:

- Databases
- Tables
- Views
- Procedures / Functions
- Events
- Tablespaces
- Sequences

Note: Sequences are available for MariaDB 10.3 or later.

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, control-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, control-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: /usr/local/mysql5/data. 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, control-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 OPTION key when choosing the pop-up menu)

You can create a table shortcut by dragging the table out. It provides a convenient way for you to open your table for entering data directly without activating the Navicat main window.

To empty a table, control-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** -> **Find** or pressing COMMAND-F. You can change the order of a field when creating new tables, simply drag and drop it to the desired location.

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

Create Table with AI (Available only in Enterprise and Standard Edition)

Navicat's Ask AI integration allows you to generate complete database table structures using natural language. Instead of manually adding fields, selecting data types, and setting constraints, you can simply describe what you need and let the AI build the schema draft for you.

Generate a table structure

1. In Table Designer, click .
2. Type your instructions into the prompt box (e.g., Create a student table with fields for first name, last name, email, and enrollment date).
3. Click **Ask AI**.

Generate a comment

You can also use AI to automatically document your database objects. Simply click the **Fill with AI** button within the **Comment** tab, and the AI will analyze the context of your table structure to generate a descriptive comment for you.

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 Editor 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.

You can create a view shortcut by dragging the view out. It provides a convenient way for you to open your view without activating the Navicat main window.

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 **SQL Editor** tab. To customize the view of the editor and find out more features for SQL editing, see Query 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 the data of the view.
	Show the Query Plan of the view.
	Stop the preview process.
	Build the view visually. It allows you to create and edit views without knowledge of SQL. See Query Builder for details.
	Format the codes with the Beautify SQL settings in Editor.

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 Editor for details.

Note: Transaction is only available for updatable views.

Procedures / Functions

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

Function Wizard

Click ⊕ 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.
3. If you create a function, select the **Return Type** from the list.
4. Select the additional function options.

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

Function Designer

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

Results

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

Note: Navicat supports to return 20 result sets.

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. Control-click the selected objects.
3. Choose **Maintain**, and then choose a maintain option from the pop-up menu.
4. Results show in a pop-up window.

Table

Option	Description
Analyze Table	Analyze and store the key distribution for the table.
Check Table	Check the table for errors.
Optimize Table	Optimize the table to reduce storage space and improve I/O

	efficiency.
Repair Table	Repair the possibly corrupted table.
Get Rows Count	Count the number of rows in the table.

Tablespace

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

Oracle

Navicat provides a comprehensive suite of tools for managing Oracle databases, from basic schema management and table design to advanced PL/SQL debugging and object maintenance.

Supported server objects include:

- Schemas
- Tables
- Views
- Materialized Views
- Procedures / Functions
- Packages
- Recycle Bin
- Database Links
- Indexes
- Java
- Materialized View Logs
- Sequences
- Synonyms
- Triggers
- Types
- XML Schemas

- Directories
- Public Database Links
- Public Synonyms
- Tablespaces

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 from the object toolbar and choose the table type.

There are two ways to open a table with graphical fields, control-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 OPTION key when choosing the pop-up menu.)

You can create a table shortcut by dragging the table out. It provides a convenient way for you to open your table for entering data directly without activating the Navicat main window.

To empty a table, control-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**.

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

Create Table with AI (Available only in Enterprise and Standard Edition)

Navicat's Ask AI integration allows you to generate complete database table structures using natural language. Instead of manually adding fields, selecting data types, and setting constraints, you can simply describe what you need and let the AI build the schema draft for you.

Generate a table structure

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You can also use AI to automatically document your database objects. Simply click the **Fill with AI** button within the **Comment** tab, and the AI will analyze the context of your table structure to generate a descriptive comment for you.

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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.

You can create a view shortcut by dragging the view out. It provides a convenient way for you to open your view without activating the Navicat main window.

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 **SQL Editor** tab. To customize the view of the editor and find out more features for SQL editing, see Query 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 the data of the view.
	Show the Query Plan of the view.

	Stop the preview process.
	Build the view visually. It allows you to create and edit views without knowledge of SQL. See Query Builder for details.
	Format the codes with the Beautify SQL settings in Editor.

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 Editor 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.

You can create a materialized view shortcut by dragging the materialized view out. It provides a convenient way for you to open your materialized view without activating the Navicat main window.

To refresh a materialized view, control-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 **SQL Editor** tab. To customize the view of the editor and find out more features for SQL editing, see Query 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 the data of the materialized view.
	Show the Query Plan of the materialized view.
	Stop the preview process.
	Build the materialized view visually. It allows you to create and edit materialized views without knowledge of SQL. See Query Builder for details.
	Format the codes with the Beautify SQL settings in Editor.

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 Editor for details.

Procedures / Functions

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

Function Wizard

Click 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.
3. If you create a function, select the **Return Type** from the list.
4. Select the additional function options.

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

Function Designer

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

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

Results

To execute the procedure/function, click 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 Parameters** dialog will pop up. Check the **Raw Mode** option to pass the inputted values to the procedure/function without quotation marks.

Note: Navicat supports to return 20 result sets.

Debug (Available only in Enterprise and Standard Edition)

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

Click 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. A 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 or .

Likewise, you can edit its package specification by clicking 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 Query 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 Enterprise and Standard Edition.

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

Results

To execute the package, click 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 Parameters** dialog will pop up.

Debug (Available only in Enterprise and Standard Edition)

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

Before debugging, click to save and compile the package. Then, click 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 .

Remove an object

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

Remove all objects

1. Control-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. Control-click anywhere in the Objects tab and select **Purge DBA Recycle Bin** from the pop-up menu.
3. Confirm deleting in the dialog window.

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. Control-click the selected objects.
3. Choose **Maintain**, and then choose a maintain option 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.
Validate Table Structure	Verify the integrity of the structure of the table.

Collect Table Statistics	Analyze the contents 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 Index	Re-create the index or one of its partitions or subpartitions.
Make Index Unusable	Make the index unusable.
Coalesce Index	Merge the contents of index blocks where possible to free blocks for reuse.
Compute Index Statistics	Compute the statistics of 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 Space	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
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.
Enable	Enable the trigger.
Disable	Disable the trigger.

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 XML Schema	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

Navicat offers a robust set of tools tailored for PostgreSQL, enabling you to seamlessly manage databases, schemas, and complex objects like materialized views and foreign servers. Whether you are debugging advanced PL/pgSQL functions, managing custom data types, or performing routine maintenance, the interface simplifies both daily development and database administration.

Supported server objects include:

- Databases
- Schemas
- Tables
- Views
- Materialized Views
- Procedures / Functions
- Types
- Foreign Servers
- Aggregates
- Conversions
- Domains
- Indexes
- Operators
- Operator Classes
- Sequences
- Triggers
- Tablespaces
- Casts
- Languages

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, control-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, control-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, control-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, control-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** / **Partitioned** tables. Click the down arrow next to from the object toolbar and choose the table type.

There are two ways to open a table with graphical fields, control-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 OPTION key when choosing the pop-up menu.)

You can create a table shortcut by dragging the table out. It provides a convenient way for you to open your table for entering data directly without activating the Navicat main window.

To empty a table, control-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** -> **Find** or pressing COMMAND-F. You can change the order of a field when creating new tables, simply drag and drop it to the desired location.

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

Create Table with AI (Available only in Enterprise and Standard Edition)

Navicat's Ask AI integration allows you to generate complete database table structures using natural language. Instead of manually adding fields, selecting data types, and setting constraints, you can simply describe what you need and let the AI build the schema draft for you.

Generate a table structure

1. In Table Designer, click .
2. Type your instructions into the prompt box (e.g., Create a student table with fields for first name, last name, email, and enrollment date).
3. Click **Ask AI**.

Generate a comment

You can also use AI to automatically document your database objects. Simply click the **Fill with AI** button within the **Comment** tab, and the AI will analyze the context of your table structure to generate a descriptive comment for you.

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 Editor 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.

You can create a view shortcut by dragging the view out. It provides a convenient way for you to open your view without activating the Navicat main window.

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 **SQL Editor** tab. To customize the view of the editor and find out more features for SQL editing, see Query 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 the data of the view.
	Show the Query Plan of the view.
	Stop the preview process.
	Build the view visually. It allows you to create and edit views without knowledge of SQL. See Query Builder for details.
	Format the codes with the Beautify SQL settings in Editor.

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 Editor 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.

You can create a materialized view shortcut by dragging the materialized view out. It provides a convenient way for you to open your materialized view without activating the Navicat main window.

To refresh and completely replace the contents of a materialized view, control-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 Query 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 the data of the materialized view.
	Show the Query Plan of the materialized view.
	Stop the preview process.
	Build the materialized view visually. It allows you to create and edit materialized views without knowledge of SQL. See Query Builder for details.
	Format the codes with the Beautify SQL settings in Editor.

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 Editor for details.

Procedures / Functions

Procedures and functions are schema objects that consist a set of SQL statements and stored in the server. Procedures are supported in PostgreSQL 11. In the main window, click **Function** to open the function object list.

Function Wizard

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

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

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

Function Designer

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

Results

To execute the procedure/function, click 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 Parameters** dialog will pop up. Check the **Raw Mode** option to pass the inputted values to the procedure/function without quotation marks.

Note: Navicat supports to return 20 result sets.

Debug (Available only in Enterprise and Standard Edition)

Before debugging PL/pgSQL procedures/functions, you need to install the pldbgapi extension or enable the debugger plugin manually in the server.

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

Click on the toolbar to launch the PostgreSQL Debugger. Enter the input parameters if necessary.

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. Control-click the selected objects.
3. Choose **Maintain**, and then choose a maintain option 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 Table / Analyze Materialized View	Collect statistics about the contents of the table.
Vacuum Table / Vacuum Materialized View	Garbage-collect and optionally analyze the table.
Reindex Table / Reindex Materialized View	Recreate all indexes of the table.

Manage Extensions

PostgreSQL has various extensions, supplying extra functions, operators, or types to extend the functionality of a database. You can install the extensions that are supported by your PostgreSQL server.

Install an extension

1. In the Navigation pane, control-click a database and select **Manage Extensions**.
2. All available extensions are listed on the left. Move an available extension to the Installed list.
3. Click **OK**.

Remove an extension

1. In the Navigation pane, control-click a database and select **Manage Extensions**.
2. Move an installed extension to the Available list.

3. Click **OK**.

SQL Server

Navicat provides a comprehensive workspace tailored for SQL Server environments, equipping you with the tools needed to manage databases and schemas, design complex tables and views, and write stored procedures. Additionally, it offers built-in maintenance features to easily manage database states, rebuild indexes, and toggle triggers without writing manual queries.

Supported server objects include:

- Databases
- Schemas
- Tables
- Views
- Procedures / Functions
- Indexes
- Synonyms
- Triggers
- Backup Devices
- Linked Servers
- Server Triggers
- Assemblies
- Database Triggers
- Triggers
- Partition Functions
- Partition Schemes

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, control-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, control-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, control-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, control-click a schema and select **Edit Schema**.

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

Tables

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

There are two ways to open a table with graphical fields, control-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 OPTION key when choosing the pop-up menu.)

You can create a table shortcut by dragging the table out. It provides a convenient way for you to open your table for entering data directly without activating the Navicat main window.

To empty a table, control-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** -> **Find** or pressing COMMAND-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.

Create Table with AI (Available only in Enterprise and Standard Edition)

Navicat's Ask AI integration allows you to generate complete database table structures using natural language. Instead of manually adding fields, selecting data types, and setting constraints, you can simply describe what you need and let the AI build the schema draft for you.

Generate a table structure

1. In Table Designer, click .
2. Type your instructions into the prompt box (e.g., Create a student table with fields for first name, last name, email, and enrollment date).
3. Click **Ask AI**.

Generate a comment

You can also use AI to automatically document your database objects. Simply click the **Fill with AI** button within the **Comment** tab, and the AI will analyze the context of your table structure to generate a descriptive comment for you.

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 Editor 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.

You can create a view shortcut by dragging the view out. It provides a convenient way for you to open your view without activating the Navicat main window.

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 **SQL Editor** tab. To customize the view of the editor and find out more features for SQL editing, see Query 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 the data of the view.
	Show the Query Plan of the view.

	Stop the preview process.
	Build the view visually. It allows you to create and edit views without knowledge of SQL. See Query Builder for details.
	Format the codes with the Beautify SQL settings in Editor.

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 Editor for details.

Procedures / Functions

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

Function Wizard

Click 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.
3. If you create a function, select the **Return Type** from the list.
4. Select the additional function options.

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

Function Designer

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

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

Results

To execute the procedure/function, click ▷ 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 Parameters** dialog will pop up. Check the **Raw Mode** option to pass the inputted values to the procedure/function without quotation marks.

Note: Navicat supports to return 20 result sets.

Maintain Objects

Navicat provides a complete solution for maintaining SQL Server objects.

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

Database

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

Assembly

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

Index

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

Trigger / Database Trigger / Server Trigger

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

SQLite

Navicat offers a streamlined yet powerful environment for managing your SQLite databases. Because SQLite is a serverless, file-based database system, Navicat provides specialized tools to handle local database files, including attaching multiple databases to a single connection, applying encryption, and performing direct file maintenance.

Supported server objects include:

- Databases
- Tables
- Views
- Indexes
- Triggers

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, control-click a connection and select **Attach Database**.
2. Enter the database properties in the pop-up window.

Detach a database

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

Encrypt main database

1. In the Navigation pane, control-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, control-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, control-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.

You can create a table shortcut by dragging the table out. It provides a convenient way for you to open your table for entering data directly without activating the Navicat main window.

To empty a table, control-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** -> **Find** or pressing COMMAND-F.

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

Create Table with AI (Available only in Enterprise and Standard Edition)

Navicat's Ask AI integration allows you to generate complete database table structures using natural language. Instead of manually adding fields, selecting data types, and setting constraints, you can simply describe what you need and let the AI build the schema draft for you.

Generate a table structure

1. In Table Designer, click .
2. Type your instructions into the prompt box (e.g., Create a student table with fields for first name, last name, email, and enrollment date).
3. Click **Ask AI**.

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 Editor 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.

You can create a view shortcut by dragging the view out. It provides a convenient way for you to open your view without activating the Navicat main window.

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 **SQL Editor** tab. To customize the view of the editor and find out more features for SQL editing, see Query 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 the data of the view.
	Show the Query Plan of the view.
	Stop the preview process.
	Build the view visually. It allows you to create and edit views without knowledge of SQL. See Query Builder for details.
	Format the codes with the Beautify SQL settings in Editor.

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 Editor for details.

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. Control-click the selected objects.
3. Choose **Maintain**, and then choose a maintain option 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 Table	Collect statistics about the contents of the table.
Reindex Table	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

Navicat provides a highly specialized workspace for managing MongoDB environments. Because MongoDB is a NoSQL, document-oriented database, Navicat equips you with tools tailored specifically for handling JSON-like documents, aggregation pipelines, functions, Map-Reduce jobs, and GridFS storage.

Supported server objects include:

- Databases
- Collections
- Views
- Functions
- Indexes
- MapReduce
- GridFS

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, control-click a 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.

You can create **Normal** / **Time Series** collections. Click the down arrow next to from the object toolbar and choose the collection type.

You can create a collection shortcut by dragging the collection out. It provides a convenient way for you to open your collection for entering data directly without activating the Navicat main window.

To empty a collection, control-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 Editor for details.

Views

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

You can create a view shortcut by dragging the view out. It provides a convenient way for you to open your view without activating the Navicat main window.

View Designer

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

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

See Pipeline Builder for details.

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 Editor for details.

Functions

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

Function Designer

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

Results

To execute the function, click on the toolbar. If the script is correct, a 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.

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 the Map-Reduce job.
	Stop the running Map-Reduce job.
	Preview the documents by applying Input, Mapper, Reducer or Finalizer.
	Import an existing function to Mapper, Reducer or Finalizer.

Results

To run the Map-Reduce job, click 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 and enter the name of the bucket.

To open the selected bucket, click .

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 the selected GridFS file.
	Delete the selected GridFS files.
	Upload files into the bucket.

	Download the selected GridFS files.
	Filter the GridFS file table by creating and applying filter criteria.
	Preview an image file that is less than 1 MB.
	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, control-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 .

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, control-click the list and select the appropriate options.

To clear the finished items, control-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. Control-click the selected objects.
3. Choose **Maintain**, and then choose a maintain option 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.

Redis

Navicat provides an intuitive interface for managing Redis, a powerful in-memory data structure store. Unlike traditional relational databases, Redis operates entirely on a key-value basis. Navicat simplifies navigating through your Redis databases, inspecting key values.

Supported server objects include:

- Databases
- Data

Databases

Redis supports 16 databases by default and databases are numbered from 0 to 15. Navicat lists all databases and the number of keys in each database when you connect to your Redis server. Simply double-click a database to open it.

Show / Hide empty databases

1. In the Navigation pane, control-click the connection and select **Show Empty Databases**.

Hint: You can configure Redis to support more databases by adjusting *databases* parameter value in the Redis configuration file (redis.conf). After setting, restart Redis to complete the configuration.

Data

All key-value data in a database is in a data view named **All Data**.

When you open All Data, the viewer displays data as a grid with key names, key types, key values, size and Time-to-Live (TTL). See Data Editor for details.

Snowflake

Navicat provides a comprehensive suite of tools tailored for Snowflake, empowering you to easily manage databases and schemas, design standard or dynamic tables, build materialized views, and execute maintenance tasks.

Supported server objects include:

- Databases
- Schemas
- Tables
- Views
- Materialized Views
- Procedures / Functions
- Sequences

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, control-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, control-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, control-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, control-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 **Standard** / **Hybrid** / **Dynamic** tables. Click the down arrow next to from the object toolbar and choose the table type.

There are two ways to open a table with graphical fields, control-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 OPTION key when choosing the pop-up menu.)

You can create a table shortcut by dragging the table out. It provides a convenient way for you to open your table for entering data directly without activating the Navicat main window.

To empty a table, control-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** -> **Find** or pressing COMMAND-F. You can change the order of a field when creating new tables, simply drag and drop it to the desired location.

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

Create Table with AI (Available only in Enterprise and Standard Edition)

Navicat's Ask AI integration allows you to generate complete database table structures using natural language. Instead of manually adding fields, selecting data types, and setting constraints, you can simply describe what you need and let the AI build the schema draft for you.

Generate a table structure

1. In Table Designer, click ✧.
2. Type your instructions into the prompt box (e.g., Create a student table with fields for first name, last name, email, and enrollment date).
3. Click **Ask AI**.

Generate a comment

You can also use AI to automatically document your database objects. Simply click the **Fill with AI** button within the **Comment** tab, and the AI will analyze the context of your table structure to generate a descriptive comment for you.

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 Editor 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.

You can create a view shortcut by dragging the view out. It provides a convenient way for you to open your view without activating the Navicat main window.

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 **SQL Editor** tab. To customize the view of the editor and find out more features for SQL editing, see Query 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 the data of the view.
	Show the Query Plan of the view.
	Stop the preview process.
	Build the view visually. It allows you to create and edit views without knowledge of SQL. See Query Builder for details.
	Format the codes with the Beautify SQL settings in Editor.

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 Editor 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.

You can create a materialized view shortcut by dragging the materialized view out. It provides a convenient way for you to open your materialized view without activating the Navicat main window.

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 **SQL Editor** tab. To customize the view of the editor and find out more features for SQL editing, see Query 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 the data of the materialized view.
	Show the Query Plan of the materialized view.
	Stop the preview process.
	Build the materialized view visually. It allows you to create and edit materialized views without knowledge of SQL. See Query Builder for details.
	Format the codes with the Beautify SQL settings in Editor.

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 Editor for details.

Procedures / Functions

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

Function Wizard

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

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

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

Function Designer

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

Results

To execute the procedure/function, click 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 Parameters** dialog will pop up. Check the **Raw Mode** option to pass the inputted values to the procedure/function without quotation marks.

Note: Navicat supports to return 20 result sets.

Maintain Objects

Navicat provides a complete solution for maintaining Snowflake objects.

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

Table

Option	Description
Recluster	Enable or disable automatic clustering for the table: Suspend or Resume.
Dynamic Table	Choose the action to perform on the dynamic table: Refresh, Suspend or Resume.
Get Rows Count	Count the number of rows in the table.

Materialized View

Option	Description
Recluster	Enable or disable automatic clustering for the materialized view: Suspend or Resume.
Suspend	Suspend the maintenance and use of the materialized view.
Resume	Resume the maintenance and use of the materialized view.

Chapter 6 - Data Editor

RDBMS Data Editor

The RDBMS Data Editor allows you to interact with your data using two distinct layouts: Grid View and Form View. To switch the view, click or at the bottom.

Note: Form View is available only in Enterprise and Standard Edition.

Toolbar

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

Button	Description
	Manage Profile - Manage the saved table profiles and view the profile information. **Load Profile** - Load a table profile. **Save Profile** - Create a profile with the current filter, sort and column settings. **Save Profile As** - Save the settings as a new profile. (Available only in Enterprise and Standard Edition)
	Start a transaction. If **Auto begin transaction** is enabled in Settings, transaction will be started automatically when opening the data editor.
	Make permanent all changes performed in the current transaction.
	Undo work done in the current transaction.
	Activate the cell editors for viewing and editing data.
	Filter and sort records by applying filter and sorting criteria for the data grid.
	Show / Hide columns.
	[Form View] Toggle a sidebar column pane, which allows you to browse and jump between records quickly.
	Show the underlying SQL statements that have been executed on the server during your current editor session.
	Leverage AI Assistant to populate synthetic data directly into your selected cells.
	Profile the data in the table.
	Import data from files.
	Export data to files.
	Generate data for the table.
	Apply masking techniques to shield sensitive information.
	Create a new BI workspace with a data source using the table data.

Use Navigation Bar

Data Editor 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 editor, 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.
⚙	**Setting** - set number of records showing on each page.
⊕	**Zoom** - magnify or reduce the text and cell size within the data grid.
▦	**Grid View** - switch to Grid View.
☰	**Form View** - switch to Form View.

Pagination and Record Display Settings

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

Limit ☐ **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 represents the number of records showed per page.

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

Grid View

Grid View is a spreadsheet-like view that displays database records and fields as rows and columns. The integrated navigation bar allows you to quickly flip through records, insert new rows, or delete existing data.

To add a record

1. Click + on the navigation bar, or press COMMAND-+.
2. Type your data into the blank row.
3. Click another row or click ✓ on the navigation bar to save.

To edit a record

1. Click a cell.
2. Type your new data.
3. Click another row or click ✓ on the navigation bar to save.

To edit multiple cells with the same data

1. Highlight a block of cells.
2. Type your data, and it will fill all selected fields at once.
3. Click **Apply**.

   Note: These batch edits will only apply successfully to fields that possess a compatible data type for the value being entered.

To delete a record

1. Click the row you want to remove.
2. Click − on the navigation bar, or press COMMAND--.

Hint: If you have unchecked the **Auto-apply single-record changes** option in Settings, you can make changes across multiple records and click **Apply** to save all updates at once.

Form View

Form View displays a single record at a time from a table, making it easier to focus on detailed data entries. The integrated navigation bar allows you to quickly flip through records, insert new rows, or delete existing data.

Click ☰ to toggle a sidebar column pane, which allows you to browse and jump between records quickly. You can click the **Choose Columns** button to customize exactly which fields are shown within this pane.

To add a record

1. Click + on the navigation bar, or press COMMAND-+.
2. Type your data into the blank fields.
3. Click ✓ on the navigation bar to save.

To edit a record

1. Navigate to the record you want to change.
2. Type your new data directly into the fields.
3. Click ✓ on the navigation bar to save.

To delete a record

1. Navigate to the record you want to remove.
2. Click − on the navigation bar, or press COMMAND--.

Edit Records

Edit Records with Special Handling

- To set the cell value to an empty string or NULL, control-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**.

  Hint: To view/edit images in an ease way, see Image Editor.
- To edit a Date/Time record, just simply click ... to open the editor for editing. Choose/enter the desired data. The editor used in cell is determined by the field type assigned to the column.
- To edit an Enum record, just simply choose the record from the drop-down menu.
- To edit a Set record, just simply click ... to open the editor for editing. Select the records from the list. To remove the records, uncheck them in the same way.
- To view BFile content, just simply choose **View** -> **Display** -> **Preview BFile**.
- To generate UUID/GUID, control-click the selected cell and select **Generate UUID**.

Edit Records with Foreign Key (Foreign Key Data Selection - Available only in Enterprise and Standard Edition)

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

- To include data to the record, just simply click ... to open the editor for editing. Then, double-click to select the desired data.

  Hint: By default, the number of records showed is **1000**. To show all records, click ▦. To refresh the records, click ↻.

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

  Hint: To set column in ascending or descending mode, click the right side of the column and select **Sort Asc** / **Sort Desc**.

- 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

COMMAND-A	Toggle the selection of all rows and columns in the data grid.
SHIFT-UP ARROW	Toggle the selection of rows as you move up in the data grid.
SHIFT-DOWN ARROW	Toggle the selection of rows as you move down in the data grid.

To select data using mouse actions

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

Note: After you have selected the desired records, just simply press COMMAND-C or control-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 columns.
- 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 COMMAND-V or control-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, control-click the column/row header or the selected cells 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, control-click the column/row header or the selected cells 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 control-click a cell and select **Save Data As**. Enter the file name and file extension in the Save As dialog.

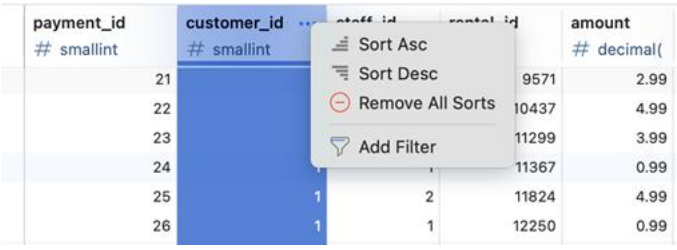
Note: Not available when multiple selection.

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.

Hover over the column caption whose contents you want to sort by, click the right side of the column and select **Sort Asc**, **Sort Desc** or **Remove All Sorts**.



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

Find Records

The Find bar is provided for quick searching for the text in the data editor. Just simply choose **Edit** -> **Find** -> **Find** or press COMMAND-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 **>** or press COMMAND-G.

Replace Records

In the Find bar, check the **Replace** box or press OPTION-COMMAND-F 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** -> **Find** or press COMMAND-F. Then, choose **Find Field** and enter a search string.

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

Option	Description
Highlight Matched Cells	Highlight all matches in the data editor.
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:

- Control-click a cell and select **Filter** -> **Field xxx Value** from the pop-up menu to filter records by the current value in the cell.
- You can also customize your filter in a more complicated way by clicking from the toolbar. The Filter & Sort pane 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 recognizes 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, SQL Server, MariaDB and Snowflake.

DEPARTMENT_ID	DEPARTMENT_NAME	MANAGER_ID
20	'Marketing'	201
30	'Purchasing'	114
40	CONCAT('Human', ' ', 'Resources')	203
50	'Shipping'	121
60	'IT'	103

Format Data View

Use the following methods to format the table:

Hint: Form View only supports Show/Hide Columns.

Move Columns

1. Click and hold the header of the column you want to move.
2. Move the pointer to your desired location.
3. Release the mouse button to reposition the column.

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.
- Control-click the column header and select **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

Control-click the row header and select **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 click . Select the columns that you would like to hide.

The hidden columns will disappear from the grid/form.

To unhide the columns, just simply click . 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, control-click anywhere on the table grid and select **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.

View Field Information

Data Type

You can display the data types of fields in the column header. To do so, control-click the column header and select **Show Field Type**.

EMPLOYEE_ID # double	FIRST_NAME ABC varchar(20)	LAST_NAME ABC varchar(25)	EMAIL ABC varchar(25)
100	Steven	King	SKING
101	Neena	Kochhar	NKOCHHAR
102	Lex	De Haan	LDEHAAN
103	Alexander	Hunold	AHUNOLD
104	Bruce	Ernst	BERNST

Field Comment

If you have added comments to the table fields, you can control-click the column header and select **Show Comment**. Field comments are displayed as the column header.

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

actor_id Actor ID	first_name --	last_name --	last_update --
1	PENELOPE	GUINESS	2006-02-15 04:3
2	NICK	WAHLBERG	2006-02-15 04:3
3	ED	CHASE	2017-08-31 15:21
4	JENNIFER	DAVIS	2006-02-15 04:3
5	JOHNNY	LOLLOBRIGIDA	2006-02-15 04:3

Save Table Profile

A Table Profile stores your custom filter, sorting rules, and column layout settings for quick reuse.

To save a profile

1. Click and select **Save Profile**.
2. Enter the profile name and click **OK**.
3. The created profile will appear under the corresponding table object in the main window.

Hint: You can synchronize your profiles to Navicat Cloud or Navicat On-Prem Server. See Synchronize Personal Profiles.

To load a profile

1. Click and select **Load Profile**.
2. Select the profile you want to load from the list.

Hint: You can also double-click the profile directly in the main window to open the table with your saved settings already applied.

View History

Navicat maintains a clear audit trail with a session history that logs all SQL statements executed since the current viewer was opened. Reviewing the history allows you to track modifications, errors, and verify exactly which commands were sent to the database.

You can click to show or hide the history pane at the bottom.

MongoDB Data Editor

The MongoDB Data Editor allows you to explore and manipulate your collection data in three distinct formats: Grid View, Tree View, and JSON View. To switch the view, click , or at the bottom.

Toolbar

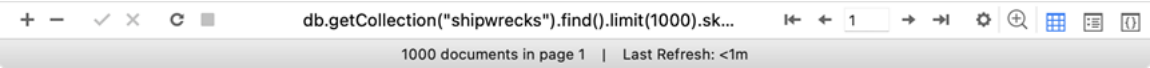
The toolbar of the data editor provides the following functions for managing data:

Button	Description
	Manage Profile - Manage the saved collection profiles and view the profile information. **Load Profile** - Load a collection profile. **Save Profile** - Create a profile with the current filter, sort and column settings. **Save Profile As** - Save the settings as a new profile. (Available only in Enterprise and Standard Edition)
	Start a transaction. If **Auto begin transaction** is enabled in Settings, transaction will be started automatically when opening the data editor.
	Make permanent all changes performed in the current transaction.
	Undo work done in the current transaction.
	Activate the cell editors for viewing and editing data. Available only for Grid View and Tree View.
	Filter and sort records by applying filter and sorting criteria for the data grid.
	Show / Hide columns.
	Show the underlying scripts that have been executed on the server during your current editor session.
	Leverage AI Assistant to populate synthetic data directly into your selected cells.
	[Tree View] Expand all embedded documents and arrays.
	[Grid View] Collapse all embedded documents. [Tree View] Collapse all embedded documents and arrays.
	[Grid View] Use the specified type color set on the Type Color pane to highlight cells.
	Analyze the collection.
	Import data from files.
	Export data to files.
	Generate data for the collection.

	Apply masking techniques to shield sensitive information.
	Create a new BI workspace with a data source using the collection data.

Use Navigation Bar

Data Editor 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 editor, click on this button to get a blank display for a document.
−	**Delete Documents** - delete an existing document.
✓	**Apply Changes** - apply the changes.
✕	**Discard Changes** - remove all edits made to the current document.
↻	**Refresh** - refresh the data.
■	**Stop** - stop when loading enormous data from server.
⇤	**First Page** - move to the first page.
←	**Previous Page** - move to the previous page.
→	**Next Page** - move to the next page.
⇥	**Last Page** - move to the last page.
⤒	**First Document** - move to the first document.
↑	**Previous Document** - move one document back (if there is one) from the current document.
↓	**Next Document** - move one document ahead.
⤓	**Last Document** - move to the last document.
⚙	**Setting** - set number of documents showing on each page.
	Zoom - magnify or reduce the text and cell size within the data grid.
	Grid View - switch to Grid View.
	Tree View - switch to Tree View.
	JSON View - switch to JSON view.

Pagination and Record Display Settings

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

Limit **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 represents the number of documents showed per page.

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

Grid View

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

To add a document using the grid

1. Click + on the navigation bar, or press COMMAND-+.
2. Type your data into the blank row.
3. Click another row or click ✓ on the navigation bar to save.

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. Control-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. Click a cell.
2. Type your new data.
3. Click another row or click ✓ on the navigation bar to save.

To edit a document using the pop-up window

1. Control-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 edit multiple cells with the same data

1. Highlight a block of cells.
2. Type your data, and it will fill all selected fields at once.

3. Click **Apply**.

   Note: These batch edits will only apply successfully to fields that possess a compatible data type for the value being entered.

To delete a document

1. Click the row you want to remove.

2. Click − on the navigation bar.

Hint: If you have unchecked the **Auto-apply single-record changes** option in Settings, you can make changes across multiple documents and click **Apply** to save all updates at once.

Edit Documents with Special Handling

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

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

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

Copy Data from Grid View

Data that being copied from Navicat goes into the 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

COMMAND-A	Toggle the selection of all rows and columns in the data grid.
SHIFT-UP ARROW	Toggle the selection of rows as you move up in the data grid.
SHIFT-DOWN ARROW	Toggle the selection of rows in the data grid as you move down.

To select data using mouse actions

- Select the desired documents by holding down the COMMAND key while clicking on each row.

- Select range of documents by clicking the first row you want to select and holding down the SHIFT key together with moving your cursor to the last row you wish to select.

- Select a block of cells.

Note: After you have selected the desired documents, just simply press COMMAND-C or control-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 columns.
- 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 COMMAND-V or control-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 documents as Insert/Update statement, control-click the column/row header or the selected cells 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, control-click the column/row header or the selected cells 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 control-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.

Tree View

Tree View displays a single document in a hierarchical view, making it easier to focus on detailed data entries. The integrated navigation bar allows you to switch the documents quickly, insert or delete documents.

To add a document

1. Click + on the navigation bar.
2. Type your data into the blank fields.
3. Click ✓ on the navigation bar to save.

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

To edit a document

1. Navigate to the document you want to change.
2. Click on a field name, a value or a type to modify.
3. Click ✓ on the navigation bar to save.

To add a field or an item

1. Navigate to the document you want to edit.
2. Click ⊞ to add a new field/item.
3. Type your data into the blank field.

To delete a field or an item

1. Navigate to the document you want to edit.
2. Control-click the field/item you want to delete and select **Delete Value**.

To delete a document

1. Navigate to the document you want to delete.
2. Click − on the navigation bar.

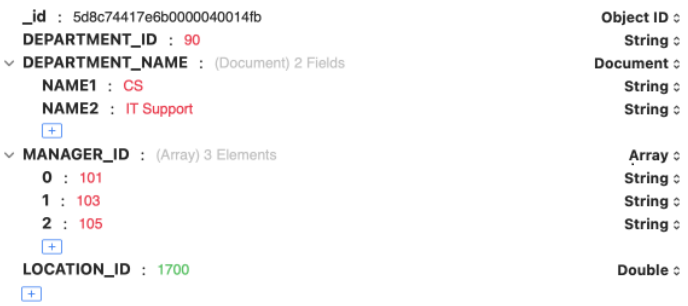
Edit Documents with Special Handling

- To set the value to an empty string or NULL, control-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 or enter the desired data.

Format Tree View

Expand/Collapse Embedded Documents & Arrays

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



JSON View

JSON View displays documents in JSON format. The integrated 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 COMMAND-+.
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. Control-click the document you want 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

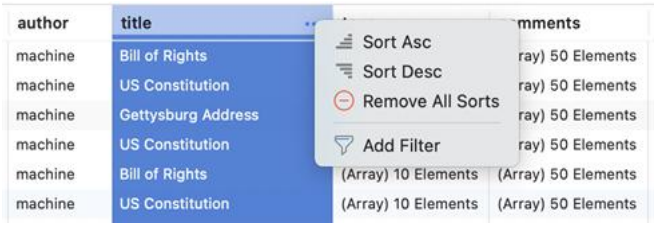
1. Click on the document you want to delete.
2. Click − from the navigation bar.

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.

Hover over the field caption whose contents you want to sort by, click the right side of the field and select **Sort Asc**, **Sort Desc** or **Remove All Sorts**.



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

Find Documents

The Find bar is provided for quick searching for the text in the data editor. Just simply choose **Edit** -> **Find** -> **Find** or press COMMAND-F. Then, 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 **>** or press COMMAND-G.

Replace Documents

In the Find bar, check the **Replace** box or press OPTION-COMMAND-F 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** -> **Find** or press COMMAND-F. Then, choose **Find Field** and enter a search string.

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

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

Filter Documents

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

- Control-click a cell and select **Filter** -> **Field xxx Value** from the pop-up menu to filter documents by the current value in the cell.
- You can also customize your filter in a more complicated way by clicking from the toolbar. The Filter & Sort pane 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 Data 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 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 control-click the cell and select **Expand**, **Collapse** or **Collapse All Embedded Documents**.

Public Relations	204	2700
Sales	145	2500
(Document) 2 Fields	(Array) 3 Elements›	1700
Finance	108	1700
Accounting	205	1700

Expand Arrays

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

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

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

1. Click and hold the header of the column you want to move.
2. Move the pointer to your desired location.
3. Release the mouse button to reposition the column.

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.
- Control-click on the column header and select **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

Control-click on the row header and select **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 click . Select the columns that you would like to hide.

The hidden columns will disappear from the collection grid.

To unhide the columns, just simply click . Select the columns that you would like to redisplay.

Save Collection Profile

A Collection Profile stores your custom filter, sorting rules, and column layout settings for quick reuse.

To save a profile

1. Click and select **Save Profile**.
2. Enter the profile name and click **OK**.
3. The created profile will appear under the corresponding collection object in the main window.

Hint: You can synchronize your profiles to Navicat Cloud or Navicat On-Prem Server. See Synchronize Personal Profiles.

To load a profile

1. Click and select **Load Profile**.
2. Select the profile you want to load from the list.

Hint: You can also double-click the profile directly in the main window to open the collection with your saved settings already applied.

View History

Navicat maintains a clear audit trail with a session history that logs all scripts executed since the current viewer was opened. Reviewing the history allows you to track modifications, errors, and verify exactly which commands were sent to the database.

You can click to show or hide the history pane at the bottom.

Redis Data Editor

Navicat lets you explore keys in your Redis server using a spreadsheet-like data grid. You can add, edit and delete a key, even update the key expiry using the editor.

Toolbar

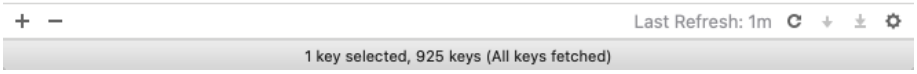
The toolbar of the data editor provides the following functions for managing data:

Button	Description

	Create a profile with the current view of the key data.
	Convert nested data structure to flat format.
	Activate the editor for viewing and editing the key's name, type, value and TTL.
	Search for keys using a string or a key pattern.
	Display keys in a tabular format, resembling a spreadsheet.
	Display keys in a hierarchical format, showing nested structures.

Use Navigation Bar

Data Editor provides a convenient way to navigate among the keys using the **Navigation Bar** buttons.



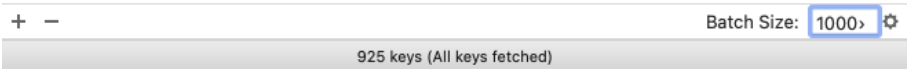
Button	Description
+	**Add Key** - enter a new key. At any point when you are working in the data editor, click on this button to get a blank display for a key.
−	**Delete Keys** - delete an existing key.
Last Refresh	**Last Refresh** - display the last refresh date and time or the elapsed time since the last refresh.
	Refresh - refresh the data.
	Fetch More - fetch the next batch size of keys.
	Fetch All - fetch all remaining keys.
	Batch Size Settings - set number of keys showing when opening the data view.

Use the **Batch Size Settings** button to enter the edit mode.

Batch Size

Set the value in the edit box. The number represents the number of keys fetched from the server.

Note: This setting mode will take effect on current data view only.



Edit Keys

Data View is a spreadsheet-like view showing keys as rows and columns. The integrated navigation bar allows you to insert or delete keys.

By default, when opening the data editor, Navicat loads the number of keys in batch size. If you want to fetch more keys, you can click or .

Hint: Newly fetched keys are marked with green indicators. You can unmark them by control-clicking on the grid and selecting **Unmark All Indicators**.

To add a key

1. Click + from the navigation bar, or press COMMAND-N.
2. Enter the key properties using the **Editor**.
3. Click another key or click **Apply** to save.

To edit a key

- Select the key you want to edit.
- Type in the new data using the **Editor**.
- Click another key or click **Apply** to save.

Hint: You can modify key names, key types, key values and time to live (TTL).

To delete a key

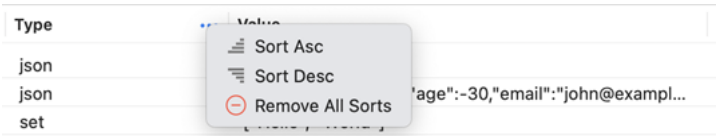
1. Select the key you want to delete.
2. Click − from the navigation bar, or press COMMAND-DELETE.

Hint: You can hold down the SHIFT or COMMAND key and click to select multiple keys at a time.

Sort Keys

By default, the data grid displays keys in ascending order by key name. Sorting in Navicat is used to temporarily rearrange keys, so that you can view or update them in a different sequence.

Hover over the column caption whose contents you want to sort by, click the right side of the column and select **Sort Asc**, **Sort Desc** or **Remove All Sorts**.



Search Keys

The Search feature is provided for quick searching for keys in the database. Just simply choose the data type and enter a key name in the **Search** box. Then, click 🔍 or press ENTER.

There are some additional options for Search, click 🔍:

Option	Description
Keys Contain	Return all keys contains the search string (case insensitive).
Keys Contain (Match Case)	Enable case sensitive search.
Keys Match Pattern	Return all keys matching the pattern.

To remove the search, just simply click .

Cell Editors

Navicat provides powerful cell editors that allow you to easily view, insert, update, or delete data within specific fields of a table or collection. Click from the toolbar to activate the appropriate editor.

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

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

Editor Panes

Depending on the type of data you are working with, the Cell Editor provides different panes tailored to specific formats:

- **Text** - Allow you to edit data as simple, unformatted text. You can control-click inside the editor and choose **Language** to change the display syntax and formatting rules for your text.
- **JSON** - Format complex JSON structures for easier readability, allowing you to view and modify nested key-value pairs directly.
- **Hex** - Allow you to view and edit binary or raw data in hexadecimal mode.
- **Image** - Render data directly as a visual image. You can use the , and buttons to upload an image from a file, export the image to your drive, or remove it from the field.
- **Web** - Interpret and display fields containing HTML code exactly as they would appear inside a standard web browser.

Fill with AI (Available only in Enterprise and Standard Edition)

The Fill with AI feature leverages the AI Assistant to automatically populate synthetic data directly into your selected cells. This allows you to enrich multiple rows at once by processing your existing data to fill or translate specific columns.

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

Fill Data with AI

1. In the data editor, click .
2. Select the referenced source fields that the AI should analyze for context.
3. You can choose one of the following options to define which records are processed:

Option	Description
All records in current page	Process every record visible on your active data page view.

Custom	Enter the specific row numbers or ranges of records that you want to transform.
New Records	Enter the number of completely new rows to generate.

4. Enter your custom text instructions detailing the desired field transformation (e.g., "Translate the source column to Spanish" or "Generate a realistic company email based on the first and last name").

5. Choose your target destination fields where the AI-generated data should be inserted.

6. Click **Ask AI**.

7. Review the AI suggestion and click **Fill** to apply the changes to your table.

Filter & Sort

The Filter & Sort feature allows you to facilitate applying filter and sorting criteria that you specify for the data grid. Click from the toolbar to toggle the feature.

You can filter and sort data in your table using two distinct methods: the visual builder or by entering SQL expressions.

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

Use Builder to Filter & Sort

To filter data

1. To add a new condition to the criteria, just simply click . If you want to add a condition with parentheses, click .

   Hint: To add parentheses to existing conditions, simply control-click on the selected conditions and select **Group with Bracket**. To remove the parentheses, control-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 does not exist. Available only for MongoDB.
is field type	The field type is 'value'. 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.

   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 **Apply Filter & Sort** to see the result of the filtering you made.

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

To sort data

1. Click .

2. Click on the field name and choose a field you want to sort from the list.

3. Click or to change the sorting order.

4. Repeat step 1-3 to add another field.

5. Click **Apply Filter & Sort** to see the result of the sorting you made.

Hint: If you have more than one field in the **Sort by** area, you can rearrange the order by dragging the fields into the precise position you want.

Enter Expressions to Filter & Sort

To filter data

1. Choose **Text**.

2. Enter the filtering expression in the input field.

3. Click **Apply Filter & Sort** to see the result of the filtering you made.

To sort data

1. Choose **Text**.

2. Enter the sorting expression in the input field.

3. Click **Apply Filter & Sort** to see the result of the sorting you made.

Change Layout

You can change the appearance of the Filter & Sort pane: **Tabbed** or **Integrated**. In the tabbed layout, the filter and sort options are compartmentalized into individual tabs for organization. Conversely, the integrated layout consolidates the filter and sort options into a unified pane.

To access these layout options, you can choose **View** -> **Filter & Sort Layout**.

Chapter 7 - Data Profiling (Available only in Enterprise and Standard Edition)

Start Data Profiling

The Data Profiling tool in Navicat allows you to gain comprehensive insights into your data. This information helps you to better understand your data assets, identify data quality issues, make informed decisions about data usage, and ensure the data meets the required standards for analysis.

It offers various functionalities to assist you in exploring your data. It enables you to examine data types, formats, distributions, and statistical properties within your datasets. You can easily identify missing values, outliers, and data inconsistencies, ensuring data accuracy and completeness.

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

Start Profiling

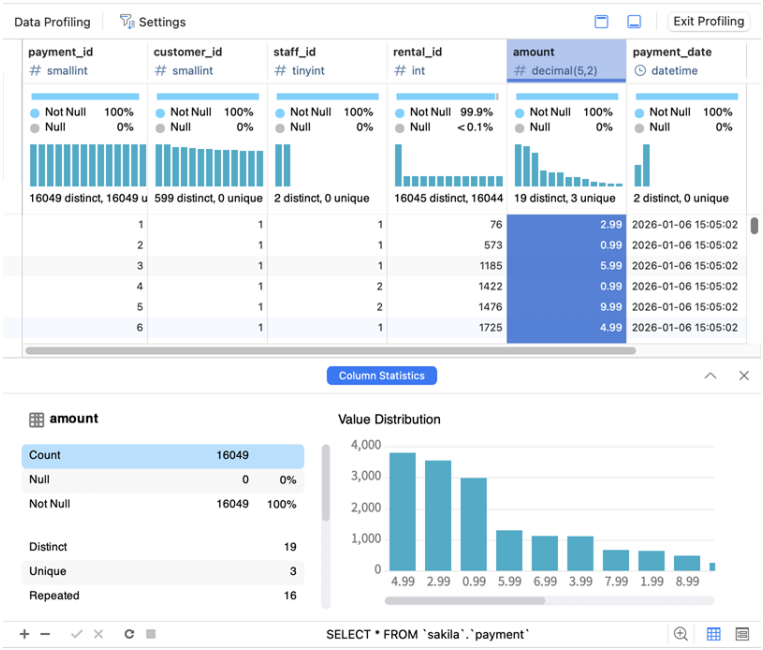
Data profiling is resource intensive and execution times can be quite long, especially with large data volumes. Besides profiling all records, you can use filter to select the data that a profile scans. If you add a filter, the profile scans only on the data values that meet the filter criteria that you specify.

To enable the Data Profiling tool, open a table and click . In the Data Profiling pane, enable the profiling options you want and click **Start Profiling**.

Option	Description
All Records	All data in the table is scanned in the data profiling scan.
Add Filter	You can filter data to be scanned for profiling and set a range of records (No Limit or First # records) to sample for running profiling scan.

View Profiling Results

After the profiling finished, the data profile results appear. The results show all the columns and their statistics in the profile run. You can modify the profiling options by clicking and then re-profile the data.

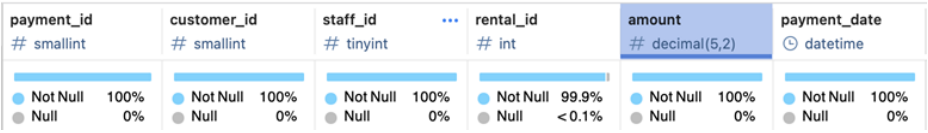


Column Quality & Distribution

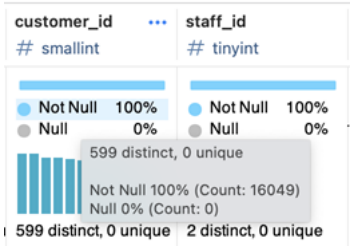
The Column Quality & Distribution pane provides the quality of the data in terms of distinct values, unique values, NULL values and non-NULL values, also it displays column distribution charts associated with the column values.

Column Quality

The column quality includes a small bar chart and column quality categories (displayed as percentages). It displays directly underneath the column name.



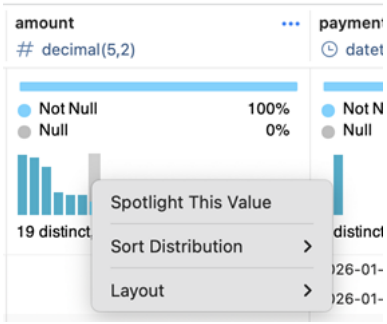
By hovering over any category, it will show you the numerical distribution of the value qualities throughout the column.



Column Distribution

In column distribution charts, you can see the frequency and distribution of the values in each of the columns as in histogram.

By default, the data in these visualizations is sorted in ascending order of the values. You can change the sorting order and category by control-clicking the chart and select **Sort Distribution**.

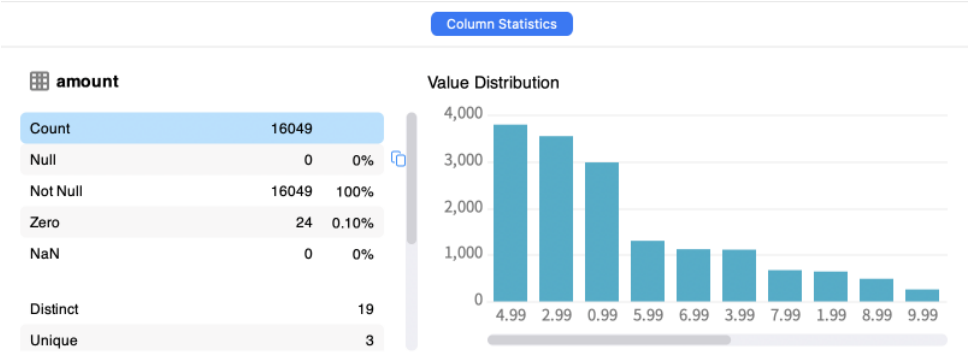


By hovering over any bar, it will show you the value and the numerical distribution of the quality of that value throughout the column.

You can change the display style that works best for you by control-clicking a bar and choosing **Compact** or **Detailed**. Compact View hides Column Quality information, while Detailed View shows both Column Quality & Distribution information.

Column Statistics

The Column Statistics pane provides a more in-depth look at the data in a column. It contains column statistics with distribution measures like Count, Distinct, Unique, Empty String, Min, Max. Apart from the value distribution, you can select a measure to shown a column statistics chart.

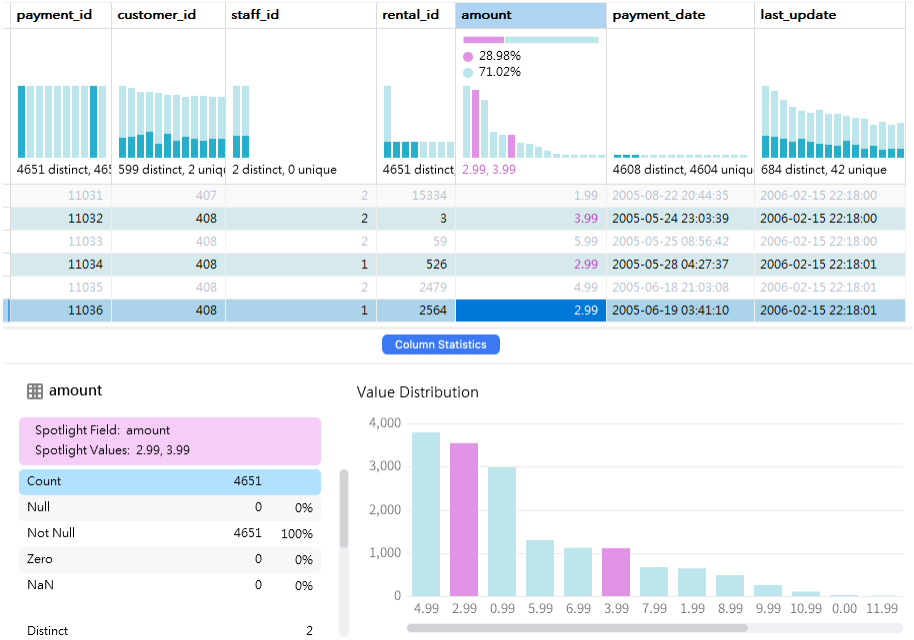


Add Spotlight

Use spotlights to draw attention to specific values on the result. To spotlight values, use one of the following methods:

- Click a column quality category or a bar in the Column Quality & Distribution pane.
- Control-click a bar in the Column Quality & Distribution pane and select **Spotlight This Value** or **Add Spotlight**.
- Control-click a value in the grid and select **Spotlight This Value** or **Add Spotlight**.
- Control-click a bar in the Value Distribution chart and select **Spotlight This Value** or **Add Spotlight**.

Hint: Remove the spotlighted values in the same way.



Copy Column Statistics

In the Column Statistics pane, you can hover over a measure and click .

Chapter 8 - Data Masking (Available only in Enterprise and Standard Edition)

Start Data Masking

Data Masking helps you comply with privacy regulations and protect sensitive information during testing or sharing. It allows you to transform your data using various techniques while maintaining the database's integrity and usability. You can apply masking to specific tables and columns.

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

Note: Except for MongoDB, performing Data Masking requires the table to have a primary key.

Methods of Data Masking

Navicat provides two ways to apply masking to your workflow:

- **Transfer masked data to another database** - Secure data while transferring existing records between databases.
- **Mask data in existing tables** - Directly mask columns within your current tables to update existing data.

Transfer Masked Data to Another Database

Navicat allows you to mask sensitive information during the transfer process between databases or schemas. This ensures that the destination tables only receive protected, non-identifiable data.

Steps to Mask Data During Transfer

1. In the main window, choose **Tools** -> **Data Masking**.
2. Select **Transfer masked data to another database** and click **Next**.
3. Choose your source and target connections, database, and schemas.
4. Click **Options** and select advanced settings. Once configured, click **OK**.
5. Select the specific objects you wish to transfer and set your preferred transfer mode. Click **Next**.
6. Choose the specific columns that require protection and click **Next**.
7. For each selected column, assign the appropriate data masking technique to transform the data. Click **Next**.
8. Review your settings and click **Start**.

Mask Data in Existing Tables

Navicat allows you to apply masking directly to the columns of an existing table. This is particularly useful when you need to sanitize a dataset that has already been populated within your database environment.

Note: Mask data in existing tables modifies your data directly. It is highly recommended to perform a backup before proceeding.

Steps to Mask Existing Table Columns

1. In the main window, choose **Tools** -> **Data Masking**.
2. Select **Mask data in existing tables** and click **Next**.
3. Select the connection, database, and schema where the table resides. Choose the specific table you wish to modify and click **Next**.
4. Choose the specific columns that require protection and click **Next**.
5. For each selected column, assign the appropriate data masking technique to transform the data. Click **Next**.
6. Review your settings and click **Start**.

Advanced Options

You can click the **Options** button to configure advanced settings. These options allow you to control how the masking process handles errors and manages system resources. Note that available options may vary based on your connection server type.

Option	Description
Continue on error	Ignore errors that are encountered during the data masking process.
Use transaction	Execute the masking process within a database transaction. This ensures that if a major failure occurs, changes can be rolled back to maintain data consistency.
Fetch records in batches	Retrieve data in small groups rather than all at once. This reduces memory consumption when masking very large tables.
Number of records per fetch	Specify the number of records to be retrieved in each batch from the source table.
Update records in batches	Write masked data back to the database in groups, which can significantly improve performance and reduce log overhead.
Number of records per update	Specify the number of records to be committed in each update operation.

Data Masking Techniques

Navicat automatically assigns a masking technique to each column based on its column name, data type, and length.

You can choose from the following techniques depending on your data requirements:

Technique	Description
Substitution	Replace data with realistic but fake values from a pre-defined library.
Variance	Adjust numeric or date values by a specified percentage or range to maintain distribution.
Hashing	Transform data into a unique, fixed-length string using cryptographic algorithms.
Nulling	Replace sensitive data with NULL or empty values.
Shuffling	Randomly rearrange values within the same column across different rows.

Save Profile

You can save your settings as a profile for future use or for setting up automation tasks. To open a saved profile, click the **Load Profile** button and select a profile from the list.

Hint: Profiles are saved under the default path, e.g. ~/Library/Application Support/PremiumSoft CyberTech/Navicat CC/Common/Profiles

Masking Techniques

Substitution

The Substitution technique replaces sensitive data with realistic but fake values from a pre-defined library. This ensures the data remains usable for testing while protecting the actual information.

Number

When using the Number substitution category, you can configure exactly how random or realistic numbers are synthesized, set numeric boundaries, and control mathematical rounding behavior.

Option	Description
Modify values using	Truncate or round the data (Round Off, Round Up, or Round Down) to a specified number of significant figures.
Replace with realistic fake value	Generate a completely new, realistic number from the library.
Is unique	Ensure that each generated number is unique across the dataset.
Start	Specify the minimum numeric value.
End	Specify the maximum numeric value.
Number Type	Choose the type of the numeric values: Integer or Decimal Number.

Date Time

When using the Date Time substitution category, you can configure how date and time values are generated and specify the range or format for the masked data.

Option	Description

Display Format	Choose whether to generate a Date, Time, or Datetime format.
Modify values using	Truncate or round the data (Round Up, or Round Down) to the nearest Year, Quarter, or Month.
Replace with realistic fake value	Generate a completely new, realistic datetime value from the library.
Is unique	Ensure that each generated datetime value is unique across the dataset.
Start Date	Specify the minimum date value.
End Date	Specify the maximum date value.
Whole Day	Include any time of the day.
Start Time	Specify the minimum time value.
End Time	Specify the maximum time value.
Day of the Week	Choose the day of the week for the date value.

String

When using the String substitution category, you can configure how masked or scrambled strings are generated and decide whether specific portions of the original text should be preserved for context.

Option	Description
Preserve first word(s)	Set the number of words at the beginning of the string to remain unchanged.
Preserve last word(s)	Set the number of words at the end of the string to remain unchanged.
Preserve first character(s)	Set the number of characters at the beginning of the string to remain unchanged.
Preserve last character(s)	Set the number of characters at the end of the string to remain unchanged.
Mask the rest with character(s)	Specify the character(s) (e.g., * or #) used to mask the remaining words or characters.
Use a fixed number of characters	Force the masked output area to display a constant, predetermined length regardless of the original data's length.

Enum

When using the Enum substitution category, you can define a specific set of values to be used as substitutes for the original data.

Option	Description
Values	Specify the list of allowed values for the Enum. During the masking process, Navicat will replace the original data with a value selected from this defined list.

Foreign Key

When using the Foreign Key substitution category, you can configure the system to generate masked values based on existing data in a parent table. This ensures that the masked data maintains referential integrity.

Option	Description
Schema	Choose the schema of the parent table.
Table	Choose a parent table.
Field	Choose a field in the parent table. Make sure that the child table column and the parent table column have compatible types.
Generation Mode	Choose the generation mode of the data: random data or no repeated data.

Lookup Table

The Lookup Table technique allows you to define specific replacement rules using a mapping of original values to masked values. This is ideal for ensuring that specific data points are always replaced by the same consistent substitutes.

Option	Description
Lookup	Specify the original value, string, or pattern you want to detect within your source data.
Replace With	Define the corresponding substitute value or string that will overwrite the detected source data.
Use Regular Expressions	Enable the use of RegEx patterns for keys, allowing you to match and replace complex data patterns rather than fixed strings.
Case Sensitive	If enabled, the key must match the original data's casing exactly (e.g., "Admin" will not match "admin").
Exact Match	Ensure the mapping is only applied if the entire cell value matches the key exactly, rather than matching a partial string.

Regular Expression

When using the Regular Expression substitution category, you can generate masked data that follows a specific pattern or format defined by a regex string.

Option	Description
Regular Expression	Enter the regular expression.
Is unique	Ensure that each generated data is unique across the dataset.

Syntax Elements

The following table shows the syntax elements.

Description	Example	Generates
Basic		
ordinary chars	Kelly	Kelly

individual chars	[AB]	A or B
initial] in char set	[]]	]
[x-y] range	[0-9]	e.g. 2 or 7
[chars] character set	[A-Z0-9]	e.g. 3 or M
[exclude chars] character set	[^abc]	e.g. m or [
* zero or more	abc*	e.g. abcc or ab
+ 1 or more	abc+	e.g. abcccc or abc
? Include or not	abc?	ab or abc
(regexp) grouping	(abc)*d	e.g. abcabcd or d
{num} repeat	b{4}	bbbb
{min,max} repeat	b{3,4}	bbb or bbbb
{min,} at least min repeats	b{4,}	e.g. bbbb or bbbbbbbbb
() empty string	()	
| alternatives	True|False	True or False
empty alternative	th(e|is|at)	e.g. the or that
Escapes		
backslash	\\	\
dot	\.	.
caret	\^	^
dollar sign	\$	$
left curly bracket	\{	{
right curly bracket	\}	}
left square bracket	\[	[
right square bracket	\]	]
left parenthesis	\(	(
right parenthesis	\)	)
vertical bar	\\|	|
asterisk	*	*
plus mark	\+	+
question mark	\?	?
upper or lower-case letter or underscore or digit	\w	[A-Za- z_0-9]
all ASCII printable characters	\W	[-~]
digit	\d	[0-9]
carriage return	\r	
tab character	\t	
space character	\s	

Address

When using the Address substitution category, you can configure how the addresses are generated and whether any original data is kept.

Option	Description
Preserve a portion of the original value and mask the rest	Keep a specific part of the original address while hiding the remainder.
Preserve first word(s)	Set the number of words at the beginning of the string to remain unchanged.
Preserve last word(s)	Set the number of words at the end of the string to remain unchanged.
Preserve first character(s)	Set the number of characters at the beginning of the string to remain unchanged.
Preserve last character(s)	Set the number of characters at the end of the string to remain unchanged.
Mask the rest with character(s)	Specify the character(s) (e.g., * or #) used to mask the remaining words or characters.
Use a fixed number of characters	Force the masked output area to display a constant, predetermined length regardless of the original data's length.
Replace with realistic fake value	Generate a completely new, realistic address from the library.
Is unique	Ensure that each generated address is unique across the dataset.
Type	Generate line 1, line 2 or full addresses.
Regions	Select the region of the addresses.

Credit Card Number

When using the Credit Card Number substitution category, you can configure how the credit card numbers are generated and whether any original data is kept.

Option	Description
Preserve a portion of the original value and mask the rest	Keep a specific part of the original credit card number while hiding the remainder.
Preserve first character(s)	Set the number of characters at the beginning of the string to remain unchanged.
Preserve last character(s)	Set the number of characters at the end of the string to remain unchanged.
Mask the rest with character(s)	Specify the character(s) (e.g., * or #) used to mask the remaining characters.
Use a fixed number of characters	Force the masked output area to display a constant, predetermined length regardless of the original data's length.
Replace with realistic fake value	Generate a completely new, realistic credit card number from the library.
Is unique	Ensure that each generated credit card number is unique across the dataset.
Types	Select the credit card type.

Email

When using the Email substitution category, you can configure how email addresses are generated or masked by defining rules for both the username and the domain name.

Option	Description
Username	Mask the part of the email before the "@" symbol.
Preserve a portion of the original value and mask the rest	Keep a specific part of the original username while hiding the remainder.
Preserve first character(s)	Set the number of characters at the beginning of the string to remain unchanged.
Preserve last character(s)	Set the number of characters at the end of the string to remain unchanged.
Mask the rest with character(s)	Specify the character(s) (e.g., * or #) used to mask the remaining characters.
Use a fixed number of characters	Force the masked output area to display a constant, predetermined length regardless of the original data's length.
Replace with realistic fake value	Generate a completely new, realistic username from the library.
Is unique	Ensure that each generated username is unique across the dataset.
Domain name	Mask the part of the email after the "@" symbol.
Preserve a portion of the original value and mask the rest	Keep a specific part of the original domain while hiding the remainder.
Preserve first character(s)	Set the number of characters at the beginning of the string to remain unchanged.
Preserve last character(s)	Set the number of characters at the end of the string to remain unchanged.
Mask the rest with character(s)	Specify the character(s) (e.g., * or #) used to mask the remaining characters.
Use a fixed number of characters	Force the masked output area to display a constant, predetermined length regardless of the original data's length.
Replace with realistic fake value	Generate a completely new, realistic domain name from the pre-defined list.

Name

When using the Name substitution category, you can configure how the names are generated and whether any original data is kept.

Option	Description
Preserve a portion of the original value and mask the rest	Keep a specific part of the original name while hiding the remainder.
Preserve first word(s)	Set the number of words at the beginning of the string to remain unchanged.
Preserve last word(s)	Set the number of words at the end of the string to remain unchanged.

Preserve first character(s)	Set the number of characters at the beginning of the string to remain unchanged.
Preserve last character(s)	Set the number of characters at the end of the string to remain unchanged.
Mask the rest with character(s)	Specify the character(s) (e.g., * or #) used to mask the remaining words or characters.
Use a fixed number of characters	Force the masked output area to display a constant, predetermined length regardless of the original data's length.
Replace with realistic fake value	Generate a completely new, realistic name from the library.
Is unique	Ensure that each generated name is unique across the dataset.
Format Type	Generate first names, last names or full names.
Languages	Select the language of the names.

Phone Number

When using the Phone Number substitution category, you can configure how the phone numbers are generated and whether any original data is kept.

Option	Description
Preserve a portion of the original value and mask the rest	Keep a specific part of the original phone number while hiding the remainder.
Preserve first character(s)	Set the number of characters at the beginning of the string to remain unchanged.
Preserve last character(s)	Set the number of characters at the end of the string to remain unchanged.
Mask the rest with character(s)	Specify the character(s) (e.g., * or #) used to mask the remaining words or characters.
Use a fixed number of characters	Force the masked output area to display a constant, predetermined length regardless of the original data's length.
Replace with realistic fake value	Generate a completely new, realistic phone number from the library.
Format	Choose the specific format for the phone numbers. If International is selected, the appropriate country code will be included.
Is unique	Ensure that each generated realistic phone number is unique across the dataset.
Include delimiters	Include formatting characters such as hyphens, spaces, or parentheses (e.g., +1 (555) 012-3456).
Regions	Select the region of the phone numbers.

Variance

The Variance technique modifies existing values by shifting them within a defined range. This is useful for maintaining the general distribution of your data (like birth years or transaction times) without revealing the exact original values.

DateTime

When using the DateTime variance category, you can configure how date and time values are shifted and specify the pattern and values for that variance.

Option	Description
Display Format	Choose whether to generate a Date, Time, or Datetime format.
Variance Pattern	Select the method for the shift: Fixed - Shift every record by the exact same amount. Random - Shift each record by a random amount within the specified range.
Variance Value	Specify the maximum range for the shift. For example, a value of 5 with a Random pattern of Day will shift the original date by a random amount between -5 and +5 days.

Number

When using the Number variance category, you can configure how numeric values are shifted and specify the pattern and constraints for that variance.

Option	Description
Variance Pattern	Select the method for the shift: Fixed - Shift every record by the exact same amount. Random - Shift each record by a random amount within the specified range.
Variance Value	Specify the maximum range for the shift. For example, a value of 5% with a Random pattern will shift the original number by a random amount between -5% and +5%.
Minimum Threshold	Define a lower limit for the shifted data. If the variance would result in a value below this threshold, the value will be capped at this minimum.
Maximum Threshold	Define an upper limit for the shifted data. If the variance would result in a value above this threshold, the value will be capped at this maximum.
Number Type	Choose the type of the numeric values: Integer or Decimal Number.

Hashing / Nulling / Shuffling

Beyond substitution and variance, Navicat offers alternative data masking methods to suit various security, compliance, and testing requirements. These techniques allow you to irreversibly encrypt data, completely remove sensitive values, or randomize existing data while preserving its overall statistical distribution.

Hashing

The Hashing technique transforms data into a unique, fixed-length string using a cryptographic hash algorithm. This process is one-way, meaning the original data cannot be recovered from the hash, making it ideal for protecting sensitive identifiers that still need to be joined or compared.

Option	Description
Hash Algorithm	Select the specific algorithm to use for masking the data: MD5, SHA-1 or SHA-256.

Nulling

The Nulling technique is the simplest form of masking. It removes sensitive data entirely by replacing it with a null or empty state, ensuring the information is no longer present in the destination.

Option	Description
Replace the original value with	Choose whether to replace the data with a NULL value or an Empty String.

Shuffling

The Shuffling technique randomly rearranges values within the same column across different rows. This preserves the original data distribution and statistics (such as the average or sum) while ensuring that the data is no longer associated with the original records.

Option	Description
Shuffle in batches	Shuffle data within smaller groups of records. This is more memory-efficient for extremely large tables.
Number of records per batch	Specify the size of each shuffle group. Values will only be swapped with other values inside the same batch, not across the entire table.
Shuffle all at once	Shuffle all values across the entire dataset. This provides the highest level of randomness but requires more system memory for large tables.

Chapter 9 - 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. 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.

To open a query using an external editor, control-click it and select **Open with External Editor**. You can set the file path of an external editor in Settings.

Your queries can be included in a batch job and scheduled to execute as an automation task.

Hint: Queries (.sql, .js or .redis) are stored under the Settings Location. To open the folder, control-click a query and select **Show in Finder**. If the connection is synchronized to Navicat Cloud or On-Prem Server, its queries will be stored in the cloud.

Query Designer

Query Designer is the basic Navicat tool for working with queries. The toolbar provides the following functions:

Button	Description
MySQL, Oracle, PostgreSQL, SQLite, SQL Server, MariaDB, Snowflake	
	Open the Query Builder for building queries visually.
	Format the codes with the Beautify SQL settings in Editor.
	Show the execution plan of the query: Explain or Explain Selected (when highlighted code).
MongoDB	
	Open the Find Builder for building queries visually.
	Open the Aggregate Builder for building queries visually.
	Format the codes in Editor.
	Show the execution plan of the query: Explain or Explain Selected (when highlighted code).
Common	
	Show the Code Snippet pane.
Run	**Run** - Execute the entire query. **Run Current Statement** - Execute the current statement based on the cursor position. **Run Selected** - Execute the highlighted code. **Continue on Error** - Ignore errors that are encountered during the execution process. (MongoDB does not support Run Current Statement and Continue on Error.)
	Stop the executing query.

✧	Provide AI-driven assistance for query writing, including optimization, beautification and conversion.

Query Operations

Create BI workspace using the query as a data source

1. In Query Designer, choose **File** -> **Create BI Workspace**.

Open an external file in Navicat

1. In the menu bar, choose **File** -> **Open File** -> **Query**.
2. Select the file and choose the encoding.
3. Click **Open**.

Save an opened external file as a Navicat query

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

Save a Navicat query as an external file

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

Query Editor

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

Query Formatting

Navicat provides advanced tools to maintain clean and readable code. Access these options via the **Format** menu:

- **Indent** - Increase or decrease the indentation of selected lines.
- **Comment** - Quickly comment or uncomment selected blocks of code.
- **Convert Case** - Change selected code to UPPER CASE or lower case.
- **Beautify SQL** / **Beautify Script** - Automatically format your code based on predefined settings.

- **Beautify SQL With** - Customize your formatting preferences:

Option / Button	Description
Short Brace Length	Set the threshold for keeping braces on a single line.
Upper case keywords	Force all SQL keywords to be capitalized.
Beautify	Save and apply your custom settings.

- **Minify SQL** - Remove unnecessary whitespace and line breaks to compress the SQL text.

Real-time Error Detection

Navicat continuously analyzes your query as you type to identify potential issues before you execute the query. When the editor detects a mistake (for example, a syntax error or an invalid column reference), it immediately underlines the problematic code. You can hover over the marked code to view a detailed error description, allowing you to catch and fix mistakes instantly.

If the AI Assistant is enabled, the error popup will include a Fix with AI link. Clicking this link allows the AI to analyze the context of your query and suggest a corrected version of the code.

Hover Info

The Hover Info feature helps you stay in the flow of writing and refining your queries. By simply hovering your cursor over any table or column name in your query text, you can instantly view essential metadata without ever having to switch tabs.

When the information popup appears, it offers several interactive tools to speed up your workflow:

- **Breadcrumb Navigation** - Display the object's full path within your database hierarchy. Using the integrated drop-down menu, you can choose an action to instantly locate that specific object over in the Navigation pane, launch the object designer, or launch the object viewer.

- **View DDL** - Quickly inspect the Data Definition Language (DDL) for the hovered object.

Go to Declaration

You can press COMMAND and click on an identifier (e.g. a table name or field name) to instantly jump to its designer or data editor, or locate and highlight it within the navigation pane.

Note: You can set the preferred default jump action in Settings.

Refactoring (Available only in Enterprise and Standard Edition)

Navicat includes intelligent code refactoring utilities to safely update code blocks and identifiers across your active editor. Control-click your code and choose from the **Refactor** menu:

- **Rename Symbol** - Safely rename aliases or object identifiers uniformly throughout your entire query.

Clipboard Stack

The Clipboard Stack acts as an extended memory for your "Copy" and "Cut" actions, storing up to 10 items using Last-In-First-Out (LIFO) logic.

- **Paste** - Press COMMAND-SHIFT-V.
- **Cycle** - Press COMMAND-SHIFT-V repeatedly to rotate through the items in the stack until you find the desired code block.

Code Folding

Code folding allows you to collapse long blocks of code so you can focus on specific sections of your code. You can click the icon to toggle between collapsing and expanding the code.

- **Foldable Blocks** - Indicated by ⊟ in the gutter to the right of the line numbers. A vertical line shows the extent of the foldable block.
- **Collapsed Blocks** - Indicated by ⊞.

Syntax Highlighting

To improve readability, Navicat applies color coding to text fragments based on the specific database type associated with the query. Highlighting changes based on the reserved keywords of the target database.

Note: You can personalize these colors in Settings to suit your visual preferences.

Brace Highlighting

Navicat automatically identifies and highlights matching pairs of braces, such as () , [], {} and BEGIN…END. Simply place your cursor on or immediately next to a brace to see its matching partner highlighted.

Note: The cursor must be positioned on a brace for the matching highlight to appear.

Find and Replace

Find

The Find bar provides a quick way to search for text within the editor. You can access this feature by choosing **Edit** -> **Find** -> **Find** from the menu or by pressing COMMAND-F.

Once you enter a search string, the search starts at the cursor's current position and proceeds to the end of the file. To locate the next occurrence of the text, simply click the **>** button.

Replace

To open the Replace bar, simply choose **Replace**. 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.

Advanced Search Options

To access additional search options, click the icon or the associated drop-down menu:

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 a statement formatted with quotes for use in programming code, control-click the highlighted code in the editor, select **Copy with Quotes**, and choose your preferred language.

Word Wrap

When Word Wrap mode is enabled, the horizontal scrollbar is removed, and any statement that exceeds the width of the editor window automatically wraps to the next line. You can toggle this feature by choosing **View** -> **Word Wrap**.

Zoom In and Out

Navicat provides the ability to adjust the magnification of the text size within the editor for better visibility or navigation. You can access these options via **View**.

Alternatively, you can achieve the exact same effect using the following keyboard shortcuts:

- Zoom In: COMMAND-+
- Zoom Out: COMMAND--
- Reset: COMMAND-0

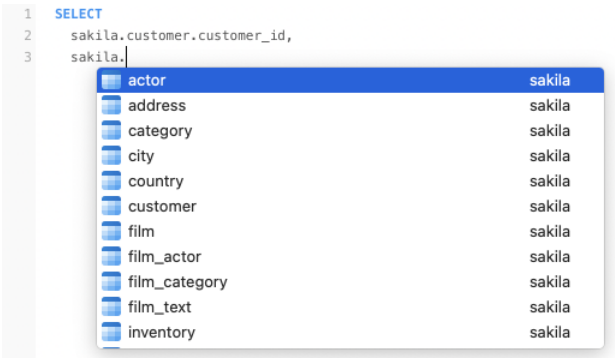
Note: Zoom levels are applied locally; editors opened in different tabs or windows will remain unaffected by changes made in the current window.

Code Completion

The Code Completion feature provides accurate, context-aware suggestions by analyzing your code and lexical scopes. It streamlines the writing process by offering the following:

- **Database Object Suggestions** - Provide a list of tables, views, and fields relevant to your current scope, displayed alongside their corresponding icons and metadata for easy identification.
- **JOIN Condition Completion** - Automatically suggest the appropriate ON clause conditions by identifying foreign key relationships or matching column names between joined tables.

- **Statement Assistance** - Assist with SQL keywords and general statement structure to reduce syntax errors and increase productivity.



Use Code Completion

There are several ways to invoke and interact with the suggestion list:

- Press . after a database object name to view its available properties or child objects.
- Type a character or press ESC to show a list of SQL keywords and database objects relevant to the current cursor position.
- If you select a saved snippet name from the list, the associated code block will be inserted directly into the editor.

When the suggestion list appears, use the following shortcuts to insert code:

- Press TAB to immediately insert the first item in the list. You can change this behavior in Settings.
- Use the UPPER ARROW or DOWN ARROW to navigate the list, then press TAB or ENTER to insert your selection.

Note: To enable or disable this feature, go to Settings and adjust the Code Completion settings.

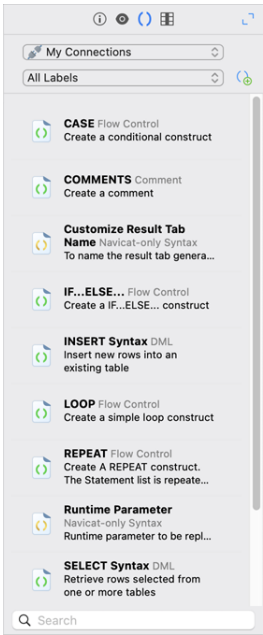
Update Suggestions

To ensure your code suggestions reflect the latest database schema (e.g., recently added tables or columns), choose **Edit** -> **Code Completion** -> **Update Code Completion Info**.

Code Snippets

Code Snippets provide an 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 menu 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 control-click anywhere on the library and disable **Show Snippets For Other Database Type**.

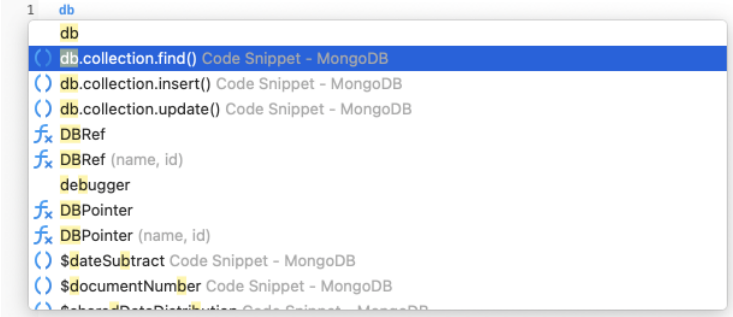


Built-in snippets are non-editable. If you want to hide the built-in snippets, you can control-click anywhere on the library and disable **Show Preset Snippets**.

Use Code Snippets

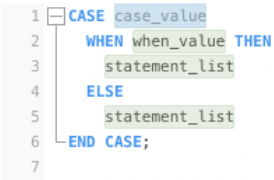
There are two ways to insert a snippet into the editor.

- 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 control-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 under the default path, e.g. ~/Library/Application Support/PremiumSoft CyberTech/Navicat CC/Common/Snippet.

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.

Move / Copy Snippet To Project

If you have logged in to Navicat Cloud or On-Prem Server, you can synchronize the custom snippet in My Connections to a project.

- Control-click a snippet and select **Move Snippet To** or **Copy Snippet To**.
- Select an existing project.
- The snippet will be moved or copied to the project.

Hint: You can move / copy a snippet in a project to My Connections in a similar way.

Query Builder (Available only in Enterprise and Standard Edition)

The Query Builder is a visual tool designed for creating and editing queries, views, and materialized views without requiring extensive knowledge of SQL. Even for experienced developers, its graphical interface provides a fluent way to visualize relationships and build complex queries quickly.

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

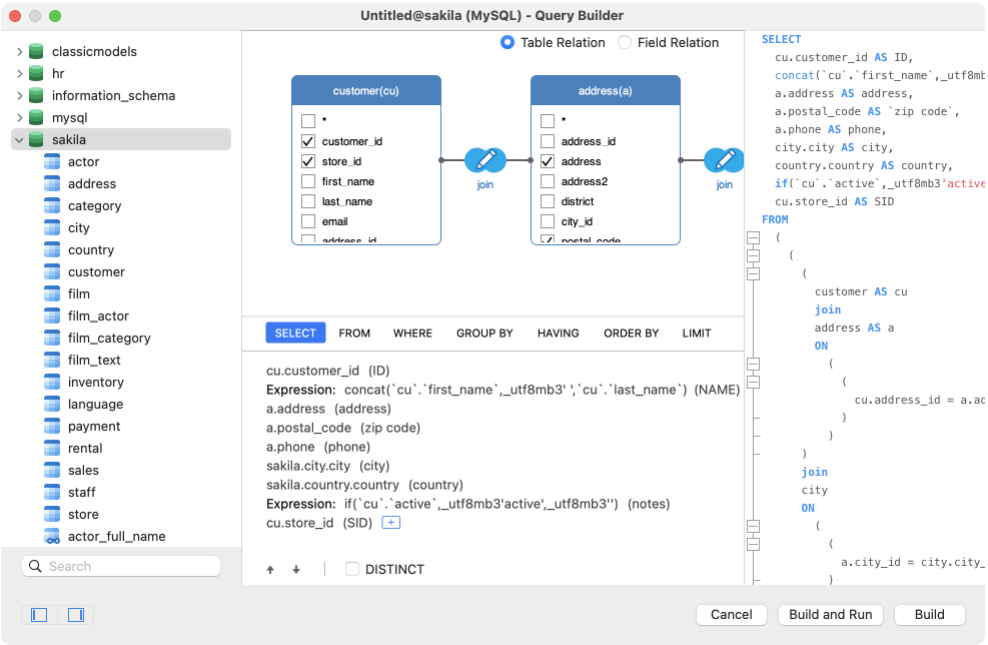
To launch the tool, click the button located within the Query Designer. The graphical interface is structured into three primary components:

- **Left Pane** - Display a comprehensive directory of all available database objects for immediate selection and inclusion in your query.

- **Middle Pane** - Vertically split into two functional areas. The upper pane serves as a canvas for visual query construction and entity relationship mapping. The lower pane categorizes SQL clauses into interactive tabs for precise query refinement and configuration.

- **Right Pane** - Display a read-only, real-time preview of the auto-generated SELECT statement as you build your query visually.

Note: The Query Builder is exclusively designed for constructing SELECT statements. To execute data manipulation operations such as INSERT, UPDATE, or DELETE, please utilize the Query Editor.



Add Objects to Query

To initiate your query construction, you must first add the required tables or views to the upper section of the middle pane. You can accomplish this by either dragging the objects directly from the left pane or by double-clicking them.

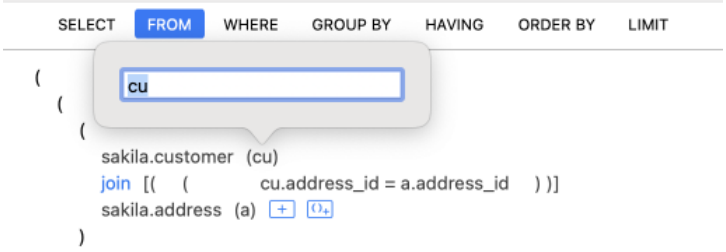
Once an object is placed within the diagram, you can easily assign it an alias by double-clicking its title header and entering the desired name.

The **FROM** tab, located in the middle pane, provides additional configuration options:

- **Adjust Identifier** - Click the identifier to change it.

- **Assign Alias** - Click the **<Alias>** placeholder to input a custom alias for your tables or views.

- **Configure Join** - Modify the join type and edit the specific fields used to establish relationships between objects.



To remove an object from your workspace, control-click the target object and select **Remove**, or select it in the diagram and press the DELETE key.

Note: Removing an object from the diagram will automatically delete any join relationships associated with that object.

Choose Output Fields

To include specific fields in your query results, check the box next to a field name within the diagram. For broader selections, you can check the * checkbox on a specific object to include all of its fields, or choose **All fields (*)** directly from the SELECT tab to include every field from all added objects.

Once your fields are selected, you can use the **SELECT** tab located in the lower section of the middle pane to further refine your output:

- **Force Unique Results** - Check the **DISTINCT** box to eliminate duplicate records from your results.
- **Assign Alias** - Click the **<Alias>** placeholder to define a custom display name for the output field.
- **Apply Aggregate Function** - Click the field's identifier to apply an aggregate function (such as SUM, COUNT, or AVG) to your data.
- **Reorder Fields** - Use the up and down arrow icons to adjust the final display sequence of your output fields.

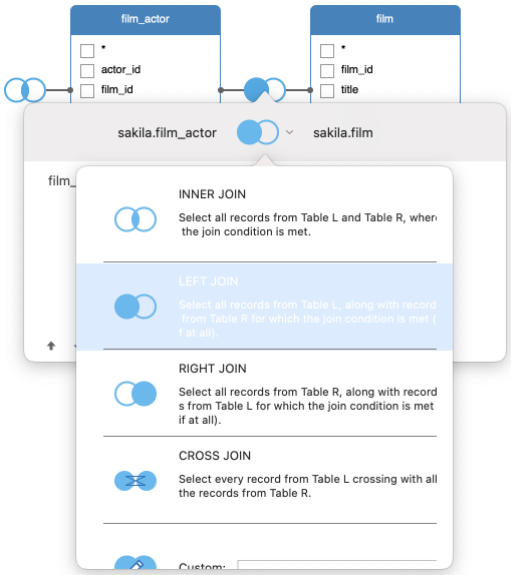
Set Field Associations

The Query Builder automatically establishes joins between tables based on their existing foreign key relationships. To create associations manually, drag a field from one object in the diagram and drop it onto the corresponding field in another object. A connector line will appear between the two objects to visually represent the relationship.

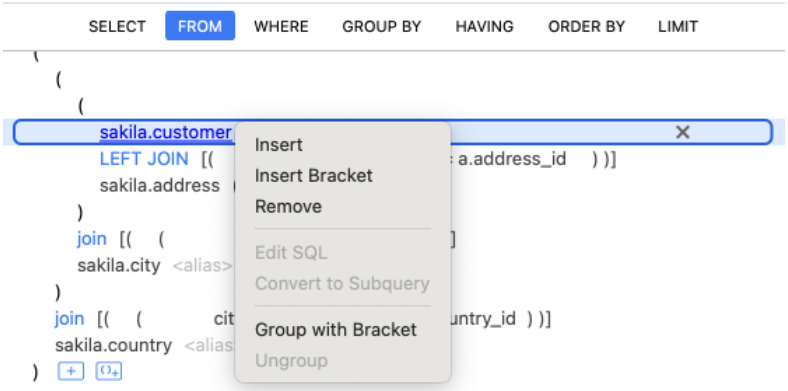
You can manage and customize these joins using the following options:

- **Toggle Views** - Switch between the **Table Relation** view (which displays the overall relationship with a join type icon) and the **Field Relation** view (which draws the connector line directly between the specific matching fields).
- **Modify Join Type** - All joins are created as an INNER JOIN by default. To change this, click the connector line within the diagram or click the JOIN keyword located on the FROM tab.
- **Edit Join Condition** - To modify the logic of the join condition, click the connector line, or adjust the condition directly on the FROM tab.

- **Remove Join** - To delete an existing join, control-click the corresponding connector line and select **Remove**.



For more advanced control over your join logic, you can control-click a condition on the **FROM** tab to access the following menu options:



The pop-up menu options of the FROM tab:

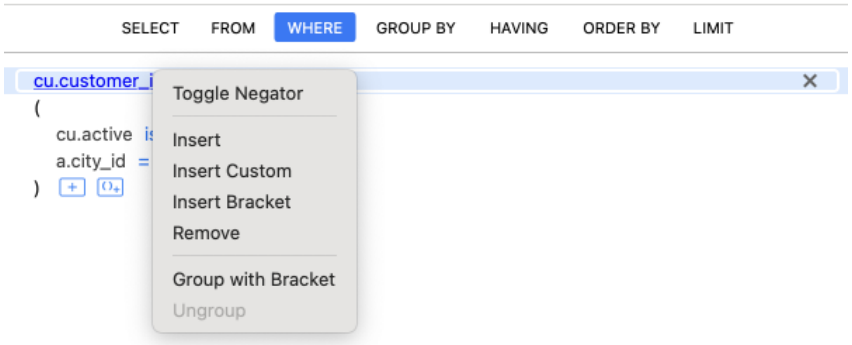
Option	Description
Insert	Add an identifier, an expression or a subquery.
Insert Bracket	Add a pair of parentheses.
Remove	Remove the identifier, expression or subquery.
Edit SQL	Edit the subquery.
Convert to Subquery	Convert the condition to a subquery.
Clear and Convert to USING Clause	Remove the ON condition and convert it to a USING clause.
Clear and Convert to ON Clause	Remove the USING condition and convert it to an ON clause.
Group with Bracket	Add parentheses to logically group the selected conditions together.
Ungroup	Remove existing parentheses from a previously grouped condition.

Set Filter Criteria

To filter the data returned by your query, control-click a target field in the diagram, select **Add Field To** -> **WHERE**, and select the desired operator.

Once the field is added, navigate to the **WHERE** tab located in the lower section of the middle pane to configure your filtering logic:

- **Define Criteria** - Click the **<Value>** placeholder to input your specific condition or threshold.
- **Toggle Operators** - When combining multiple conditions, click the logical operator to seamlessly toggle between AND and OR.
- **Reorder Conditions** - Use the up and down arrow icons to adjust the sequence of your filtering rules as needed.



For more advanced control over your filter criteria, you can control-click a condition on the **WHERE** tab to access the following menu options:

Option	Description
Toggle Negator	Reverse the logical meaning of the condition.
Insert	Add a condition.
Insert Custom	Add a custom condition.
Insert Bracket	Add a pair of parentheses.
Remove	Remove the condition.
Group with Bracket	Add parentheses to logically group the selected conditions together.
Ungroup	Remove existing parentheses from a previously grouped condition.

Group Resulting Data

You can define conditions for grouping your query records by control-clicking a target field in the diagram and selecting **Add Field To** -> **GROUP BY**.

Once added, the condition appears on the **GROUP BY** tab located in the lower section of the middle pane. You can easily adjust the sequence of your grouped fields by using the up and down arrow icons.

To filter these summarized or grouped results, navigate to the **HAVING** tab. Here, you can configure your criteria by selecting identifiers, operators, and aggregate functions, or by entering custom expressions. As with the GROUP BY tab, use the up and down arrow icons to adjust the order of your conditions.

For more advanced control over your grouped filter criteria, you can control-click a condition on the **HAVING** tab to access the following menu options:

Option	Description
Toggle Negator	Reverse the logical meaning of the condition.
Insert	Add a condition.
Insert Custom	Add a custom condition.
Insert Bracket	Add a pair of parentheses.
Remove	Remove the condition.
Group with Bracket	Add parentheses to logically group the selected conditions together.
Ungroup	Remove existing parentheses from a previously grouped condition.

Sort Resulting Data

To organize the sequence in which your query records are displayed, control-click a target field in the diagram and select **Add Field To** -> **ORDER BY**, then choose either **ASC** (Ascending) or **DESC** (Descending) order. The selected sorting condition will then be added to the **ORDER BY** tab, where you can further manage it.

Limit Resulting Data

If you need to restrict your query results to a specific range, navigate to the **LIMIT** tab. Here, you can configure the following parameters:

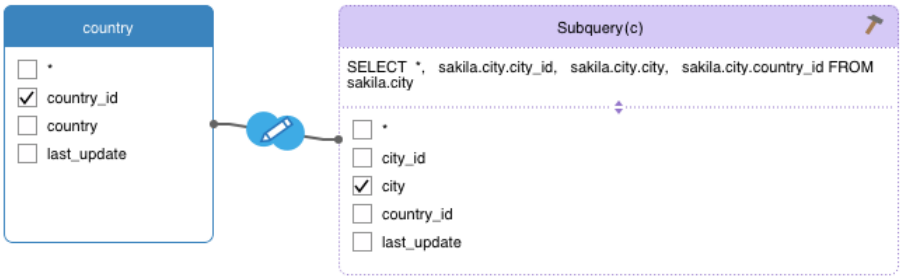
- **Offset** - Specify the number of initial records to skip before beginning to return results. (This value is optional).
- **Limit** - Specify the maximum number of records to be displayed in your final result set.

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

Add Expressions and Subqueries

You can introduce an expression or a subquery to further refine your query results. Navigate to the **FROM** tab, click the icon, and select the **Expression/Subquery** tab to begin.

Once you have entered your expression or subquery, confirm your edits by pressing the ENTER key. The new element will appear in the diagram, visually indicating its inclusion in the SQL statement and identifying the associated columns.



By clicking the icon, you will transition to a dedicated visual layer. This environment allows you to construct and manage the subquery visually, utilizing the same intuitive tools and layout as the main query.

You can seamlessly return to the primary query workspace at any time by clicking **(Main Query)**.

View Generated SQL

The right pane presents a read-only, formatted representation of the SQL code automatically generated by the Query Builder. You can easily copy the SQL text displayed here for use in other applications or tools. When working within a subquery layer, you can enable the **Show Current Layer Only** option to isolate and display solely the SQL associated with that specific subquery.

Zoom In and Out

Navicat provides the ability to adjust the magnification of your visual diagram for better visibility or navigation. To do this, control-click anywhere within the diagram and select **Zoom** -> **Zoom In**/**Zoom Out**/**100%**.

Alternatively, you can achieve the exact same effect using the following keyboard shortcuts:

- Zoom In: COMMAND-+
- Zoom Out: COMMAND--
- Reset: COMMAND-0

Find Builder & Aggregate Builder (Available only in Enterprise and Standard Edition)

Navicat provides powerful visual builders that allow you to create and edit queries without needing in-depth knowledge of MongoDB's specific command syntax.

Note: Available only for MongoDB.

Find Builder

The Find Builder is used to visually construct queries for selecting documents within a collection or view, bypassing the need to manually write complex *find* command.

Use Find Builder

1. In Query Designer, click the button to open the visual interface.
2. Select the name of the collection or view to query from the **Collection/View** drop-down menu.
3. Edit the settings in the corresponding configuration tabs.

Configuration Tabs

Use the following tabs to define the specifics of your query:

Tab	Description
Filter	Specify selection filters for the query. Only documents that meet these conditions will be returned. If you do not specify a filter, all documents will be returned. See Filter & Sort for details.
Projection	Choose which specific fields to include or exclude in the returned documents. If no projection is specified, all fields will be returned.
Sort	Sort the returned documents by specific fields in either ascending or descending order.
Limit	Limit the maximum number of documents to return and set the number of documents to skip.

Aggregate Builder

The Aggregate Builder allows you to visually construct queries designed to return computed results, bypassing the need to manually write complex *aggregate* command.

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

Query Results

You can execute your queries across any server. Simply select the target connection, database, and/or schema from the drop-down menu on the toolbar, and then click **Run**.

If the statement is correct and is supposed to return data, the **Result** tab will open displaying the returned data in a grid. If an error occurs, execution stops and an appropriate error message is displayed.

Hint: For Snowflake servers, you can change the system-defined role used to execute queries using drop-down menu.

Execution Options

You are not limited to running the entire query at once. You can execute specific portions of your code:

- **Run Selected** - Highlight the specific code in the editor and click **Run Selected**.

- **Run Current Statement** - Position your cursor within the desired statement, click the down arrow next to the **Run** button, and select **Run Current Statement**.

Hint: You can select **Continue on error** from the Run button to ignore errors during query execution.

Result Tab Toolbar

The toolbar provides the following functions:

Button	Description
MySQL, Oracle, PostgreSQL, SQLite, SQL Server, MariaDB, Snowflake	
	Activate the cell editors for viewing and editing data.
	Profile the data in the query.
	Export the result of the query.
MongoDB	
	Activate the cell editors for viewing and editing data.
	[Grid View] Use the specified type color set on the Type Color pane to highlight cells.
	Export the result of the query.
Redis	
	Activate the editor for viewing and editing data.
Common	
	Pin the tab.

Note: Navicat supports returning up to 20 concurrent result sets. For MongoDB, Navicat only returns the last result data.

Query Parameters

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

Navicat supports the use of parameters inside the query text, allowing you to dynamically add variable values each time you run a query. The parameter should appear as an identifier with **$** at its beginning, quote with **[ ]**, e.g. [$any_name].

When you execute the query, an **Input Parameter** dialog will prompt you to enter the desired data. You can check the **Raw Mode** option to pass the inputted values directly to the query without quotation marks.

Adjust Result Position

In Navicat, you have the flexibility to configure how query results are displayed. You can choose to show the query results on an entire page, on the right side of the editor, or at the bottom of the editor. This allows you to adapt the display layout based on your specific needs and preferences during data analysis and exploration in Navicat. To change the result position, use the or icon located in the upper right corner, or access the **View -> Result** menu.

Pin Query Result (Available only in Enterprise and Standard Edition)

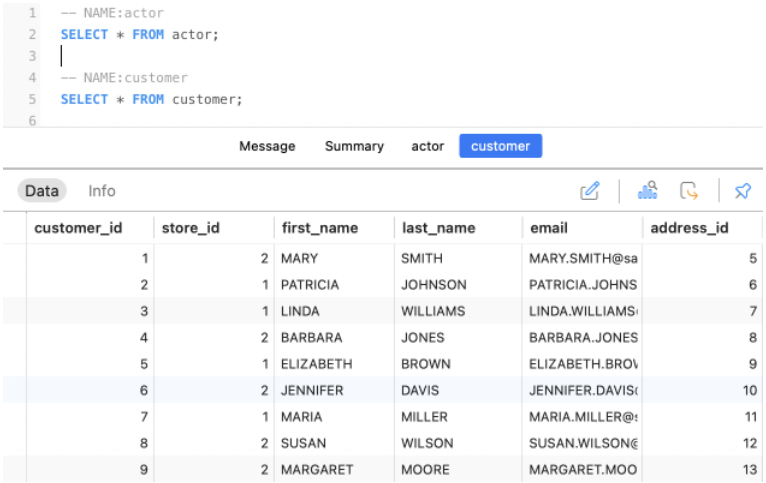
Existing result tabs are removed when you re-execute the query. You can pin a result tab so that it remains visible after re-executing the query. Simply click and its contents will not be cleared the next time you execute it.

When you pin a tab, it will display a pin icon and automatically moves towards the left side of the tab bar. All pinned tabs appear from left to right in the order you pinned. Hover over a pinned tab will show its execution time and the query. You can pin any number of results and quickly see what's pinned and what's not pinned. Simply click to unpin a tab.

Custom Tab Name

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

To customize the names of the result tabs, simply add *-- NAME:tab_name* or */*NAME:tab_name*/*, or *// NAME:tab_name* (for Redis) before each statement in the editor.



Show Query Profiling and Status

Note: Available only for MySQL and MariaDB.

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

The **Query Profiling** tab under the Result tab displays the query profiling: 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.

Query Explain

Query Explain provides detailed information about how a database query is executed by the database server. It helps you understand and optimize the performance of queries by analyzing the query execution plan.

When you click , Navicat sends an EXPLAIN statement to the database server. The server then generates an execution plan that outlines the steps it will take to execute the query and retrieve the requested data.

The **Explain** tab displays the execution plan. You can pin the tab by clicking .

You are allowed to explain selected portion of query, just simply highlight SQL in Query Editor and click .

Note: The supported plan formats depend on the server types.

Execution Plan - Visual (Available only in Enterprise and Standard Edition)

The diagram displays the operations performed by the query and the data passed between them. If the cost of an operation equals or exceeds the threshold value in the daigram, the number turns red. Click on an operation to view its statistical information. The information helps to understand what is happening internally when the query is executed.

Button / Option	Description
Cost Threshold(%)	Set the threshold value to determine when certain operations in the execution plan are considered important enough to be marked red.
&	Zoom in or zoom out the diagram.
	Download the diagram as a PNG file.
	Filter the nodes in the diagram by the node type.
Find	Enter a search string to find matches.

Execution Plan - JSON

The text-based plan provides a complete set of information about the query execution displayed in JSON format. This format can be difficult to read and analyze, but is easy to share with others.

Execution Plan - Text

The text-based plan provides a complete set of information about the query execution.

Execution Plan - Grid

The grid-based plan provides a complete set of information about the query execution.

Execution Plan - Statistic

Per Node Type - It shows the summary information of each node type in the visual graph.

Per Relation - It shows the statistical information that related to each table.

Ask AI (Available only in Enterprise and Standard Edition)

Ask AI enables users to leverage AI in the process of writing queries, streamlining the query development workflow for enhanced efficiency and user experience. Users can instruct Ask AI to perform the following actions:

- **Explain SQL** - Get a detailed explanation of your queries, including their components and functionality.

- **Optimize SQL** - Enhance the performance and efficiency of queries through concrete optimization suggestions.
- **Beautify SQL** - Automatically format code to improve readability and maintainability.
- **Convert SQL to another Database Type** - Transform queries to be compatible with different database systems.

When utilizing the default actions of Ask AI, the following information is transmitted to the AI provider:

- The full text or selected text of your query.
- The server version of the selected server in the editor.
- The information of the selected schema in the editor.

Additionally, you can customize AI actions, such as explaining queries and correcting errors.

Explain SQL

The Explain SQL feature offers detailed insights into your queries, aiding in the understanding of complex SQL statements.

To explain a query

1. Enter your query in the editor.
2. Click the down arrow next to ✧ and select **Explain SQL**.
3. The AI will instantly generate a detailed explanation of your query, including insights into its components.

Optimize SQL

The Optimize SQL feature provides actionable suggestions that help you optimize query execution, reduce resource consumption, and improve overall database performance.

To obtain an optimized query

1. Enter your query in the editor.
2. Click the down arrow next to ✧ and select **Optimize SQL**.
3. The AI will instantly generate an optimized query.

   Hint: By default, differences are highlighted. You can control-click on the pane and uncheck **Show Diff** to turn off the highlighting.

4. You can choose one of the following options for applying the code to the editor:

Option	Description
Append to Editor	Add the code to the end of the existing content.
Replace All in Editor	Clear the existing content and replace it entirely with the new code.
Replace Selection in Editor	Clear the selected content and replace it with the new code.

Beautify SQL

The Beautify SQL feature employs AI technology to automatically format queries, enhancing code readability and manageability.

To obtain a beautified query

1. Enter your query in the editor.
2. Click the down arrow next to ✧ and select **Beautify SQL**.
3. The AI will instantly generate a beautified query.

   Hint: By default, differences are highlighted. You can control-click on the pane and uncheck **Show Diff** to turn off the highlighting.

4. You can choose one of the following options for applying the code to the editor:

Option	Description
Append to Editor	Add the code to the end of the existing content.
Replace All in Editor	Clear the existing content and replace it entirely with the new code.
Replace Selection in Editor	Clear the selected content and replace it with the new code.

Convert SQL to another Database Type

The Convert SQL to another Database Type feature assists in converting statements, views, and stored procedures to syntax compatible with Navicat-supported servers.

To obtain a converted query

1. Enter your query in the editor.
2. Click the down arrow next to ✧ and select **Convert SQL to another Database Type**.
3. Choose the database type and enter the version number.
4. Click **Convert**.
5. The AI will instantly generate a converted query.

Hint: By default, differences are highlighted. You can control-click on the pane and uncheck **Show Diff** to turn off the highlighting.

6. You can choose one of the following options for applying the code to the editor:

Option	Description
Append to Editor	Add the code to the end of the existing content.
Replace All in Editor	Clear the existing content and replace it entirely with the new code.
Replace Selection in Editor	Clear the selected content and replace it with the new code.

Hint: You can click **New Query** to create a new query.

Custom AI Action

You can tailor AI actions by submitting specific questions and attaching relevant information.

To customize an AI action

1. Enter your query in the editor.
2. Click ✧.
3. Enter your question.
4. Choose the AI's response format.

Option	Description
Code	Instruct the AI to respond exclusively with code.
Natural Language	Instruct the AI to respond in a conversational or explanatory style.

5. Click the following options to attached additional information to be sent to the AI provider.

Option	Description
Selected Text	The selected text in the query editor.
All Text	All text in the query editor.
Current Schema	Information about the selected schema in the query editor.
Server Version	The server version of the selected server in the query editor.

6. Click **Save AI Action** to save the new AI action.

   Hint: You can hover over a new action in the left pane and click 📌. The pinned action will be added to the ✧ button as an item for easy access.

7. Click **Ask AI** to receive a response.
8. You can choose one of the following options for applying the code to the editor:

Option	Description
Insert at Editor Cursor	Add the code where your cursor is currently positioned.
Append to Editor	Add the code to the end of the existing content.
Replace All in Editor	Clear the existing content and replace it entirely with the new code.
Replace Selection in Editor	Clear the selected content and replace it with the new code.

Hint: If you selected Natural Language, you can click **Continue in New Chat** to continue chatting in the right AI Chat pane.

Fix Query with AI (Available only in Enterprise and Standard Edition)

If a query fails to run and returns error, you can ask AI to debug the query and suggest a possible fix.

Obtain Fix Suggestion

1. Select the **Summary** tab and locate the error.
2. In the Query column, click **Fix with AI**.
3. The AI will instantly generate a fix suggestion.

   Hint: By default, differences are highlighted. You can control-click on the pane and uncheck **Show Diff** to turn off the highlighting.
4. You can choose one of the following options for applying the code to the editor:

Option	Description
Append to Editor	Add the code to the end of the existing content.
Replace All in Editor	Clear the existing content and replace it entirely with the new code.
Replace Selection in Editor	Clear the selected content and replace it with the new code.

Explain Error Message

1. Select the **Summary** tab and locate the error.
2. In the Message column, click **Ask AI**.
3. The AI will instantly generate a detailed explanation of the error message.

Chapter 10 - AI Assistant (Available only in Enterprise and Standard Edition)

About AI Assistant

AI Assistant is a generative artificial intelligence (AI) powered conversational assistant that provides users with real-time suggestions and guidance while writing queries using natural language processing technology. It can chat queries, generate new statements, and perform query upgrades and improvements such as language updates, debugging, and optimization. AI Assistant helps users quickly access support for syntax, expressions, keywords, and more, ultimately improving query efficiency and accuracy.

AI Assistant can be accessed via the AI Chat pane located in the main window. This feature is seamlessly integrated with various components, including queries, views, and functions, enhancing user interaction and productivity.

With AI Assistant in Navicat, you can:

- Interact with your databases using natural language.
- Generate query statements.
- Fix code mistakes.
- Optimize, explain, format, and convert SQL queries.
- Select relevant data from your database.
- Generate table structures and comments.
- Populate table data.

Supported AI Providers

In Navicat, AI Assistant relies on external AI providers to complete tasks. To use the AI Assistant feature, you need an account from an AI provider. Here is the list of AI providers currently supported by Navicat:

- OpenAI ChatGPT
- Google Gemini
- DeepSeek
- Ollama
- xAI Grok
- Anthropic Claude

- Alibaba Qwen
- ByteDance Doubao
- Moonshot Kimi
- LM Studio
- Any AI compatible with OpenAI

Enable & Configure AI Assistant

Navicat provides users with the ability to enable and configure multiple AI Assistants. Here's a comprehensive guide on how to do this effectively:

1. On the AI Chat pane, click -> **Settings**.
2. In the Settings window, enable **Enable AI Assistant**.
3. Click **+** and choose an AI provider to add an Assistant.
4. Enter the AI Assistant information. See Settings for details.
5. Click **OK**.

Hint: By enabling AI Assistant, you agree to our Navicat AI Assistant Disclaimer.

Chat with AI

Once you have successfully configured your preferred AI provider, you can begin interacting with the AI Assistant directly within the AI Chat pane. The conversational interface allows you to ask questions, generate SQL code, and troubleshoot issues in real-time. By utilizing contextual tools, you can ensure the AI provides highly accurate and customized responses tailored to your specific database environment.

Start New Chat

You can ask questions, which are answered by the AI Assistant.

1. On the AI Chat pane, click .
2. In the input field, type your question.
3. Press ENTER to submit your message.

Attach Database Schema

You can enhance the quality of generated queries or replies with the context of a database/schema that you are working with. AI Assistant will get access to the structure of the attached schema, providing the information about it.

1. On the AI Chat pane, click -> **Attach Schemas**.
2. Select the schema that you want to attach and click **Attach**.

Attach Tab

You can attach content from your open tabs to provide AI Assistant with context from your current work.

1. On the AI Chat pane, click -> **Attach Tabs**.
2. Select the tab that you want to attach and click **Attach**.

Copy Code to New Query Window

1. Hover over a block of code.
2. Click .

Insert Code to Current Editor

1. Hover over a block of code.
2. Click and select an insert option.

Change Assistant in AI Chat Room

1. In the input field, click the down arrow next to the AI Assistant.
2. Select your preferred assistant from the list.

Compare Replies with Other Assistants

After you receive an answer from the AI Assistant, you can compare it with responses from other assistants to evaluate the consistency and quality of the information provided.

To initiate a comparison, simply select the option to view responses from other assistants after receiving your initial answer.

Note: You can enable or disable this feature in Settings.

Fork Conversation

Forking a conversation allows you to split off from a specific point in an existing chat history. When you fork a conversation, the new chat session copies all historical messages up to that selected point.

1. Scroll to the end of an assistant's reply where you want to branch out.
2. Hover over it and click .
3. A new AI chat room will open automatically, allowing you to resume your discussion.

Chapter 11 - Model (Available only in Enterprise Edition)

About Model

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

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

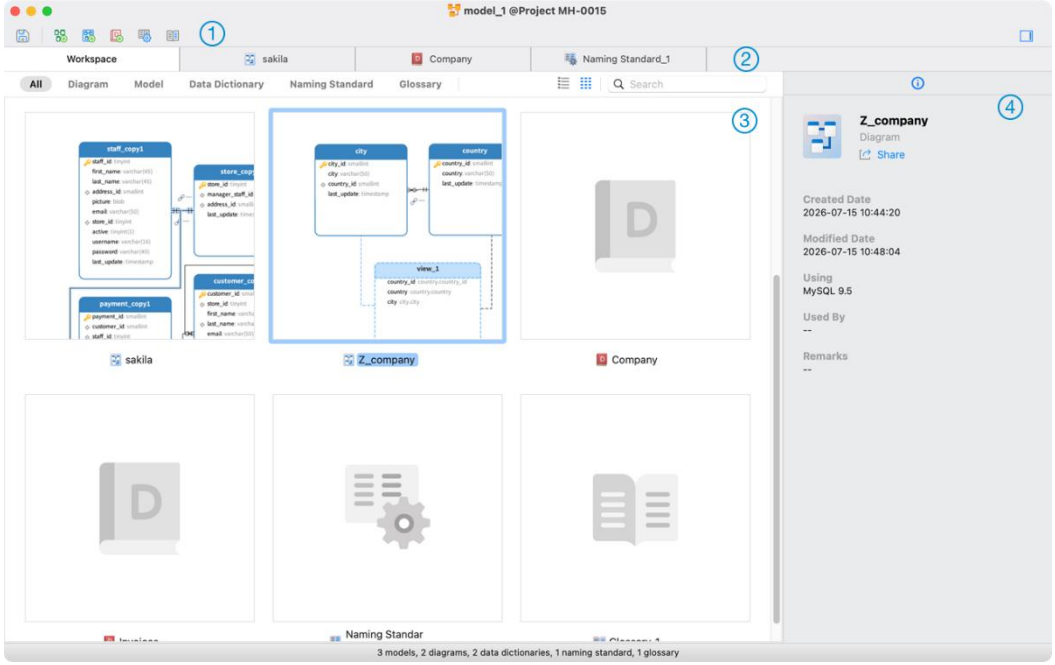
Some of key features are listed here:

- Create and manipulate conceptual, logical, physical and hybrid models.
- Support Relational, Dimensional and Data Vault modeling methods.
- Reverse engineer a database/schema or SQL file to generate a model.
- Forward engineer a physical model to a SQL/Script file or a database/schema.
- Compare two model workspaces.
- Generate data dictionaries from models.
- Define naming standards and glossary rules for your models.
- Create and edit table structures directly.

Hint: Workspace files (.nmodel) are stored under the default path, e.g. ~/Library/Application Support/PremiumSoft CyberTech/Navicat CC/Navicat Premium/Profiles. To open the folder, control-click a workspace file and select **Show in Finder**. If the workspace is synchronized to Navicat Cloud or On-Prem Server, it will be stored in the cloud.

Workspace

A workspace is a centralized structural environment that comprises models, diagrams, data dictionaries, naming standards, and glossary. You can design and manage items within a single workspace.



① Workspace Toolbar

The Workspace Toolbar provides quick-access controls to easily create new models, diagrams, data dictionaries, naming standards and glossaries.

② Tab Bar

The Tab Bar tracks your active views, allowing you to switch seamlessly among various opened items.

③ Content Pane

The Content pane displays all design assets stored within the workspace. It includes quick-filter categories (All, Model, Diagram, Data Dictionary, Naming Standard, Glossary) to instantly narrow down your asset list. To change the view, click the **Detail** or **Icon** button.

Detail View lists items in a structured text layout with extended metadata. You can click any column header to sort your assets by that specific attribute.

Icon View displays your items visually as a grid of thumbnail images.

④ Properties Pane

The Properties pane offers deeper dependency tracking and metadata for your assets.

The **General** tab displays core structural information for the workspace or selected item.

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

Workspace Operations

Open an external model file

1. In the menu bar, choose **File** -> **Open File** -> **Model**.

2. Browse the file and click **Open** in the dialog window.

Save an opened external file as a Navicat workspace

1. In Workspace Designer, choose **File** -> **Save to Navicat**.

2. Enter the model name and choose the save location.

3. Click **OK**.

Save a Navicat workspace as an external file

1. In Workspace Designer, choose **File** -> **Save As External File**.

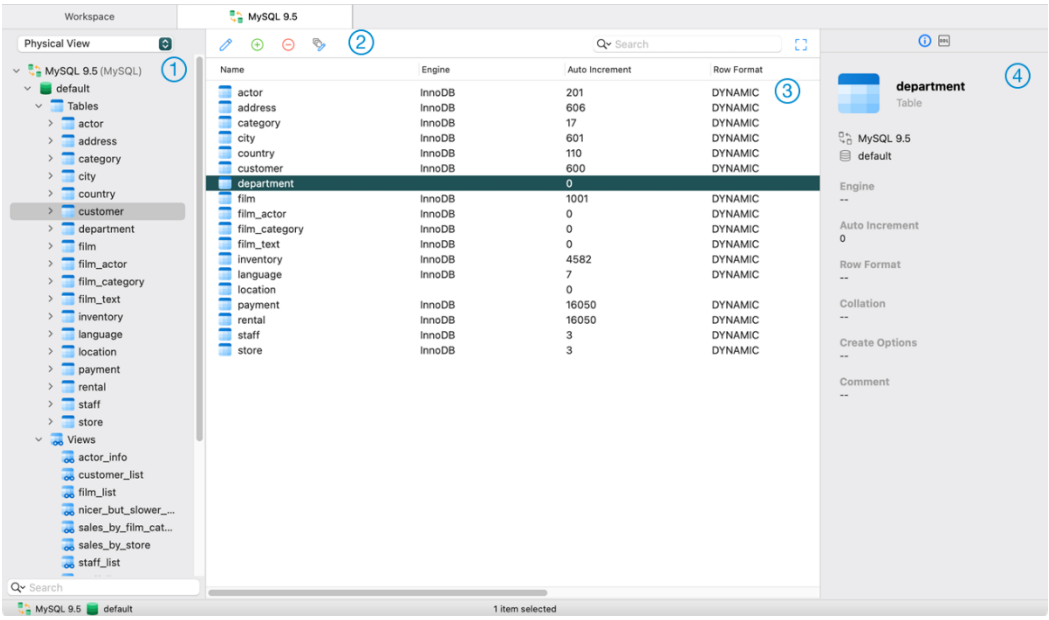
2. Choose the save path and enter the file name.

3. Click **Save**.

Model

Create Model

A model is a collection of database objects that can be effectively utilized within diagrams. These objects can be reused across various diagrams, thereby increasing efficiency and consistency in the design and presentation of database structures.



① Model Pane

The Model pane is the basic way to navigate with databases/schemas, tables, views, functions or entities.

Hint: If you are working within a Hybrid Model, you can use the drop-down menu to dynamically toggle your view between the logical and physical modeling layers.

② Object Toolbar

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

③ **Object Pane**

The Object pane shows the objects you created in the model.

④ **Properties Pane**

The ⓘ **General** tab shows the general information of the selected object.

The DDL **DDL** tab shows the DDL of the selected object.

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

Conceptual Model

Conceptual models focus on a high-level architectural view of the system, defining data elements and overall structures without diving into technical database constraints.

Core Objects: Entities.

The essential steps to create a conceptual model are:

1. In the Workspace window, click .
2. Enter the name of the model and choose **Conceptual**.
3. Click **OK**.
4. A tab will open for you to edit the model.

Logical Model

Logical models build on the conceptual design by introducing data attributes, and precise relational structures, while remaining independent of specific database technologies.

Core Objects: Entities.

The essential steps to create a logical model are:

1. In the Workspace window, click .
2. Enter the name of the model and choose **Logical**.
3. Click **OK**.
4. A tab will open for you to edit the model.

Physical Model

Physical models detail the literal database implementation structure optimized for a specific target database engine, incorporating exact data types, indexes, and constraints.

Core Objects: Tables, Collections, Views, Materialized Views, Functions, Procedures, and Sequences.

The essential steps to create a physical model are:

1. In the Workspace window, click .
2. Enter the name of the model and choose **Physical**.
3. Select the modeling method.
4. Select target database, and database version.
5. Click **OK**.
6. A tab will open for you to edit the model.

Hybrid Model

Hybrid models provide a blended design environment that bridges logical and physical abstractions, allowing you to map abstract entities directly alongside concrete, deployable physical database schemas.

Core Objects:

- Physical Layer: Tables, Collections, Views, Materialized Views, Functions, Procedures, and Sequences.
- Logical Layer: Entities.

The essential steps to create a hybrid model are:

1. In the Workspace window, click .
2. Enter the name of the model and choose **Hybrid**.
3. Select the modeling method.
4. Select target database, and database version.
5. Click **OK**.
6. A tab will open for you to edit the model.

Hint: You can use the drop-down menu on the model pane to dynamically toggle your view between the logical and physical modeling layers.

Model Properties

Once you have selected the model name on the left pane, you can customize the model by changing its properties:

Option	Description
Common	
Name	Enter the name of the model.
Default Database	Choose the default database of the model.
Case sensitive	Enable case sensitivity restrictions for objects within the model.
Remarks	Enter descriptive notes regarding the model.
Hybrid Model	
Modeling Method	Choose the modeling methodology of your model (e.g., Relational, Dimensional, or Data Vault).
Naming Standard	Select your preferred naming standard to apply automatic parsing and casing transformations across your model objects.
Glossary	Select your preferred glossary to eliminate naming ambiguities and align logical terms.

Create Model Objects

When creating a new model, a database (named default) is automatically created and set as your default database. You can view all databases, schemas, and their respective objects organized in a tree structure on the Model pane.

Database & Schema

To create a new database

1. On the Model pane, control-click the model name or database and select **New Database**.
2. Enter the name of the database.
3. Click **OK**.

To create a new schema

1. On the Model pane, control-click the database or schema and select **New Schema**.
2. Enter the name of the schema.
3. Click **OK**.

Table

The essential steps to create a table are:

1. On the Model tab, select Tables in the Model pane.
2. Click ⊕, or click the down arrow and choose the table type.
3. Enter the name of the table.

4. Click **OK**.

5. A tab will open for you to edit the table.

Create Table with AI (Available only in Enterprise and Standard Edition)

Navicat's Ask AI integration allows you to generate complete database table structures using natural language. Instead of manually adding fields, selecting data types, and setting constraints, you can simply describe what you need and let the AI build the schema draft for you.

Generate a table structure

1. In Table Designer, click ✧.

2. Type your instructions into the prompt box (e.g., Create a student table with fields for first name, last name, email, and enrollment date).

3. Click **Ask AI**.

Generate a comment

You can also use AI to automatically document your database objects. Simply click the **Fill with AI** button within the **Comment** tab, and the AI will analyze the context of your table structure to generate a descriptive comment for you.

View

The essential steps to create a view are:

1. On the Model tab, select Views in the Model pane.

2. Click ⊕.

3. Enter the name of the view.

4. Click **OK**.

5. A tab will open for you to edit the view.

Materialized View

The essential steps to create a materialized view are:

1. On the Model tab, select Materialized Views in the Model pane.

2. Click ⊕.

3. Enter the name of the materialized view.

4. Click **OK**.

5. A tab will open for you to edit the materialized view.

Function & Procedure

The essential steps to create a function/procedure are:

1. On the Model tab, select Functions in the Model pane.
2. Click ⊕.
3. **Function Wizard** will pop up and it allows you to create a function/procedure easily.
4. Click **Finish**.
5. A tab will open for you to edit the function/procedure.

Sequence

The essential steps to create a sequence are:

1. On the Model tab, select Sequences in the Model pane.
2. Click ⊕.
3. Enter the name of the sequence.
4. Click **OK**.
5. A tab will open for you to edit the sequence.

Collection & Embedded Structure

The essential steps to create a collection are:

1. On the Model tab, select Collections in the Model pane.
2. Click ⊕, or click the down arrow and choose the collection type.
3. Enter the name of the collection.
4. Click **OK**.
5. A tab will open for you to edit the collection.

To add an embedded document

1. In the collection designer, click ⊕.
2. Enter the name of the field and select **object** data type.
3. Click the arrow icon left to the field name.

4. Click ⊕ and define the item.

To add an embedded array of documents

1. In the collection designer, click ⊕.
2. Enter the name of the field and select **object** data type.
3. Enable **Is Array**.
4. Click the arrow icon left to the field name.
5. Click ⊕ and define the item.

To add a predefined object

1. In the collection designer, click ⊕.
2. Enter the name of the field and select **(Predefined Object)** data type.
3. Choose the predefined object.

Predefined Object

A predefined object refers to a specific document structure that is predefined or preconfigured. It is a predetermined schema or template that defines the fields and their data types within a MongoDB document. You can use predefined objects in any collection in the model to help maintain data integrity and establish consistent document structures.

The essential steps to create a predefined object are:

1. On the Model tab, select Predefined Object in the Model pane.
2. Click ⊕.
3. Enter the name of the predefined object.
4. Click **OK**.
5. A tab will open for you to edit the predefined object.

Entity

The essential steps to create an entity are:

1. On the Model tab, select Entities in the Model pane.
2. Click ⊕.
3. Enter the name of the entity.

4. Click **OK**.

5. A tab will open for you to edit the entity if your model is a logical model.

Bulk Editor

The Bulk Editor provides a powerful interface for managing and editing fields across multiple tables simultaneously within a model. Instead of opening each table individual-by-individual, the Bulk Editor presents your entire database schema's fields in a structured hierarchical list, allowing for rapid structural modifications.

Open Bulk Editor

To access the Bulk Editor

1. Open your model.

2. Select a table in the left pane and click .

Toolbar

The Bulk Editor toolbar contains specialized view toggles to filter and arrange fields for easier editing:

Button	Description
	Display all fields across the entire model in a single, continuous flat list.
	Display only the specific fields you have actively highlighted.
	Display only the fields that have pending, unsaved changes.

Edit Field Properties

1. In the Bulk Editor, select the specific fields you want to modify.

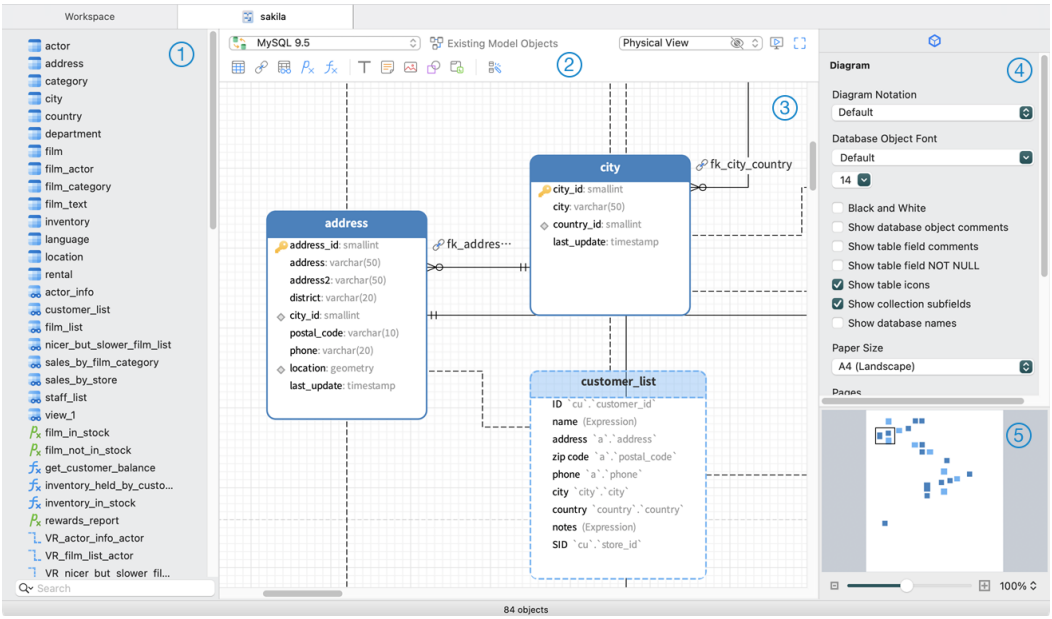
2. Edit the values of the shared attributes as necessary.

3. Save the changes.

Diagram

Create Diagram

A diagram is a visual representation of the relationships and structure of a data model. It depicts the tables, fields, collections, entities, attributes, and relationships between them in a clear and concise manner. You can use it in database design and development processes to communicate and document the logical organization of data within your system.



① Object Pane

The Object pane displays a list of all objects used in the diagram.

② Toolbar

The Toolbar is located near the top of the diagram. The buttons display in the toolbar depend on the model type and server type. You can use the toolbar to perform some basic tasks, such as adding tables, views, functions, collections or entities, applying Auto Layout feature, etc.

③ Canvas

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

④ Properties Pane

The **Properties** tab includes the basic layout settings, object settings and so on. The properties vary with the type of the object selected.

The **DDL** tab shows the DDL of the selected object.

⑤ Overview Pane

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

Zoom In: COMMAND-Mousewheel Up

Zoom out: COMMAND-Mousewheel Down

Reset Zoom:COMMAND-0

Create New Diagram

The essential steps to create a diagram are:

1. In the Workspace window, click .
2. Enter the name of the diagram.
3. Click **OK**.
4. A tab will open for you to edit the diagram.

Properties

Once you have selected the diagram canvas, you can customize the diagram by changing its properties:

Option	Description
Default Model	Choose the default model of the diagram. All objects created in the diagram belong to the default model.
Diagram Notation	Choose the notation framework used to illustrate relationships (e.g., Crow's Foot, IDEF1X, or UML).
Database Object Font	Set the font style of the database objects.
Black and white	Change the diagram color scheme to black and white.
Show database object comments	Show object-level comments on the object blocks.
Show table field comments	Show field or column-level comments within the tables in the diagram.
Show table field NOT NULL	Show "NOT NULL" on the diagram if a field is restrict null values.
Show table icons	Display corresponding graphic icons next to table headers for dimensional and data vault models.
Show collection subfields	Show nested document fields inside MongoDB collections.
Show database names	Show the database names before the object names in the diagram (e.g., db.table1).
Paper Size	Set the paper size dimensions of the canvas.
Pages	Set the total width and height of the canvas grid, measured in consecutive page segments.

Add Diagram Objects

If you have already created a model, you can populate your diagrams by adding existing model objects or creating new database structures.

Existing Model Object

The essential steps to add a model object are:

1. In the Diagram tab, click **Existing Model Objects**.
2. Choose a model.

3. Double-click the object you want to insert into the diagram, or use the drag-and-drop method.

Table

To add a new table

1. Click the button from the toolbar.
2. Place it on the canvas.
3. Double-click the table to open the designer.

Hint: The new table will also be added to the default model.

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

The pop-up menu options of the table object in the 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 objects to the selected table.
Add Field	Add a field at the end of the table.
Insert Field	Add a field above the selected field.
Delete Field	Delete the selected field.
Primary Key	Set the selected field as primary key.
Rename Field	Change the name of the selected field.
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.
Save as Image	Save the table as a PNG file.
Select All Connected Objects	Select all objects in the diagram that are connected to the table.
Select All Tables	Select all tables in the diagram.
Delete from Diagram / Delete from Diagram and Model	Delete the 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.
Group / Ungroup	Group or ungroup the table and other objects in the diagram.
Lock / Unlock	Lock or unlock the table in the diagram.

Properties

Once you have selected the table, you can customize the table by changing its properties:

Option	Description
Table	
Table Name	Enter the name of the table.
Database Name	Enter the name of the database to which the table belongs.
Schema Name	Enter the name of the schema to which the table belongs.
Dimensional Role	Assign a dimensional modeling role to the table (e.g., Fact or Dimension) when using Dimensional modeling method.
Data Vault Component	Classify the table into a specific Data Vault architecture component (e.g., Hub, Link, or Satellite) when using Data Vault modeling method.
Position	Customize the position of the table.
Size	Customize the size of the table.
Style	Choose the style of the table. Auto - Auto-arrange the table into a compact or standard style when resizing. Standard - Show the table name and its fields. Compact - Show a table icon with its name below the icon.
Constrain proportions	Maintain the aspect ratio (the ratio of width to height) when resizing.
Color	Set the color of the table.
Group / Ungroup	Group or ungroup the table and other objects in the diagram.
Lock / Unlock	Lock or unlock the table in the diagram.

Collection

To add a new collection

1. Click the button from the toolbar.
2. Place it on the canvas.
3. Double-click the collection to open the designer.

Hint: The new collection will also be added to the default model.

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

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

Option	Description
Design Collection	Edit the collection structure in a collection designer, e.g. fields,

	indexes, relations, etc.
Add Related Objects	Add all related objects to the selected collection.
Add Field	Add a field at the end of the collection.
Insert Field	Add a field above the selected field.
Delete Field	Delete the selected field.
Primary Key	Set the selected field as primary key.
Rename Field	Change the name of the selected field.
Cut	Remove the collection from the diagram and put it on the clipboard.
Copy	Copy the collection from the diagram to the clipboard.
Paste	Paste the content from the clipboard into the diagram.
Save as Image	Save the collection as a PNG file.
Select All Connected Objects	Select all objects in the diagram that are connected to the collection.
Select All Collections	Select all collections in the diagram.
Delete from Diagram / Delete from Diagram and Model	Delete the collection from the diagram or from both diagram and model.
Rename	Change the name of the collection.
Color	Change the color of the collection.
Size to Fit	Resize the collection automatically to fit its contents.
Bring to Front	Bring the collection to the foreground.
Send to Back	Move the collection to the background.
Group / Ungroup	Group or ungroup the collection and other objects in the diagram.
Lock / Unlock	Lock or unlock the collection in the diagram.

Properties

Once you have selected the collection, you can customize the collection by changing its properties:

Option	Description
Collection	
Collection Name	Enter the name of the collection.
Database Name	Enter the name of the database to which the collection belongs.
Position	Customize the position of the collection.
Size	Customize the size of the collection.
Style	Choose the style of the collection. Auto - Auto-arrange the collection into a compact or standard style when resizing. Standard - Show the collection name and its fields. Compact - Show a collection icon with its name below the icon.
Constrain proportions	Maintain the aspect ratio (the ratio of width to height) when resizing.
Color	Set the color of the collection.

Group / Ungroup	Group or ungroup the collection and other objects in the diagram.
Lock / Unlock	Lock or unlock the collection in the diagram.

Dimension

A dimension table is a key component in data warehousing and is used in star schema designs. It typically contains descriptive fields that provide context to the data in fact tables.

To add a new table

1. Click the button from the toolbar.
2. Place it on the canvas.
3. Double-click the table to open the designer.

Hint: The new table will also be added to the default model.

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

The pop-up menu options of the table object in the 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 objects to the selected table.
Add Field	Add a field at the end of the table.
Insert Field	Add a field above the selected field.
Delete Field	Delete the selected field.
Primary Key	Set the selected field as primary key.
Rename Field	Change the name of the selected field.
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.
Save as Image	Save the table as a PNG file.
Select All Connected Objects	Select all objects in the diagram that are connected to the table.
Select All Tables	Select all tables in the diagram.
Select All Dimensions	Select all dimension tables in the diagram.
Delete from Diagram / Delete from Diagram and Model	Delete the 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.
Group / Ungroup	Group or ungroup the table and other objects in the diagram.
Lock / Unlock	Lock or unlock the table in the diagram.

Properties

Once you have selected the table, you can customize the table by changing its properties:

Option	Description
Table	
Table Name	Enter the name of the table.
Database Name	Enter the name of the database to which the table belongs.
Schema Name	Enter the name of the schema to which the table belongs.
Position	Customize the position of the table.
Size	Customize the size of the table.
Style	Choose the style of the table. Auto - Auto-arrange the table into a compact or standard style when resizing. Standard - Show the table name and its fields. Compact - Show a table icon with its name below the icon.
Constrain proportions	Maintain the aspect ratio (the ratio of width to height) when resizing.
Color	Set the color of the table.
Group / Ungroup	Group or ungroup the table and other objects in the diagram.
Lock / Unlock	Lock or unlock the table in the diagram.

Fact

A fact table in data modeling is a central component of a data warehouse that stores quantitative data for analysis and reporting. It typically contains measurable, numerical data about business processes and events, allowing users to perform various types of analysis.

To add a new table

1. Click the button from the toolbar.
2. Place it on the canvas.
3. Double-click the table to open the designer.

Hint: The new table will also be added to the default model.

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

The pop-up menu options of the table object in the 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 objects to the selected table.
Add Field	Add a field at the end of the table.
Insert Field	Add a field above the selected field.
Delete Field	Delete the selected field.
Primary Key	Set the selected field as primary key.
Rename Field	Change the name of the selected field.
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.
Save as Image	Save the table as a PNG file.
Select All Connected Objects	Select all objects in the diagram that are connected to the table.
Select All Tables	Select all tables in the diagram.
Select All Facts	Select all fact tables in the diagram.
Delete from Diagram / Delete from Diagram and Model	Delete the 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.
Group / Ungroup	Group or ungroup the table and other objects in the diagram.
Lock / Unlock	Lock or unlock the table in the diagram.

Properties

Once you have selected the table, you can customize the table by changing its properties:

Option	Description
Table	
Table Name	Enter the name of the table.
Database Name	Enter the name of the database to which the table belongs.
Schema Name	Enter the name of the schema to which the table belongs.
Position	Customize the position of the table.
Size	Customize the size of the table.
Style	Choose the style of the table. Auto - Auto-arrange the table into a compact or standard style when resizing.

	Standard - Show the table name and its fields. Compact - Show a table icon with its name below the icon.
Constrain proportions	Maintain the aspect ratio (the ratio of width to height) when resizing.
Color	Set the color of the table.
Group / Ungroup	Group or ungroup the table and other objects in the diagram.
Lock / Unlock	Lock or unlock the table in the diagram.

Outrigger

An outrigger table is a type of table used in a star schema that extends the dimensional model by providing additional detail to a dimension table. It is typically used to normalize complex dimensions and can help manage hierarchical relationships or provide more detailed attributes without cluttering the main dimension table.

To add a new table

1. Click the button from the toolbar.
2. Place it on the canvas.
3. Double-click the table to open the designer.

Hint: The new table will also be added to the default model.

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

The pop-up menu options of the table object in the 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 objects to the selected table.
Add Field	Add a field at the end of the table.
Insert Field	Add a field above the selected field.
Delete Field	Delete the selected field.
Primary Key	Set the selected field as primary key.
Rename Field	Change the name of the selected field.
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.
Save as Image	Save the table as a PNG file.
Select All Connected Objects	Select all objects in the diagram that are connected to the table.
Select All Tables	Select all tables in the diagram.

Select All Outriggers	Select all outrigger tables in the diagram.
Delete from Diagram / Delete from Diagram and Model	Delete the 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.
Group / Ungroup	Group or ungroup the table and other objects in the diagram.
Lock / Unlock	Lock or unlock the table in the diagram.

Properties

Once you have selected the table, you can customize the table by changing its properties:

Option	Description
Table	
Table Name	Enter the name of the table.
Database Name	Enter the name of the database to which the table belongs.
Schema Name	Enter the name of the schema to which the table belongs.
Position	Customize the position of the table.
Size	Customize the size of the table.
Style	Choose the style of the table. Auto - Auto-arrange the table into a compact or standard style when resizing. Standard - Show the table name and its fields. Compact - Show a table icon with its name below the icon.
Constrain proportions	Maintain the aspect ratio (the ratio of width to height) when resizing.
Color	Set the color of the table.
Group / Ungroup	Group or ungroup the table and other objects in the diagram.
Lock / Unlock	Lock or unlock the table in the diagram.

Hub

A hub table is designed for handling large-scale data warehousing and analytics. It serves as the central repository for storing unique business keys and their associated metadata, providing a foundation for tracking and managing data across multiple operational systems.

To add a new table

1. Click the button from the toolbar.

2. Place it on the canvas.

3. Double-click the table to open the designer.

Hint: The new table will also be added to the default model.

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

The pop-up menu options of the table object in the 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 objects to the selected table.
Add Field	Add a field at the end of the table.
Insert Field	Add a field above the selected field.
Delete Field	Delete the selected field.
Primary Key	Set the selected field as primary key.
Rename Field	Change the name of the selected field.
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.
Save as Image	Save the table as a PNG file.
Select All Connected Objects	Select all objects in the diagram that are connected to the table.
Select All Tables	Select all tables in the diagram.
Select All Hubs	Select all hub tables in the diagram.
Delete from Diagram / Delete from Diagram and Model	Delete the 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.
Group / Ungroup	Group or ungroup the table and other objects in the diagram.
Lock / Unlock	Lock or unlock the table in the diagram.

Properties

Once you have selected the table, you can customize the table by changing its properties:

Option	Description
Table	
Table Name	Enter the name of the table.
Database Name	Enter the name of the database to which the table belongs.

Schema Name	Enter the name of the schema to which the table belongs.
Position	Customize the position of the table.
Size	Customize the size of the table.
Style	Choose the style of the table. Auto - Auto-arrange the table into a compact or standard style when resizing. Standard - Show the table name and its fields. Compact - Show a table icon with its name below the icon.
Constrain proportions	Maintain the aspect ratio (the ratio of width to height) when resizing.
Color	Set the color of the table.
Group / Ungroup	Group or ungroup the table and other objects in the diagram.
Lock / Unlock	Lock or unlock the table in the diagram.

Link

A link table is used to establish and manage relationships between hub tables. It plays a crucial role in connecting different entities represented by the hub tables, allowing for a more flexible and comprehensive data model.

To add a new table

1. Click the button from the toolbar.
2. Place it on the canvas.
3. Double-click the table to open the designer.

Hint: The new table will also be added to the default model.

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

The pop-up menu options of the table object in the 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 objects to the selected table.
Add Field	Add a field at the end of the table.
Insert Field	Add a field above the selected field.
Delete Field	Delete the selected field.
Primary Key	Set the selected field as primary key.
Rename Field	Change the name of the selected field.
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.
Save as Image	Save the table as a PNG file.
Select All Connected Objects	Select all objects in the diagram that are connected to the table.
Select All Tables	Select all tables in the diagram.
Select All Links	Select all link tables in the diagram.
Delete from Diagram / Delete from Diagram and Model	Delete the 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.
Group / Ungroup	Group or ungroup the table and other objects in the diagram.
Lock / Unlock	Lock or unlock the table in the diagram.

Properties

Once you have selected the table, you can customize the table by changing its properties:

Option	Description
Table	
Table Name	Enter the name of the table.
Database Name	Enter the name of the database to which the table belongs.
Schema Name	Enter the name of the schema to which the table belongs.
Position	Customize the position of the table.
Size	Customize the size of the table.
Style	Choose the style of the table. Auto - Auto-arrange the table into a compact or standard style when resizing. Standard - Show the table name and its fields. Compact - Show a table icon with its name below the icon.
Constrain proportions	Maintain the aspect ratio (the ratio of width to height) when resizing.
Color	Set the color of the table.
Group / Ungroup	Group or ungroup the table and other objects in the diagram.
Lock / Unlock	Lock or unlock the table in the diagram.

Satellite

A satellite table is designed to store descriptive attributes and historical changes related to the entities represented by hub tables and relationships defined by link tables. It enhances the overall flexibility and scalability of the data model.

To add a new table

1. Click the button from the toolbar.

2. Place it on the canvas.

3. Double-click the table to open the designer.

Hint: The new table will also be added to the default model.

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

The pop-up menu options of the table object in the 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 objects to the selected table.
Add Field	Add a field at the end of the table.
Insert Field	Add a field above the selected field.
Delete Field	Delete the selected field.
Primary Key	Set the selected field as primary key.
Rename Field	Change the name of the selected field.
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.
Save as Image	Save the table as a PNG file.
Select All Connected Objects	Select all objects in the diagram that are connected to the table.
Select All Tables	Select all tables in the diagram.
Select All Satellites	Select all satellite tables in the diagram.
Delete from Diagram / Delete from Diagram and Model	Delete the 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.
Group / Ungroup	Group or ungroup the table and other objects in the diagram.
Lock / Unlock	Lock or unlock the table in the diagram.

Properties

Once you have selected the table, you can customize the table by changing its properties:

Option	Description

Table	
Table Name	Enter the name of the table.
Database Name	Enter the name of the database to which the table belongs.
Schema Name	Enter the name of the schema to which the table belongs.
Position	Customize the position of the table.
Size	Customize the size of the table.
Style	Choose the style of the table. Auto - Auto-arrange the table into a compact or standard style when resizing. Standard - Show the table name and its fields. Compact - Show a table icon with its name below the icon.
Constrain proportions	Maintain the aspect ratio (the ratio of width to height) when resizing.
Color	Set the color of the table.
Group / Ungroup	Group or ungroup the table and other objects in the diagram.
Lock / Unlock	Lock or unlock the table in the diagram.

Bridge

A bridge table is used to resolve many-to-many relationships between two dimension tables in a star schema within a data warehouse. It acts as an intermediary that allows for the linking of data from two or more tables, facilitating more complex queries and analyses.

To add a new table

1. Click the button from the toolbar.
2. Place it on the canvas.
3. Double-click the table to open the designer.

Hint: The new table will also be added to the default model.

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

The pop-up menu options of the table object in the 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 objects to the selected table.
Add Field	Add a field at the end of the table.
Insert Field	Add a field above the selected field.

Delete Field	Delete the selected field.
Primary Key	Set the selected field as primary key.
Rename Field	Change the name of the selected field.
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.
Save as Image	Save the table as a PNG file.
Select All Connected Objects	Select all objects in the diagram that are connected to the table.
Select All Tables	Select all tables in the diagram.
Select All Bridges	Select all bridge tables in the diagram.
Delete from Diagram / Delete from Diagram and Model	Delete the 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.
Group / Ungroup	Group or ungroup the table and other objects in the diagram.
Lock / Unlock	Lock or unlock the table in the diagram.

Properties

Once you have selected the table, you can customize the table by changing its properties:

Option	Description
Table	
Table Name	Enter the name of the table.
Database Name	Enter the name of the database to which the table belongs.
Schema Name	Enter the name of the schema to which the table belongs.
Position	Customize the position of the table.
Size	Customize the size of the table.
Style	Choose the style of the table. Auto - Auto-arrange the table into a compact or standard style when resizing. Standard - Show the table name and its fields. Compact - Show a table icon with its name below the icon.
Constrain proportions	Maintain the aspect ratio (the ratio of width to height) when resizing.
Color	Set the color of the table.
Group / Ungroup	Group or ungroup the table and other objects in the diagram.
Lock / Unlock	Lock or unlock the table in the diagram.

Point In Time

A point-in-time table is a type of table that captures the state of data at a specific moment, often used in scenarios where historical accuracy and auditability are critical. These tables are particularly useful for tracking changes over time, enabling users to analyze data as it existed at particular points in history.

To add a new table

1. Click the button from the toolbar.
2. Place it on the canvas.
3. Double-click the table to open the designer.

Hint: The new table will also be added to the default model.

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

The pop-up menu options of the table object in the 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 objects to the selected table.
Add Field	Add a field at the end of the table.
Insert Field	Add a field above the selected field.
Delete Field	Delete the selected field.
Primary Key	Set the selected field as primary key.
Rename Field	Change the name of the selected field.
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.
Save as Image	Save the table as a PNG file.
Select All Connected Objects	Select all objects in the diagram that are connected to the table.
Select All Tables	Select all tables in the diagram.
Select All Point In Time	Select all point in time tables in the diagram.
Delete from Diagram / Delete from Diagram and Model	Delete the 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.
Group / Ungroup	Group or ungroup the table and other objects in the diagram.

Lock / Unlock	Lock or unlock the table in the diagram.

Properties

Once you have selected the table, you can customize the table by changing its properties:

Option	Description
Table	
Table Name	Enter the name of the table.
Database Name	Enter the name of the database to which the table belongs.
Schema Name	Enter the name of the schema to which the table belongs.
Position	Customize the position of the table.
Size	Customize the size of the table.
Style	Choose the style of the table. Auto - Auto-arrange the table into a compact or standard style when resizing. Standard - Show the table name and its fields. Compact - Show a table icon with its name below the icon.
Constrain proportions	Maintain the aspect ratio (the ratio of width to height) when resizing.
Color	Set the color of the table.
Group / Ungroup	Group or ungroup the table and other objects in the diagram.
Lock / Unlock	Lock or unlock the table in the diagram.

Reference

A reference table serves a specific purpose in providing additional context or metadata about the data stored in the core components of the Data Vault, primarily hub, link, and satellite tables.

To add a new table

1. Click the button from the toolbar.
2. Place it on the canvas.
3. Double-click the table to open the designer.

Hint: The new table will also be added to the default model.

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

The pop-up menu options of the table object in the 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 objects to the selected table.
Add Field	Add a field at the end of the table.
Insert Field	Add a field above the selected field.
Delete Field	Delete the selected field.
Primary Key	Set the selected field as primary key.
Rename Field	Change the name of the selected field.
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.
Save as Image	Save the table as a PNG file.
Select All Connected Objects	Select all objects in the diagram that are connected to the table.
Select All Tables	Select all tables in the diagram.
Select All References	Select all reference tables in the diagram.
Delete from Diagram / Delete from Diagram and Model	Delete the 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.
Group / Ungroup	Group or ungroup the table and other objects in the diagram.
Lock / Unlock	Lock or unlock the table in the diagram.

Properties

Once you have selected the table, you can customize the table by changing its properties:

Option	Description
Table	
Table Name	Enter the name of the table.
Database Name	Enter the name of the database to which the table belongs.
Schema Name	Enter the name of the schema to which the table belongs.
Position	Customize the position of the table.
Size	Customize the size of the table.
Style	Choose the style of the table. Auto - Auto-arrange the table into a compact or standard style when resizing. Standard - Show the table name and its fields. Compact - Show a table icon with its name below the icon.
Constrain proportions	Maintain the aspect ratio (the ratio of width to height) when

	resizing.
Color	Set the color of the table.
Group / Ungroup	Group or ungroup the table and other objects in the diagram.
Lock / Unlock	Lock or unlock the table in the diagram.

Foreign Key

To add a foreign key

1. Click the 🔗 button from the toolbar.

2. Drag and drop the field of the child table/collection to the field of the parent table/collection.
   OR
   Drag and drop the child field to the empty space of the parent table/collection. The referenced field will be automatically created in the parent table/collection.

3. Double-click the foreign key connector to open the designer.

Hint: When you hover over a foreign key line, the referenced fields and the referencing fields are highlighted.

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

Option	Description
Design Foreign Key	Edit the foreign key in a table designer. The options in the designer depend on the diagram database type you are chosen.
Go to	Go to and select the connected table/collection.
Reroute Connectors	Reroute the connector to the closest points between two connected objects.
Copy	Copy the foreign key from the diagram to the clipboard.
Paste	Paste the content from the clipboard into the diagram.
Save as Image	Save the foreign key as a PNG file.
Select All Connected Objects	Select all objects in the diagram that are connected by the foreign key.
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.
Group / Ungroup	Group or ungroup the foreign key and other objects in the diagram.
Lock / Unlock	Lock or unlock the foreign key in the diagram.

Properties

Once you have selected the foreign key, you can customize the foreign key by changing its properties:

Option	Description
Foreign Key	

Name	Enter the name of the foreign key.
Position	Customize the position of the line.
Offset	Customize offset values for the start and end of the line.
Show name	Display the name of the foreign key.
Font	Set the font style of the name.
Bold	Apply a bold style to the name.
Italic	Apply an italic style to the name.
Color	Set the color of the line.
Line Width	Choose the thickness of the line.
Cardinality	Specify the relationship cardinality of the table/collection.
Visible	Show the connector.
Group / Ungroup	Group or ungroup the foreign key and other objects in the diagram.
Lock / Unlock	Lock or unlock the foreign key in the diagram.

View

To add a new view

1. Click the button from the toolbar.
2. Place it on the canvas.
3. Double-click the view to open the designer.

Hint: The new view will also be added to the default model.

The pop-up menu options of the view object in the 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 objects 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.
Save as Image	Save the view as a PNG file.
Select All Views	Select all views in the diagram.
Delete from Diagram / Delete from Diagram and Model	Delete the 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.
Group / Ungroup	Group or ungroup the view and other objects in the diagram.
Lock / Unlock	Lock or unlock the view in the diagram.

Properties

Once you have selected the view, you can customize the view by changing its properties:

Option	Description
View	
View Name	Enter the name of the view.
Database Name	Enter the name of the database to which the view belongs.
Schema Name	Enter the name of the schema to which the view belongs.
Position	Customize the position of the view.
Size	Customize the size of the view.
Style	Choose the style of the view. Auto - Auto-arrange the view into a compact or standard style when resizing. Standard - Show the view name and its content. Compact - Show a view icon with its name below the icon.
Constrain proportions	Maintain the aspect ratio (the ratio of width to height) when resizing.
Color	Set the color of the view.
Group / Ungroup	Group or ungroup the view and other objects in the diagram.
Lock / Unlock	Lock or unlock the view in the diagram.

Materialized View

To add a new materialized view

1. Click the button from the toolbar.
2. Place it on the canvas.
3. Double-click the materialized view to open the designer.

Hint: The new materialized view will also be added to the default model.

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

Option	Description
Design Materialized View	Edit the materialized 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 objects to the selected materialized view.

Cut	Remove the materialized view from the diagram and put it on the clipboard.
Copy	Copy the materialized view from the diagram to the clipboard.
Paste	Paste the content from the clipboard into the diagram.
Save as Image	Save the materialized view as a PNG file.
Select All Materialized Views	Select all materialized views in the diagram.
Delete from Diagram / Delete from Diagram and Model	Delete the materialized view from the diagram or from both diagram and model.
Rename	Change the name of the materialized view.
Color	Change the color of the materialized view.
Size to Fit	Resize the materialized view automatically to fit its contents.
Bring to Front	Bring the materialized view to the foreground.
Send to Back	Move the materialized view to the background.
Group / Ungroup	Group or ungroup the materialized view and other objects in the diagram.
Lock / Unlock	Lock or unlock the materialized view in the diagram.

Properties

Once you have selected the view, you can customize the materialized view by changing its properties:

Option	Description
Materialized View	
Materialized View Name	Enter the name of the materialized view.
Schema Name	Enter the name of the schema to which the materialized view belongs.
Position	Customize the position of the materialized view.
Size	Customize the size of the materialized view.
Style	Choose the style of the materialized view. Auto - Auto-arrange the materialized view into a compact or standard style when resizing. Standard - Show the materialized view name and its content. Compact - Show a materialized view icon with its name below the icon.
Constrain proportions	Maintain the aspect ratio (the ratio of width to height) when resizing.
Color	Set the color of the materialized view.
Group / Ungroup	Group or ungroup the materialized view and other objects in the diagram.
Lock / Unlock	Lock or unlock the materialized view in the diagram.

Function & Procedure

To add a new function/procedure

1. Click the fx or Px button from the toolbar.

2. Place it on the canvas.

3. Double-click the function/procedure to open the designer.

Hint: The new function/procedure will also be added to the default model.

The pop-up menu options of the function/procedure object in the canvas include:

Option	Description
Design Function / Design Procedure	Edit the function/procedure structure in a function/procedure designer. The tabs and options in the designer depend on the diagram database type you are chosen.
Cut	Remove the function/procedure from the diagram and put it on the clipboard.
Copy	Copy the function/procedure from the diagram to the clipboard.
Paste	Paste the content from the clipboard into the diagram.
Save as Image	Save the function/procedure as a PNG file.
Select All Functions	Select all functions/procedures in the diagram.
Delete from Diagram / Delete from Diagram and Model	Delete the function/procedure from the diagram or from both diagram and model.
Rename	Change the name of the function/procedure.
Color	Change the color of the function/procedure.
Size to Fit	Resize the function/procedure automatically to fit its contents.
Bring to Front	Bring the function/procedure to the foreground.
Send to Back	Move the function/procedure to the background.
Group / Ungroup	Group or ungroup the function/procedure and other objects in the diagram.
Lock / Unlock	Lock or unlock the function/procedure in the diagram.

Properties

Once you have selected the function/procedure, you can customize the function/procedure by changing its properties:

Option	Description
Function / Procedure	
Function Name / Procedure Name	Enter the name of the function/procedure.
Database Name	Enter the name of the database to which the function/procedure belongs.
Schema Name	Enter the name of the schema to which the function/procedure belongs.
Position	Customize the position of the function/procedure.
Size	Customize the size of the function/procedure.

Style	Choose the style of the function/procedure. Auto - Auto-arrange the function/procedure into a compact or standard style when resizing. Standard - Show the function/procedure name and its content. Compact - Show a function/procedure icon with its name below the icon.
Constrain proportions	Maintain the aspect ratio (the ratio of width to height) when resizing.
Color	Set the color of the function/procedure.
Group / Ungroup	Group or ungroup the function/procedure and other objects in the diagram.
Lock / Unlock	Lock or unlock the function/procedure in the diagram.

Sequence

To add a new sequence

1. Click the 123 button from the toolbar.
2. Place it on the canvas.
3. Double-click the sequence to open the designer.

Hint: The new sequence will also be added to the default model.

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

Option	Description
Design Sequence	Edit the sequence structure in an sequence designer.
Cut	Remove the sequence from the diagram and put it on the clipboard.
Copy	Copy the sequence from the diagram to the clipboard.
Paste	Paste the content from the clipboard into the diagram.
Save as Image	Save the sequence as a PNG file.
Select All Sequences	Select all sequences in the diagram.
Delete from Diagram / Delete from Diagram and Model	Delete the sequence from the diagram or from both diagram and model.
Rename	Change the name of the sequence.
Color	Change the color of the sequence.
Size to Fit	Resize the sequence automatically to fit its contents.
Bring to Front	Bring the sequence to the foreground.
Send to Back	Move the sequence to the background.
Group / Ungroup	Group or ungroup the sequence and other objects in the diagram.
Lock / Unlock	Lock or unlock the sequence in the diagram.

Properties

Once you have selected the sequence, you can customize the sequence by changing its properties:

Option	Description
Sequence	
Name	Enter the name of the sequence.
Schema Name	Enter the name of the schema to which the sequence belongs.
Position	Customize the position of the sequence.
Size	Customize the size of the sequence.
Constrain proportions	Maintain the aspect ratio (the ratio of width to height) when resizing.
Color	Set the color of the sequence.
Group / Ungroup	Group or ungroup the sequence and other objects in the diagram.
Lock / Unlock	Lock or unlock the sequence in the diagram.

Entity

To add a new entity

1. Click the button from the toolbar.
2. Place it on the canvas.
3. [Logical Model] Double-click the entity to open the designer.

Hint: The new entity will also be added to the default model.

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

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

Option	Description
Design Entity	Edit the entity structure in an entity designer, e.g. attributes, indexes, relations, etc. Only for Logical Model.
Add Related Objects	Add all related objects to the selected entity.
Add Attribute	Add an attribute at the end of the entity.
Insert Attribute	Add an attribute above the selected attribute.
Delete Attribute	Delete the selected attribute.
Primary Key	Set the selected attribute as primary key.
Rename Attribute	Change the name of the selected attribute.
Cut	Remove the entity from the diagram and put it on the clipboard.
Copy	Copy the entity from the diagram to the clipboard.

Paste	Paste the content from the clipboard into the diagram.
Save as Image	Save the entity as a PNG file.
Select All Connected Objects	Select all objects in the diagram that are connected to the entity.
Select All Entities	Select all entities in the diagram.
Delete from Diagram / Delete from Diagram and Model	Delete the entity from the diagram or from both diagram and model.
Rename	Change the name of the entity.
Color	Change the color of the entity.
Size to Fit	Resize the entity automatically to fit its contents.
Bring to Front	Bring the entity to the foreground.
Send to Back	Move the entity to the background.
Group / Ungroup	Group or ungroup the entity and other objects in the diagram.
Lock / Unlock	Lock or unlock the entity in the diagram.

Properties

Once you have selected the entity, you can customize the entity by changing its properties:

Option	Description
Entity	
Entity Name	Enter the name of the entity.
Database Name	Enter the name of the database to which the entity belongs.
Position	Customize the position of the entity.
Size	Customize the size of the entity.
Style	Choose the style of the entity. Auto - Auto-arrange the entity into a compact or standard style when resizing. Standard - Show the entity name and/or its attributes. Compact - Show an entity icon with its name below the icon.
Constrain proportions	Maintain the aspect ratio (the ratio of width to height) when resizing.
Color	Set the color of the entity.
Group / Ungroup	Group or ungroup the entity and other objects in the diagram.
Lock / Unlock	Lock or unlock the entity in the diagram.

Add Visual Elements

Visual elements help document and organize your diagram design process without affecting the underlying database model.

Label

Labels are typically used to help document the diagram design process. For example, to explain a grouping table objects.

To add a new label

1. Click the T button from the toolbar.
2. Place it on the canvas.
3. Enter the caption.

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

Option	Description
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.
Save as Image	Save the label as a PNG file.
Select All Labels	Select all labels in the diagram.
Delete from Diagram	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.
Group / Ungroup	Group or ungroup the label and other objects in the diagram.
Lock / Unlock	Lock or unlock the label in the diagram.

Properties

Once you have selected the label, you can customize the label by changing its properties:

Option	Description
Label	
Name	Enter the name of the label.
Position	Customize the position of the label.
Size	Customize the size of the label.
Constrain proportions	Maintain the aspect ratio (the ratio of width to height) when resizing.
Font	Set the font style of the label caption.
Bold	Apply a bold style to the label caption.
Italic	Apply an italic style to the label caption.
URL	Enter URL path to set the text as a hyperlink.
Group / Ungroup	Group or ungroup the label and other objects in the diagram.
Lock / Unlock	Lock or unlock the label in the diagram.

Note

Notes are typically used to help document the diagram design process. For example, to explain a grouping table objects.

To add a new note

1. Click the button from the toolbar.

2. Place it on the canvas.

3. Enter the content.

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

Option	Description
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.
Save as Image	Save the note as a PNG file.
Select All Notes	Select all notes in the diagram.
Delete from Diagram	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.
Group / Ungroup	Group or ungroup the note and other objects in the diagram.
Lock / Unlock	Lock or unlock the note in the diagram.

Properties

Once you have selected the note, you can customize the note by changing its properties:

Option	Description
Note	
Name	Enter the name of the note.
Position	Customize the position of the note.
Size	Customize the size of the note.
Constrain proportions	Maintain the aspect ratio (the ratio of width to height) when resizing.
Font	Set the font style of the note content.
Bold	Apply a bold style to the note content.
Italic	Apply an italic style to the note content.
Color	Set the color of the note.
Group / Ungroup	Group or ungroup the note and other objects in the diagram.
Lock / Unlock	Lock or unlock the note in the diagram.

Image

You can insert images (BMP, JPG, JPEG or PNG files) to your diagram for design or identification purposes.

To add a new image

1. Click the button from the toolbar.

2. Place it on the canvas.

3. Select an image file in the Open dialog box.

Hint: You can simply add an image from the clipboard by pressing COMMAND-V.

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

Option	Description
Cut	Remove the image from 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.
Save as Image	Save the image as a PNG file.
Select All Images	Select all images in the diagram.
Delete from Diagram	Delete an image from the diagram.
Bring to Front	Bring the image to the foreground.
Send to Back	Move the image to the background.
Group / Ungroup	Group or ungroup the image and other objects in the diagram.
Lock / Unlock	Lock or unlock the image in the diagram.

Properties

Once you have selected the image, you can customize the image by changing its properties:

Option	Description
Image	
Name	Enter the name of the image.
Opacity	Set the opacity of the image.
Position	Customize the position of the image.
Size	Customize the size of the image.
Original Size	Reset the image to its original size.
Constrain proportions	Maintain the aspect ratio (the ratio of width to height) when resizing.
URL	Enter URL path to set the image as a hyperlink.
Group / Ungroup	Group or ungroup the image and other objects in the diagram.
Lock / Unlock	Lock or unlock the image in the diagram.

Shape

Navicat includes some pre-defined shapes for creating database model diagrams: line, arrow, curve, connector, rectangle, ellipse, triangle, right triangle, right arrow, user, database, cloud, trigger, server, desktop, laptop, mobile, man, woman.

To add a new shape

1. Click the button from the toolbar.

2. Select a shape.

3. Place it on the canvas.

To connect objects with a connector

1. Drag one endpoint of the connector to an object until it snaps to the object (a blue outline appears around the object).

2. Drag the other endpoint until the connector snaps to another object.

Hint: Lines, arrows and curves can act as connectors. You can enable the **As connector** option in the Properties pane.

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

Option	Description
Common	
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.
Save as Image	Save the shape as a PNG file.
Select All Shapes	Select all shapes in the diagram.
Delete from Diagram	Delete a shape from the diagram.
Color	Change the color of the shape.
Bring to Front	Bring the shape to the foreground.
Send to Back	Move the shape to the background.
Group / Ungroup	Group or ungroup the shape and other objects in the diagram.
Lock / Unlock	Lock or unlock the shape in the diagram.
Line, Arrow and Curve	
Add Vertex	Add a vertex at the mouse cursor position.
Delete Vertex	Delete a vertex at the mouse cursor position.
Delete All Vertices	Delete all vertices on the selected line.
Go to	Go to and select the connected object.
Connector	
Go to	Go to and select the connected object.
Reroute Connectors	Reroute the connector to the closest points between two connected objects.

Properties

Once you have selected the shape, you can customize the shape by changing its properties:

Option	Description
Common	

Name	Enter the name of the shape.
Position	Customize the position of the shape.
Show name	Display the name label of the shape.
Name Position	Change the label position.
Font	Set the font style of the name.
Bold	Apply a bold style to the name.
Italic	Apply an italic style to the name.
Color	Set the color of the shape.
Group / Ungroup	Group or ungroup the shape and other objects in the diagram.
Lock / Unlock	Lock or unlock the shape in the diagram.
Line, Arrow, Curve and Connecter	
Offset	Customize offset values for the start and end of the line.
Line Width	Choose the thickness of the line.
Cap Style	Choose the cap style of the line.
Dash Style	Choose the dash style of the line.
Join Style	Choose the join style of the line.
Begin Style	Choose the style of the line's back.
End Style	Choose the style of the line's front.
As connector	Allow you to connect objects.
Rectangle, Ellipse, Triangle, Right Triangle, Right Arrow, User, Database, Cloud, Trigger, Server, Desktop, Laptop, Mobile, Man and Woman	
Size	Customize the size of the shape.
Constrain proportions	Maintain the aspect ratio (the ratio of width to height) when resizing.
Border Color	Change the color of the shape's border.
Border Width	Choose the thickness of the border.
Shape Style	Change the style of the shape.

Layer

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

1. Click the button from the toolbar.
2. Place it on the canvas.
3. Move objects into the layer and select **Add To Layer**.

The pop-up menu options of the layer object in the 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.
Save as Image	Save the layer as a PNG file.
Select All Layers	Select all layers in the diagram.
Delete from Diagram	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.
Group / Ungroup	Group or ungroup the layer and other objects in the diagram.
Lock / Unlock	Lock or unlock the layer in the diagram.

Properties

Once you have selected the layer, you can customize the layer by changing its properties:

Option	Description
Layer	
Name	Enter the name of the layer.
Position	Customize the position of the layer.
Size	Customize the size of the layer.
Constrain proportions	Maintain the aspect ratio (the ratio of width to height) when resizing.
Font	Set the font style of the title.
Title Position	Change the title position.
Color	Set the color of the layer.
Group / Ungroup	Group or ungroup the layer and other objects in the diagram.
Lock / Unlock	Lock or unlock the layer in the diagram.

Work with Diagram Canvas

Customize your workspace and precisely organize your diagram elements using Navicat's canvas tools.

Change Diagram View

When working on a complex diagram containing multiple model types, you can use the toolbar drop-down selection menu to isolate your structural focus:

- **All Model Types View** - Objects from all types of models are displayed simultaneously.
- **Physical View** - The objects in the conceptual and logical models are dimmed, allowing for complete focus on the tables, collections, views, functions, procedures, materialized views, and sequences. For hybrid model objects, physical names are shown. You can click to completely hide the objects from the conceptual and logical models.

- **Logical View** - The objects in the conceptual and physical models are dimmed, allowing for complete focus on the entities. For hybrid model objects, logical names are shown. You can click to completely hide the objects from the conceptual and physical models.

Canvas View Settings

You can adjust your canvas display preferences directly from the top menu bar:

Show Grid

To turn the grid on in the diagram canvas, choose **View** -> **Show Grid** from the menu bar.

Show Page Border

To turn the page border on in the diagram canvas, choose **View** -> **Show Page Border** 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.

Show Alignment Guide

To display dynamic alignment smart guides when dragging or moving an object on the canvas, choose **View** -> **Alignment Guide** -> **Show Alignment Guide** from the menu bar.

You can toggle 4 distinct alignment options to control how objects snap and reference one another:

Option	Description
Show Guides at Object Center	Display guidelines when the center point of the object you are moving aligns horizontally or vertically with the center point of another object.
Show Guides at Object Edges	Display guidelines when any outer edge (top, bottom, left, or right) of the object you are moving aligns flush with the edge of another object.
Show Guides for Relative Sizing	Display visual indicators when the width or height of the object you are resizing matches the dimensions of an adjacent object.
Show Guides for Relative Spacing	Display dynamic spacing markers to ensure equal padding or gaps between a series of consecutive objects.

Align Multiple Objects

To perfectly align various elements on your canvas:

1. Select the objects you want to align.

2. Control-click the selected objects, and then select one of these commands from the **Alignment** menu:

Option	Description

Align Left	Align objects along their left edges.
Align Center	Align objects vertically through their centers.
Align Right	Align objects along their right edges.
Align Top	Align objects along their top edges.
Align Middle	Align objects horizontally through their middles.
Align Bottom	Align objects along their bottom edges.

Arrange Objects Equidistant

To arrange objects so they are spaced equidistantly from one another:

1. Select at least three objects.

2. Control-click the selected objects, and then select one of these commands from the **Distribute** menu:

Option	Description
Horizontally	Arrange the objects horizontally.
Vertically	Arrange the objects vertically.

Sort Objects

To keep your objects structured, you can arrange the list in the left pane by name, category, or visual depth. Choose your preferred sorting method directly from the **View** menu:

Option	Description
Sort by Name	Alphanumerically organize all canvas objects based on their given names.
Sort by Type	Group objects together by their functional component or data category (e.g., text labels, images, or shapes).
Sort by Z-Order	Arrange objects based on their structural stacking depth (from foreground layers down to background layers).

Note: If individual objects are grouped inside structural layers, the chosen sorting rule will apply locally within each respective layer, preserving the overarching layer hierarchy.

Resize Objects

After selecting an object on the canvas, you have multiple ways to adjust its size.

To freely resize an object

1. Select the object.

2. Move your mouse pointer over one of the handles, then click and drag.

To resize an object while keeping its original proportions intact

1. Select the object.

2. Press and hold down SHIFT.

3. Move your mouse pointer over one of the handles, then click and drag.

Apply Auto Layout

Navicat provides a layout facility for arranging objects on diagrams. Your diagram is reorganized following the specific settings you define. Objects do not overlap and connectors do not cross over one another.

Apply to Entire Diagram

1. Click on the canvas.

2. Click .

Apply to Selected Objects

1. Select the objects you want to apply auto layout.

2. Click .

Apply to All Objects in Layer

1. Select the layer.

2. Click .

Change Auto Layout Settings

To change the Auto Layout format settings, simply choose **View** -> **Auto Layout With** from the menu and set the following options:

Option	Description
Object Distance	The distance between the objects in the diagram.
Quality	The quality of the auto layout output.
Auto diagram dimension	Choose the suitable diagram dimension automatically.
Auto size tables to fit	Resize the table to fit its content automatically.

Preview Diagram

The Preview Diagram feature allows you to view your diagram layout using your entire display screen. To maximize the viewable canvas area, Navicat temporarily hides the window title bar, toolbar, tab bar, Objects pane, and Properties pane while you are in this mode.

Enter Preview Mode

Click to instantly switch to the full-screen view.

Exit Preview Mode

Press the ESC key. The workspace window will instantly return to its previous, fully-featured layout state.

Print & Export Diagram

Print Diagram

You can print the current diagram to the printer.

1. Choose **File** -> **Print**.
2. Select your print options.
3. Click **OK**.

Export Diagram to File

You can export the current diagram to various types of images and files: PDF, PNG, SVG or JPG.

1. Choose **File** -> **Export To** and choose the file format.
2. Choose the path and enter the file name.
3. Click **Save**.

Data Dictionary

Data Dictionary serves as a reference for understanding and documenting the structure and semantics of the data model. It provides a comprehensive description of the structure, relationships, and constraints of the objects in the model.

Create Data Dictionary

The essential steps to create a data dictionary are:

1. In the Workspace window, click .
2. Enter the name of the data dictionary.
3. Click **OK**.
4. A tab will open for you to edit the data dictionary.
5. Click .

Naming Standard & Glossary

Naming Standard

A Naming Standard is a formal set of technical rules, guidelines, and conventions used to assign consistent, meaningful, and logical names to data objects. These objects include entities, attributes, tables, fields, constraints, indexes, etc.

Note: Available only for Hybrid Model.

Create Naming Standard

The essential steps to create a naming standard are:

1. In the Workspace window, click .
2. Enter the name of the naming standard.
3. Click **OK**.
4. A tab will open for you to edit the naming standard.

Input Settings

The Input tab dictates how Navicat parses and breaks down logical names or phrases before transforming them into physical names:

Option	Description
Split on Spaces	Automatically segment a phrase into individual target tokens whenever a space character is detected (e.g., parsing Customer Order Id into distinct parts).
Split on Case Change	Automatically detect camelCase or PascalCase phrasing and splits words wherever a casing shift occurs (e.g., parsing customerOrderId into separate tracking tokens).
Special Characters	Define a list of custom delimiters or symbols (such as hyphens or underscores) that Navicat should treat as word-breaking boundaries during tokenization.

Output Settings

The Output tab governs the final casing and structural transformation rules applied when translating logical definitions into physical database targets:

Option	Description
Case and Separator Style	Choose the global structural casing blueprint (e.g., snake_case, camelCase, UPPER_SNAKE_CASE) used to format combined name strings.

Table Name	Define specific conversion rules, prefixes, suffixes, or pluralization constraints applied exclusively when generating physical table identifiers.
Field Name	Define specific conversion rules, prefixes, suffixes, or pluralization constraints applied exclusively to database table fields.

Apply Naming Standard to Model

You can apply a naming standard to your model by following these steps:

1. In the Workspace window, open your model.
2. Select your model name from the left pane.
3. In the Properties pane, select your preferred naming standard from the **Naming Standard** drop-down menu.

Glossary

A Glossary serves as a centralized business dictionary that provides a unified set of definitions. It ensures that both business and technical teams share a common understanding of every data element across the organization, eliminating naming ambiguities during database design.

Note: Available only for Hybrid Model.

Create Glossary

The essential steps to create a glossary are:

1. In the Workspace window, click .
2. Enter the name of the glossary.
3. Click **OK**.
4. A tab will open for you to edit the glossary.

Add Word to Glossary

You can click within the glossary workspace tab to define a new term with the following attributes:

Option	Description
Word	The full logical business term or concept name (e.g., Customer).
Abbreviation	The standardized shorthand or acronym utilized when mapping the word to physical database structures (e.g., CUST).
Prime	Designate whether this word functions as a primary qualifier or core subject matter entity in data naming hierarchies.
Modifier	Specify that the word acts as a descriptive modifier, refining or altering the context of a core word (e.g., Billing or Shipping).

Class	Classify the element as a structural data class property (e.g., Id, Date, Amount).
Remarks	Enter contextual notes, definitions, or organizational metadata regarding the business term.

Import Glossary

If you have a csv file that contains the business dictionary, you can import it to your glossary.

1. In the glossary tab, click .
2. Select the csv file.
3. Click **Open**.

Export Glossary

You can export your glossary as a csv file for backup or sharing.

1. In the glossary tab, click .
2. Enter the file name.
3. Click **Save**.

Apply Glossary to Model

You can apply a glossary to your model by following these steps:

1. In the Workspace window, open your model.
2. Select your model name from the left pane.
3. In the Properties pane, select your preferred glossary from the **Glossary** drop-down menu.

Auto-format Physical Name

You can manage how Navicat bridges the gap between logical designs and your actual physical database structures. This setting dictates whether physical object names adjust dynamically based on your underlying business terms.

Note: Available only for Hybrid Model.

Enable Auto-format Physical Name

When naming an object in Physical View, you can enable **Auto-format Physical Name** under the **Edit** menu to ensure that physical names dynamically update whenever logical definitions change.

Disable Auto-format Physical Name

If **Auto-format Physical Name** is disabled, Navicat will treat the object name as a static entry. This allows you to manually override and independently edit the physical table and field names without automatic transformation rules.

Note: Disabling this feature stops future automatic updates. It will not overwrite or revert any custom physical names you have already manually edited while the feature was turned off.

Reverse Engineering

Synchronize Database to Model

The **Synchronize Database to Model** feature allows you to compare a database or schema with an existing model, states the differences between their structures, and offers synchronizing modifications in the database or schema into the model.

Synchronize to Model

Navicat provides a step-by-step wizard for you to complete the task:

1. In the Workspace window, choose **Tools** -> **Reverse Engineering** -> **Synchronize Database to Model**.
2. Select the source connection, database, schema, and select the target model, database, schema.
3. Click **Options** and select the compare / advanced options.
4. Click **Compare** to show the differences between source and target objects.
5. Select the objects you want to synchronize.
6. Click **Next** to execute the process.

Comparing Options

You can click the **Options** button to set the comparing options. The options depend on the connection server type and sort in ascending order.

Option	Description
Compare auto increment value	Compare the auto increment values of tables.
Compare character set	Compare the character sets of tables.
Compare checks	Compare check constraints.
Compare collation	Compare the collations of tables.
Compare definers	Compare the definers of views.
Compare excludes	Compare exclusion constraints.
Compare foreign keys	Compare the foreign keys of tables.
Compare functions	Compare function and procedure objects.
Compare identity last value	Compare the identity last values of tables.
Compare indexes	Compare table indexes.

Compare owners	Compare the owners of database objects.
Compare partitions	Compare table partitions.
Compare primary keys	Compare the primary keys of tables.
Compare rules	Compare rule objects.
Compare sequences	Compare sequence objects.
Compare sequence last values	Compare the last values of sequences.
Compare storage	Compare table storages.
Compare table options	Compare other table options.
Compare tables	Compare table objects.
Compare triggers	Compare table triggers.
Compare uniques	Compare unique constraints.
Compare views	Compare view objects.
Drop with CASCADE	Drop the dependent database objects with the CASCADE option.
Identifier Case Sensitivity	Ignore or consider the case of identifiers when mapping, or use the server default setting.

View Comparison Results

After comparing structures, the tree view shows the differences between the source and target databases or schemas. Check the objects you want to apply to the target. You can expand the objects to view the detailed structure.

You can choose to group the objects in the tree views by object types or operations by selecting **Group by Object Type** or **Group by Operation**.

Operation	Description
→	Object exists in both source and target databases/schemas, but they have different definition. The target object will be modified based on the source object.
+	Object does not exist in the target database/schema. It will be created in the target.
×	Object does not exist in the source database/schema. The target object will be deleted.
=	Object exists in both source and target databases/schemas and they have identical definition. No operation will be applied.

When you select an object from the comparison results, the **DDL Comparison** tab displays the statements for that object from both the source database and the target model side by side. Any differences in the statements, such as added, modified, or removed fields, are highlighted for quick identification.

Furthermore, the **Deployment Script** tab shows the specific scripts of the object that will be updated in the target model.

Reverse Database to Model

The **Reverse Database to Model** feature allows you to create a database model from an existing database or schema.

Reverse to Model

Navicat provides a step-by-step wizard for you to complete the task:

1. In the Workspace window, choose **Tools** -> **Reverse Engineering** -> **Reverse Database to Model**.
2. Select the source connection, database, schema, and select the target model, database, schema. Choose **New Model** and the model type if you want to create a new model.
3. Click **Next**.
4. Select the objects you want to import.
5. Enable **Import To Diagram** and select a diagram if you want to add the objects to a diagram. Choose **New Diagram** if you want to import objects to a new diagram.
6. Click **Start**.

You can also simply create a new model diagram using reverse engineering in the Navicat main window. For example, control-click an opened database and select **Reverse Database to Model**.

Import SQL/Script File to Model

The **Import SQL/Script File to Model** feature allows you to reverse engineer a database structure and generate a database model directly from an existing DDL SQL script or raw text commands.

Import from SQL

Navicat provides a step-by-step wizard for you to complete the task:

1. In the Workspace window, choose **Tools** -> **Reverse Engineering** -> **Import SQL/Script File to Model**.
2. Select your input source format:
   - **From Text** - Select this option to paste raw SQL statements directly into the provided text block.
   - **From File** - Select this option and click the folder icon to specify the exact location of your .sql or script file.
3. Choose the source connection type and enable **Use schema name from source SQL** if you want the generated model to adopt the explicit schema names defined inside the script text.
4. Select the target model, database, schema. Choose **New Model** and the model type if you want to create a new model.
5. Click **Next**.
6. Select the objects you want to import.

7. Enable **Import To Diagram** and select a diagram if you want to add the objects to a diagram. Choose **New Diagram** if you want to import objects to a new diagram.

8. Click **Start**.

Forward Engineering

Synchronize Model to Database

The **Synchronize Model 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.

Synchronize to Database

Navicat provides a step-by-step wizard for you to complete the task:

1. In the Workspace window, choose **Tools** -> **Forward Engineering** -> **Synchronize Model to Database**.

2. Select the source model, database, schema, and select the target connection, database, schema.

3. Click **Options** and select the compare / advanced options.

4. Click **Compare** to show the differences between source and target objects.

5. Select the objects you want to synchronize.

6. Click **Next** to generate a set of scripts.

7. Click **Start**.

Comparing Options

You can click the **Options** button to set the comparing options. The options depend on the connection server type and sort in ascending order.

Option	Description
Compare auto increment value	Compare the auto increment values of tables.
Compare character set	Compare the character sets of tables.
Compare checks	Compare check constraints.
Compare collation	Compare the collations of tables.
Compare definers	Compare the definers of views.
Compare excludes	Compare exclusion constraints.
Compare foreign keys	Compare the foreign keys of tables.
Compare functions	Compare function and procedure objects.
Compare identity last value	Compare the identity last values of tables.
Compare indexes	Compare table indexes.

Compare materialized views	Compare materialized view objects.
Compare owners	Compare the owners of database objects.
Compare partitions	Compare table partitions.
Compare primary keys	Compare the primary keys of tables.
Compare rules	Compare rule objects.
Compare sequences	Compare sequence objects.
Compare sequence last values	Compare the last values of sequences.
Compare storage	Compare table storages.
Compare table options	Compare other table options.
Compare tables	Compare table objects.
Compare triggers	Compare table triggers.
Compare uniques	Compare unique constraints.
Compare views	Compare view objects.
Drop with CASCADE	Drop the dependent database objects with the CASCADE option.
Identifier Case Sensitivity	Ignore or consider the case of identifiers when mapping, or use the server default setting.

View Comparison Results

After comparing structures, the tree view shows the differences between the source and target databases or schemas. Check the objects you want to apply to the target. You can expand the objects to view the detailed structure.

You can choose to group the objects in the tree views by object types or operations by selecting **Group by Object Type** or **Group by Operation**.

Operation	Description
→	Object exists in both source and target databases/schemas, but they have different definition. The target object will be modified based on the source object.
+	Object does not exist in the target database/schema. It will be created in the target.
×	Object does not exist in the source database/schema. The target object will be deleted.
=	Object exists in both source and target databases/schemas and they have identical definition. No operation will be applied.

When you select an object from the comparison results, the **DDL Comparison** tab displays the statements for that object from both the source model and the target database side by side. Any differences in the statements, such as added, modified, or removed fields, are highlighted for quick identification.

Furthermore, the **Deployment Script** tab shows the specific scripts that will be executed on the target database to apply the selected changes.

Deployment Options

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

Deployment Options Button	Description
Deployment Options	**Continue on error** - Ignore errors that are encountered during the execution process if necessary. **Include deployment query in message log** - Show the deployment queries in the Message Log tab during execution.
Reorder Script	Open the **Reorder Script** window to rearrange the order of the scripts.
Copy Script to Clipboard	Copy all scripts from the Deployment Script tab to the clipboard.
Open Script in Query Editor	Open a new query window and display the scripts.

Export Model to SQL/Script File

After finishing your model, you can save structures and relations from the model into a sql or script file.

Export to File

Navicat provides a step-by-step wizard for you to complete the task:

1. In the Workspace window, choose **Tools** -> **Forward Engineering** -> **Export Model to SQL/Script File**.
2. Enter the file information and select the objects.
3. Click **OK**.

General Properties

Option	Description
File	Set the location path of the output file.
Model	Choose the model you wish to export.
Schema	Choose the schema you wish to export.
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.

Option	Description
Include auto increment	Include the auto increment values of tables.
Include character set	Include table and field character sets.
Include checks	Include check constraints.
Include collation	Include the collations of tables.
Include Drop SQL	Include drop object SQL statements.
Include Drop With	Include drop object SQL statements with the CASCADE option.

CASCADE	
Include excludes	Include exclusion constraints.
Include foreign keys	Include the foreign keys of tables.
Include indexes	Include table indexes.
Include primary keys	Include the primary keys of tables.
Include rules	Include rule objects.
Include schema	Qualify object names with the schema name. Otherwise, only object names are included in SQL statements.
Include triggers	Include table triggers.
Include uniques	Include unique constraints.
Server Version	Select the server version for the file.

Compare Model Workspace

Compare Model Workspace is a powerful tool that allows you to compare two model workspaces, view and resolve differences between them.

Compare Workspaces

Navicat provides a step-by-step wizard for you to complete the task:

1. In the Workspace window, choose **Tools** -> **Compare Model Workspace**.
2. Select the workspace you want to sync with the current workspace.
3. Click **Compare** to show the differences between source and target objects.
4. Select the objects you want to synchronize.
5. Click **Apply Changes** to view the number of changes.
6. Click **Apply**.

View Comparison Results

After comparing, the tree view shows the differences between the source and target workspaces. Check the objects you want to apply to the target. You can expand the objects to view the detailed structure.

Choose an option from the drop-down menu to show the objects.

Option	Description
All Objects	Show all objects in the source and target.
Objects with Difference	Show all objects that are different in the source and target.
Objects To Be Added	Only show the objects that do not exist in the target.
Objects To Be Updated	Only show the objects that exist in both source and target, but they

	have different structures.
Objects To Be Deleted	Only show the objects that do not exist in the source.

When you selected an object in the tree view, the **DDL Comparison** tab shows the DDL statements/scripts of that object in the source and the target, and the **Reference Script** tab shows the detailed statements/scripts of the object that will be executed in the target database.

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. With Navicat Premium, you can also convert your models from one model type to another model type, e.g. physical model to logical model.

Convert Model

Navicat provides a step-by-step wizard for you to complete the task:

1. In the Workspace window, choose **Tools** -> **Convert Model**.
2. Select the target workspace.
3. Enter the model name.
4. Choose the model type.
5. Choose the target database and version if necessary.
6. If you want to convert all related diagrams, enable **Convert with related Diagram**.
7. Click **Convert**.
8. A tab will open for you to edit the model.

Conversion Behaviour

- All data types are converted automatically.
- When converting from one database type to another, the conversion process does not change the syntax of views, functions, and procedures.
- When converting a physical model to a logical/conceptual model, all views are converted to entities, and all functions and procedures are removed.
- If the target database version is MySQL 4.0 or below, all views are removed.
- If the source database type is MongoDB, all views, functions, and procedures are removed.
- If the target database type is MongoDB, all views, functions, and procedures are removed.

- If the target database type is SQLite, all functions and procedures are removed.

Model Hints and Tips

Navicat provides several helpful shortcuts and features to make working on your diagram canvas faster and more efficient.

General Canvas Shortcuts

Action	Method
Locate Object in Canvas	Double-click an object in the left pane to instantly jump to it on the canvas.
Delete Object from Model	Select an object on the canvas and press SHIFT-CONTROL-DELETE.
Open Object Designer	Double-click an object in the left pane or directly on the canvas.
Get Object Statement	Select and copy an object on the canvas, then paste it into any external text editor.
Reorder Field	Select an object on the canvas and highlight the specific fields, then drag them to your desired row position.
Move Selected Fields to Create New Table	Select an object on the canvas and highlight the specific fields, then drag them outside to the empty space of the canvas.
Move Selected Fields to Another Table	Select an object on the canvas and highlight the specific fields, then drag them to another table.
Duplicate Selected Fields to Another Table	Select an object on the canvas and highlight the specific fields, then the COMMAND key and drag them to another table.
Add Vertex (Line / Arrow / Curve)	Select the line, hold the SHIFT key, and click on the line where you want the new vertex.
Delete Vertex	Select the line, hold the SHIFT key, and click directly on the existing vertex.
View Object's Model & Database	Press and hold the SPACE bar.
Switch to Hand Mode	Press and hold the SPACE bar, then click and drag to pan across the diagram canvas.

Add or Edit Fields (Without Object Designer)

Select an object and click the object name on the canvas, and then press TAB/DOWN ARROW to add/edit fields. Navicat will predict field types according to field names you entered

Custom Field Modifiers

While typing field names directly on the canvas, you can use these special characters:

- Primary Key: Enter an asterisk (*) before the field name to automatically set it as a primary key (e.g., *itemNo).
- Field Type: Enter a colon (:) between the field name and field type to manually define it (e.g., itemName:varchar(255)).

Predictive Field Types

If you do not manually specify a data type, Navicat will automatically predict and assign a field type based on the name you enter according to the following rules:

Predicted Data Type	Triggered By (Field Name or Suffix)
INTEGER / int / int4 / NUMBER	Suffix: id, no (If it is the first column, it will automatically be predicted as a Primary Key) Suffix: num Exact matches: qty, number, age, count
DECIMAL(10,2) / decimal(10,2) / NUMBER / REAL / money	Suffix: price, cost, salary
FLOAT / double / float8 / NUMBER / REAL / float	Words involving: size, height, width, length, weight, speed, distance
DATE / datetime / date / TEXT / datetime2	Words involving: date, time
VARCHAR(255) / varchar(255) / VARCHAR2(255) / TEXT	All other field names not matching the rules above.

Chapter 12 - Debugger (Available only in Enterprise and Standard Edition)

Oracle PL/SQL Debugger

Oracle PL/SQL Debugger provides step-by-step code debugging for functions, procedures and packages. To launch the debugger, click the button in the designer of the mentioned objects.

Debugging Actions

You can perform the most commonly used actions for debugging on the toolbar or menu:

Button	Description	Shortcut
	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.	F9
	Stop stepping the code. The execution will stop and cannot resume it.	
	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.	F10
	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.	F11
	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.	COMMAND-F11
	Resume the execution. The counter will jump to the last line of the procedure or function.	

Debugger Panes

The debugger interface is divided into several informative panes to help you track and manipulate your code's execution:

- The **Code** pane shows the code of the procedure or function. You can add or remove breakpoints for debugging by clicking in the grey area beside each statement.
- The **Breakpoints** pane displays all the breakpoints.
- The **Call Stack** pane displays a list of procedures and functions as they are called. To jump to a procedure or function, control-click it and select **Jump To**.

- The **Local Variables** pane displays all local variables and their values. To add a variable to the watch list, control-click it and select **Add to Watch List**.
- The **Parameters** pane displays the inputted parameters. To add a parameter to the watch list, control-click it and select **Add to Watch List**.
- The **Watch List** pane displays information about the variables being watched, allowing you to delete or edit watch variables. To edit the value of a watch variable, control-click a variable and select **Set Value**. To delete a watch variable, control-click a variable and select **Remove Variable**.
- 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 procedures/functions. To launch the debugger, click the button in the function designer.

Debugging Actions

You can perform the most commonly used actions for debugging on the toolbar or menu:

Button	Description	Shortcut
	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.	F9
	Stop stepping the code. The execution will stop and cannot resume it.	
	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.	F10
	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.	F11
	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.	COMMAND-F11

Debugger Panes

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- The **Local Variables** pane displays all local variables and their values. To add a variable to the watches, control-click it and select **Add to Watch List**.
- The **Parameters** pane displays the inputted parameters. To add a parameter to the watch list, control-click it and select **Add to Watch List**.
- The **Watch List** pane displays information about the variables being watched, allowing you to delete or edit watch variables. To edit the value of a watch variable, control-click a variable and select **Set Value**. To delete a watch variable, control-click a variable and select **Remove Variable**.
- The **Log** pane displays the message log when debugging the code and the results after the procedure or function has completed the execution.

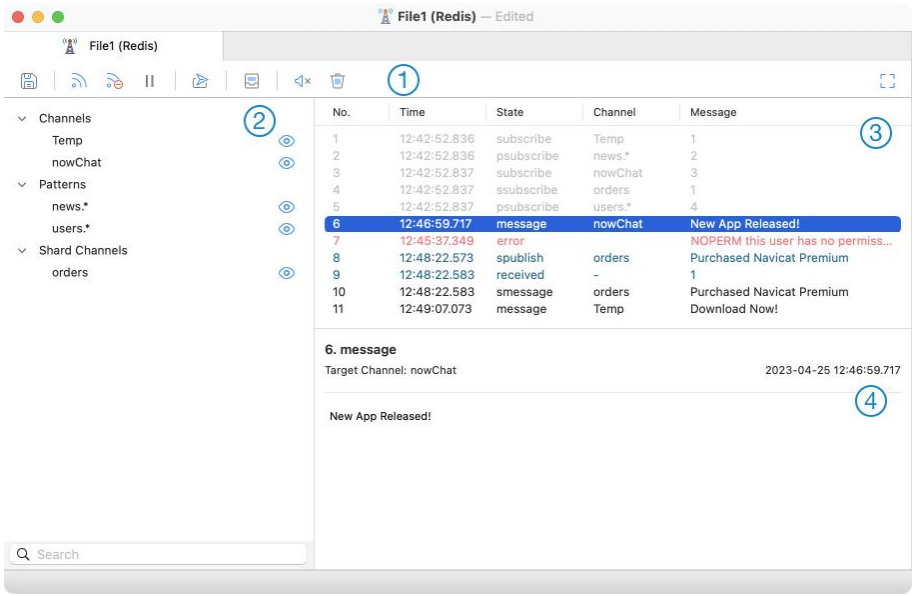
Chapter 13 - Pub/Sub (Available only in Enterprise and Standard Edition)

Pub/Sub is Publish and Subscribe, allows users to subscribe to channels and receive messages when messages are published to those channels. Users can listen to one or more channels and react to the messages as they come in. In the main window, click **Pub/Sub** to open the Pub/Sub object list.

Note: Available only for Redis.

Pub/Sub Window

The Pub/Sub Window consists of a toolbar, Channels pane and Messages pane.



① Toolbar

The toolbar of Pub/Sub provides the following functions:

Button	Description
	Subscribe to channels, patterns or shard channels.
	Unsubscribe the selected channels.
	Unsubscribe all channels temporarily.
	Resume all channels.
	Toggle a pane for posting a message to a channel.
	Create an archive file for the current messages.
	Mute the channels. All new messages will not be received.
	Clear all messages on the Messages pane.

② Channels Pane

The Channels pane shows all subscribed channels.

③ Messages Pane

The Messages pane shows all messages in the subscribed channels. You can show/hide the messages in different states by control-clicking the grid.

Message texts in different colors indicate:

- Black - Messages sent to a channel
- Grey - System messages
- Blue - Publish / Received messages
- Red - Error messages

④ Message Details Pane

The Message Details pane shows the detailed information of the selected message.

Subscribe Channels

Channels exist on the system only when a subscriber is listening to messages on it, so there is no need to ever create or delete channels.

Subscribe a channel

1. Click .
2. You can find out which channels are active on your Redis server. If no active channels, you can customize one.
3. Click **Subscribe**.
4. The subscribed channel appears on the Channels pane.

Publish a message to a channel

1. Click .
2. Choose a channel type and a channel.
3. Enter the message.
4. Click **Publish**.

Hint: You can control-click a channel on the Channels pane and select **Publish To** to post messages to that channel.

Archive messages

1. Click .

2. Enter the file name.

3. Click **Save**.

Hint: Archived files (.nrpsbmlog) are stored under the Settings Location. To open the folder, control-click an archived file in the Objects tab and select **Show in Finder**.

Hide server messages from a channel

1. Click next to the channel name.

Unsubscribe a channel

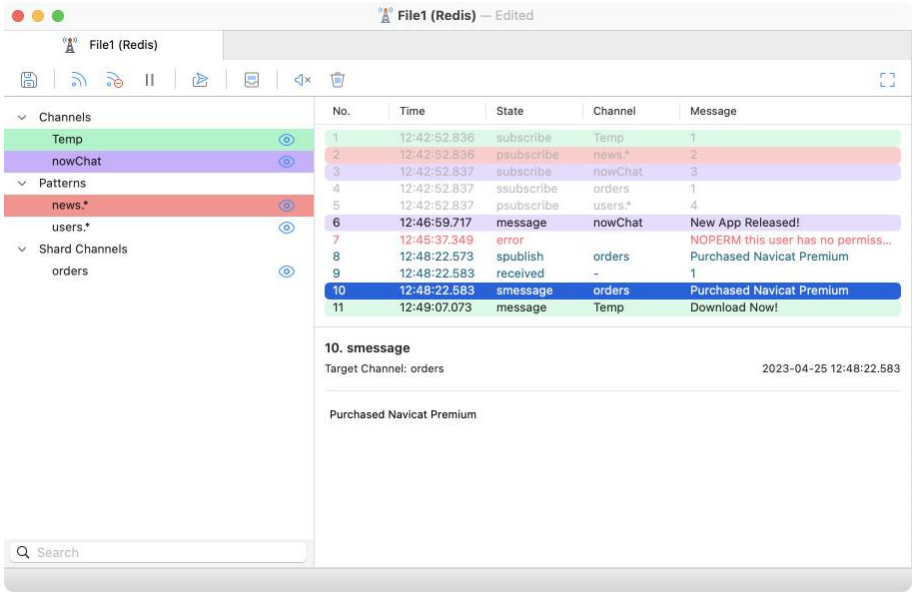
1. Select a channel on the Channels pane.

2. Click .

Channel Colorings

You can highlight channels by colors for identifying channels and their messages. It lets you instantly know which channel a message is from. The highlighted color displays in the Channels pane and the Messages pane.

To highlight a channel, control-click a channel on the Channels pane and select **Color**.



Save Profile

You can save the channels you are currently subscribed to as a profile to quickly resume subscriptions when you open the profile.

Hint: Profiles (.npsbredis) are stored under the Settings Location.

Chapter 14 - Aggregation Pipeline (Available only in Enterprise and Standard Edition)

Aggregation Pipeline is a specific flow of operations that processes and transforms data, performs complex calculations, and generates aggregated results. Navicat provides the ability to create aggregation pipelines in a simple and instant way. In the main window, click **Pipeline** to open the aggregation pipeline object list.

Your aggregation pipelines can be included in a batch job and scheduled to execute as an automation task.

Hint: Aggregation Pipeline (.nagg) are stored under the Settings Location. If the connection is synchronized to Navicat Cloud or On-Prem Server, its pipelines will be stored in the cloud.

Note: Available only for MongoDB.

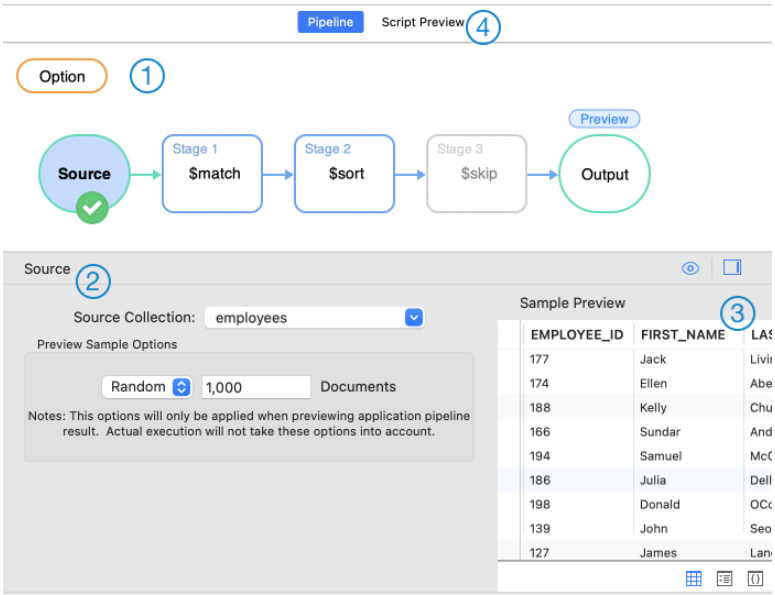
Aggregation Pipeline Designer

Aggregation Pipeline Designer is the basic Navicat tool for working with aggregation pipelines. The toolbar provides the following functions:

Button	Description
	Import a script file to build the pipeline.
	Preview All - Preview the output. **Preview All with Reload** - Reload the sampled documents and preview the output.
	Execute the pipeline.
	Show the execution plan.
	Stop the executing pipeline.
	Export the result of the pipeline.

Pipeline Builder

Pipeline Builder allows you to build a simple aggregation pipeline by defining stage operators. It consists of the following sections: Pipeline, Stage Editor, Input/Output Preview, Script Preview.



① Pipeline

A diagram to illustrate the aggregation pipeline. You can see all stages at a glance and add, delete, and move them as needed.

② Stage Editor

The Stage Editor is where you edit the selected stage.

③ Input/Output Preview Pane

The Input Preview and Output Preview panes allow you to view the input documents and results at each stage.

④ Script Preview

You can view the aggregation pipeline script.

Choose Source Collection

The source input of the pipeline is a single collection or view. Select **Source** in the pipeline and fill in the following options.

Option	Description
Source Collection	Choose a collection or view as the source.
Preview Sample Options	Set the limit on the number of sampled documents.

Work with Aggregation Pipeline Stage

You can break down a complex query into easier stages. In each stage, you complete a different operation on the data, such as filtering, grouping, sorting, and transforming. You can check whether your query is functioning properly at every stage by examining both its input and output. There is no limit to the number of stages used in the query, or how you combine them.

Add Stage

1. Hover over an arrow.
2. Click the icon.

Move Stage

1. Hover over a stage.
2. Click and hold the icon.
3. Move it to the desired location.

Enable / Disable Stage

1. Hover over a stage.
2. Turn on or off the stage.

Check Stage Input / Output

1. Hover over a stage.
2. Click **Preview**.

Delete Stage

1. Control-click a stage and select **Delete**.

Modify Pipeline Settings

You can click **Option** to view and change pipeline settings.

Execute Pipeline

You can click to execute the pipeline. The **Result** tab should populate with the same results as those found in the last stage output.

Explain Pipeline

You can click to view the execution plan that helps you understand the performance of the pipeline.

Chapter 15 - Import Wizard

Import Wizard allows you to import data into your tables and collections from a variety of file formats, including CSV, TXT, XML, DBF, and more.

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

Note: Lite edition only supports to import text-based files, such as TXT, CSV, XML and JSON.

Import Data

Navicat provides a step-by-step wizard for you to complete the task:

1. In the main window, click .
2. Click **Add Source**, or the down arrow to select your import file format.
3. Choose the file you want to import.

   Note: You can add more than one file to import multiple files at the same time.
4. Select the target table or change the table name if needed, and click **Next**.
5. Select the source file and configure your file-specific settings.
6. Select the target destination table, map your fields or adjust field structures as needed, and click **Next**.
7. Select your preferred import mode (which defines how data is added or updated) and configure any advanced options, then click **Next**.
8. Click **Start**.

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.

Import from ODBC

Importing data via ODBC requires a two-part setup:

Set up an ODBC Data Source Connection

1. To setup the connection of the data source, you need to install the corresponding driver.
2. Then, setup the DSN (Data Source Name) using the ODBC Administrator.

Connect to ODBC Data Source in Navicat

1. Click **Add Source** and select **ODBC**.

2. Choose the data source and provide valid username and password.

3. All available tables will be shown if the connection is success.

Source File Settings

When importing data, you can configure how Navicat parses and reads your source files. The available options adapt dynamically depending on your selected file format.

Option	Description
TXT, CSV	
Record Delimiter	Specify the record separator of the file.
Delimited	Import the text file with delimited format.
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.
Field Delimiter	Specify the field separator.
Text Qualifier	Specify the character that encloses text values.
XML, JSON	
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 recognize "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.
Common	
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. If no field names are defined for the file, enter 1 for First Data Row and 0 for Field Name Row.
Date Order	Specify the sequence format for dates (e.g., YMD, DMY, MDY).
Date Time Order	Specify how the date, time, and time zone values are ordered and arranged when combined within a single data field.
Date Delimiter	Specify the separator character used inside dates (e.g., / or -).
Year Delimiter	Specify the separator character used inside year (e.g., :).
Time Delimiter	Specify the separator character used inside time (e.g., :).

Decimal Symbol	Specify the decimal separator used for fractional numbers (e.g., . or ,).
Binary Data Encoding	Determine how raw binary blocks are imported from your file (e.g., parsed as Base64 encoded strings or handled with no encoding).

Adjust Field Mappings / Structures

During the import setup, Navicat automatically evaluates your source data and applies assumptions regarding target field types and maximum data lengths. However, you can manually override these defaults by selecting your preferred data types directly from the drop-down menus.

Custom Field Formats

While global formatting rules exist, you can override them on a per-column basis to handle mixed data layouts. To configure individual formatting rules, control-click a field in the list, select **Custom Field Format**, and adjust the options:

Option	Description
Date Order	Specify the sequence format for dates (e.g., YMD, DMY, MDY).
Date Time Order	Specify how the date, time, and time zone values are ordered and arranged when combined within a single data field.
Date Delimiter	Specify the separator character used inside dates (e.g., / or -).
Year Delimiter	Specify the separator character used inside year (e.g., :).
Time Delimiter	Specify the separator character used inside time (e.g., :).
Decimal Symbol	Specify the decimal separator used for fractional numbers (e.g., . or ,).
Binary Data Encoding	Determine how raw binary blocks are imported from your file (e.g., parsed as Base64 encoded strings or handled with no encoding).

Target Alignment & Mapping Operations

When pushing data into an existing table or collection, you must map the incoming source columns to the existing target layout. For faster configuration, control-click anywhere on the mapping grid to use the quick-map utilities:

Option	Description
Match All by Name	Automatically pair columns that share identical or highly similar names between the source and target.
Match All by Position	Map the source columns straight across to the target columns based on their sequential order, regardless of their names.
Clear All Matches	Clear all current mappings across the entire grid to let you build assignments entirely from scratch.

Duplicate Field Mappings

If you need to route a single source data column into multiple different columns within your target table or collection, you can duplicate its mapping rule. Simply control-click the desired field in the mapping grid and select **Duplicate Field Mapping** to create a copy of that column's configuration.

Filtering Source Rows (ODBC Imports)

If your data source is connected via an ODBC driver, you can pre-filter incoming records to save processing time and bandwidth. Click the **Condition Query** button to open a dedicated filter window where you can write custom filtering criteria.

Hint: Enter the raw logical condition directly. Do not include the word WHERE at the beginning of your clause (e.g., status = 'Active').

Select Import Mode

The import mode determines how incoming data is applied to your target destination.

Hint: To unlock and activate all available import modes, you must define and enable a Primary Key in the field mapping step.

Import Mode	Description
Append	Add new records directly to the end of the destination table.
Update	Modify existing records in the destination table when they match records found in the source.
Append/Update	Update a destination record if it already exists; otherwise, insert it as a new record.
Append without update	Insert a record if it doesn't exist in the destination table; skip it entirely if a match is found.
Delete	Remove records from the destination table that match records in the source data.
Copy	Wipe and delete all existing records in the destination table, then fully repopulate it with the source data.

Save Profile

You can save your settings as a profile for future use or for setting up automation tasks.

Hint: Profiles are saved under the Settings Location.

Chapter 16 - Export Wizard

Export Wizard allows you to export data from tables, collections, views, or query results to any available formats.

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

Note: Lite edition only supports to export text-based files, such as TXT, CSV, HTML, XML, SQL and JSON.

Export Data

Navicat provides a step-by-step wizard for you to complete the task:

1. In the main window, click .
2. Select your target export format and click **Next**.
3. Select the objects you want to export, and specify the destination file name and folder path.

   Note: To export query results, make sure the query is saved before launching the wizard; otherwise, the source query will not appear in the object selection list.
4. Click **Advanced** to set file structural preferences. Once configured, click **OK**.
5. Select the specific fields you want to include, and click **Next**.
6. Define any format-specific additional options, and click **Next**.
7. Click **Start**.
8. Once complete, click the **Open** button to immediately view the exported file or review the generated log file.

Select Objects

When picking your source database objects, you can consolidate multiple selected tables or views into a single target file. When the file format is Excel, each object will be exported as a sheet in the Excel file.

1. Control-click the grid and select **Export Selected to Same File**.
2. Enter the file name and click **OK**.

Advanced Options

You can set global settings for your target file configuration.

Option	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.

Additional Options

The availability of these options dynamically adjusts based on your chosen output format:

Option	Description
Append	Append records to the existing file.
Continue on error	Ignore errors that are encountered during the export process.
Include column titles	Field names will be included into the exported file if this option is on.
Record Delimiter / Field Delimiter / Text Qualifier	Specify the record separator, the field separator and the character that encloses text values.
Blank if zero	Leave it blank if the field content is 0.
Zero padding date	Add a leading zero to pad days and months to two digits if necessary.
Date Order / Date Delimiter	Specify the format for date and the date separator.
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.
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>

Export as legacy format (with "RECORDS" key)	**Legacy Format**
	{
	"RECORDS": [
	{
	"COUNTRY_ID": AR
	"COUNTRY_NAME": "Argentina"
	"REGION_ID": 2
	},
	{
	"COUNTRY_ID": AU
	"COUNTRY_NAME": "Australia"
	"REGION_ID": 3
	}
	]
	}
	New Format
	[
	{
	"COUNTRY_ID": AR
	"COUNTRY_NAME": "Argentina"
	"REGION_ID": 2
	},
	{
	"COUNTRY_ID": AU
	"COUNTRY_NAME": "Australia"
	"REGION_ID": 3
	}
	]

Save Profile

You can save your settings as a profile for future use or for setting up automation tasks.

Hint: Profiles are saved under the Settings Location.

Chatper 17 - Data Transfer (Available only in Enterprise and Standard Edition)

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.

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

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.

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.

Transfer Data

Navicat provides a step-by-step wizard for you to complete the task:

1. In the main window, choose **Tools** -> **Data Transfer**.
2. Select the source connection, database, schema, and select the target connection, database, schema. (If you are transferring to a file, select the File option and specify the target path, **SQL Format** and **Encoding**.)

   Hint: You can click ⇄ to swap the source and target settings.
3. Click **Options** and select the transfer / advanced options.
4. Select the specific objects you wish to transfer and set your preferred transfer mode. Click **Next**.
5. Review the summary of the objects being transferred.
6. Click **Start**.

Advanced Options

You can click the **Options** button to set the advanced options. The options depend on the source and target connection server types and sort in ascending order.

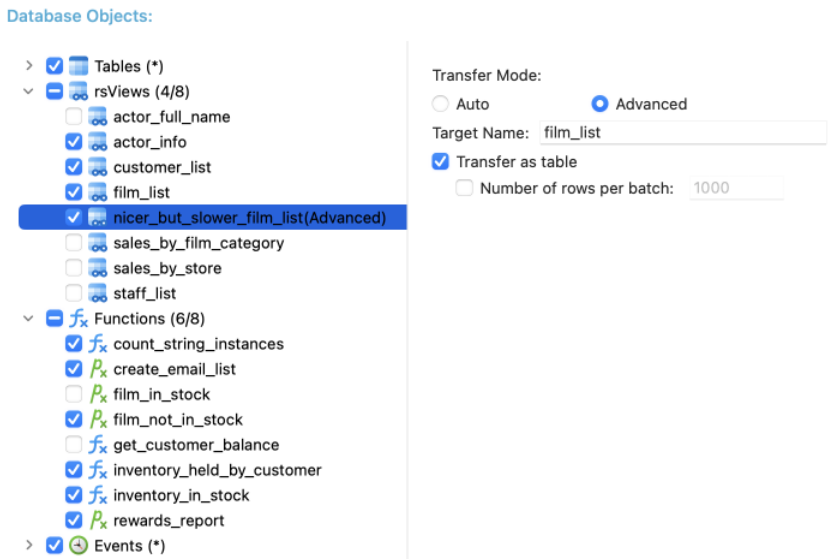
Option	Description
Continue on error	Ignore errors that are encountered during the transfer process.
Convert object name to	Check this option if you require convert object names to **Lower case** or **Upper case** during the process.
Create collections	Check this option if you want to create collections 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.
Maximum statement size	Specify the maximum size (in KB) of individual extended INSERT statement that can be executed. If the row size exceeds this value, a normal INSERT statement will be used.
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 ignore insert statements	Insert records using IGNORE insert SQL statements. All ignorable errors that occur while executing INSERT statements will be ignored.
Use replace insert statements	Insert records using REPLACE SQL statements. If a row in the target table has the same value as the source for a PRIMARY KEY or a UNIQUE index, the row in the target is deleted before the new row is inserted.
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 to Transfer

All database objects are unselected in the **Database Objects** list by default. Check the database objects that you want to transfer.



(*)	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.
(#/#)	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.

Transfer Mode

You can customize the **Transfer Mode** for the selected table/view. If you choose **Auto**, Navicat will transfer the table/view using the default settings. If you want to customize the transfer settings, choose **Advanced** and set the following options:

Option	Description
Target Name	Enter the name of the table / view that will be created in the target database.
All fields	Transfer all fields in the table.
Custom fields	You can choose which fields to transfer. Click **+** and select the fields. Change the name of the target field if necessary.
All rows	Transfer all records in the table.
Number of rows per batch	Specify the number of rows of data per batch. If it is not enabled, all data in the table is sent to the target server as a single transaction.
Custom recordsets	Filter the records for transfer. Click **+** and enter an expression.
Recordset Generator	If your table is large, you may want to divide it to several record sets to avoid connection timeout. The Recordset Generator can divide the records into a number of recordsets as evenly as possible between the start and end values of a field. Set **Field Name**, **Start Value**, **End Value** and **Number of Recordsets** in the pop-up window.
SQL Preview	Show the SQL statements for returning the recordsets.

Use transaction for each recordset	Use a transaction for each recordset during the data transfer process.
Transfer as table	The view will be transferred to the target database as a new table.

Save Profile

You can save your settings as a profile for future use or for setting up automation tasks. To open a saved profile, click the **Load Profile** button and select a profile from the list.

Hint: Profiles are saved under the default path, e.g. ~/Library/Application Support/PremiumSoft CyberTech/Navicat CC/Common/Profiles

Chatper 18 - Data Synchronization (Available only in Enterprise and Standard Edition)

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.

Note: SQL Server 2000 does not support this feature. For Oracle server, BLOB, CLOB, NCLOB, LONG and LONG RAW data are skipped during the data synchronization process. TIMESTAMP primary key cannot synchronize (insert, update) with Database Link to 9i server. RAW primary key cannot synchronize (insert, update, delete) with Database Link to any server, without error.

Note: Available only for MySQL, Oracle, PostgreSQL, SQLite, SQL Server, MariaDB, MongoDB and Snowflake. Navicat Premium and Navicat for MySQL support synchronizing between MySQL and MariaDB.

Synchronize Data

Navicat provides a step-by-step wizard for you to complete the task:

1. In the main window, choose **Tools** -> **Data Synchronization**.
2. Select the source connection, database, schema, and select the target connection, database, schema.

   Hint: You can click ⇄ to swap the source and target settings.
3. Click **Options** and select the compare / advanced options.
4. Select the objects you want to synchronize, choose the mapping between the source and target, and set the compare conditions.
5. Click **Compare & Preview** to view the comparison results, or click **Compare & Deploy** to skip the preview and deploy immediately.
6. If previewing, review the differences and select the specific changes you want to apply to the target, and then click **Next** to generate a set of scripts.
7. Set the deployment options.
8. Click **Start**.

Comparing Options

You can click the **Options** button to set the comparing options.

Option	Description
Insert	Insert records if the records do not exist in the target.

Delete	Delete extra records from the target.
Update	Update the target if the record is different from the source.

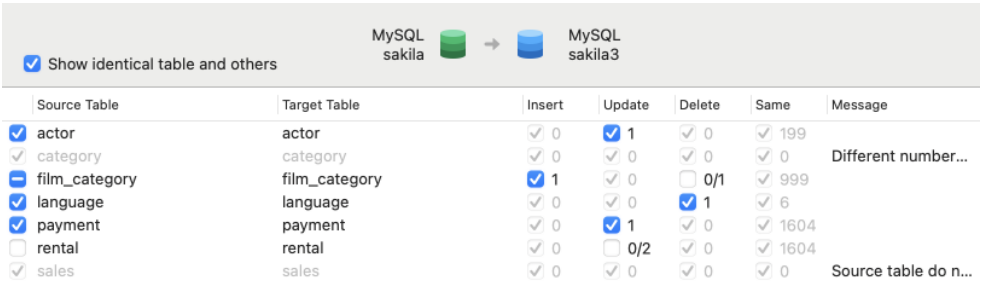
Set Mappings and Conditions

In this step of the synchronization wizard, you define exactly how data aligns between your source and target databases or schemas:

- By default, only tables or collections that share identical names between the source and the target are mapped in the list. If you do not want certain tables or collections to be synchronized, you can manually disable them using the drop-down menu.
- Keys and fields that contain identical names are also mapped automatically. If your structures differ, you can manually change these alignments in the **Key Mapping** and **Field Mapping** columns.
- Use the **Conditions** column to set specific SQL filter criteria. This allows you to limit the data selected for comparison in both the source and the target. For example: id > 10000 AND id < 20000.

View Data Comparison Results

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, control-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 menu 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.

Deployment Options

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

Deployment Options Button	Description
Deployment Options	**Continue on error** - Ignore errors that are encountered during the execution process if necessary. **Run multiple queries in each execution** - Execute multiple SQL statements at once, which will make the synchronization process faster. **Use transaction** - Rollback all data when error occurs. **Include deployment query in message log** - Show all executed queries in the Message Log tab.
Reorder Script	Open the **Reorder Script** window to rearrange the order of the scripts.
Copy Script to Clipboard	Copy all scripts from the Deployment Script tab to the clipboard.
Open Script in Query Editor	Open a new query window and display the scripts.

Save Profile

You can save your settings as a profile for future use or for setting up automation tasks. To open a saved profile, click the **Load Profile** button and select a profile from the list.

Hint: Profiles are saved under the default path, e.g. ~/Library/Application Support/PremiumSoft CyberTech/Navicat CC/Common/Profiles

Chapter 19 - Structure Synchronization (Available only in Enterprise and Standard Edition)

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.

Note: Available only for MySQL, Oracle, PostgreSQL, SQL Server, MariaDB, MongoDB and Snowflake. Navicat Premium and Navicat for MySQL support synchronizing between MySQL and MariaDB.

Synchronize Structures

Navicat provides a step-by-step wizard for you to complete the task:

1. In the main window, choose **Tools** -> **Structure Synchronization**.
2. Select the source connection, database, schema, and select the target connection, database, schema.

   Hint: You can click ⇄ to swap the source and target settings.
3. Click **Options** and select the compare / advanced options.
4. Click **Compare** to show the differences between source and target objects.
5. Select the objects you want to synchronize.
6. Click **Next** to generate a set of scripts.
7. Set the deployment options.
8. Click **Start**.

Comparing Options

You can click the **Options** button to set the database/schema comparing options. The options depend on the connection server type and sort in ascending order.

Option	Description
Compare auto increment value	Check this option if you want to compare the auto increment values of tables.
Compare character set	Check this option if you want to compare the character sets of tables.
Compare checks	Check this option if you want to compare checks.
Compare collation	Check this option if you want to compare the collations of tables.
Compare definers	Check this option if you want to compare the definers.
Compare events	Check this option if you want to compare events.
Compare excludes	Check this option if you want to compare table excludes.

Compare foreign keys	Check this option if you want to compare table foreign keys.
Compare functions	Check this option if you want to compare functions.
Compare identity last value	Check this option if you want to compare the identity last values of tables.
Compare indexes	Check this option if you want to compare indexes.
Compare owners	Check this option if you want to compare the owners of the objects.
Compare partitions	Check this option if you want to compare table partitions.
Compare primary keys	Check this option if you want to compare table primary keys.
Compare rules	Check this option if you want to compare rules.
Compare sequences	Check this option if you want to compare sequences.
Compare storage	Check this option if you want to compare table storages.
Compare table options	Check this option if you want to compare other table options.
Compare tables	Check this option if you want to compare tables.
Compare tablespace and physical attributes	Check this option if you want to compare tablespace and physical attributes.
Compare triggers	Check this option if you want to compare triggers.
Compare uniques	Check this option if you want to compare table uniques.
Compare views	Check this option if you want to compare views.
Drop with CASCADE	Check this option if you want to drop the dependent database objects with the CASCADE option.
Identifier Case Sensitivity	Ignore or consider the case of identifiers when mapping, or use the server default setting.

View Structure Comparison Results

After comparing structures, the tree view shows the differences between the source and target databases or schemas. Check the objects you want to apply to the target. You can expand the table objects to view the detailed structure.

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

Operation	Description
→	Object exists in both source and target databases/schemas, but they have different definition. The target object will be modified based on the source object.
+	Object does not exist in the target database/schema. It will be created in the target.
✕	Object does not exist in the source database/schema. The target object will be deleted.
=	Object exists in both source and target databases/schemas and they have identical definition. No operation will be applied.

When you select an object from the comparison results, the **DDL Comparison** tab displays the statements for that object from both the source and the target databases side by side. Any differences in the statements, such as added, modified, or removed fields, are highlighted for quick identification.

Furthermore, the **Deployment Script** tab shows the specific scripts that will be executed on the target database to apply the selected changes.

Deployment Options

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

Deployment Options Button	Description
Deployment Options	**Continue on error** - Ignore errors that are encountered during the execution process if necessary. **Include deployment query in message log** - Show all executed queries in the Message Log tab.
Reorder Script	Open the **Reorder Script** window to rearrange the order of the scripts.
Copy Script to Clipboard	Copy all scripts from the Deployment Script tab to the clipboard.
Open Script in Query Editor	Open a new query window and display the scripts.

Save Profile

You can save your settings as a profile for future use. To open a saved profile, click the **Load Profile** button and select a profile from the list.

Hint: Profiles are saved under the default path, e.g. ~/Library/Application Support/PremiumSoft CyberTech/Navicat CC/Common/Profiles

Chapter 20 - Data Generation (Available only in Enterprise and Standard Edition)

Start Data Generation

With the column-intelligent data generation, you can populate selected tables with realistic and meaningful test data. The generated data in one column is based on the data in another. You can populate empty tables, or add extra rows to your existing tables, and control over the creation of the foreign key data.

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

Generate Data

Navicat provides a step-by-step wizard for you to complete the task:

1. In the main window, choose **Tools** -> **Data Generation**.
2. Select the connection, database and schema, then click **Next**.
3. Choose the specific objects that you want to generate data and specify the volume of the data.

   Note: Navicat did not take dependencies into account when defining the order in which tables/collections data will be generated. Click the **Table Generation Order** / **Collection Generation Order** button to change the order if necessary.
4. Set the column properties for each field.

   Hint: You can copy all the settings from one object and paste the settings to other objects by control-clicking an object in the list.
5. Click **Options** and select advanced settings. Once configured, click **OK**.
6. Click **Start**.

Advanced Options

You can click the **Options** button to configure advanced settings. These options allow you to control how the generation process handles errors and manages system resources. Note that available options may vary based on your connection server type.

Option	Description
Continue on error	Ignore errors that are encountered during the data generation process.
Empty collections before generating data	Remove all data in the target collections before generating data.
Empty tables before generating	Remove all data in the target tables before generating data.

data	
Run multiple insert statements	Execute multiple INSERT statements at once, which will make the execution process faster.
Use extended insert statements	Insert records using extended insert syntax. Example: *INSERT INTO `users` VALUES ('1', 'Peter McKindsy', '23'), ('2', 'Johnson Ryne', '56'), ('0', 'Katherine', '23');*
Use transaction	Execute the generation process within a database transaction. This ensures that if a major failure occurs, changes can be rolled back to maintain data consistency.

Column Properties

Navicat automatically assigns a generator to each column based on its table name, column name, data type, and length. Use the **Generator** combo box to select a generator from the list.

The following table shows the common properties.

Option	Description
Include default values	Generate default values. You can set the default value of the column, and set the **Percentage** of the default values in the column.
Include null values	Generate NULL values. You can set the **Percentage** of Null values in the column.
Set unique	Make the values generated for the column unique.
Convert value to	Convert the values to lower case, upper case or proper case (the first letter in each word is capitalized, the other letters are lower case).
Disable data linkage between fields	Unlink the data between this field with other fields. If this option is unchecked, Navicat will generate data with linkage between fields. Example: If the name field is "Robert Rose", the email field will be like "robertrose@outlook.com".

Save Profile

You can save your settings as a profile for future use or for setting up automation tasks. To open a saved profile, click the **Load Profile** button and select a profile from the list.

Hint: Profiles are saved under the default path, e.g. ~/Library/Application Support/PremiumSoft CyberTech/Navicat CC/Common/Profiles

Data Generator

Generic

Navicat provides a variety of generic data generators to help you populate your database tables with realistic, randomized, or sequential test data. Below is a detailed breakdown of each generic generator and its configurable properties.

Number

The Number Generator generates numeric values such as integers and decimal numbers.

You can customize the generator by changing its properties:

Option	Description
Start	Specify the minimum numeric value.
End	Specify the maximum numeric value.
Number Type	Choose the type of the numeric values: Integer or Decimal Number.

Date / Time / DateTime

The Date / Time / DateTime Generator generates dates and/or times.

You can customize the generator by changing its properties. The properties depend on the generator you are chosen.

Option	Description
Start Date	Specify the minimum date value.
End Date	Specify the maximum date value.
Whole Day	Include any time of the day.
Start Time	Specify the minimum time value.
End Time	Specify the maximum time value.
Day of the Week	Choose the day of the week for the date value.

Sequence

The Sequence Generator generates randomized sequences of integers.

You can customize the generator by changing its properties:

Option	Description
Start	Specify first number in the sequence.
Increment	Specify the value added to the current sequence value to create a new value.
Min	Specify the lower bound of the sequence range.
Max	Specify the upper bound of the sequence range.
Cycle	The sequence continues to generate values after reaching either its

	maximum or minimum value.

Enum

The Enum Generator generates values from specified value list.

You can customize the generator by changing its properties:

Option	Description
Values	Specify the values. Values are generated from the existing data of the column, where applicable.

Text

The Text Generator generates dummy text values.

You can customize the generator by changing its properties:

Option	Description
Number of Characters	Specify the minimum and maximum number of characters.

Boolean

The Boolean Generator generates true and false values.

Image/Binary

The Image/Binary Generator generates images and Binary data, or randomly imports files in a specified folder.

You can customize the generator by changing its properties:

Option	Description
Image Generator	
Image Width	Specify the width of the image.
Image Height	Specify the height of the image.
Image Format	Choose the image file format.
Randomly Pick From Folder	
Folder Path	Specify a folder containing a number of images or binary data files.
Filter with Extensions	Specify the extension list for the files that are being imported.

Foreign Key

The Foreign Key Generator generates foreign key values for a child table field based on the values contained in a parent table field.

You can customize the generator by changing its properties:

Option	Description

Schema	Choose the schema of the parent table.
Table	Choose a parent table.
Field	Choose a field in the parent table. Make sure that the child table column and the parent table column have compatible types.
Generation Mode	Choose the generation mode of the data: random data, no repeated data or specified number of repetitions.

UUID

The UUID Generator generates a set of universally unique identifiers (UUIDs) based on the specified format.

You can customize the generator by changing its properties:

Option	Description
UUID Format	Generate UUIDs with or without hyphens.
Regular Expression	Edit the regular expression. For more information about regular expression, see Regular Expression Generator.

Regular Expression

The Regular Expression Generator generates values based on a regular expression.

You can customize the generator by changing its properties:

Option	Description
Regular Expression	Enter the regular expression.

Syntax Elements

The following table shows the syntax elements.

Description	Example	Generates
Basic		
ordinary chars	Kelly	Kelly
individual chars	[AB]	A or B
initial] in char set	[]]	]
[x-y] range	[0-9]	e.g. 2 or 7
[chars] character set	[A-Z0-9]	e.g. 3 or M
[exclude chars] character set	[^abc]	e.g. m or [
* zero or more	abc*	e.g. abcc or ab
+ 1 or more	abc+	e.g. abcccc or abc
? Include or not	abc?	ab or abc
(regexp) grouping	(abc)*d	e.g. abcabcd or d
{num} repeat	b{4}	bbbb
{min,max} repeat	b{3,4}	bbb or bbbb
{min,} at least min repeats	b{4,}	e.g. bbbb or bbbbbbbbb

() empty string	()	
| alternatives	True|False	True or False
empty alternative	th(e|is|at)	e.g. the or that
Escapes		
backslash	\\	\
dot	\.	.
caret	\^	^
dollar sign	\$	$
left curly bracket	\{	{
right curly bracket	\}	}
left square bracket	\[	[
right square bracket	\]	]
left parenthesis	\(	(
right parenthesis	\)	)
vertical bar	\\|	|
asterisk	*	*
plus mark	\+	+
question mark	\?	?
upper or lower-case letter or underscore or digit	\w	[A-Za- z_0-9]
all ASCII printable characters	\W	[-~]
digit	\d	[0-9]
carriage return	\r	
tab character	\t	
space character	\s	

Personal

Navicat provides a variety of personal data generators to help you populate your database tables with realistic test data representing individuals. Below is a detailed breakdown of each personal generator and its configurable properties.

Name

The Name Generator generates first, last or full names in English, Chinese or Japanese.

You can customize the generator by changing its properties:

Option	Description
Format Type	Generate first names, last names or full names.
Languages	Select the language of the names.

Gender

The Gender Generator generates different genders in English, Chinese or Japanese.

You can customize the generator by changing its properties:

Option	Description
Languages	Select the language of the genders.

Title

The Title Generator generates different titles in English, Chinese or Japanese.

You can customize the generator by changing its properties:

Option	Description
Languages	Select the language of the titles.

Marital Status

The Marital Status Generator generates different marital status types in English, Chinese or Japanese.

You can customize the generator by changing its properties:

Option	Description
Languages	Select the language of the marital status.

Phone Number

The Phone Number Generator generates random phone numbers which follow the phone number rules.

You can customize the generator by changing its properties:

Option	Description
Format	Choose the format of the phone numbers. If you choose to generate international phone numbers, the country code will be added.
Include delimiters	Add delimiters to the phone numbers.
Regions	Select the region of the phone numbers.

Email

The Email Generator generates emails with the specified domain names.

You can customize the generator by changing its properties:

Option	Description
Domains	Enter a list of email domain names.

Job Title

The Job Title Generator generates different job titles in English, Chinese or Japanese.

You can customize the generator by changing its properties:

Option	Description
Languages	Select the language of the job titles.

Social Network ID

The Social Network ID Generator generates random social network account names.

Payment

Navicat provides a variety of payment data generators to help you populate your database tables with realistic test data representing billing and financial details. Below is a detailed breakdown of each payment generator and its configurable properties.

Payment Method

The Payment Method Generator generates payment methods from specified value list.

You can customize the generator by changing its properties:

Option	Description
Values	Specify the payment methods.

Credit Card Type

The Credit Card Type Generator generates types of credit cards.

You can customize the generator by changing its properties:

Option	Description
Types	Select the credit card types.

Credit Card Number

The Credit Card Number Generator generates credit card numbers for different credit card types.

You can customize the generator by changing its properties:

Option	Description
Types	Select the credit card type.

Credit Card Date

The Credit Card Date Generator generates the issuance dates or expiration dates of credit cards.

You can customize the generator by changing its properties:

Option	Description
Date Type	Generate issuance dates or expiration dates.
Date Range	Choose the date range (MM/YY - MM/YY).

Business

Navicat provides a variety of business data generators to help you populate your database tables with realistic test data representing companies and organizations. Below is a detailed breakdown of each business generator and its configurable properties.

Company Name

The Company Name Generator generates company names in English, Chinese or Japanese.

You can customize the generator by changing its properties:

Option	Description
Languages	Select the language of the company names.

Department

The Department Generator generates company department names in English, Chinese or Japanese.

You can customize the generator by changing its properties:

Option	Description
Languages	Select the language of the department names.

Industry

The Industry Generator generates industry names in English, Chinese or Japanese.

You can customize the generator by changing its properties:

Option	Description
Languages	Select the language of the industry names.

Location

Navicat provides a variety of location data generators to help you populate your database tables with realistic test data representing geographic information. Below is a detailed breakdown of each location generator and its configurable properties.

Address

The Address Generator generates line 1, line 2 or full addresses of US, UK, China or Japan.

You can customize the generator by changing its properties:

Option	Description
Type	Generate line 1, line 2 or full addresses.
Regions	Select the region of the addresses.

City

The City Generator generates city names in US, UK, China or Japan.

You can customize the generator by changing its properties:

Option	Description
Regions	Select the region of the cities.
Languages	Select the language of the city names.

Region

The Region Generator generates region names or ISO 3166 country codes in English, Chinese or Japanese.

You can customize the generator by changing its properties:

Option	Description
Format	Generate region names, ISO 3166-1 alpha-2 or ISO 3166-1 alpha-3 country codes.
Languages	Select the language of the region names.

Product

Navicat provides a variety of product data generators to help you populate your database tables with realistic test data representing retail items, inventory, and merchandise. Below is a detailed breakdown of each product generator and its configurable properties.

Product Name

The Product Name Generator generates product names with the specified keywords.

You can customize the generator by changing its properties:

Option	Description
Generate with keywords	Specify keywords for generating the product names.

Product Category

The Product Category Generator generates product category names in English, Chinese or Japanese.

You can customize the generator by changing its properties:

Option	Description
Languages	Select the language of the category names.

Color

The Color Generator generates color names in English, Chinese or Japanese.

You can customize the generator by changing its properties:

Option	Description
Languages	Select the language of the color names.

Size

The Size Generator generates size (XS / S / M / L / XL) in English, Chinese or Japanese.

You can customize the generator by changing its properties:

Option	Description
Languages	Select the language of the size.

Weight Unit

The Weight Unit Generator generates weight units from specified value list.

You can customize the generator by changing its properties:

Option	Description
Values	Specify the weight units.

Barcode

The Barcode Generator generates barcodes based on different barcode types or the specified format.

You can customize the generator by changing its properties:

Option	Description
Types	Select the barcode types. You can customize Code39 barcode format in the **Regular Expression** box. For more information about regular expression, see Regular Expression Generator.

SKU

The SKU Generator generates stock keeping units (SKU) based on the specified format.

You can customize the generator by changing its properties:

Option	Description
Regular Expression	Edit the regular expression. For more information about regular expression, see Regular Expression Generator.

Computer

Navicat provides a variety of computer and network data generators to help you populate your database tables with realistic test data representing IT infrastructure, web addresses, and file systems. Below is a detailed breakdown of each computer generator and its configurable properties.

IP Address

The IP Address Generator generates IPv4 or IPv6 addresses.

You can customize the generator by changing its properties:

Option	Description
IP Address Type	Generate IPv4 or IPv6 addresses.
Regular Expression	Edit the regular expression. For more information about regular expression, see Regular Expression Generator.

MAC Address

The MAC Address Generator generates random MAC addresses with the specified format.

You can customize the generator by changing its properties:

Option	Description
Regular Expression	Edit the regular expression. For more information about regular expression, see Regular Expression Generator.

File Path

The File Path Generator generates file paths for Windows, macOS or Linux.

You can customize the generator by changing its properties:

Option	Description
Path type	Select the OS type of the file paths.
Include file name	Append file names to the end of the paths.
Extension Type	Choose the file extension type.
Extensions	Edit the file extensions.

File Name

The File Name Generator generates file names.

You can customize the generator by changing its properties:

Option	Description
Include extension	Append file extensions to the file names.
Extension Type	Choose the file extension type.
Extensions	Edit the file extensions.

File Extension

The File Extension Generator generates file extensions.

You can customize the generator by changing its properties:

Option	Description
Extension Type	Choose the file extension type.
Extensions	Edit the file extensions.

URL

The URL Generator generates URLs with the specified subdomains and top-level domains.

You can customize the generator by changing its properties:

Option	Description
Subdomain	Enter a list of website subdomains.
Top-Level-Domain	Enter a list of top-level domains.

Hostname

The Hostname Generator generates server hostnames with the specified subdomains and top-level domains.

You can customize the generator by changing its properties:

Option	Description
Subdomain	Enter a list of website subdomains.
Top-Level-Domain	Enter a list of top-level domains.

Chapter 21 - Data Dictionary (Available only in Enterprise and Standard Edition)

Data Dictionary helps you manage and document your database systems efficiently. It acts as a centralized repository of metadata, providing comprehensive information about the structure, relationships, and properties of the database objects. You can create a data dictionary at server, database, schema level.

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

Generate Data Dictionary

Navicat provides a step-by-step wizard for you to complete the task:

1. In the main window, choose **Tools** -> **Data Dictionary**.
2. Select the connection, database and schema you want to generate data dictionary, then click **Next**.
3. Choose the specific objects to include from the list and click **Next**.

   Note: Navicat will generate the data dictionary contents based on the sequence of the objects on the list.
4. Choose the appropriate layout template and click **Next**.
5. Adjust the template's layout settings as needed and click **Next**.
6. Set the export file path and configure any additional options.
7. Click **Start**.

Adjust Layout Settings

You can adjust the layout of the template and view the preview on the left pane.

Layout Properties

Option	Description
Cover	
Include cover	Add a cover page.
Header Logo	Insert a preceding image in the header.
Header	Enter a header that appears once at the top of the cover page.
Title	Enter the title of the data dictionary.
Subtitle	Enter the subtitle of the data dictionary.
Remarks	Enter remarks that appear on the cover page.
Background Image	**Default** - Use the default background image. **Custom** - Insert a background image for the cover page. **None** - Explicitly not insert a background image.

Footer	Enter a footer that appears once at the bottom of the cover page.
Table of Contents	
Include table of contents	Add table of contents to the data dictionary.
Header/Footer	
Include breadcrumbs header	Add a breadcrumbs header that appears at the top of every page except the cover and table of contents.
Heading Font	Set the font style of the heading.
Subheading Font	Set the font style of the subheading.
Include left footer	Add a footer that appears at the bottom left of every page except the cover, table of contents and introduction.
Include page number in right footer	Add page numbers to the right footer of every page except the cover, table of contents and introduction.
Footer Font	Set the font style of the footer.
Main Content	
Include Introduction	Add a page for introducing the data dictionary.
Introduction	Enter the introduction.
Font	Set the font style of the introduction.
Paper	
Paper	Choose the paper size.
Orientation	Select a page orientation (Portrait or Landscape).
Margin (CM)	Set the margins of the document.

Additional Options

Option	Description
Export To File	Specify the path of the data dictionary file.
Append timestamp to file name	Append timestamp information to the file name to show when the file is created.
Overwrite existing file	Overwrite if the file already exists.
Continue on error	Ignore errors that are encountered during the generation process.

Save Profile

You can save your settings as a profile for future use or for setting up automation tasks. To open a saved profile, click the **Load Profile** button and select a profile from the list.

Hint: Profiles are saved under the default path, e.g. ~/Library/Application Support/PremiumSoft CyberTech/Navicat CC/Common/Profiles

Chapter 22 - BI (Available only in Enterprise Edition)

About BI

BI feature is designed to help you extract insights and make data-driven decisions by providing powerful data visualization, reporting, and analytics capabilities. In the main window, click **BI** to open the workspace object list.

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

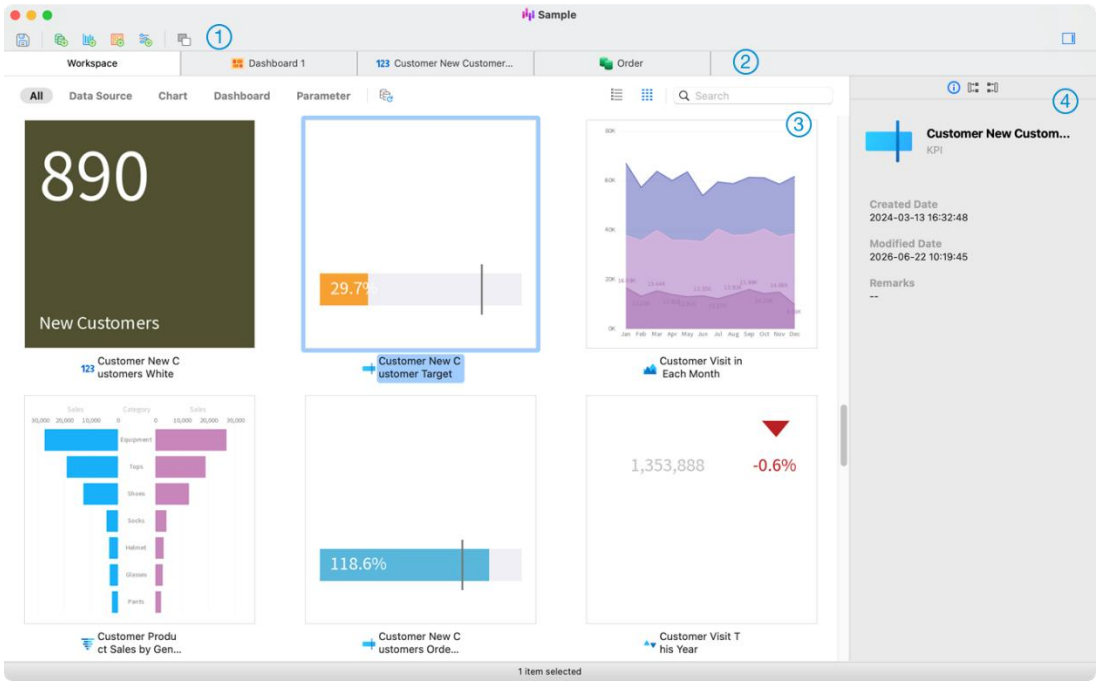
Some of key features are listed here:

- Support more than 20 chart types.
- Customize multiple pages dashboard.
- Visualize live data.
- Add interactive controls.

Hint: Workspace files (.nbi) are stored under the default path, e.g. ~/Library/Application Support/PremiumSoft CyberTech/Navicat CC/Navicat Premium/Profiles. To open the folder, control-click a workspace file and select **Show in Finder**. If the workspace is synchronized to Navicat Cloud or On-Prem Server, it will be stored in the cloud.

Workspace

A workspace is a central repository that comprises dashboards, charts, data sources and parameters. You can create and manage multiple items within a single workspace.



① Workspace Toolbar

The Workspace Toolbar provides quick-access controls to easily create new data sources, charts, dashboards, and parameters.

② Tab Bar

The Tab Bar tracks your active views, allowing you to switch seamlessly among various opened items.

③ Content Pane

The Content pane displays all design assets stored within the workspace. It includes quick-filter categories (All, Data Source, Chart, Dashboard, Parameter) to instantly narrow down your asset list. To change the view, click the **Detail** or **Icon** button.

Detail View lists items in a structured text layout with extended metadata. You can click any column header to sort your assets by that specific attribute.

Icon View displays your items visually as a grid of thumbnail images.

④ Properties Pane

The Properties pane offers deeper dependency tracking and metadata for your assets.

The **General** tab displays core structural information for the workspace or selected item.

The **Using** tab shows the items that the selected item depends on.

The **Used By** tab shows the items that depend on the selected item.

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

Workspace Operations

Open an external workspace file

1. In the menu bar, choose **File** -> **Open File** -> **BI Workspace**.
2. Browse the file and click **Open** in the dialog window.

Save an opened external file as a Navicat workspace

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

Save a Navicat workspace as an external file

1. In Workspace Designer, choose **File** -> **Save As External File**.

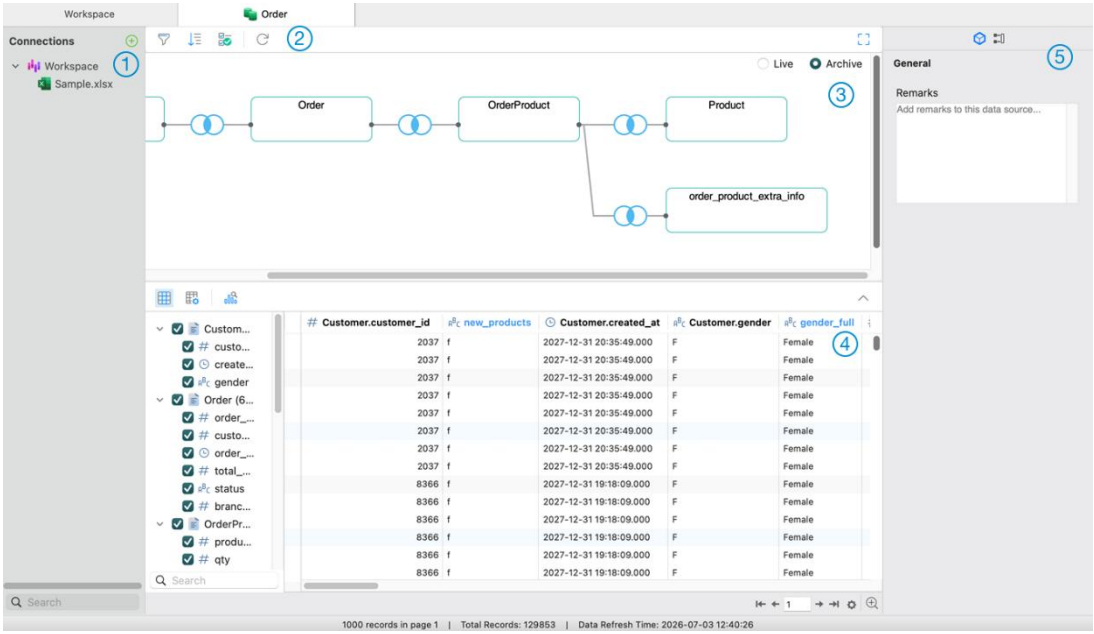
2. Choose the save path and enter the file name.

3. Click **Save**.

Data Source

Create Data Source

Data sources reference tables in your connections or data in files/ODBC sources, and can select data from tables on different server types. The fields in the dataset can be used to construct a chart. When building a chart, you will need to specify the data source that the chart uses.



① Connections Pane

The Connections pane is the basic way to navigate with connections, databases, tables, queries.

② Data Source Toolbar

The Data Source Toolbar provides controls that you can use to manipulate the data.

③ Design Pane

The Design pane allows you to build the data source visually.

Navicat provides two modes for connecting your data: Live and Achieve.

Live mode retrieves data from your servers whenever the data source is being used / loaded. It offers the convenience of real-time updates, with any changes in the underlying data reflected.

Archive mode retrieves data from your servers during the data source creation, and stored the retrieved data in the workspace for later use by building charts.

④ Preview Pane

The Preview pane displays the data of the data source. You can click to show or hide the columns.

⑤ Properties Pane

The **Properties** tab shows the general information of the data source. You can add a remark to the data source.

The **Used By** tab shows the charts that depend on the data source.

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

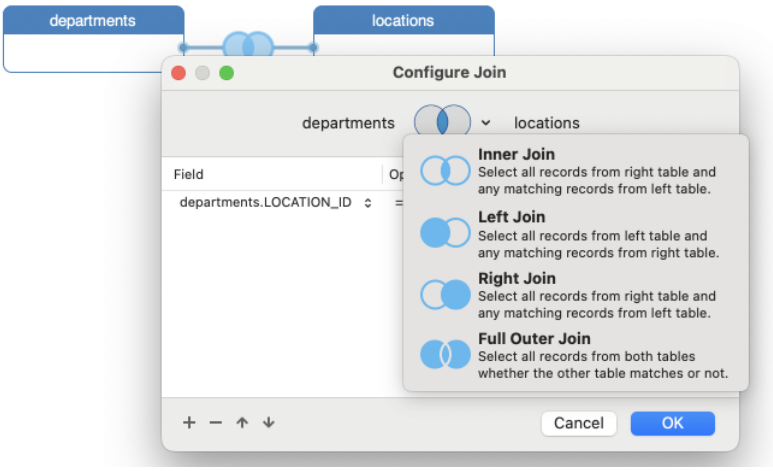
Add New Data Source

The essential steps to create a data source are:

1. In the Workspace window, click .
2. Enter the name of the data source and select the desired connections, files or existing data sources.

Option	Description
Database	Create data source using existing connections in Navicat, or create a new connection in the workspace. For more information about connection settings, see Connections.
File/ODBC	Import data to the workspace, or link the data source to the data in a supported external file or ODBC source. For more information about import steps, see Import Wizard.
Recent Connections	Choose the connections used in other existing data sources in the workspace.

3. Click **OK**.
4. A tab will open for you to edit the data source.
5. If you want to add more connections, click **+** and follow the steps.
6. Drag and drop tables from the Connections pane to the Design pane. You can view the table data by clicking .
7. Drag and drop a node to another to create the join.
8. Configure the join type and join fields if necessary.



Hint: After creating the join, you can change the join settings at any time by clicking the join icon on the connector.

9. Choose **Live** mode or **Archive** mode.

10. Click **Apply and Refresh Data** to view the data.

Add Query to Database Connection

For database connections, you can save query results to create a new dataset.

To create a new query

1. On the Connections pane, double-click **New Data Source Query**.

2. Write the statement in Query Editor. You can also use Query Builder to build the query visually.

3. Click **Save Query**.

4. Enter the name of the query and click **Save**.

To add an existing query

1. On the Connections pane, double-click **New Data Source Query**.

2. Click .

3. Select a query.

4. Click **Import**.

5. Click **Save Query**.

6. Enter the name of the query and click **Save**.

Add Aggregation Pipeline to Database Connection

For MongoDB database connections, you can save aggregation pipeline results to create a new dataset.

To create a new pipeline

1. On the Connections pane, double-click **New Data Source Aggregation Pipeline**.
2. Build the pipeline using Pipeline Builder.
3. Click **Save Pipeline**.
4. Enter the name of the pipeline and click **Save**.

To add an existing pipeline

1. On the Connections pane, double-click **New Data Source Aggregation Pipeline**.
2. Click .
3. Select a pipeline.
4. Click **Import**.
5. Click **Save Pipeline**.
6. Enter the name of the pipeline and click **Save**.

Modify Data Source Connections

My Connections

To change a connection in My Connections to a workspace connection

1. On the Connections pane, control-click a connection and select **Convert to Workspace Connection**.
2. The connection will be moved to the "Workspace" section.

To recreate a not found connection

If the server connection in My Connections was removed, it will be moved to the "Not Found in My Connections" section. You may need to recreate the connection in order to connect the server.

1. On the Connections pane, control-click a connection and select **Recreate Connection in My Connections**.
2. Enter the connection properties.
3. Click **OK**.

Project Connections

To change a project connection to a workspace connection

1. On the Connections pane, control-click a connection and select **Convert to Workspace Connection**.

2. The connection will be moved to the "Workspace" section.

To recreate a not found connection

If the server connection in the project was removed, it will be moved to the "Not Found in Project" section. You may need to recreate the connection in order to connect the server.

1. On the Connections pane, control-click a connection and select **Recreate Connection in Project**.
2. Enter the connection properties.
3. Click **OK**.

Workspace Connections

To edit the settings of a database connection

1. On the Connections pane, control-click a database connection and select **Edit Connection**.
2. Follow the steps to edit the connection.

To change the user password of a database connection

1. On the Connections pane, control-click a database connection and select **Change Connection Password**.
2. Enter the database user password.
3. Click **OK**.

To edit the settings of a file connection

1. On the Connections pane, control-click a file connection and select **Edit File Connection Settings**.
2. Follow the steps to edit the connection.

To change the path of a linked file connection

1. On the Connections pane, control-click a file connection and select **Change Linked File Path**.
2. Follow the steps to edit the connection.

Filter / Sort / Project Data

If your data source has many data or fields, you may find it easier to limit the data or fields to just the ones you want so you can simplify the data selections.

Filter Data

Filter pane allows you to facilitate creating and applying filter criteria that you specify for the data. Click from the toolbar to activate the Filter pane.

1. To add a new condition to the criteria, just simply click [+]. If you want to add a condition with parentheses, click [()+].

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

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

3. Click on the operator (next to the field name) and choose a filter operator.

Filter Operator	Operator Description
=	The field is equal to 'value'.
!=	The field is not equal to 'value'.
<	The field is less than 'value'.
<=	The field is less than or equal to 'value'.
>	The field is greater than 'value'.
>=	The field is greater than or equal to 'value'.
contains	The field contains 'value'.
does not contain	The field does not contain 'value'.
begin with	The field starts with 'value'.
does not begin with	The field does not start with 'value'.
end with	The field ends with 'value'.
does not end with	The field does not end with 'value'.
is null	The field is NULL.
is not null	The field is NOT NULL.
is empty	The field is empty.
is not empty	The field is not empty.
is between	The field is between 'value1' and 'value2'.
is not between	The field is not between 'value1' and 'value2'.
is in list	The field is in the list of ('value1','value2',...).
is not in list	The field is not in the list of ('value1','value2',...).

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

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

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

7. Click **Apply & Refresh Data** to see the result of the filtering you made.

Hint: If you want to reverse the meaning of the conditions, control-click the selected conditions and select **Toggle Negator**.

Sort Data

Navicat offers the ability to sort and order data. Click from the toolbar to activate the Sort pane.

1. To add a new criteria, just simply click ..
2. Click on the field name (next to the checkbox) and choose a field from the list.
3. Click on the sorting order to choose **ASC** or **DESC**.
4. Repeat step 1-3 to add another new criteria.
5. Click **Apply & Refresh Data** to see the result of the sorting you made.

Project Data

You can choose which fields to include or exclude in the data source. Click from the toolbar to activate the Projection pane.

1. Choose to **Include** or **Exclude** fields.
2. To add a new criteria, just simply click ..
3. Click on the field name (next to the checkbox) and choose a field from the list.
4. Repeat step 2-3 to add another new criteria.
5. Click **Apply & Refresh Data** to see the result of the projection you made.

Add Custom Fields

You can extend your data with customized fields. New fields can be created by changing the field type, concatenating other fields, mapping to other values or sorting based on another field/customized order.

Create Custom Field

Type-Changed Field

Field types (String, Number, Date/Time) are assigned to every field based on the actual data type of the field. If the field was not interpreted correctly, you can adjust the field type.

1. In the bottom data grid, select a field and click -> **Type-Changed Field** to get started.
2. In the pop-up window, enter the **Target Field Name**.
3. Choose the **Target Field Type**.
4. Choose the **Source Field Name**.
5. Set the **Source Field Data Format** if necessary.

6. Click **OK**.

Concatenated Field

You can add a new field and concatenate the data from two already existing fields.

1. In the bottom data grid, select a field and click -> **Concatenated Field** to get started.
2. In the pop-up window, enter the **Name** of the target field.
3. Double-click a field on the **Source Fields** pane to add it to the body.
4. Edit the body and enable the **Set null if all field values are null or empty** option if necessary.
5. Click **OK**.

Mapped Field

You can create a new field populated with the results of applying a mapping rule on every value in the source field.

1. In the bottom data grid, select a field and click -> **Mapped Field** to get started.
2. In the pop-up window, enter the **Target Field Name**.
3. Choose the **Source Field Name**.
4. Click **Add** to create a new mapping rule.
5. Enable the **Compare source values with case sensitive** option if necessary.
6. Choose the action for the values that are not in the mapping rules.
7. Click **OK**.

Custom-Sorted Field

You can create a new field to rearrange the order of the values, based on another field, or a custom order. When you sort this new field in the chart, it will be sorted in the order you set.

1. In the bottom data grid, select a field and click -> **Custom-Sorted Field** to get started.
2. In the pop-up window, enter the **Target Field Name**.
3. Choose the **Source Field Name**.
4. [Reference Field] Choose the field which the sort order of the target field will be based on.
5. [Custom Sort] Customize the order of the field values by moving the values to the **Sorted Values** list.
6. Click **OK**.

Calculated Field

You can create a new field with a custom expression. You can use functions, fields and operators in the expression.

1. In the bottom data grid, select a field and click -> **Calculated Field** to get started.
2. In the pop-up window, enter the **Target Field Name**.
3. Enter an expression in the **Body** text box.
4. Click **OK**.

Edit Custom Field

1. In the bottom data grid, control-click on the customized field and select **Edit field_name**.
2. In the pop-up window, modify the field properties.
3. Click **OK**.

Delete Custom Field

1. In the bottom data grid, control-click on the customized field and select **Remove field_name**.

Examine Data Source Using Data Profiling

You can profile a data source to unveil intricate patterns, trends, and relationships in the data, and identify discrepancies and errors in custom fields, enabling a meticulous examination of data integrity and accuracy.

Start Profiling

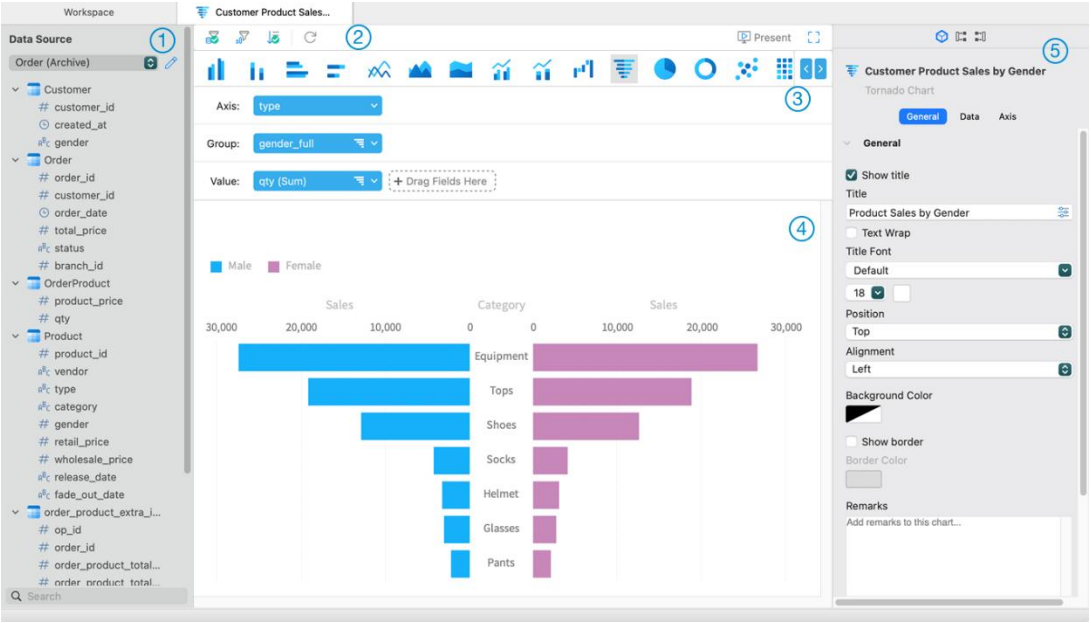
To initiate the profiling process, simply click . See Data Profiling for details.

Chart

Build Chart

A chart provides visual representations of the data in your data source. It maps to a single data source, and can display correlations between several fields in the data. You can even make the chart interactive by adding a control chart.

Note: You must add a data source before you can begin building charts.



① Data Source Pane

The Data Source pane is the basic way to navigate with the data sources. If the Data Source pane is hidden, choose **View** -> **Show Data Source** from the menu bar.

② Chart Toolbar

The Chart Toolbar provides controls that you can use to manipulate the data.

③ Metric Pane

The Metric pane allows you to choose the chart type and add fields to the shelves from the Data Source Pane. If the Metric pane is hidden, choose **View** -> **Show Metric** from the menu bar.

④ Preview Pane

The Preview pane displays the chart.

⑤ Properties Pane

The **Properties** tab includes the basic layout settings, data format settings and so on. The properties vary with the type of the chart.

The **Using** tab shows the data sources that the chart depends on.

The **Used By** tab shows the dashboards that depend on the chart.

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

Create New Chart

The essential steps to create a chart are:

1. In the Workspace window, click .

2. Select the data source and enter the name of the chart.

3. A tab will open for you to edit the chart.

4. Choose the chart type on the middle pane.

Hint: The type of chart you will use is normally determined by the type of the data.

5. Drag fields to the corresponding shelf in the Metric pane to set axis, values, etc.

6. Select the properties on the right pane which can be further customized for your chart.

Hint: Each chart type has different properties.

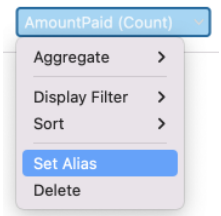
7. The chart shows on the Preview pane.

Set Field Alias

You can create aliases for fields so that their labels appear differently in the chart.

1. Click the down arrow in the field box.

2. Select **Set Alias**.

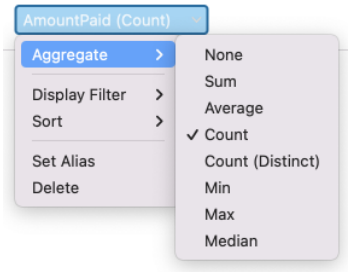


3. Enter the alias name.

Apply Aggregate Function

Aggregate functions allow you to summarize or change the granularity of your data.

1. Click the down arrow in the field box.



2. Select **Aggregate** and choose an aggregate function.

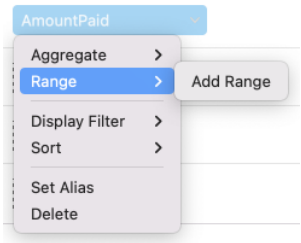
Function	Description
Number	
Sum	Return the sum of all values. Null values are ignored.
Average	Return the average of all the values. Null values are ignored.
Count	Return the number of items. Null values are not counted.
Count(Distinct)	Return the number of distinct items. Null values are not counted.
Min	Return the minimum value across all records. Null values are ignored.
Max	Return the maximum value across all records. Null values are ignored.
Median	Return the median value across all records. Null values are ignored.
DateTime	
Count	Return the number of items. Null values are not counted.
Count(Distinct)	Return the number of distinct items. Null values are not counted.
Year	Return the year of the date (0000-9999).
Quarter	Return the year of the date (0000-9999) and the quarter of the year (Q1-Q4).
Month	Return the year (0000-9999) and the month (01-12) of the date.
Week	Return the year of the date (0000-9999) and the week of the year (W01-W52, start of week is Sunday).
Day	Return the date.
Hour	Return the date and the hour of the time (00-23).
Minute	Return the date, the hour of the time (00-23) and the minute of the time (00-59).
Second	Return the datetime.
Quarter (Extract)	Return the quarter of the year (Q1-Q4).
Month (Extract)	Return the month of the date (01-12).

Week (Extract)	Return the week of the year (W01-W52, start of week is Sunday).
Day (Extract)	Return the day of the date (01-31).
Hour (Extract)	Return the hour of the time (00-23).
Minute (Extract)	Return the minute of the time (00-59).
Second (Extract)	Return the second of the time (00-59).
Text	
First	Return the value of the first record.
Last	Return the value of the last record.
Count	Return the number of items. Null values are not counted.
Count(Distinct)	Return the number of distinct items. Null values are not counted.

Add Range

You can aggregate data into ranges without the need to create any additional calculations in the data source.

1. Click the down arrow in the field box.



2. Select **Add Range**.

3. Edit the range settings.

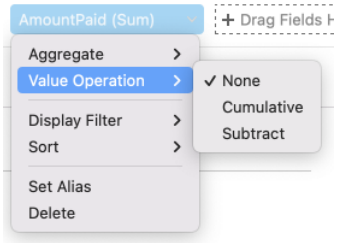
Option	Description
Range Type - Fixed	
Bin Size	Either enter the size of a bin or click **Calculate** to let Navicat calculate a value for you.
Range Type - Custom	
Stop Values	Add the bin boundaries.

4. Click **OK**.

Set Value Operation

You can create a chart that shows a running total as values are added or subtracted.

1. Click the down arrow in the field box.



2. Select **Value Operation** and choose an operation.

Operation	Description
Cumulative	Sum the values cumulatively.
Subtract	Subtract the value with its previous value.

Filter / Sort Data

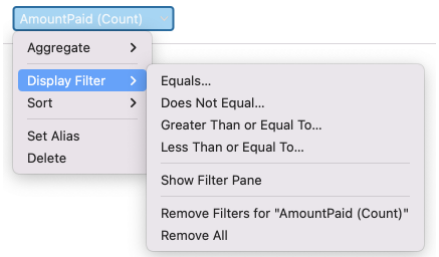
Filter Source Data in Chart

You can use the Data Filter pane to filter the source data in the current chart.

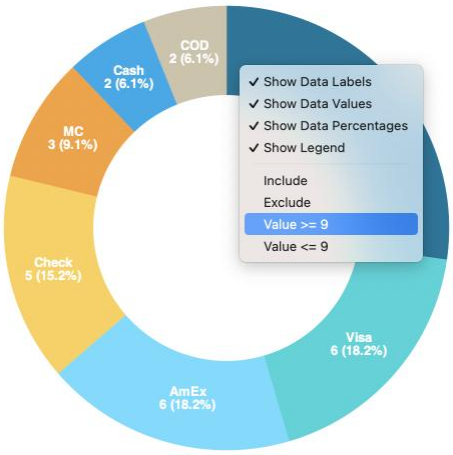
Filter Display Data in Chart

You can filter the display data in 3 ways:

- Click the down arrow in the field box and select **Display Filter**.



- Use the Display Filter pane.
- Control-click a series / data points on the chart.

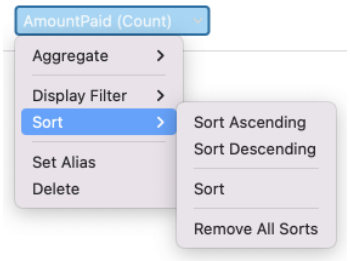


Hint: If you want to clear the filter, you need to use the Display Filter pane.

Sort Data

You can sort the data in 2 ways:

- Click the down arrow in the field box and select **Sort**.



- Use the Sort pane.

Present Chart

You can present the chart using the whole screen. The title bar, toolbars, tab bar, Data Source pane, Metric pane and Properties pane will be hidden while in this mode. To open a chart in present view, click **Present**.

To exit present view, press the ESC key and the workspace window will be returned to its previous state.

Sort Chart

In presentation mode, you can organize your data in a chart with one click. You can sort data series by a value. Simply click the icon to sort on a different value and select the sorting order.

Use Parameter

If you assigned a parameter, BI will automatically render a functional control during presentation mode. You can then dynamically adjust the value of that specific measure on during presentation.

To change the parameter value:

1. In presentation mode, control-click the page and select **Modify Parameter Value**.
2. Select your desired parameter from the list.
3. Change the value manually.

Hint: If you assigned a numeric range rule to your parameter, you can dynamically adjust the value of that specific measure by dragging the interactive slider.

Chart Types

Comparison & Trends

Navicat offers a versatile collection of charts designed specifically to help you analyze how your data evolves over time and to evaluate differences across various categories. Whether you need to track ongoing performance metrics, compare regional data, or break down the step-by-step factors influencing a final total, these visualization tools provide clear, actionable insights to drive your decision-making.

Bar Chart

A bar chart provides high-level overviews of data trends by comparing values within a specific category.

- Vertical Bar Chart
- Vertical Stacked Bar Chart
- Horizontal Bar Chart
- Horizontal Stacked Bar Chart

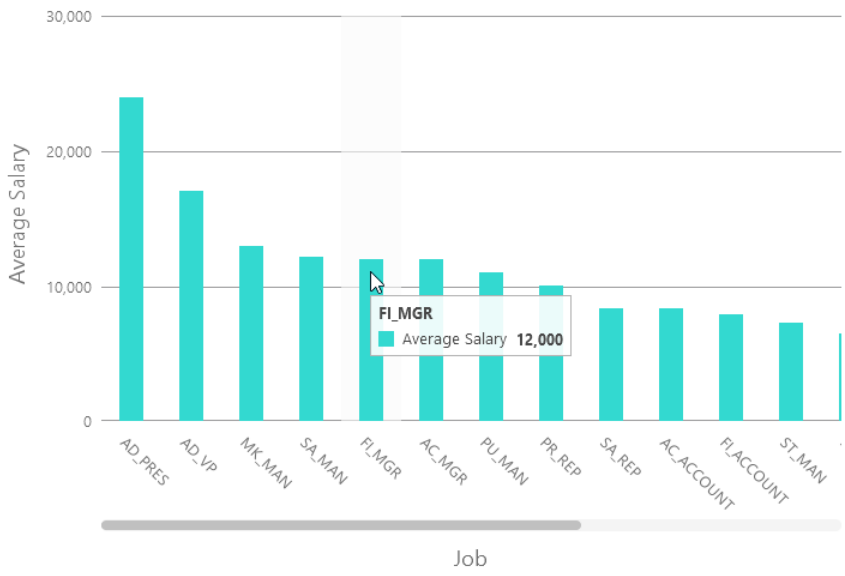


Chart Properties

Once you have selected a chart type, you can customize the chart by changing its properties:

Option	Description
General	
Background Color	Set the background color of the chart area.
Show border	Display the outer chart border.
Border Color	Set the color of the outer chart border.
Show title	Display the chart's main title.
Title	Specify the title of the chart.

Text Wrap	Enable text wrapping for long title strings so they automatically wrap onto multiple lines.
Title Font	Set the font style of the title.
Position	Set the position of the title.
Alignment	Set the vertical or horizontal alignment of the title.
Remarks	Enter remarks for the chart.
Legend	
Show legend	Display the legend container.
Position	Set the position for the legend.
Alignment	Set the vertical or horizontal alignment of the legend.
Label Color	Set the color of the legend labels.
Data	
Show Bar Labels	Display the data labels of the selected series.
Bar Label Contains	Display the data values or/and the percentages on the labels.
Bar Label Position	Set the position of the bar labels.
Use 100% stacked	Use 100% stacked bars to show values for hierarchical data. (Each bar height is 100%, and the colored bar segments represent the components' relative contributions to the total bar.)
Bar Label Font	Set the font style of the bar labels.
Use custom data value color	Customize the color of the labels of the data values.
Positive Data Value Color	Set the color of the positive value labels.
Negative Data Value Color	Set the color of the negative value labels.
Show only top #	Only the top # data are displayed.
Fill missing values	Use a continuous axis. The data series are positioned according to their domain value.
Group values less than	Aggregate smaller values below a specified percentage or fixed threshold into a single bar segment.
Group Name	Specify the label assigned to the aggregated smaller values (e.g., "Others")
Group Color	Set the color for the aggregated data group segment.
Style	Plot discrete or continuous data series on the chart.
Density	Choose the density of the data series.
Color	Set the color palette of the data series.
All Data Colors	Allow setting the color for each series.
Data Formats - Number	
Prefix	Add prefix characters to all the numeric data on the chart.
Unit	Choose the unit to shorten the numeric data.
Suffix	Specify the suffix to label the customized unit.
Divider	Specify the divider for the customized unit.
Thousand Separator	Choose the thousands separator for numeric data.
Decimal Separator	Choose the decimal separator for numeric data.

Decimal Places	Specify decimal places for numeric data.
Negatives	Choose the format negative numbers are displayed.
Data Formats - DateTime	
Date / Time	Choose the date and time format of the data.
Custom	Customize the date and time format.
X-Axis	
Show X-Axis title	Display the title of X-Axis.
X-Axis Title	Specify the title of X-Axis.
Font	Set the font style of X-Axis title.
Show X-Axis title at the end of axis	Display the title at the end of X-Axis.
Show X-Axis labels	Display labels on X-Axis.
Font / Bold	Set the font style of X-Axis labels.
X-Axis Label Rotation	Rotate X-Axis labels.
X-Axis Label Interval	Change the interval between X-Axis labels.
Show X-Axis	Display X-Axis line.
X-Axis Color	Set the color of X-Axis line.
Y-Axis	
Show Y-Axis title	Display the title of Y-Axis.
Y-Axis Title	Specify the title of Y-Axis.
Font	Set the font style of Y-Axis title.
Show Y-Axis title at the end of axis	Display the title at the end of Y-Axis.
Show Y-Axis labels	Display labels on Y-Axis.
Font / Bold	Set the font style of Y-Axis labels.
Show Y-Axis	Display Y-Axis line.
Y-Axis Color	Set the color of Y-Axis line.
Show grid line	Display the grid line of Y-Axis.
Use custom range	Set the range of the grid lines. Enter values in **Start** and **End**. The graph drawing beyond this range will be clipped off.
Use custom interval	Change the Interval on Y-Axis.
Tick Interval	Set the interval of the tick marks in axis units.
Assistant Line	
⊕	Add an assistant line to the chart to show visual data trends, averages, normal distributions, etc.
⊖	Remove the selected assistant line.
✎	Rename the selected assistant line.
Value	Select a data series for the assistant line.
Group Value	Select a group value for the assistant line.
Type	Choose the type of assistant line you want.
Show R^2 value	Display the R^2 value on the chart.

Forward Forecast / Backward Forecast	Specify the number of periods to include in a forecast.
Align with other lines	Align the assistant line with others.
Period	Specify the number of data points used to average the point value.
Smooth	Smooth the angles of the line.
Use custom color	Customize the color of the line.
Line Color	Set the color of the line.
Cap Style	Choose the cap style of the line.
Dash Style	Choose the dash style of the line.
Join Style	Choose the join style of the line.
Visible	Check this box to show the line.

Line / Area Chart

A line or area chart displays information as a series of data points connected by straight line segments.

- Line Chart
- Area Chart
- Stacked Area Chart

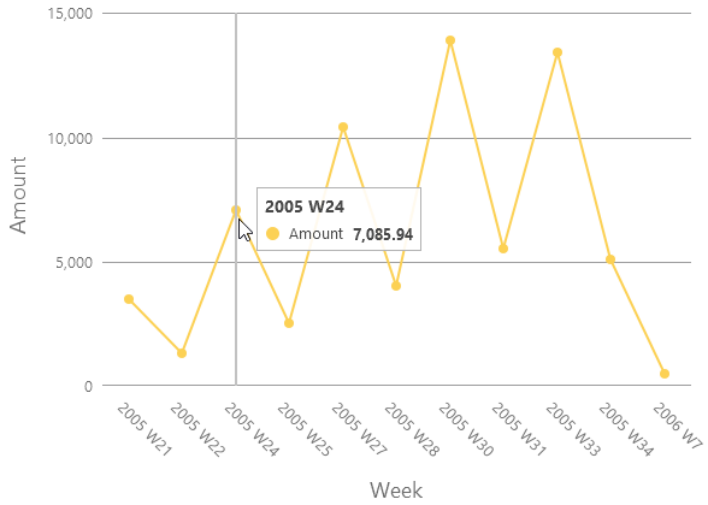


Chart Properties

Once you have selected a chart type, you can customize the chart by changing its properties:

Option	Description
General	
Background Color	Set the background color of the chart area.
Show border	Display the outer chart border.
Border Color	Set the color of the outer chart border.
Show title	Display the chart's main title.
Title	Specify the title of the chart.

Text Wrap	Enable text wrapping for long title strings so they automatically wrap onto multiple lines.
Title Font	Set the font style of the title.
Position	Set the position of the title.
Alignment	Set the vertical or horizontal alignment of the title.
Remarks	Enter remarks for the chart.
Legend	
Show legend	Display the legend container.
Position	Set the position for the legend.
Alignment	Set the vertical or horizontal alignment of the legend.
Label Color	Set the color of the legend labels.
Data	
Use smoothed line	Plot a smooth line through the data points.
Show Line Labels / Show Area Labels	Display the data labels of the selected series.
Line Label Contains	Display the data values or/and the percentages on the labels.
Line Label Pattern	Select the values that will be displayed on the chart.
Show markers	Display the marker points on the line / area.
Use 100% stacked	Use 100% stacked areas to show values for hierarchical data. (The area height is 100%, and the colored area segments represent the components' relative contributions to the total area.)
Use custom data value color	Customize the color of the labels of the data values.
Positive Data Value Color	Set the color of the positive value labels.
Negative Data Value Color	Set the color of the negative value labels.
Show only top #	Only the top # data are displayed.
Fill missing values	Use a continuous axis. The data series are positioned according to their domain value.
Density	Choose the density of the data series.
Color	Set the color palette of the data series.
Data Formats - Number	
Prefix	Add prefix characters to all the numeric data on the chart.
Unit	Choose the unit to shorten the numeric data.
Suffix	Specify the suffix to label the customized unit.
Divider	Specify the divider for the customized unit.
Thousand Separator	Choose the thousands separator for numeric data.
Decimal Separator	Choose the decimal separator for numeric data.
Decimal Places	Specify decimal places for numeric data.
Negatives	Choose the format negative numbers are displayed.
Data Formats - DateTime	
Date / Time	Choose the date and time format of the data.
Custom	Customize the date and time format.

X-Axis	
Show X-Axis title	Display the title of X-Axis.
X-Axis Title	Specify the title of X-Axis.
Font	Set the font style of X-Axis title.
Show X-Axis title at the end of axis	Display the title at the end of X-Axis.
Show X-Axis labels	Display labels on X-Axis.
Font / Bold	Set the font style of X-Axis labels.
X-Axis Label Rotation	Rotate X-Axis labels.
X-Axis Label Interval	Change the interval between X-Axis labels.
Show X-Axis	Display X-Axis line.
X-Axis Color	Set the color of X-Axis line.
Y-Axis	
Show Y-Axis title	Display the title of Y-Axis.
Font / Bold	Set the font style of Y-Axis labels.
Y-Axis Title	Specify the title of Y-Axis.
Font	Set the font style of Y-Axis title.
Show Y-Axis title at the end of axis	Display the title at the end of Y-Axis.
Show Y-Axis labels	Display labels on Y-Axis.
Show Y-Axis	Display Y-Axis line.
Y-Axis Color	Set the color of Y-Axis line.
Show grid line	Display the grid line of Y-Axis.
Use custom range	Set the range of the grid lines. Enter values in **Start** and **End**. The graph drawing beyond this range will be clipped off.
Use custom interval	Change the Interval on Y-Axis.
Tick Interval	Set the interval of the tick marks in axis units.
Assistant Line	
⊕	Add an assistant line to the chart to show visual data trends, averages, normal distributions, etc.
⊖	Remove the selected assistant line.
✎	Rename the selected assistant line.
Value	Select a data series for the assistant line.
Group Value	Select a group value for the assistant line.
Type	Choose the type of assistant line you want.
Show R^2 value	Display the R^2 value on the chart.
Forward Forecast / Backward Forecast	Specify the number of periods to include in a forecast.
Align with other lines	Align the assistant line with others.
Period	Specify the number of data points used to average the point value.
Smooth	Smooth the angles of the line.

Use custom color	Customize the color of the line.
Line Color	Set the color of the line.
Cap Style	Choose the cap style of the line.
Dash Style	Choose the dash style of the line.
Join Style	Choose the join style of the line.
Visible	Check this box to show the line.

Bar and Line Chart

Mixing bar and line chart in the same visual is a good way to emphasize the difference between series while still maintaining their relationship.

- Bar and Line Chart
- Stacked Bar and Line Chart

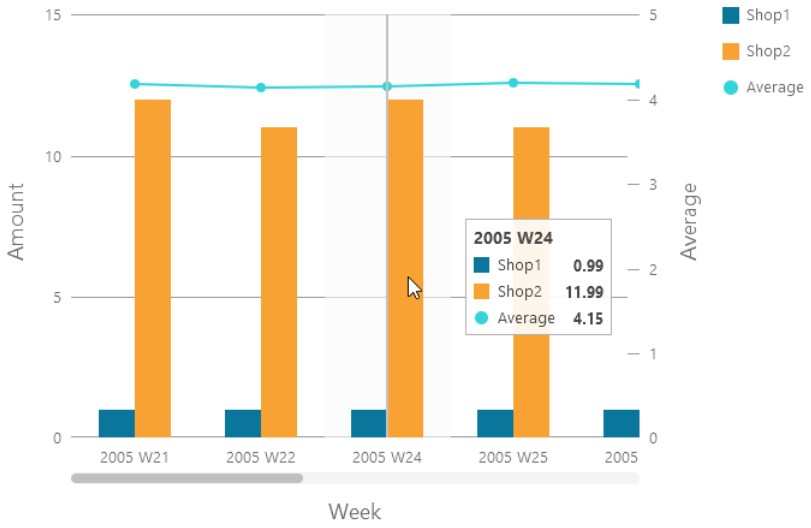


Chart Properties

Once you have selected a chart type, you can customize the chart by changing its properties:

Option	Description
General	
Background Color	Set the background color of the chart area.
Show border	Display the outer chart border.
Border Color	Set the color of the outer chart border.
Show title	Display the chart's main title.
Title	Specify the title of the chart.
Text Wrap	Enable text wrapping for long title strings so they automatically wrap onto multiple lines.
Title Font	Set the font style of the title.
Position	Set the position of the title.
Alignment	Set the vertical or horizontal alignment of the title.

Remarks	Enter remarks for the chart.
Legend	
Show legend	Display the legend container.
Position	Set the position for the legend.
Alignment	Set the vertical or horizontal alignment of the legend.
Label Color	Set the color of the legend labels.
Data	
Use smoothed line	Plot a smooth line through the data points.
Show Labels	Display the data labels of the selected series.
Bar Label Contains	Display the data values or/and the percentages on the labels.
Bar Label Position	Set the position of the bar labels.
Bar Label Font	Set the font style of the bar labels.
Use 100% stacked bar	Use 100% stacked bars to show values for hierarchical data. (Each bar height is 100%, and the colored bar segments represent the components' relative contributions to the total bar.)
Line Label Contains	Display the data values or/and the percentages on the labels.
Line Label Pattern	Select the values that will be displayed on the chart.
Show line markers	Display the marker points on the line.
Use custom data value color	Customize the color of the labels of the data values.
Positive Data Value Color	Set the color of the positive value labels.
Negative Data Value Color	Set the color of the negative value labels.
Show only top #	Only the top # data are displayed.
Fill missing values	Use a continuous axis. The data series are positioned according to their domain value.
Style	Plot discrete or continuous data series on the chart.
Density	Choose the density of the data series.
Color	Set the color palette of the data series.
All Bar Data Colors	Allow setting the color for each series.
Data Formats - Number	
Prefix	Add prefix characters to all the numeric data on the chart.
Unit	Choose the unit to shorten the numeric data.
Suffix	Specify the suffix to label the customized unit.
Divider	Specify the divider for the customized unit.
Thousand Separator	Choose the thousands separator for numeric data.
Decimal Separator	Choose the decimal separator for numeric data.
Decimal Places	Specify decimal places for numeric data.
Negatives	Choose the format negative numbers are displayed.
Data Formats - DateTime	
Date / Time	Choose the date and time format of the data.
Custom	Customize the date and time format.
X-Axis	

Show X-Axis title	Display the title of X-Axis.
X-Axis Title	Specify the title of X-Axis.
Font	Set the font style of X-Axis title.
Show X-Axis title at the end of axis	Display the title at the end of X-Axis.
Show X-Axis labels	Display labels on X-Axis.
Font / Bold	Set the font style of X-Axis labels.
X-Axis Label Rotation	Rotate X-Axis labels.
X-Axis Label Interval	Change the interval between X-Axis labels.
Show X-Axis	Display X-Axis line.
X-Axis Color	Set the color of X-Axis line.
Y-Axis / Secondary Y-Axis	
Show Y-Axis title / Show Secondary Y-Axis title	Display the title of Y-Axis.
Y-Axis Title / Secondary Y-Axis Title	Specify the title of Y-Axis.
Font	Set the font style of Y-Axis title.
Show Y-Axis title at the end of axis / Show Secondary Y-Axis title at the end of axis	Display the title at the end of Y-Axis.
Show Y-Axis labels / Show Secondary Y-Axis labels	Display labels on Y-Axis.
Font / Bold	Set the font style of Y-Axis labels.
Show Y-Axis / Show Secondary Y-Axis	Display Y-Axis line.
Y-Axis Color / Secondary Y-Axis Color	Set the color of Y-Axis line.
Show grid line	Display the grid line of Y-Axis.
Use custom range	Set the range of the grid lines. Enter values in **Start** and **End**. The graph drawing beyond this range will be clipped off.
Use custom interval	Change the Interval on Y-Axis.
Tick Interval	Set the interval of the tick marks in axis units.
Assistant Line	
⊕	Add an assistant line to the chart to show visual data trends, averages, normal distributions, etc.
⊖	Remove the selected assistant line.
	Rename the selected assistant line.
Value	Select a data series for the assistant line.
Group Value	Select a group value for the assistant line.
Type	Choose the type of assistant line you want.
Show R^2 value	Display the R^2 value on the chart.

Forward Forecast / Backward Forecast	Specify the number of periods to include in a forecast.
Align with other lines	Align the assistant line with others.
Period	Specify the number of data points used to average the point value.
Smooth	Smooth the angles of the line.
Use custom color	Customize the color of the line.
Line Color	Set the color of the line.
Cap Style	Choose the cap style of the line.
Dash Style	Choose the dash style of the line.
Join Style	Choose the join style of the line.
Visible	Check this box to show the line.

Waterfall Chart

A waterfall chart is a special type of bar chart. It is useful for understanding how the starting value is affected by a series of changes (increase or decrease).

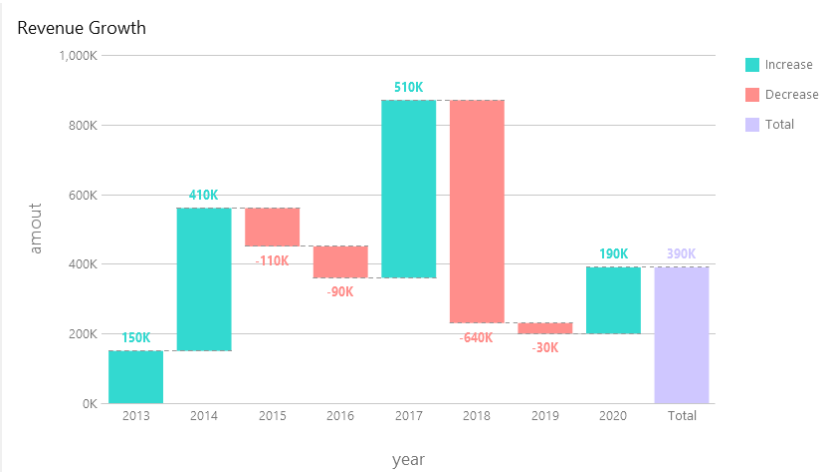


Chart Properties

Once you have selected a chart type, you can customize the chart by changing its properties:

Option	Description
General	
Background Color	Set the background color of the chart area.
Show border	Display the outer chart border.
Border Color	Set the color of the outer chart border.
Show title	Display the chart's main title.
Title	Specify the title of the chart.
Text Wrap	Enable text wrapping for long title strings so they automatically wrap onto multiple lines.
Title Font	Set the font style of the title.
Position	Set the position of the title.
Alignment	Set the vertical or horizontal alignment of the title.

Remarks	Enter remarks for the chart.
Legend	
Show legend	Display the legend container.
Position	Set the position for the legend.
Alignment	Set the vertical or horizontal alignment of the legend.
Label Color	Set the color of the legend labels.
Data	
Show data values	Display the values of the data series.
Bar Label Position	Set the position of the bar labels.
Bar Label Font	Set the font style of the bar labels.
Total Bar Color	Set the color of the Total bar.
Subtotal Bar Color	Set the color of the Subtotal bar.
Total Bar Title	Specify the title of the Total bar.
Use increase and decrease color	Color the bars with Increase Color and Decrease Color.
Increase Color	Set the color of the bar when the value increases.
Decrease Color	Set the color of the bar when the value decreases.
Use custom data value color	Customize the color of the labels of the data values.
Positive data value color	Set the color of the positive value labels.
Negative data value color	Set the color of the negative value labels.
Show only top #	Only the top # data are displayed.
Style	Plot discrete or continuous bars on the chart.
Density	Choose the density of the bars.
Group Value Sorting	Sort the group values (from Decrease to Increase, or from Increase to Decrease).
Color	Set the color palette of the data series.
All Data Colors	Allow setting the color for each series.
Data Formats - Number	
Prefix	Add prefix characters to all the numeric data on the chart.
Unit	Choose the unit to shorten the numeric data.
Suffix	Specify the suffix to label the customized unit.
Divider	Specify the divider for the customized unit.
Thousand Separator	Choose the thousands separator for numeric data.
Decimal Separator	Choose the decimal separator for numeric data.
Decimal Places	Specify decimal places for numeric data.
Negatives	Choose the format negative numbers are displayed.
Data Formats - DateTime	
Date / Time	Choose the date and time format of the data.
Custom	Customize the date and time format.
X-Axis	
Show X-Axis title	Display the title of X-Axis.
X-Axis Title	Specify the title of X-Axis.

Font	Set the font style of X-Axis title.
Show X-Axis title at the end of axis	Display the title at the end of X-Axis.
Show X-Axis labels	Display labels on X-Axis.
Font / Bold	Set the font style of X-Axis labels.
X-Axis Label Rotation	Rotate X-Axis labels.
X-Axis Label Interval	Change the interval between X-Axis labels.
Show X-Axis	Display X-Axis line.
X-Axis Color	Set the color of X-Axis line.
Y-Axis	
Show Y-Axis title	Display the title of Y-Axis.
Y-Axis Title	Specify the title of Y-Axis.
Font	Set the font style of Y-Axis title.
Show Y-Axis title at the end of axis	Display the title at the end of Y-Axis.
Show Y-Axis labels	Display labels on Y-Axis.
Font / Bold	Set the font style of Y-Axis labels.
Show Y-Axis	Display Y-Axis line.
Y-Axis Color	Set the color of Y-Axis line.
Show grid line	Display the grid line of Y-Axis.
Use custom range	Set the range of the grid lines. Enter values in **Start** and **End**. The graph drawing beyond this range will be clipped off.
Use custom interval	Change the Interval on Y-Axis.
Tick Interval	Set the interval of the tick marks in axis units.

Tornado Chart

A tornado chart is a special type of bar chart. It is useful for comparing data among different types of data or categories.

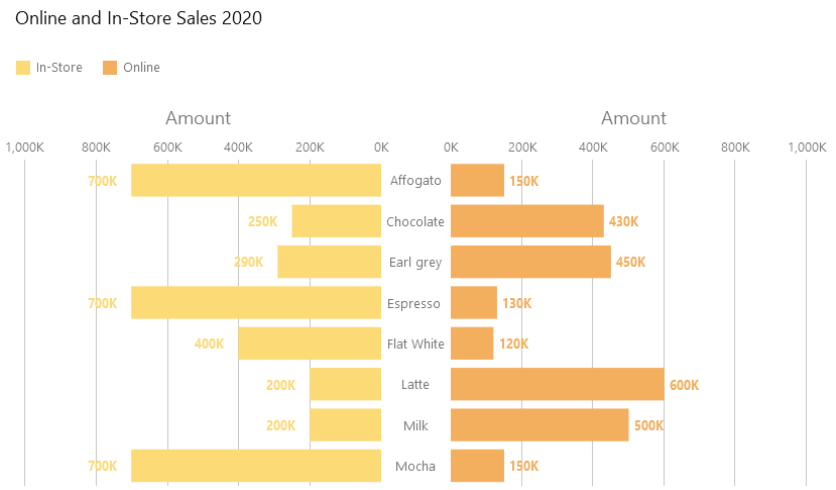


Chart Properties

Once you have selected a chart type, you can customize the chart by changing its properties:

Option	Description
General	
Background Color	Set the background color of the chart area.
Show border	Display the outer chart border.
Border Color	Set the color of the outer chart border.
Show title	Display the chart's main title.
Title	Specify the title of the chart.
Text Wrap	Enable text wrapping for long title strings so they automatically wrap onto multiple lines.
Title Font	Set the font style of the title.
Position	Set the position of the title.
Alignment	Set the vertical or horizontal alignment of the title.
Remarks	Enter remarks for the chart.
Legend	
Show legend	Display the legend container.
Position	Set the position for the legend.
Alignment	Set the vertical or horizontal alignment of the legend.
Label Color	Set the color of the legend labels.
Data	
Show Bar Labels	Display the data labels of the selected series.
Bar Label Contains	Display the data values or/and the percentages on the labels.
Bar Label Position	Set the position of the bar labels.
Bar Label Font	Set the font style of the bar labels.
Use stack	Use stacked bars to show values.
Use 100% stacked	Use 100% stacked bars to show values for hierarchical data. (Each bar height is 100%, and the colored bar segments represent the components' relative contributions to the total bar.)
Stacked Bar Style	Determine how the stacked section is displayed.
Negative Data Bar Background Color	Set the color of the negative data bars.
Minimum Value	Set the minimum value of the bar.
Data Label Color	Set the color of the data labels on the bars.
Use custom data value color	Customize the color of the labels of the data values.
Positive data value color	Set the color of the positive value labels.
Negative data value color	Set the color of the negative value labels.
Show only top #	Only the top # data are displayed.
Fill missing values	Use a continuous axis. The data series are positioned according to their domain value.
Style	Plot discrete or continuous bars on the chart.
Density	Choose the density of the bars.
Color	Set the color palette of the data series.

All Data Colors	Allow setting the color for each series.
Data Formats - Number	
Prefix	Add prefix characters to all the numeric data on the chart.
Unit	Choose the unit to shorten the numeric data.
Suffix	Specify the suffix to label the customized unit.
Divider	Specify the divider for the customized unit.
Thousand Separator	Choose the thousands separator for numeric data.
Decimal Separator	Choose the decimal separator for numeric data.
Decimal Places	Specify decimal places for numeric data.
Negatives	Choose the format negative numbers are displayed.
Data Formats - DateTime	
Date / Time	Choose the date and time format of the data.
Custom	Customize the date and time format.
Y-Axis	
Axis position	Set the position of Y-Axis.
Show Y-Axis title	Display the title of Y-Axis.
Y-Axis Title	Specify the title of Y-Axis.
Font	Set the font style of Y-Axis title.
Y-Axis Label Interval	Change the interval between Y-Axis labels.
Show Y-Axis labels	Display labels on Y-Axis.
Y-Axis Color	Set the color of Y-Axis line.
X-Axis	
Show X-Axis title	Display the title of X-Axis.
Left X-Axis Title	Specify the title of the left X-Axis.
Right X-Axis Title	Specify the title of the right X-Axis.
Font	Set the font style of X-Axis title.
Show X-Axis title at the end of axis	Display the title at the end of X-Axis.
Show X-Axis labels	Display labels on X-Axis.
Show X-Axis	Display X-Axis line.
X-Axis Color	Set the color of X-Axis line.
Show grid line	Display the grid line of X-Axis.
Use custom range	Set the range of the grid lines. Enter values in **Start** and **End**. The graph drawing beyond this range will be clipped off.
Use custom interval	Change the Interval on X-Axis.
Tick Interval	Set the interval of the tick marks in axis units.

Part-to-Whole Relationships

Part-to-whole charts are highly effective for illustrating how individual data points contribute to a complete dataset. By visually breaking down a total into its constituent parts, these charts make it easy to quickly grasp proportions, market shares, and hierarchical distributions at a glance.

Pie / Donut Chart

A pie or donut chart displays data in a series of segments of a circle, with larger segments representing larger data values.

- Pie Chart
- Donut Chart

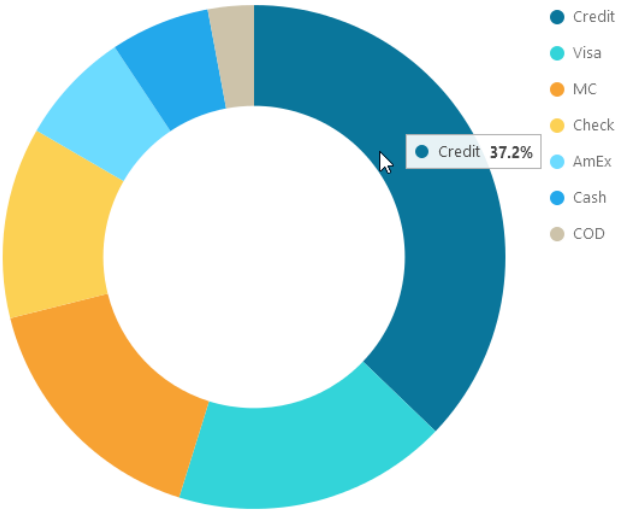


Chart Properties

Once you have selected a chart type, you can customize the chart by changing its properties:

Option	Description
General	
Background Color	Set the background color of the chart area.
Show border	Display the outer chart border.
Border Color	Set the color of the outer chart border.
Show title	Display the chart's main title.
Title	Specify the title of the chart.
Text Wrap	Enable text wrapping for long title strings so they automatically wrap onto multiple lines.
Title Font	Set the font style of the title.
Position	Set the position of the title.
Alignment	Set the vertical or horizontal alignment of the title.
Remarks	Enter remarks for the chart.
Legend	
Show legend	Display the legend container.
Position	Set the position for the legend.
Alignment	Set the vertical or horizontal alignment of the legend.
Label Color	Set the color of the legend labels.
Data	

Show data labels	Display data labels that clarify the data series.
Show data values	Display the values of the data series.
Show data percentages	Display the data percentages of the slices.
Show label inside slice	Position the slice labels inside the slice. Labels for smaller slices are hidden.
Show label over other slices	All labels are shown. Labels for smaller slices will overlap other slices.
Show slice separator	Add white borders between pie / donut slices.
Data Label Color	Set the color of the data label.
Show only top #	Only the top # data are displayed.
Slice	Group the small slices to a single slice (called Others).
Color	Set the color palette of the data series.
Data Formats - Number	
Prefix	Add prefix characters to all the numeric data on the chart.
Unit	Choose the unit to shorten the numeric data.
Suffix	Specify the suffix to label the customized unit.
Divider	Specify the divider for the customized unit.
Thousand Separator	Choose the thousands separator for numeric data.
Decimal Separator	Choose the decimal separator for numeric data.
Decimal Places	Specify decimal places for numeric data.
Negatives	Choose the format negative numbers are displayed.
Data Formats - DateTime	
Date / Time	Choose the date and time format of the data.
Custom	Customize the date and time format.
Group	
Show group title	Display the title of the group.
Group Title	Specify the title of the group.
Group Title Font	Set the font style of the group title.

Treemap

A treemap is an alternative way of visualizing the hierarchical structure while also displaying quantities for each category via area size.

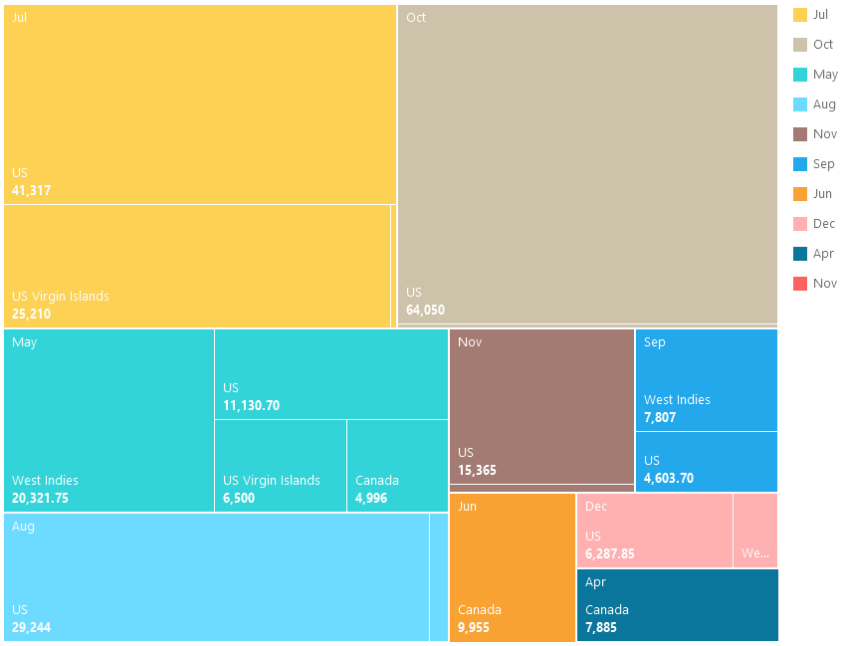


Chart Properties

Once you have selected a chart type, you can customize the chart by changing its properties:

Option	Description
General	
Background Color	Set the background color of the chart area.
Show border	Display the outer chart border.
Border Color	Set the color of the outer chart border.
Show title	Display the chart's main title.
Title	Specify the title of the chart.
Text Wrap	Enable text wrapping for long title strings so they automatically wrap onto multiple lines.
Title Font	Set the font style of the title.
Position	Set the position of the title.
Alignment	Set the vertical or horizontal alignment of the title.
Remarks	Enter remarks for the chart.
Legend	
Show legend	Display the legend container.
Position	Set the position for the legend.
Alignment	Set the vertical or horizontal alignment of the legend.
Label Color	Set the color of the legend labels.
Data	
Show data point names	Display the names of the data points.
Show data values	Display the values of the data points.
Show data percentages	Display the data percentages of the data points.
Data Label Color	Set the color of the data label.
Tile	Group the small tiles to a single tile (called Others).

Color	Set the color palette of the data points.
Data Formats - Number	
Prefix	Add prefix characters to all the numeric data on the chart.
Unit	Choose the unit to shorten the numeric data.
Suffix	Specify the suffix to label the customized unit.
Divider	Specify the divider for the customized unit.
Thousand Separator	Choose the thousands separator for numeric data.
Decimal Separator	Choose the decimal separator for numeric data.
Decimal Places	Specify decimal places for numeric data.
Negatives	Choose the format negative numbers are displayed.
Data Formats - DateTime	
Date / Time	Choose the date and time format of the data.
Custom	Customize the date and time format.

Relationships & Patterns

Charts that highlight relationships and patterns are ideal for uncovering correlations, distributions, and concentrations within your data. Whether plotting individual variables on a coordinate plane or using color intensity to map out dense data clusters, these visualizations help identify trends that might be missed in raw data tables.

Scatter Chart

A scatter chart plots data with individual data points placed along the X and Y axes.

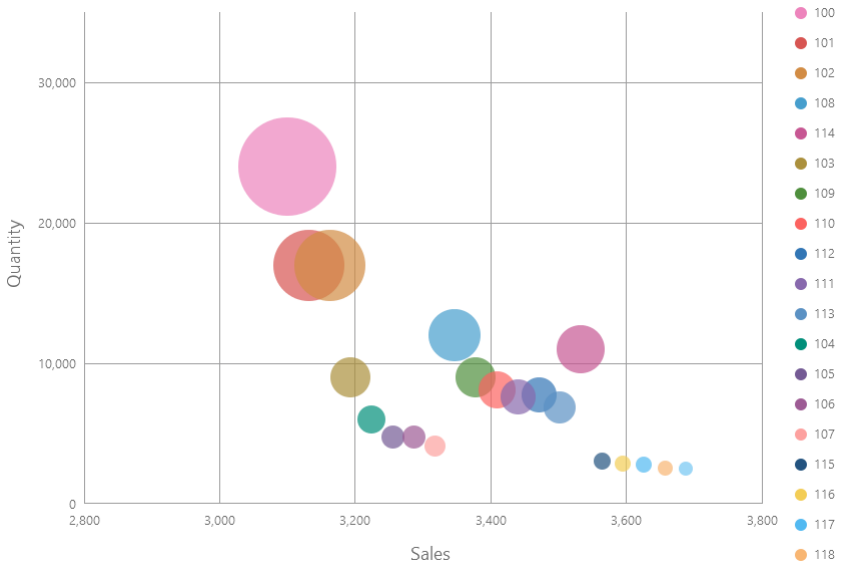


Chart Properties

Once you have selected a chart type, you can customize the chart by changing its properties:

Option	Description
General	
Background Color	Set the background color of the chart area.

Show border	Display the outer chart border.
Border Color	Set the color of the outer chart border.
Show title	Display the chart's main title.
Title	Specify the title of the chart.
Text Wrap	Enable text wrapping for long title strings so they automatically wrap onto multiple lines.
Title Font	Set the font style of the title.
Position	Set the position of the title.
Alignment	Set the vertical or horizontal alignment of the title.
Remarks	Enter remarks for the chart.
Legend	
Show legend	Display the legend container.
Position	Set the position for the legend.
Alignment	Set the vertical or horizontal alignment of the legend.
Label Color	Set the color of the legend labels.
Data	
Show size values	Display the size of the bubbles.
Density	Choose the density of the data series.
Color	Set the color palette of the data series.
Data Formats - Number	
Prefix	Add prefix characters to all the numeric data on the chart.
Unit	Choose the unit to shorten the numeric data.
Suffix	Specify the suffix to label the customized unit.
Divider	Specify the divider for the customized unit.
Thousand Separator	Choose the thousands separator for numeric data.
Decimal Separator	Choose the decimal separator for numeric data.
Decimal Places	Specify decimal places for numeric data.
Negatives	Choose the format negative numbers are displayed.
Data Formats - DateTime	
Date / Time	Choose the date and time format of the data.
Custom	Customize the date and time format.
X-Axis	
Show X-Axis title	Display the title of X-Axis.
X-Axis Title	Specify the title of X-Axis.
Font	Set the font style of X-Axis title.
Show X-Axis title at the end of axis	Display the title at the end of X-Axis.
Show X-Axis labels	Display labels on X-Axis.
Font / Bold	Set the font style of X-Axis labels.
X-Axis Label Rotation	Rotate X-Axis labels.
X-Axis Label Interval	Change the interval between X-Axis labels.

Show X-Axis	Display X-Axis line.
X-Axis Color	Set the color of X-Axis line.
Show grid line	Display the grid line of X-Axis.
Use custom range	Set the range of the grid lines. Enter values in **Start** and **End**. The graph drawing beyond this range will be clipped off.
Use custom interval	Change the Interval on X-Axis.
Tick Interval	Set the interval of the tick marks in axis units.
Y-Axis	
Show Y-Axis title	Display the title of Y-Axis.
Y-Axis Title	Specify the title of Y-Axis.
Font	Set the font style of Y-Axis title.
Show Y-Axis title at the end of axis	Display the title at the end of Y-Axis.
Show Y-Axis labels	Display labels on Y-Axis.
Font / Bold	Set the font style of Y-Axis labels.
Show Y-Axis	Display Y-Axis line.
Y-Axis Color	Set the color of Y-Axis line.
Show grid line	Display the grid line of Y-Axis.
Use custom range	Set the range of the grid lines. Enter values in **Start** and **End**. The graph drawing beyond this range will be clipped off.
Use custom interval	Change the Interval on Y-Axis.
Tick Interval	Set the interval of the tick marks in axis units.
Assistant Line	
⊕	Add an assistant line to the chart to show visual data trends, averages, normal distributions, etc.
⊖	Remove the selected assistant line.
✎	Rename the selected assistant line.
Value	Select a data series for the assistant line.
Group Value	Select a group value for the assistant line.
Type	Choose the type of assistant line you want.
Show R^2 value	Display the R^2 value on the chart.
Forward Forecast / Backward Forecast	Specify the number of periods to include in a forecast.
Align with other lines	Align the assistant line with others.
Period	Specify the number of data points used to average the point value.
Smooth	Smooth the angles of the line.
Use custom color	Customize the color of the line.
Line Color	Set the color of the line.
Cap Style	Choose the cap style of the line.
Dash Style	Choose the dash style of the line.
Join Style	Choose the join style of the line.

Visible	Check this box to show the line.

Heatmap

A heatmap represents data in a tabular format as a range of color. A more intense color represents a larger aggregated value for a particular data point.

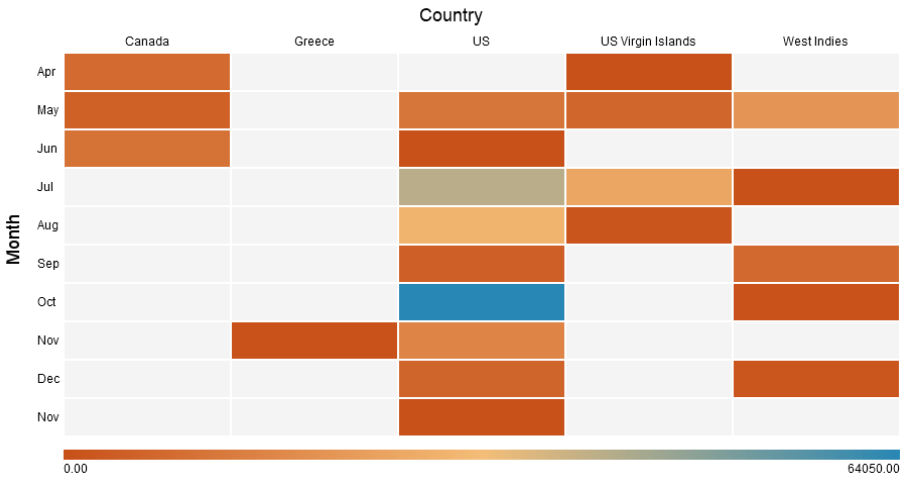


Chart Properties

Once you have selected a chart type, you can customize the chart by changing its properties:

Option	Description
General	
Background Color	Set the background color of the chart area.
Show Border	Display the outer chart border.
Border Color	Set the color of the outer chart border.
Show title	Display the chart's main title.
Title	Specify the title of the chart.
Text Wrap	Enable text wrapping for long title strings so they automatically wrap onto multiple lines.
Title Font	Set the font style of the title.
Position	Set the position of the title.
Alignment	Set the vertical or horizontal alignment of the title.
Remarks	Enter remarks for the chart.
Legend	
Show legend	Display the legend container.
Position	Set the position for the legend.
Label Color	Set the color of the legend labels.
Data	
Show data values	Display the values of the data series.
Show data percentages	Display the percentages of the data series.
Font	Set the font style of data labels.

Diverging	Use diverging color scale.
Use custom min/max values	Customize the color of the min, center, and max values. Navicat calculates the cell color based on the color of these values.
Min Color	Set the color of the minimum value in the colormap.
Center Color	Set the color of the value at which to center the colormap.
Max Color	Set the color of the maximum value in the colormap.
Min Value	Specify the minimum value.
Max Value	Specify the maximum value.
Data Formats - Number	
Prefix	Add prefix characters to all the numeric data on the chart.
Unit	Choose the unit to shorten the numeric data.
Suffix	Specify the suffix to label the customized unit.
Divider	Specify the divider for the customized unit.
Thousand Separator	Choose the thousands separator for numeric data.
Decimal Separator	Choose the decimal separator for numeric data.
Decimal Places	Specify decimal places for numeric data.
Negatives	Choose the format negative numbers are displayed.
Data Formats - DateTime	
Date / Time	Choose the date and time format of the data.
Custom	Customize the date and time format.
Column	
Show column title	Display the title of the column.
Column Title	Specify the title of the column.
Column Title Font	Set the font style of the column title.
Show column label	Display the column label.
Column Label Color	Set the color of the column label.
Row	
Show row title	Display the title of the row.
Row Title	Specify the title of the row.
Row Title Font	Set the font style of the row title.
Show row label	Display the row label.
Row Label Color	Set the color of the row label.

Performance, Targets & Summary Metrics

Charts in this category are designed to give you an immediate, high-level overview of key metrics. By distilling complex datasets into single aggregated values, tracking period-over-period changes, or measuring progress against specific goals, these visualizations provide the essential insights needed for performance dashboards.

Value

A value displays a single aggregated value from a data field, e.g. total.

Total

$259,619.25

Chart Properties

Once you have selected a chart type, you can customize the chart by changing its properties:

Option	Description
General	
Background Color	Set the background color of the chart area.
Show border	Display the outer chart border.
Border Color	Set the color of the outer chart border.
Show title	Display the chart's main title.
Title	Specify the title of the chart.
Text Wrap	Enable text wrapping for long title strings so they automatically wrap onto multiple lines.
Title Font	Set the font style of the title.
Position	Set the position of the title.
Alignment	Set the vertical or horizontal alignment of the title.
Remarks	Enter remarks for the chart.
Data	
Data Label Font	Set the font style of the data label.
Negative Font Color	Set the color of the negative value.
Alignment	Set the horizontal alignment of the data label.
Data Formats - Number	
Prefix	Add prefix characters to all the numeric data on the chart.
Unit	Choose the unit to shorten the numeric data.
Suffix	Specify the suffix to label the customized unit.
Divider	Specify the divider for the customized unit.
Thousand Separator	Choose the thousands separator for numeric data.
Decimal Separator	Choose the decimal separator for numeric data.
Decimal Places	Specify decimal places for numeric data.
Negatives	Choose the format negative numbers are displayed.
Data Formats - DateTime	
Date / Time	Choose the date and time format of the data.
Custom	Customize the date and time format.

Trend

A trend displays that the current value is trending up or down compared to the previous value, and the percentage change.

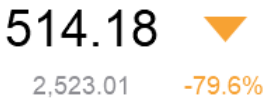


Chart Properties

Once you have selected a chart type, you can customize the chart by changing its properties:

Option	Description
General	
Background Color	Set the background color of the chart area.
Show border	Display the outer chart border.
Border Color	Set the color of the outer chart border.
Show title	Display the chart's main title.
Title	Specify the title of the chart.
Text Wrap	Enable text wrapping for long title strings so they automatically wrap onto multiple lines.
Title Font	Set the font style of the title.
Position	Set the position of the title.
Alignment	Set the vertical or horizontal alignment of the title.
Remarks	Enter remarks for the chart.
Data	
Show previous value	Display the previous value.
Show difference	Display the **Value** / **Percentage** difference between the current value and the previous value.
Show indicator	Display the up or down indicator.
Main Label Font	Set the font style of the main label.
Previous Value Color	Set the color of the previous value.
Target Met Color	Set the color of the indicator and the percentage when the value is trending up.
Target Missed Color	Set the color of the indicator and the percentage when the value is trending down.
Data Formats - Number	
Prefix	Add prefix characters to all the numeric data on the chart.
Unit	Choose the unit to shorten the numeric data.
Suffix	Specify the suffix to label the customized unit.
Divider	Specify the divider for the customized unit.
Thousand Separator	Choose the thousands separator for numeric data.
Decimal Separator	Choose the decimal separator for numeric data.
Decimal Places	Specify decimal places for numeric data.
Negatives	Choose the format negative numbers are displayed.

KPI

A KPI displays a comparison between a key value and its target value with a progress bar.

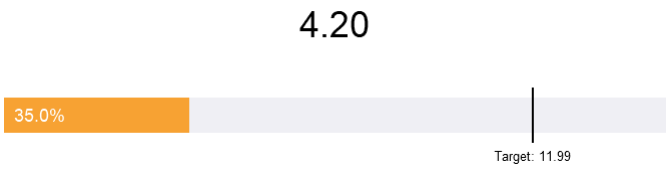


Chart Properties

Once you have selected a chart type, you can customize the chart by changing its properties:

Option	Description
General	
Background Color	Set the background color of the chart area.
Show border	Display the outer chart border.
Border Color	Set the color of the outer chart border.
Show title	Display the chart's main title.
Title	Specify the title of the chart.
Text Wrap	Enable text wrapping for long title strings so they automatically wrap onto multiple lines.
Title Font	Set the font style of the title.
Position	Set the position of the title.
Alignment	Set the vertical or horizontal alignment of the title.
Remarks	Enter remarks for the chart.
Data	
Main Label Displayed	Display the **Actual** value or the **Comparison** percentage in the main label.
Main Label Font	Set the font style of the main label.
Indicator Thickness	Set the font size of the sub-label on the bar.
Sub Label Color	Set the color of the sub-label on the bar.
Target Caption	Specify the caption of the target label.
Use custom target value	Set the target value.
Target Label Color	Set the color of the target label.
Target Met Color	Set the color of the bar when the value reaches the target.
Target Missed Color	Set the color of the bar when value does not reach the target.
Data Formats - Number	
Prefix	Add prefix characters to all the numeric data on the chart.
Unit	Choose the unit to shorten the numeric data.
Suffix	Specify the suffix to label the customized unit.
Divider	Specify the divider for the customized unit.
Thousand Separator	Choose the thousands separator for numeric data.
Decimal Separator	Choose the decimal separator for numeric data.
Decimal Places	Specify decimal places for numeric data.

Negatives	Choose the format negative numbers are displayed.

Gauge

A gauge is a meter type chart. It has a circular arc and displays a single value which measures the progress toward the target value (the goal).

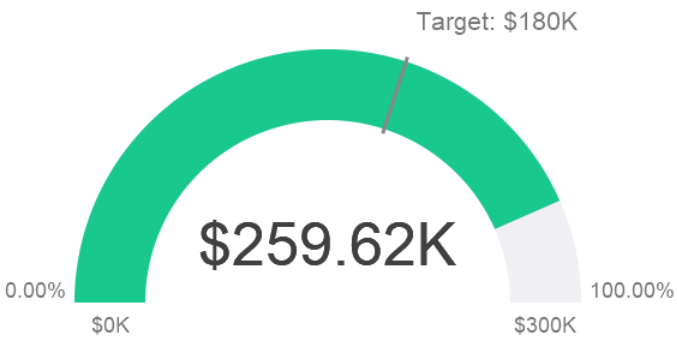


Chart Properties

Once you have selected a chart type, you can customize the chart by changing its properties:

Option	Description
General	
Background Color	Set the background color of the chart area.
Show border	Display the outer chart border.
Border Color	Set the color of the outer chart border.
Show title	Display the chart's main title.
Title	Specify the title of the chart.
Text Wrap	Enable text wrapping for long title strings so they automatically wrap onto multiple lines.
Title Font	Set the font style of the title.
Position	Set the position of the title.
Alignment	Set the vertical or horizontal alignment of the title.
Remarks	Enter remarks for the chart.
Data	
Show pointer	Display the needle.
Pipe Width Percentage	Set the percentage that the scale occupies the gauge area.
Background Color	Set the background color of the scale when the needle is not displayed.
Target Color	Set the color of the target line.
Pointer Color	Set the color of the needle.
Value Display	Display the actual data or the comparison percentage of the value.
Value Font	Set the font style of the value.
Target Display	Display the actual data or the comparison percentage of the target value.

Target Caption	Specify the caption of the target label.
Use custom target value	Set the target value.
Target Font	Set the font style of the target value.
Min/Max Displayed	Display the actual data or the comparison percentages of the minimum and maximum values.
Use custom min value	Set the value that the scale starts at.
Use custom max value	Set the value that the scale ends.
Min/Max Font	Set the font style of the minimum and maximum values.
Partition Label Displayed	Display the actual data or the comparison percentages of the partition labels.
Partition Label Font	Set the font style of the partition labels.
Partition (Max. 8)	Divide the scale into number of partitions.
Partition Style	Divide the scale equally or custom the starting percentage of each partition.
Data Formats - Number	
Prefix	Add prefix characters to all the numeric data on the chart.
Unit	Choose the unit to shorten the numeric data.
Suffix	Specify the suffix to label the customized unit.
Divider	Specify the divider for the customized unit.
Thousand Separator	Choose the thousands separator for numeric data.
Decimal Separator	Choose the decimal separator for numeric data.
Decimal Places	Specify decimal places for numeric data.
Negatives	Choose the format negative numbers are displayed.

Tabular Data & Controls

Tabular visualizations and interactive controls provide highly structured, detailed views of your datasets and allow users to actively filter and manipulate dashboard information during presentations.

Table

A table represents data in a tabular view and calculates the total at the end of each column.

Job Title	No. of Employees
AC_ACCOUNT	31
AC_MGR	31
AD_ASST	31
AD_PRES	31
AD_VP	62
FI_ACCOUNT	155
FI_MGR	31
HR_REP	31
IT_PROG	155
MK_MAN	31
MK_REP	31
PR_REP	31
PU_CLERK	155
PU_MAN	31
SA_MAN	155
SA_REP	930
SH_CLERK	620
ST_CLERK	620
ST_MAN	155
	3317.00

Chart Properties

Once you have selected a chart type, you can customize the chart by changing its properties:

Option	Description
General	
Background Color	Set the background color of the chart area.
Show border	Display the outer chart border.
Border Color	Set the color of the outer chart border.
Show title	Display the chart's main title.
Title	Specify the title of the chart.
Text Wrap	Enable text wrapping for long title strings so they automatically wrap onto multiple lines.
Title Font	Set the font style of the title.
Position	Set the position of the title.
Alignment	Set the vertical or horizontal alignment of the title.
Remarks	Enter remarks for the chart.
Data	
Font	Set the font style of the field names and data.
Show alternate row colors	Apply color to alternate rows.
Show vertical grid line	Display the vertical grid line.
Show horizontal grid line	Display the horizontal grid line.
Color	Set the color palette of the data series.
Data Formats - Number	
Prefix	Add prefix characters to all the numeric data on the chart.
Unit	Choose the unit to shorten the numeric data.
Suffix	Specify the suffix to label the customized unit.
Divider	Specify the divider for the customized unit.
Thousand Separator	Choose the thousands separator for numeric data.
Decimal Separator	Choose the decimal separator for numeric data.
Decimal Places	Specify decimal places for numeric data.

Negatives	Choose the format negative numbers are displayed.
Data Formats - DateTime	
Date / Time	Choose the date and time format of the data.
Custom	Customize the date and time format.
Databar	
Style	Format the cells by using data bars.
Show bar only item	Only show the data bars in the cells, without the numbers.
Custom min/max values	Customize the min and max values of the data bars.
Min value	Specify the minimum value of the data bar.
Max value	Specify the maximum value of the data bar.
Positive bar color	Set the color of the data bars with positive values.
Negative bar color	Set the color of the data bars with negative values.
Axis color	Set the color of the axis for separating the positive bar and the negative bar.
Total	
Show total	Display totals in the last row of the table.
Total Color	Set the color of the total values.

Pivot Table

A pivot table shows measure values for the intersection of two dimensions and represents data in a tabular view.

Monthly State Sales Report

State	Apr	May	Jun	Jul	Aug	Sep	Oct	Total
BC	$7,885		$9,955					17840.00
CA						$971.70		7259.55
Corfu								766.80
FL		$2,814.70	$0	$32,793	$10,712			46319.70
GA			$0		$18,532			18532.00
HI		$3,115		$8,524			$64,050	91054.00
Jamaica		20,321.75		$343.80		$7,807	$787.80	31070.20
OR		$5,201	$0			$3,632		8833.00
Ontario		$4,996						4996.00
St. Croix	$0	$6,500		$25,210	$1,238			32948.00
Total	7885.00	42948.45	9955.00	66870.80	30482.00	12410.70	64837.80	259619.25

Chart Properties

Once you have selected a chart type, you can customize the chart by changing its properties:

Option	Description
General	
Background Color	Set the backgro6und color of the chart area.
Show border	Display the outer chart border.
Border Color	Set the color of the outer chart border.
Show title	Display the chart's main title.
Title	Specify the title of the chart.
Text Wrap	Enable text wrapping for long title strings so they automatically wrap onto multiple lines.

Title Font	Set the font style of the title.
Position	Set the position of the title.
Alignment	Set the vertical or horizontal alignment of the title.
Remarks	Enter remarks for the chart.
Data	
Font	Set the font style of the field names and data.
Show alternate row colors	Apply color to alternate rows.
Show vertical grid line	Display the vertical grid line.
Show horizontal grid line	Display the horizontal grid line.
Color	Set the color palette of the data series.
Data Formats - Number	
Prefix	Add prefix characters to all the numeric data on the chart.
Unit	Choose the unit to shorten the numeric data.
Suffix	Specify the suffix to label the customized unit.
Divider	Specify the divider for the customized unit.
Thousand Separator	Choose the thousands separator for numeric data.
Decimal Separator	Choose the decimal separator for numeric data.
Decimal Places	Specify decimal places for numeric data.
Negatives	Choose the format negative numbers are displayed.
Data Formats - DateTime	
Date / Time	Choose the date and time format of the data.
Custom	Customize the date and time format.
Databar	
Style	Format the cells by using data bars.
Show bar only item	Only show the data bars in the cells, without the numbers.
Custom min/max values	Customize the min and max values of the data bars.
Min value	Specify the minimum value of the data bar.
Max value	Specify the maximum value of the data bar.
Positive bar color	Set the color of the data bars with positive values.
Negative bar color	Set the color of the data bars with negative values.
Axis color	Set the color of the axis for separating the positive bar and the negative bar.
Total	
Show row total	Display totals in the last row of the table. Enter the name of the row total, and set the color of the values and the background color.
Show column total	Display totals in the last column of the table. Enter the name of the column total, and set the color of the values and the background color.
Show row subtotal	Display totals in the last row of the group. Enter the name of the row subtotal, and set the color of the values

	and the background color.
Show column subtotal	Display totals in the last column of the group. Enter the name of the column subtotal, and set the color of the values and the background color.

Control

A control allows you to filter the data series of all charts in the dashboard that have the same data source during the presentation.

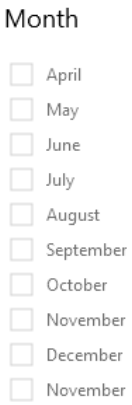


Chart Properties

Once you have selected a chart type, you can customize the chart by changing its properties:

Option	Description
General	
Background Color	Set the background color of the chart area.
Show border	Display the outer chart border.
Border Color	Set the color of the outer chart border.
Show title	Display the chart's main title.
Title	Specify the title of the chart.
Text Wrap	Enable text wrapping for long title strings so they automatically wrap onto multiple lines.
Title Font	Set the font style of the title.
Position	Set the position of the title.
Alignment	Set the vertical or horizontal alignment of the title.
Remarks	Enter remarks for the chart.
Data	
Data Label Color	Set the color of the data label.
Style	Show the data as a list, a range or a combo box.
Data Formats - Number	
Prefix	Add prefix characters to all the numeric data on the chart.
Unit	Choose the unit to shorten the numeric data.
Suffix	Specify the suffix to label the customized unit.

Divider	Specify the divider for the customized unit.
Thousand Separator	Choose the thousands separator for numeric data.
Decimal Separator	Choose the decimal separator for numeric data.
Decimal Places	Specify decimal places for numeric data.
Negatives	Choose the format negative numbers are displayed.
Data Formats - DateTime	
Date / Time	Choose the date and time format of the data.
Custom	Customize the date and time format.

DateTime Formats

When presenting time-series data or date-based metrics, raw database timestamps can quickly clutter your visualizations. Applying custom format specifiers allows you to control exactly how date and time values are rendered across the different visual components of your charts.

Available Specifiers

The following table shows specifiers you can use to create user-defined data formats for DateTime fields in a chart.

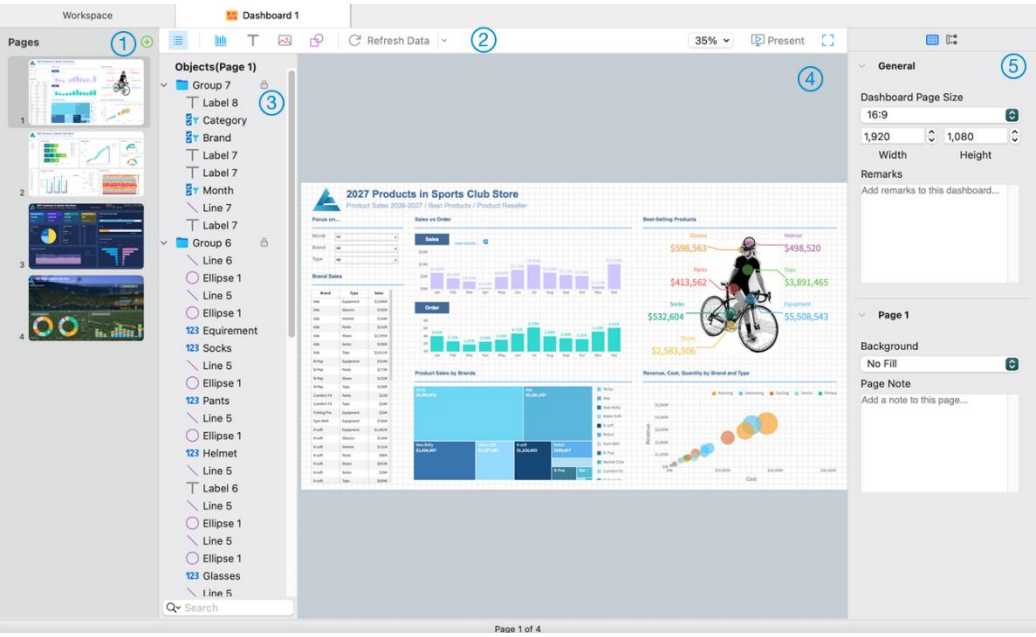
Specifier	Description
D	Display the day as a number without a leading zero (1-31).
DD	Display the day as a number with a leading zero (01-31).
M	Display the month as a number without a leading zero (1-12).
MM	Display the month as a number with a leading zero (01-12).
MMM	Display the month as an abbreviation (Jan-Dec).
MMMM	Display the month as a full month name (January-December).
MMMMM	Display the month as a narrow name (J-D).
YY	Display the year in two-digit numeric format with a leading zero (00-99).
YYYY	Display the year in four-digit numeric format (0000-9999).
h	Display the hour as a number without a leading zero using the 12-hour clock (1-12).
hh	Display the hour as a number with a leading zero using the 12-hour clock (01-12).
H	Display the hour as a number without a leading zero using the 24-hour clock (0-23).
HH	Display the hour as a number with a leading zero using the 24-hour clock (00-23).
m	Display the minute as a number without a leading zero (0-59).
mm	Display the minute as a number with a leading zero (00-59).
S	Display the second as a number without a leading zero (0-59).
SS	Display the second as a number with a leading zero (00-59).
wd	Display the day as a single letter abbreviation (S-S).

Wd	Display the day as an abbreviation (Sun-Sat).
WD	Display the day as a full name (Sunday-Saturday).
w	Display the week of the year (1-52, start of week is Sunday).
WW	Display the week of the year (W01-W52, start of week is Sunday).
q	Display the quarter of the year (1-4).
QQ	Display the quarter of the year (Q1-Q4).
p	Display an uppercase AM with any hour before noon; display an uppercase PM with any hour between noon and 11:59 P.M.

Dashboard

Build Dashboard

Dashboard is a collection of charts which allows you to create and view your data visualizations. When you modify a chart, any dashboards containing it will reflect the changes.



① Pages Pane

The Pages pane shows thumbnail images of each page in the dashboard. If the Pages pane is hidden, choose **View -> Show Pages** from the menu bar.

② Dashboard Toolbar

The Dashboard Toolbar provides controls that you can use to refresh the data and present the dashboard.

③ Object List

The Object List shows all elements inside the current dashboard page. If the list is hidden, click the icon.

④ Design Pane

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

⑤ Properties Pane

The **Dashboard Properties** tab includes the basic layout settings. The properties vary with the type of the object.

The **Using** tab shows the charts and data sources that the dashboard depends on.

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

Create New Dashboard

The essential steps to create a dashboard are:

1. In the Workspace window, click .
2. Enter the name of the dashboard.
3. Click **OK**.
4. A tab will be opened for your newly created dashboard.
5. Design your dashboard.
6. Select the properties on the right pane which can be further customized for your dashboard.

   Note: Each object has different properties.

Refresh Dashboard Data

To ensure your visualizations display accurate metrics, you can trigger data updates to pull the latest information directly from your underlying data sources.

- **Manual Refresh** - Click the **Refresh Data** to instantly update all charts on the current dashboard view.
- **Auto Refresh** - Click the down arrow located next to the **Refresh Data** to open the timing menu. From here, you can select a specific automated refresh interval (e.g., 1 minute) to keep your dashboard dynamically up to date without manual intervention.

Working with Grids

Show Grid

To turn the grid on in the dashboard, choose **View** -> **Show Grid** from the menu bar.

Snap to Grid

To align objects on the dashboard with the grid, choose **View** -> **Snap to Grid** from the menu bar.

Design Dashboard

Navicat provides a comprehensive suite of design tools to help you build interactive and visually appealing dashboards. From adding multiple pages and integrating interactive charts to customizing your layout with descriptive text, images, and shapes, these elements give you complete control over how you present your data.

Add Dashboard Pages

The Pages pane shows all pages in the dashboard. It displays thumbnails of your dashboard pages.

To add a new page

1. On the Dashboard tab, click the **+** button on the Pages pane.
2. A blank page will be added and selected.

The available properties of a page:

Option	Description
General	
Dashboard Page Size	Customize the size of pages in the dashboard.
Remarks	Enter remarks for the dashboard.
Page #	
Background	Set the background color of the page. If you choose **Image Fill**, you can choose the image file and the scaling option.
Opacity	Set the opacity of the image.
Page Note	Enter the reference, comment, or explanation of the page.

Add Charts

Charts provide visual representations of the data in your data source.

To add a chart

1. On the Dashboard tab, click .
2. All available charts in the workspace will be shown as thumbnails. If no charts are available, click to create one. For detailed instructions on creating charts, see Build Charts.
3. Drag a chart to the Design pane.

The available properties of a chart:

Option	Description
Position	Customize the position of the chart.
Size	Customize the size of the chart.
Target Charts	Choose which charts in the dashboard the chart can control.

Chart Interaction	
As an interaction control	Set the chart as an interaction control.
Related charts	**None** - Disable the interaction behavior of the chart. **Highlight** - Cross-highlight the chart on the dashboard by the selected data point. The unrelated data is still visible but dimmed. **Filter** - Cross-filter the chart on the dashboard by the selected data point. The unrelated data isn't visible.

Add Text Labels

Text labels are typically used to help document the dashboard, such as adding a dashboard title, URL links.

To add a text label

1. On the Dashboard tab, click T.
2. Place it on the dashboard.
3. Enter the caption.

The available properties of a text label:

Option	Description
Position	Customize the position of the label.
Size	Customize the size of the label.
Caption	Enter the caption of the label.
Horizontal Alignment / Vertical Alignment	Specify the text alignment of the label caption.
Padding	Set the horizontal and vertical padding for the text.
Font	Set the font style of the label caption.
Bold	Apply a bold style to the label caption.
Italic	Apply an italic style to the label caption.
Background Color	Set the background color of the label.
URL	Enter URL path to set the text as a hyperlink.
Page Navigation	Configure the label to open a different page within the dashboard when clicked.

Add Images

You can insert images (BMP, JPG, JPEG or PNG files) to your dashboard for design or identification purposes.

To add an image

1. On the Dashboard tab, click .
2. Select an image file in the Open dialog box.

The available properties of an image:

Option	Description
Opacity	Set the opacity of the image.
Position	Customize the position of the image.
Size	Customize the size of the image.
Original Size	Reset the image to its original size.
URL	Enter URL path to set the image as a hyperlink.
Page Navigation	Configure the image to open a different page within the dashboard when clicked.

Add Shapes

Navicat includes some pre-defined shapes for creating a dashboard: line, arrow, rectangle, ellipse, triangle, right triangle, right arrow, database, cloud, trigger, server, desktop, mobile, man, woman.

To add a shape

1. On the Dashboard tab, click and choose a shape type.
2. Place it on the dashboard.

To add a vertex on a line or an arrow

1. Select a line or an arrow on the dashboard.
2. Press and hold the SHIFT key and click on it.

To delete a vertex on a line or an arrow

1. Select a line or an arrow on the dashboard.
2. Press and hold the SHIFT key and click on the vertex.

The available properties of a shape:

Option	Description
Position	Customize the position of the shape.
Size	Customize the size of the shape. Only for rectangle, ellipse, triangle, right triangle, right arrow, database, cloud, trigger, server, desktop, mobile, man and woman.
Color	Set the color of the shape.
Show border	Display the outer shape border. Only for rectangle, ellipse, triangle, right triangle, right arrow, database, cloud, trigger, server, desktop, mobile, man and woman.
Border Color	Change the color of the shape's border. Only for rectangle, ellipse, triangle, right triangle, right arrow,

	database, cloud, trigger, server, desktop, mobile, man and woman.
Border Width	Choose the thickness of the border. Only for rectangle, ellipse, triangle, right triangle, right arrow, database, cloud, trigger, server, desktop, mobile, man and woman.
Line Width	Choose the thickness of the shape.
Cap Style	Choose the cap style of the line/arrow.
Dash Style	Choose the dash style of the line/arrow.
Join Style	Choose the join style of the line/arrow.
Begin Arrow Style	Choose the style of the arrow's back.
End Arrow Style	Choose the style of the arrow's front.
URL	Enter URL path to set the shape as a hyperlink.
Page Navigation	Configure the shape to open a different page within the dashboard when clicked.

Add Tile Layers

Tile layers act as structural structural layouts within your dashboards, allowing you to group, organize, and neatly partition different visualization elements.

To add a tile layer

1. On the Dashboard tab, click .
2. Place it on the dashboard.

To place an element into a tile layer

1. Drag your target chart, text label, image, or shape and drop it directly within the boundaries of the tile layer container.

The available properties of a tile layer:

Option	Description
Position	Customize the position of the tile layer.
Size	Customize the size of the tile layer.
Color	Set the color of the tile layer.
Layout	Control how embedded elements are arranged inside the layer. Horizontal - Arrange items side-by-side in a row. Vertical - Stack items sequentially top-to-bottom in a column. Floating - Allow absolute positioning, letting items overlap or sit anywhere freely.
Distribution	Define how space is dynamically allocated among items in the layer. None - No automatic scaling; elements retain their custom dimensions.

	Fill Equally - Uniformly resize all contained items to occupy identical space. Fill Proportionally - Space out items relative to their original dimension ratios.

Arrange Objects

You can arrange the objects on a dashboard page in the following ways:

- Move objects forward and backward to layer them.
- Align an object with other objects.
- Distribute the objects horizontally or vertically.
- Group objects to more easily move them as a single unit and synchronize the axis of the related charts.
- Lock objects to prevent them from moving, modifying, or deleting.

Move Objects Forward / Backward

To send an object to the back of the dashboard, control-click it and select **Send to Back**.

To bring an object to the front of the dashboard, control-click it and select **Bring to Front**.

Align Objects

Select multiple objects, then control-click and select **Alignment** -> **Align Left**, **Align Center**, **Align Right**, **Align Top**, **Align Middle** or **Align Bottom**.

Change Objects Distribution

Select multiple objects, then control-click and select **Distribute** -> **Horizontal** or **Vertical**.

Group Objects

Select multiple objects, then click **Group** on the Properties pane and enable the following properties if necessary.

Option	Description
Link Scrolling	Synchronize the scrollbar of all charts.
Link Highlight	Hover over a data point on one of the charts will highlight the same data points on the others.
Show Hints When Highlight	Pop up the hint labels when hovering over a data point on one of the charts.

Ungroup Objects

Select the group, then click **Ungroup** on the Properties pane.

Lock Objects

Select an object, then click **Lock** on the Properties pane.

Unlock Objects

Select the locked object, then click **Unlock** on the Properties pane.

Show Alignment Guide

To display dynamic alignment smart guides when dragging or moving an object on the page, choose **View** -> **Alignment Guide** -> **Show Alignment Guide** from the menu bar.

You can toggle 4 distinct alignment options to control how objects snap and reference one another:

Option	Description
Show Guides at Object Center	Display guidelines when the center point of the object you are moving aligns horizontally or vertically with the center point of another object.
Show Guides at Object Edges	Display guidelines when any outer edge (top, bottom, left, or right) of the object you are moving aligns flush with the edge of another object.
Show Guides for Relative Sizing	Display visual indicators when the width or height of the object you are resizing matches the dimensions of an adjacent object.
Show Guides for Relative Spacing	Display dynamic spacing markers to ensure equal padding or gaps between a series of consecutive objects.

Resize Objects

After selecting an object on the canvas, you have multiple ways to adjust its size.

To freely resize an object

3. Select the object.
4. Move your mouse pointer over one of the handles, then click and drag.

To resize an object while keeping its original proportions intact

4. Select the object.
5. Press and hold down SHIFT.
6. Move your mouse pointer over one of the handles, then click and drag.

Present Dashboard

You can present the dashboard using the whole screen. The title bar, toolbar, tab bar, Pages pane, Control List and Properties pane will be hidden while in this mode. To open a dashboard in present view, click **Present**.

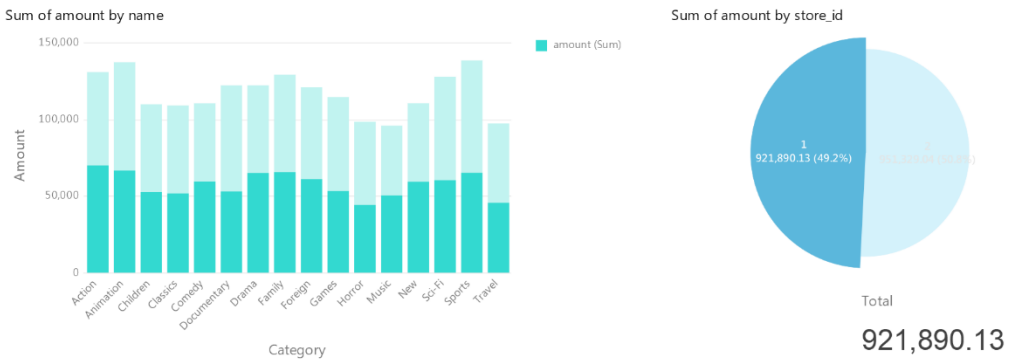
Use the arrow keys to navigate between pages.

To exit present view, press the ESC key and the workspace window will be returned to its previous state.

Chart Interaction

All charts on a dashboard with the same data source can be interconnected. If you select a data point on one of the charts, all the other charts on the dashboard page that contain the same data will change based on your selection.

You can turn off chart interaction, or change the behavior to cross-filtering or cross-highlighting in the dashboard properties.



If you have added a control chart to your dashboard, you can filter the data series of all charts by using the control.

Sort Chart

In presentation mode, you can organize your data in a chart with one click. You can sort data series by a value.

1. Hover over a chart until you see the icon in the upper-right corner.
2. Click the icon to sort on a different value and select the sorting order.

Use Parameter

If you assigned a parameter, BI will automatically render a functional control during presentation mode. You can then dynamically adjust the value of that specific measure on during presentation.

To change the parameter value:

1. In presentation mode, control-click the page and select **Modify Parameter Value**.
2. Select your desired parameter from the list.
3. Change the value manually.

Hint: If you assigned a numeric range rule to your parameter, you can dynamically adjust the value of that specific measure by dragging the interactive slider.

Print & Export Dashboard

After crafting your ideal dashboard, you will likely need to share your insights with colleagues. Navicat provides straightforward options to directly print physical copies of your dashboard pages or export them into versatile digital formats for reports and presentations.

Print Dashboard

To send your dashboard pages directly to a physical printer:

1. Choose **File** -> **Print**.
2. Configure your specific printing preferences in the pop-up window that appears.

Export Dashboard to File

To save your dashboard pages as a digital document or image:

1. Choose **File** -> **Export To**.
2. Select your desired file format to create a PDF, PNG, SVG, or JPG file of your dashboard pages.

Parameter

Parameters provide a powerful way to visualize, quantify, and dynamically interact with key values inside your BI workspace. Once created, a parameter becomes a global variable available across your entire workspace.

You can implement parameters within the following functional layers:

- Data Source: Query Editor, Filter, and Custom Field
- Chart: Data Filter, Display Filter, and Chart Title
- Dashboard: Text Label Caption, Text Label URL, Image URL, and Shape URL

Add New Parameter

The essential steps to create a parameter are:

1. In the Workspace window, click .
2. Enter a unique, recognizable name for your parameter.
3. Choose which layers are permitted to reference this parameter.
4. Select the parameter's data type.
5. Define the **Allowed Value** rule using one of the three options below:

Rule Type	Description
Any	Accept any manual input that matches the assigned data type.
List	Restrict selections to a rigid, predefined list. **Value** - Enter the underlying data literal. **Description** - (Optional) Add a user-friendly description.
Range	Restrict values to a sliding numeric or date scale. **Minimum** - Define the lower boundary. **Maximum** - Define the upper boundary. **Step Size** - Set the specific incremental jump value.

6. Provide a **Current Value** to serve as the parameter's default initialization state.

7. Click **OK**.

Use Parameter

Once you have created a parameter, you can integrate it across different layers of your BI workspace to drive dynamic data filtering, custom query inputs, and reactive dashboard labels.

Set Parameter in Query

1. In the Query Editor, click the icon on the right pane.

2. Drag and drop your desired parameter into the editor.

Set Parameter in Filter

1. In the Filter pane, add a new filtering condition.

2. Click the default field name to choose the target identifier column.

3. Click the operator drop-down to select your comparison operator.

4. Click <?> and choose your parameter from the list.

5. Click **OK**.

Set Parameter in Title, Caption, and URL

1. Click the icon inside any supported title, caption, or URL text input box.

2. Drag and drop the chosen parameter into the left configuration box.

3. Click **OK**.

Use Parameter when Presenting

If you assigned a parameter, BI will automatically render a functional control during presentation mode. You can then dynamically adjust the value of that specific measure on during presentation.

To change the parameter value:

1. In presentation mode, control-click the page and select **Modify Parameter Value**.
2. Select your desired parameter from the list.
3. Change the value manually.

Hint: If you assigned a numeric range rule to your parameter, you can dynamically adjust the value of that specific measure by dragging the interactive slider.

Switch Theme

While Navicat allows you to set a global Light or Dark theme for the main application interface, your BI workspace operates independently. This separation ensures that your data visualizations always look exactly how you intend them to be presented, regardless of your personal UI preferences.

Switching the theme of your charts and dashboards can help enhance the contrast of your data points, reduce eye strain during extended analysis sessions, or better align your visuals with your company's branding for exported reports.

Change Chart & Dashboard Theme

To manually adjust the appearance of your visualizations:

1. Open your BI workspace.
2. Click to choose between the available themes for your current visual elements.

Chapter 23 - Automation (Available only in Enterprise and Standard Edition)

Navicat allows you to automate the execution of jobs at one or more regular intervals, beginning and ending at a specific date and time. You can define a list of jobs to be performed within one batch job, either to run manually, at a specified time, or periodically.

Supported automation tasks include: Query, Backup, Data Masking, Data Transfer, Data Synchronization, Data Generation, Data Dictionary, Aggregation Pipeline, BI, Model, Import, Export, MongoDump, MongoImport, MongoExport, and MapReduce.

Hint: You can run a batch job in Terminal with this command:
ProgramPath -batchjob BatchJobName

Example: *./"Navicat Premium.app"/Contents/MacOS/"Navicat Premium" -batchjob job1*

Create Batch Job

Creating a batch job allows you to group multiple database operations into a single, streamlined workflow. Once compiled, these combined tasks can be executed sequentially either on-demand or automatically on a schedule.

To create a batch job

1. In the main window, click **Automation**.
2. Click .
3. In the bottom pane of the **General** tab, select the job type and locate your jobs.

   Hint: You are allowed to run profiles from different servers in a single batch job.
4. Move jobs from the **Available Jobs** list to the **Selected Jobs** list by double-clicking or dragging them.
5. (Optional) In the **Advanced** tab, set email notification.
6. Click .
7. Click to run the batch job immediately, or to automate it.

Hint: Batch Job files are saved under the default path, e.g. /home/your_username/.config/navicat/Premium/Profiles.

Special Job Actions

If you want to backup whole server, you can select the connection and select **Backup Server xxx**.

You can export BI dashboards or model data dictionaries to PDF files. Adding a BI workspace file to the Selected Jobs list will allow you to choose the export file format and specify the target directory. You can enable the **Append timestamp to file name** option to append timestamp to the name of the exported file.

Exported files can be added to the batch job as mail attachment. Select the job in the Selected Jobs list and click or to add or remove the mail attachment.

Advanced Options & Email Notification

Navicat allows you to generate and send personalized emails with the files returned from a schedule. You can configure these settings in the **Advanced** tab.

Option	Description
Continue on error	Ignore errors that are encountered during the job execution process.
Enable Batch Job History	Log detailed records of every batch job run for both manual executions and automated schedule runs in the History tab.
Send Email	Navicat allows you to generate and send personalized emails with results returned from a schedule. The results can be emailed to multiple recipients.
When	Specify when to send notification emails: the task completed successfully and/or failed.
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.

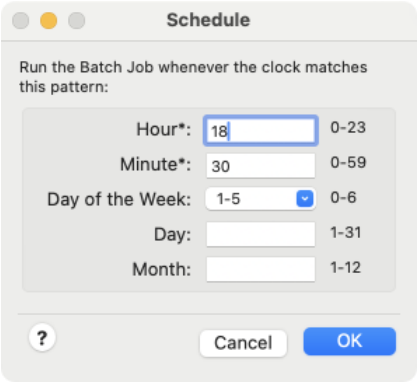
Set Task Schedule

You can click to set schedule for running a batch job and click to remove the schedule.

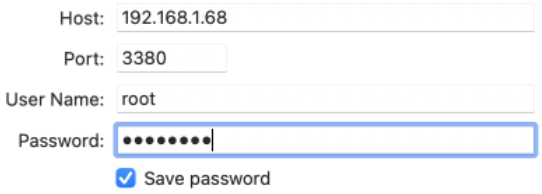
"Hour" and "Minute" fields must be specified. If a field is left without a value, then all the values will be used. For example, if the "Day of the Week" field is empty, then the system will treat the field to be entered with "0, 1, 2, 3, 4, 5, 6".

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.



Enable Batch Job History

To maintain a comprehensive record of all automated and manual operations, you can enable logging within the job settings:

1. In the batch job window, select the **History** tab.
2. Click **Enable Batch Job History**.

Once enabled, Navicat automatically records details for every run, including execution timestamps, duration, and completion statuses within the History tab.

Chapter 24 - Backup & Restore

MySQL / PostgreSQL / SQLite / MariaDB / Snowflake (Available only in Enterprise and Standard Edition)

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 for setting up 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, control-click a backup file and select **Show in Finder**.

Backup

The Backup feature in Navicat provides a reliable and straightforward way to safeguard your database. It allows you to create secure copies of your database objects, structures, and records, ensuring you can easily recover your data in the event of an error or system failure. Below are the properties and settings you can configure when creating a backup.

General Properties

In this tab, you can view the server and database information. Enter a comment for the backup file if necessary.

Object Selection

In this tab, choose database objects you wish to backup.

(*)	All the database objects being backed up, all newly added database objects will also be backed up without amending the backup profile.
(#/#)	Only the checked database objects will be backed up. However, if you add any new database objects in the database and/or schema after you create your backup profile, the newly added database objects will not be backed up unless you manually modify the Objects list.

Advanced Properties

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

Option	Description
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 specified file name	Define your file name for backup. Otherwise, your backup file will be named with "YYYYMMDDhhmmss" format.

Restore

The 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 from the object toolbar.
4. Choose the restore options and click **Restore**.

Restore a backup to a new database/schema

1. Create and open a new database/schema.
2. Click **Backup**.
3. In the Objects tab, control-click anywhere and select **Restore Backup from**.
4. Browse the backup file.
5. Choose the restore options and click **Restore**.

Hint: You can also restore Navicat macOS and Linux backups.

Note: You must have Create, Drop and Insert privileges (MySQL/MariaDB or PostgreSQL) to run the restore.

Below are the properties and settings you can configure when restoring.

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, backup file version and sort in ascending order.

Option	Description
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 primary keys and indexes	Create primary keys and 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.
Insert Auto Increment Values	Retain and insert explicit auto-increment values into the database/schema.
Lock tables for write	Lock the tables to prevent user to modify tables during the restore process.
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.
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 ↪ from the object toolbar.
4. Choose the Extract SQL options and click **Extract**.
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, control-click anywhere and select **Extract SQL from**.

4. Browse the backup file.

5. Choose the Extract SQL options and click **Extract**.

6. Choose a path for the SQL file.

Oracle Data Pump (Available only in Enterprise and Standard Edition)

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, control-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.

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. Below are the properties and settings you can configure.

General Properties

Option	Description
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 menu.
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

Option	Description
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

Option	Description
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

Option	Description
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.

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. Below are the properties and settings you can configure.

General Properties

Option	Description
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

Option	Description
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

Option	Description
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

Option	Description
Remap Data	Specify remap functions for column data.
Remap DataFiles	Specify the remapping for data files.

Remap Objects

Option	Description
Remap Schemas	Specify the remapping for schemas.
Remap TableSpaces	Specify the remapping for tablespaces.
Remap Tables	Specify remap functions for tables.

Advanced Properties

Option	Description
Thread Number	Enter the maximum number of worker processes that can be used for the job.
Reuse datafiles	Check this option to reuse existing data files for creating tablespace.
Skip unusable indexes	Check this option to skip loading tables that have indexes that were set to the Index Unusable state.
Streams configuration	Check this option to import any general Streams metadata that may be present in the export dump file.
Skip const error	Check this option to skip constraint violations and continue the load.
Disable append hint	Check this option to prevent the append hint from being applied to the data load.
Cluster	Check this option to start workers on instances usable by the job.
Service Name	Specify a service name that used to constrain the job to specific instances or to a specific resource group.
Target Edition	Specify the database edition into which objects should be imported.
Version	Specify the version of database objects to be extracted.
Access Method	Choose an alternative method to unload data if the default method does not work.
Partition Options	Choose how to handle partitioned tables during the import operation.
Encryption Password	Enter the password if an encryption password was specified in Data Pump Export.
Segment Attributes / Segment Creation / Storage / OID / PCTSpace	Choose the objects that the transformations to be applied to.
Log File Directory	Choose the directory for saving the log file.

Log File Name	Enter the name of the log file.

SQL Server Backup & Restore (Available only in Enterprise and Standard Edition)

The **SQL Server Backup** feature provides an important safeguard for protecting your SQL Server data. In the main window, click **SQL Server Backup** to open the backup object list.

If you want to backup with the setting of an existing backup file, you can control-click a backup file in the Objects tab and select **Backup From This Setting**.

Note: Backup files are stored in servers.

If you want to restore from a backup file that is not listed in the Objects tab, you can control-click anywhere in the Objects tab and select **Restore From File**.

Backup

Before starting the backup process, click the **Generate SQL** button to review the SQL statements. Then, you can click the **Backup** button to run the backup process.

You can save the backup settings to a profile for future use. Backup profiles (.nbakmssql) are saved under the Settings Location.

To show the hidden tabs (advanced options), check the **Show Advanced Options** option. Below are the properties and settings you can configure.

General Properties

Option	Description
Backup Set Name	Specify the name of the backup set.
Description	Specify the description of the backup set.
Backup Type	Choose the type of the backup that you want to perform: Full Backup, Differential Backup, Transaction-Log Backup.
Copy-only	Check this option to specify that the backup is a copy-only backup.
New Media Set	Create a new media set for this backup. To add backup devices or files to the list, click the **Add device** button.
Existing Media Set	Choose an existing media set for the backup.

Components

In this tab, you can choose to backup the whole database, the partial database, or specific files or groups.

Advanced Properties

Option	Description

Never expire	Specify the backup set never expires.
Expire after	Specify the number of days that must elapse before this backup media set can be overwritten.
Expire on	Specify when the backup set expires and can be overwritten.
Password	Enter a password for the backup set.
Format media set	Check this option to specify that a new media set be created.
New Name	Enter the name of the new media set.
Description	Specify the description of the media set.
Overwrite all backups	Check this option to specify that all backup sets should be overwritten, but preserves the media header.
Check media name and backup set expiration	Check this option to check the expiration date and time of the backup sets on the media before overwriting them.
Media Set Name	Specify the media name for the entire backup media set.
Password	Enter a password for the media set.
Truncate the transaction log	Choose this option to truncate the transaction log.
Backup the tail log and set database to recovery state	Choose this option to back up the tail of the log and leaves the database in the RESTORING state.
Verify backup	Check this option to verify the backup.
Perform checksum	Check this option to enable the backup checksums.
Continue on error	Ignore errors (such as invalid checksums or torn pages) that are encountered during this backup.
Compression	Choose whether backup compression is performed on this backup.

Restore

Before starting the restore process, click the **Generate SQL** button to review the SQL statements. Then, you can click the **Restore** button to run the restore process.

Below are the properties and settings you can configure.

General Properties

Option	Description
Restore to database	Select a database to restore.
Source of backup set	If you chose **Restore From File** in the Objects tab, you can add backup devices or files to the list by clicking the **Add device** button.
Latest possible	Choose this option if do not have the restore point.
Specific time	Choose this option to specify that the database be restored to the state it was in as of the date and time.
Marked transaction	Choose this option to recover to a specified recovery point.
Include marked transaction	Check this option to include the specified transaction in the recovery.
Restore plan	If you chose **Restore From File** in the Objects tab, you can choose

	the database backup files from the list.

Advanced Properties

Option	Description
Restore database files to	Specify that the data or log file should be moved by restoring it to the **Restore To** location.
WITH REPLACE	Check this option to include the WITH REPLACE argument.
WITH RESTRICTED_USER	Check this option to include the WITH RESTRICTED_USER argument.
WITH KEEP_REPLICATION	Check this option to include the WITH KEEP_REPLICATION argument.
RECOVERY	Choose this option to roll back all uncommitted transactions.
NORECOVERY	Choose this option to not roll back the uncommitted transactions.
STANDBY	Specify a **Standby file** that allows the recovery effects to be undone.

MongoDump & MongoRestore

MongoDB provides two utilities for backup and restore operations: MongoDump and MongoRestore. They are useful for creating backups of small database and restoring data.

MongoDump

MongoDump can read data from a MongoDB database and create high fidelity BSON files.

Note: You must have mongodump executable for this feature to work.

To dump a file

1. In Navicat main window, control-click your database or collection and select **MongoDump**.
2. In the **General** and **Advanced** tabs, select the output path and the appropriate dump options.
3. Click the **Start** button to begin the dump process. The **Message Log** tab will display the dump progress, execution time, and success or failure messages.

You can save your settings as a profile for future use or setting automation tasks. To open a saved profile, click the **Load Profile** button and select a profile from the list.

Hint: Profiles are saved under the default path, e.g. ~/Library/Application Support/PremiumSoft CyberTech/Navicat CC/Common/Profiles

MongoRestore

MongoRestore can load data from a binary database dump created by MongoDump into a MongoDB database.

Note: You must have mongorestore executable for this feature to work.

To restore database

1. In Navicat main window, control-click your database and select **MongoRestore**.
2. In the **General** and **Advanced** tabs, select the input file/directory path and the appropriate restore options.
3. Click the **Start** button to begin the restore process. The **Message Log** tab will display the restore progress, execution time, and success or failure messages.

You can save your settings as a profile for future use. To open a saved profile, click the **Load Profile** button and select a profile from the list.

Hint: Profiles are saved under the default path, e.g. ~/Library/Application Support/PremiumSoft CyberTech/Navicat CC/Common/Profiles

Redis (Available only in Enterprise and Standard Edition)

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, control-click a backup file and select **Show in Finder**.

Backup

The Backup feature in Navicat provides a reliable and straightforward way to safeguard your database. It allows you to create secure copies of your database objects, structures, and records, ensuring you can easily recover your data in the event of an error or system failure. Below are the properties and settings you can configure when creating a backup.

General Properties

In this tab, you can view the server and database information. Enter a comment for the backup file if necessary.

Options

Option	Description
Key Pattern	Enter a key pattern. Navicat only backs up keys that match the specified pattern.
Data Types	Choose the type of data to back up.
Include volatile keys	Include keys with timeout expiration set.
Store TTL information	Back up the Time-to-Live (TTL) information of volatile keys.
Use specified file name	Define your file name for backup. Otherwise, your backup file will be named with "yyyymmddhhmmss" format.

Restore

The Restore feature will firstly delete the keys in the selected namespaces, then recreate the keys.

Restore a backup to an existing database

1. In the main window, open a database.
2. Click **Backup** and select an existing backup file.
3. Click from the object toolbar.
4. Choose the restore options and click **Restore**.

Restore a backup to another database

1. Open another database.
2. Click **Backup**.
3. In the Objects tab, control-click anywhere and select **Restore Backup from**.
4. Browse the backup file.
5. Choose the restore options and click **Restore**.

Hint: You can also restore Navicat macOS and Linux backups.

Below are the properties and settings you can configure when restoring.

General Properties

In this tab, you can view the target server and database information and the backup file information.

Details

In this tab, you can view the backup settings and summary.

Namespace Selection

In this tab, choose namespaces you wish to restore.

Advanced Properties

Option	Description
Data Types	Choose the type of data to restore.
Include persistent keys	Include keys that will never expire.
Include volatile keys	Include keys with timeout expiration set.
Include TTL information	Restore the Time-to-Live (TTL) information of volatile keys. You

	can choose to restore the remaining TTL, the original expiration time or a custom TTL.
Delete key before restoring if key exists	If keys already exist in the target database, the existing keys will be deleted once the restore process starts.
Delete all keys of the target database before restoring	Delete all keys in the target database once the restore process starts.
Delete asynchronously	Delete keys from the server asynchronously. The operation will be executed in a background thread.
Disable replies from server	Stop the server from replying to commands.
Continue on error	Ignore errors that are encountered during the restore process.

Extract Command

Extract Command allows extracting commands into a Redis command file from your backup file.

Extract a backup file that is in your database

1. Open a database.
2. Click **Backup** and select an existing backup file.
3. Click from the object toolbar.
4. Choose the Extract Command options and click **Extract**.
5. Choose a path for the command file.

Extract a backup file that is in any location

1. Open any one of your databases.
2. Click **Backup**.
3. In the Objects tab, control-click anywhere and select **Extract Command from**.
4. Browse the backup file.
5. Choose the Extract Command options and click **Extract**.
6. Choose a path for the command file.

Dump & Execute Files

Navicat provides streamlined, powerful tools for extracting and running database scripts and commands directly across your connections. Whether you need to dump complex database structures and records into .sql or .js files for safekeeping, or execute bulk commands to rapidly update your existing databases, these features allow you to handle data migration and execution effortlessly without relying on external command-line tools.

Dump & Execute SQL File

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

To dump a file

1. In the main window, control-click an opened database/schema or the selected tables, and select **Dump SQL File** -> **Structure Only** or **Structure and Data**.

2. Browse the save location and enter a file name.

3. Click **Save**.

Hint: After the dump process finished, you can click the **Open** button to open the file using Query Editor.

To execute a file

1. In the main window, control-click an opened connection, database or schema and select **Execute SQL File**.

2. Browse your .sql file, choose the encoding of the file and enable appropriate options.

Option	Description
Continue on error	Ignore errors that are encountered during the execution process.
Run multiple queries in each execution	Execute multiple SQL statements at once, which will make the execution process faster.
SET AUTOCOMMIT=0 / No Auto Commit	Disable auto commit mode.

3. Click **Start**.

Hint: You can drag and drop a .sql file onto an opened connection, database or schema in the Navigation pane. Navicat will automatically open the execution window.

Dump & Execute Script File

Note: Available only for MongoDB.

To dump a file

1. In the main window, control-click an opened database or the selected collections, and select **Dump Script File** -> **Structure Only** or **Structure and Data**.

2. Browse the save location and enter a file name.

3. Click **Save**.

Hint: After the dump process finished, you can click the **Open** button to open the file using Query Editor.

To execute a file

1. In the main window, control-click an opened connection or database and select **Execute Script File**.

2. Browse your .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.

3. Click **Start**.

Hint: You can drag and drop a .js file onto an opened connection or database in the Navigation pane. Navicat will automatically open the execution window.

Execute Command File

Note: Available only for Redis.

To execute a file

1. In the main window, control-click an opened connection or database and select **Execute Command File**.

2. Browse your .redis file, choose the encoding of the file and enable appropriate options.

Option	Description
Batch Size	Specify the maximal number of commands in a batch.
Continue on error	Ignore errors that are encountered during the execution process.

3. Click **Start**.

Hint: You can drag and drop a .redis file onto an opened connection or database in the Navigation pane. Navicat will automatically open the execution window.

Chapter 25 - Server Security

MySQL / MariaDB User & Role Management

Navicat provides a comprehensive, visual interface for managing MySQL and MariaDB user accounts and roles. Whether you need to enforce strict password policies, configure connection limits, or fine-tune server and object-level privileges, these designers give you precise control over your database security posture. In the main window, click **User** to open the respective object list.

User Designer

The User Designer allows you to create and manage individual database user accounts. From here, you can configure authentication methods, enforce password policies, set resource connection limits, and explicitly assign server or object-level privileges to specific users. Below are the properties and settings you can configure.

General Properties

Option	Description
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

Option	Description
Max Queries Per Hour	Specify the maximum number of queries that a user can perform during any given one-hour period. 0 means no limit.
Max Updates Per Hour	Specify the maximum number of updates that a user can perform during any given one-hour period. 0 means no limit.
Max Connections Per Hour	Specify the maximum number of connections that a user can perform during any given one-hour period. 0 means no limit.
Max User Connection	Specify the maximum number of simultaneous connections that a user can make. 0 means no limit.
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.

Members Of

Assign existing roles or other user accounts to the current user:

- **Granted** - Check the box to grant a role to the current user.
- **Set** - Check the box to make it a default role upon connection.

Members

Assign users to become members of the current user:

- **Granted** - Check the box to grant membership.

Server Privileges

Grant server-level privileges to the current user:

- **Grant** - Check the box to grant the server privilege to the current user.

Hint: To apply or remove all privileges at once, control-click anywhere on the grid.

Object Privileges

To edit specific object privileges for the user, click to open the window and follow the steps below:

1. Expand the tree view nodes until you reach the target object.
2. Select the object to display its available privileges in the right pane.
3. In the grid, check the **State** box next to a listed privilege to grant or modify that specific privilege for the user.

   Hint: To apply or remove all privileges at once, control-click anywhere on the grid.

Hint: You can use or to show or hide specific privileges or objects in the grid.

Role Designer

The Role Designer simplifies security administration by letting you group a set of privileges into a single, reusable entity. Once a role is defined, you can easily assign it to multiple users or even other nested roles, ensuring consistent and scalable access control across your database. Below are the properties and settings you can configure.

Note: Roles are available for MySQL 8.0 or later or MariaDB 10.0.5 or later.

General Properties

Option	Description
Role Name	Define a name for the role.

Members Of

Assign existing roles to the current role:

- **Granted** - Check the box to grant a role to the current role.

Members

Assign users to become members of the current role:

- **Granted** - Check the box to grant membership.

Server Privileges

Grant server-level privileges to the current role:

- **Grant** - Check the box to grant the server privilege to the current role.

Hint: To apply or remove all privileges at once, control-click anywhere on the grid.

Object Privileges

To edit specific object privileges for the role, click to open the window and follow the steps below:

1. Expand the tree view nodes until you reach the target object.
2. Select the object to display its available privileges in the right pane.
3. In the grid, check the **Grant** box next to a listed privilege to grant or modify that specific privilege for the role.

   Hint: To apply or remove all privileges at once, control-click anywhere on the grid.

Hint: You can use or to show or hide specific privileges or objects in the grid.

Oracle User & Role Management

Navicat provides a comprehensive interface for managing Oracle user accounts and roles. You can define authentication methods, assign tablespace quotas, and explicitly manage privileges and memberships to ensure secure database access. In the main window, click **User** to open the respective object list.

User Designer

The User Designer allows you to create and manage individual Oracle database user accounts, configuring their authentication, tablespace allocations, and specific object privileges. Below are the properties and settings you can configure.

General Properties

Option	Description
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 Distinguished Name**.
Default Tablespace	Choose the default tablespace for objects that the user creates.
Temporary Tablespace	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.
Enable Editions	Enable edition-based redefinition (EBR) for the user, allowing multiple versions of database objects to exist in the same schema.

Roles

Assign existing roles to the current user:

- **Grant** - Check the box to grant a role to the current user.
- **Admin Option** - Check the box to grant administrative rights for this role.
- **Default** - Check the box to make it a default role upon connection.

Quotas

Specify the maximum amount of space that the user can allocate in the tablespaces:

- **Unlimited** - Allow the user to allocate space in the tablespace without bound.
- **Quota** - Enter the maximum numerical amount of disk space the user is permitted to allocate in the selected tablespace.
- **Unit** - Select the storage measurement unit for the specified quota value.

Server Privileges

Grant server-level privileges to the current user:

- **Grant** - Check the box to grant the privilege to the current user.
- **Admin Option** - Check the box to let the user grant or revoke this privilege.

Hint: To apply or remove all privileges at once, control-click anywhere on the grid.

Object Privileges

To edit specific object privileges for the user, click to open the window and follow the steps below:

1. Expand the tree view nodes until you reach the target object.
2. Select the object to display its available privileges in the right pane.
3. In the grid, check the boxes next to a listed privilege to grant that specific privilege for the user.
   - **Grant** - Check the box to grant the privilege to the current user.
   - **Grant Option** - Check the box to let the user grant or revoke this privilege.

   Hint: To apply or remove all privileges at once, control-click anywhere on the grid.

Hint: You can use or to show or hide specific privileges or objects in the grid.

Role Designer

The Role Designer simplifies security administration by letting you group a set of privileges into a single, reusable entity. You can easily assign roles to multiple users or other nested roles. Below are the properties and settings you can configure.

General Properties

Option	Description
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.

Roles

Assign existing roles to the current role:

- **Granted** - Check the box to grant a role to the current role.
- **Admin Option** - Check the box to grant administrative rights for this role.

Members

Assign users to become members of the current role:

- **Granted** - Check the box to grant membership.

- **Admin Option** - Check the box to let the user assign or revoke the current role.

Server Privileges

Grant server-level privileges to the current role:

- **Grant** - Check the box to grant the privilege to the current role.
- **Admin Option** - Check the box to let the role grant or revoke this privilege.

Hint: To apply or remove all privileges at once, control-click anywhere on the grid.

Server Privileges

Grant server-level privileges to the current role:

- **Grant** - Check the box next to a privilege in the grid to grant that specific server privilege to the current role.
- **Admin Option** - Check the box to allow the role to grant or revoke this specific privilege to or from other users and roles.

Hint: To apply or remove all privileges at once, control-click anywhere on the grid.

Object Privileges

To edit specific object privileges for the role, click to open the window and follow the steps below:

1. Expand the tree view nodes until you reach the target object.
2. Select the object to display its available privileges in the right pane.
3. In the grid, check the **Grant** box next to a listed privilege to grant that specific privilege for the role.

   Hint: To apply or remove all privileges at once, control-click anywhere on the grid.

Hint: You can use or to show or hide specific privileges or objects in the grid.

Maintain User

Navicat provides a complete solution for maintaining Oracle users.

1. In the main window, select users in the Objects tab.
2. Control-click the selected users.
3. Choose **Maintain**, and then choose a maintain option from the pop-up menu.

Option	Description
Lock User	Lock the user account and disable access.
Unlock User	Unlock the user account and enable access.

Expire User	Set the password of the user account to expire.

PostgreSQL User, Group & Role Management

Navicat provides dedicated designers for managing security entities in PostgreSQL. Depending on your PostgreSQL version, you will use either the User and Group Designers (for older versions) or the comprehensive Role Designer (for newer versions). In the main window, click **User** to open the respective object list.

User Designer

The User Designer is used to create and manage individual database accounts for older PostgreSQL environments. It allows you to configure authentication details, set password expirations, and define core account capabilities like superuser access or database creation rights. Below are the properties and settings you can configure.

Note: Users are available for PostgreSQL 8.0 or below.

General Properties

Option	Description
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.

Members Of

Assign existing groups to the current user:

- **Granted** - Check the box to grant a group to the current user.

Object Privileges

To edit specific object privileges for the user, click to open the window and follow the steps below:

1. Expand the tree view nodes until you reach the target object.
2. Select the object to display its available privileges in the right pane.
3. In the grid, check the boxes next to a listed privilege to grant that specific privilege for the user.
    - **Grant** - Check the box to grant the privilege to the current user.

- **Grant Option** - Check the box to let the user grant or revoke this privilege.

Hint: To apply or remove all privileges at once, control-click anywhere on the grid.

Hint: You can use or to show or hide specific privileges or objects in the grid.

Group Designer

The Group Designer helps streamline security administration in PostgreSQL 8.0 and earlier by letting you bundle multiple users together. Instead of managing permissions individually, you can assign privileges directly to a group, which are then automatically inherited by all its members. Below are the properties and settings you can configure.

Note: Groups are available for PostgreSQL 8.0 or below.

General Properties

Option	Description
Group Name	Define a name for the group.
Group ID	Specify an ID for the group.

Members

Assign users to become members of the current group:

- **Granted** - Check the box to grant membership.

Object Privileges

To edit specific object privileges for the group, click to open the window and follow the steps below:

1. Expand the tree view nodes until you reach the target object.
2. Select the object to display its available privileges in the right pane.
3. In the grid, check the **Granted** box next to a listed privilege to grant that specific privilege for the group.

   Hint: To apply or remove all privileges at once, control-click anywhere on the grid.

Hint: You can use or to show or hide specific privileges or objects in the grid.

Role Designer

The Role Designer provides a modern, unified approach to PostgreSQL security by combining the concepts of users and groups into a single, flexible "role" entity. This designer gives you granular control over everything from login capabilities and connection limits to complex privilege inheritance and replication rights. Below are the properties and settings you can configure.

Note: Roles are available for PostgreSQL 8.1 or later.

General Properties

Option	Description
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 databases	Check this option to allow the role to create databases.
Can create roles	Check this option to allow the role to create roles.
Inherits rights from parent roles	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.

Members Of

Assign existing roles to the current role:

- **Granted** - Check the box to grant a role to the current role.
- **Admin Option** - Check the box to grant administrative rights for this role.

Members

Assign roles to become members of the current role:

- **Granted** - Check the box to grant membership.
- **Admin Option** - Check the box to let the role assign or revoke the current role.

Object Privileges

To edit specific object privileges for the role, click to open the window and follow the steps below:

1. Expand the tree view nodes until you reach the target object.

2. Select the object to display its available privileges in the right pane.

3. In the grid, check the boxes next to a listed privilege to grant that specific privilege for the role.

   - **Grant** - Check the box to grant the privilege to the current role.

   - **Grant Option** - Check the box to let the role grant or revoke this privilege.

   Hint: To apply or remove all privileges at once, control-click anywhere on the grid.

Hint: You can use or to show or hide specific privileges or objects in the grid.

SQL Server Login, Role & User Management

Navicat provides comprehensive tools to manage security in SQL Server, separating server-level access (Logins and Server Roles) from database-level access (Users, Database Roles, and Application Roles). In the main window, click **User** to open the respective object list.

Login Designer

The Login Designer provides a centralized interface for managing server-level access. Here, you can configure authentication methods, enforce strict password policies, and assign broad server-level permissions or roles to incoming connections. Below are the properties and settings you can configure.

Note: The following options and tabs depend on the server version and the authentication type.

General Properties

Option	Description
User Name	Define a name for the login.
Authentication Type	Select the authentication type of the login.
Password	Specify a password for the login.
Confirm Password	Re-type the login password.
Specify Old Password	Check this option to enter the old password used by this account when editing the login.
Enforce password policy	Check this option to force password to follow password policy of SQL Server.
Enforce password expiration	Check this option to force password to have expiry date.
User must change password at next login	Check this option to force user to change password every time when login.
Default Database	Select the default database when login.
Default Language	Select the default display language when login.
Certificate Name	Select the certificate to be used for the login.
Asymmetric Key Name	Select the asymmetric key to be used for the login.
Enabled	Check this option to enable the login.

Credential	Select the credentials to be mapped to the login.

User Mappings

Map this server login to database users across one or more databases:

- **Database** - Check the box next to a database name in the grid to grant access.
- **Default Schema** - Specify the initial schema used when resolving object names.
- **User** - Specify the database-level user account name created for this login.

Roles

Assign existing roles to the current login:

- **Granted** - Check the box to grant a role to the current login.

Server Permissions

Grant server-level permissions to the current login:

- **Grant** - Check the box to grant the privilege to the current login.
- **Grant Option** - Check the box to let the login grant or revoke this privilege.
- **Deny** - Check the box to explicitly deny the privilege to the current login.

Hint: To apply or remove all permissions at once, control-click anywhere on the grid.

Login Permissions

In the grid, check the permissions against the login listed in **Login** to assign specific permissions over other logins.

- **Grant** - Click the checkbox once to grant the permission.
- **Grant Option** - Click the checkbox twice to grant the permission with Grant Option (allowing the login to grant or revoke it for others).
- **Deny** - Click the checkbox three times to explicitly deny the permission.

Endpoint Permissions

In the grid, check the permissions against the endpoint listed in **Endpoint** to assign specific endpoint permissions to this login.

- **Grant** - Click the checkbox once to grant the permission.
- **Grant Option** - Click the checkbox twice to grant the permission with Grant Option (allowing the login to grant or revoke it for others).

- **Deny** - Click the checkbox three times to explicitly deny the permission.

Server Role Designer

The Server Role Designer helps you group server-level privileges into unified roles. By assigning multiple logins to a single server role, you can easily and consistently manage administrative permissions across your entire SQL Server environment. Below are the properties and settings you can configure.

Note: Azure SQL Database does not support Server Role.

Members

Assign logins to become members of the current server role:

- **Granted** - Check the box to grant membership.

Database User Designer

The Database User Designer manages access strictly at the database level. It allows you to map a server login to a specific database user, defining their default schemas and granting them precise permissions within that individual database. Below are the properties and settings you can configure.

Note: The following options and tabs depend on the server version and the user type.

General Properties

Option	Description
User Name	Define a name for the database user.
Authentication	Select the security type for database user.
Login Name	Assign a SQL Server login that the database user uses.
Default Schema	Select the default schema that will own objects created by the database user.
Certificate Name	Select the certificate to be used for the database user.
Asymmetric Key Name	Select the asymmetric key to be used for the database user.

Roles

Assign existing roles to the current database user:

- **Granted** - Check the box to grant a role to the current database user.

Owned Schemas

Assign schema ownership to the current database user:

- **Granted** - Check the box to make the current database user the owner of the schema.

Database Permissions

Grant database-level permissions to the current database user:

- **Grant** - Check the box to grant the privilege to the current database user.
- **Grant Option** - Check the box to let the database user grant or revoke this privilege.
- **Deny** - Check the box to explicitly deny the privilege to the current database user.

Hint: To apply or remove all permissions at once, control-click anywhere on the grid.

Object Permissions

To edit specific object permissions for the database user, click to open the window and follow the steps below:

1. Expand the tree view nodes until you reach the target object.
2. Select the object to display its available privileges in the right pane.
3. In the grid, check the boxes next to a listed privilege to grant that specific privilege for the database user.
   - **Grant** - Check the box to grant the privilege to the current database user.
   - **Grant Option** - Check the box to let the database user grant or revoke this privilege.
   - **Deny** - Check the box to explicitly deny the privilege to the current database user.

   Hint: To apply or remove all permissions at once, control-click anywhere on the grid.

Hint: You can use or to show or hide specific permissions or objects in the grid.

Database Role Designer

The Database Role Designer lets you bundle database-specific permissions into a single, reusable role. Assigning this role to multiple database users or other nested roles helps streamline and standardize your database access control policies. Below are the properties and settings you can configure.

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

General Properties

Option	Description
Role Name	Define a name for the database role.
Owner	Assign the owner for the database role.

Members

Assign database users or roles to become members of the current database role:

- **Granted** - Check the box to grant membership.

Members Of

Assign existing database roles to the current database role:

- **Granted** - Check the box to grant a database role to the current database role.

Owned Schemas

Assign schema ownership to the current database role:

- **Granted** - Check the box to make the current database role the owner of the schema.

Database Permissions

Grant database-level permissions to the current database role:

- **Grant** - Check the box to grant the privilege to the current database role.
- **Grant Option** - Check the box to let the database role grant or revoke this privilege.
- **Deny** - Check the box to explicitly deny the privilege to the current database role.

Hint: To apply or remove all permissions at once, control-click anywhere on the grid.

Object Permissions

To edit specific object permissions for the database role, click to open the window and follow the steps below:

1. Expand the tree view nodes until you reach the target object.
2. Select the object to display its available privileges in the right pane.
3. In the grid, check the boxes next to a listed privilege to grant that specific privilege for the database role.
   - **Grant** - Check the box to grant the privilege to the current database role.
   - **Grant Option** - Check the box to let the database role grant or revoke this privilege.
   - **Deny** - Check the box to explicitly deny the privilege to the current database role.

   Hint: To apply or remove all permissions at once, control-click anywhere on the grid.

Hint: You can use or to show or hide specific permissions or objects in the grid.

Application Role Designer

The Application Role Designer is used to create a specialized role that requires a password for activation. This is typically utilized by applications to dynamically gain temporary, exclusive database permissions without granting those permanent rights directly to the underlying user. Below are the properties and settings you can configure.

Note: Azure SQL Database does not support Application Role. The following options and tabs depend on the server version.

General Properties

Option	Description
Role Name	Define a name for the application role.
Default Schema	Select the default schema that will own objects created by the application role.
Password	Specify a password for the application role.
Confirm Password	Re-type the password.

Owned Schemas

Assign schema ownership to the current application role:

- **Granted** - Check the box to make the current application role the owner of the schema.

Database Permissions

Grant database-level permissions to the current application role:

- **Grant** - Check the box to grant the privilege to the current application role.
- **Grant Option** - Check the box to let the application role grant or revoke this privilege.
- **Deny** - Check the box to explicitly deny the privilege to the current application role.

Hint: To apply or remove all permissions at once, control-click anywhere on the grid.

Object Permissions

To edit specific object permissions for the application role, click to open the window and follow the steps below:

1. Expand the tree view nodes until you reach the target object.
2. Select the object to display its available privileges in the right pane.
3. In the grid, check the boxes next to a listed privilege to grant that specific privilege for the application role.
   - **Grant** - Check the box to grant the privilege to the current application role.
   - **Grant Option** - Check the box to let the application role grant or revoke this privilege.
   - **Deny** - Check the box to explicitly deny the privilege to the current application role.

   Hint: To apply or remove all permissions at once, control-click anywhere on the grid.

Hint: You can use or to show or hide specific permissions or objects in the grid.

SQLite User Management

By default, a SQLite database does not require user authentication (a no-authentication-required database). After you create a user, the database will be marked as requiring authentication (an authentication-required database). Users will then need to provide a username and password when connecting to the database file. In the main window, click **User** to open the respective object list.

User Designer

The User Designer provides a straightforward interface for setting up and managing authentication for your SQLite databases. From here, you can establish user accounts, assign passwords, and grant administrative privileges to secure access to your database files. Below are the properties and settings you can configure.

General Properties

Option	Description
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

Navicat provides a comprehensive, visual interface for managing your MongoDB security. Whether you are creating individual user accounts with specific SCRAM authentication mechanisms or building complex, user-defined roles with granular object privileges and IP-based network restrictions, these tools give you precise control over who can access your MongoDB databases and what actions they can perform. In the main window, click **User** to open the respective object list.

User Designer

The User Designer allows you to create and manage individual MongoDB user accounts. Here, you can configure authentication credentials, set up custom data, define IP restrictions, and assign users to built-in or custom roles. Below are the properties and settings you can configure.

General Properties

Option	Description
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 ⊕.

Option	Description
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

The Role Designer enables you to build custom, user-defined roles to tailor access control in your MongoDB databases. You can bundle specific object-level privileges, define network restrictions, and nest roles to construct a comprehensive security model. Below are the properties and settings you can configure.

General Properties

Option	Description
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 ⊕.

Option	Description
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 ⊕ to open the window and follow the steps below:

1. Expand the tree view nodes until you reach the target object.
2. Select the object to display its available privileges in the right pane.
3. In the grid, check the **State** box next to a listed privilege to grant that specific privilege for the role.

   Hint: To apply or remove all privileges at once, control-click anywhere on the grid.

Redis User Management

You can define users in Redis Access Control Lists (ACLs) to protect access to your data. Navicat provides a graphical interface for you to create, edit and delete users. In the main window, click **User** to open the respective object list.

Note: Users are available for Redis 6 or later.

User Designer

The User Designer provides a streamlined interface for configuring Redis Access Control Lists (ACLs). From here, you can easily manage authentication settings, define command execution rights, and precisely control user access to specific keys and Pub/Sub channels. Below are the properties and settings you can configure.

General Properties

Option	Description
User Name	Define a name for the user account.
Can Login	Enable the user account.
Require Password	Require the user to log in with a password.
Add Password	Add a password or a SHA-256 hash value to the list of valid passwords for the user.

Privileges

You can create new privilege groups (selectors) to add multiple sets of rules to the user. New privilege groups are evaluated after the main privilege group, and are evaluated according to the order they are defined. Click **Add Privilege Group** / **Add Privilege Groups with Batch**.

Commands

Control which Redis commands or command categories the user is allowed to execute.

To allow and disallow commands, click **Add Command** / **Add Commands with Batch**. @all implies all the commands, both those currently present in the server, and those that will be loaded via modules in the future.

Keys

Control read/write permissions for specific key patterns.

To allow and disallow certain keys and key permissions, click **Add Key** / **Add Keys with Batch**. You can enable **Grant privilege of all keys** to allow the user to access all keys.

Channels

Control Pub/Sub channel subscriptions and publishing rights.

To allow and disallow Pub/Sub channels, click **Add Channel** / **Add Channels with Batch**. You can enable **Grant privilege of all channels** to allow the user to access all Pub/Sub channels.

Snowflake User & Role Management

Navicat provides a streamlined visual interface for managing your Snowflake security architecture. From creating individual user accounts and assigning default virtual warehouses, to structuring complex access hierarchies with account-level and database-level roles, these tools ensure you can precisely control privileges across your entire Snowflake environment. In the main window, click **User** to open the respective object list.

User Designer

The User Designer allows you to create and configure individual Snowflake user accounts. Here, you can set up authentication details, define default session behaviors, and enforce security policies. Below are the properties and settings you can configure.

General Properties

Option	Description
User Name	Define a login name for the user.
First Name / Last Name	Define the first and last name of the user.
Password	Specify a login password for the user.
Confirm Password	Re-type the login password.
Default Role	Specify the primary role that is active by default for the user's session upon login.

Default Warehouse	Specify the virtual warehouse that is active by default for the user's session upon login.
Default Namespace	Specify the virtual namespace that is active by default for the user's session upon login. To specify a schema, enter the fully-qualified schema name in the form of <db_name>.<schema_name>.
Days To Expiry	Specify the number of days after which the user status is set to "Expired" and the user is no longer allowed to log in. If this option is omitted, the user will never expire.
Mins To Unlock	Specify the number of minutes until the temporary lock on the user login is cleared.
Use all Secondary Roles	Check this option to grant all secondary roles to the user.
Disable account	Check this option to disable the user.
Must change password at next login	Check this option to force the user to change password on next login (including first/initial login).

Member Of

Assign existing roles to the current user:

- **Granted** - Check the box to grant a role to the current user.

Role Designer

The Role Designer helps you define account-level roles to bundle privileges and access rights. You can construct role hierarchies by nesting roles within one another and securely grant specific object privileges that apply across your Snowflake account. Below are the properties and settings you can configure.

General Properties

Option	Description
Role Name	Define a name for the role.

Member Of

Assign existing roles to the current role:

- **Granted** - Check the box to grant a role to the current role.

Members

Assign users or roles to become members of the current role:

- **Granted** - Check the box to grant membership.

Object Privileges

To edit specific object privileges for the role, select the database from the drop-down menu and click to open the window, then follow these steps:

1. Expand the tree view nodes until you reach the target object.
2. Select the object to display its available privileges in the right pane.
3. In the grid, check the boxes next to a listed privilege to grant that specific privilege for the role.
   - **Grant** - Check the box to grant the privilege to the current role.
   - **Grant Option** - Check the box to let the role grant or revoke this privilege.

   Hint: To apply or remove all privileges at once, control-click anywhere on the grid.

Hint: You can use or to show or hide specific privileges or objects in the grid.

Database Role Designer

The Database Role Designer is used to create and manage roles that are scoped specifically to a single database. This allows you to compartmentalize database-level privileges and assign them securely to account-level roles or other database roles. Below are the properties and settings you can configure.

General Properties

Option	Description
Database Role Name	Define a name for the database role.

Members

Assign roles to become members of the current role:

- **Granted** - Check the box to grant membership.

Object Privileges

To edit specific object privileges for the role, click to open the window and follow the steps below:

1. Expand the tree view nodes until you reach the target object.
2. Select the object to display its available privileges in the right pane.
3. In the grid, check the boxes next to a listed privilege to grant that specific privilege for the role.
   - **Grant** - Check the box to grant the privilege to the current role.
   - **Grant Option** - Check the box to let the role grant or revoke this privilege.

   Hint: To apply or remove all privileges at once, control-click anywhere on the grid.

Hint: You can use or to show or hide specific privileges or objects in the grid.

Privilege Manager

Besides setting privileges for each individual user, the **Privilege Manager** provides a centralized view of all privileges across a connection and its specific database objects.

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

Add Privileges

To add privileges, click from the user object toolbar and follow the steps below:

1. Expand the tree view nodes until you reach the target object.
2. Choose the object and click 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 26 - Other Advanced Tools

Server Monitor (Available only in Enterprise and Standard Edition)

Navicat provides **Server Monitor** to view properties of selected servers. Chosoe **Tools** -> **Server Monitor** and choose the preferred server type from the menu bar.

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

Process List

This tab displays a list of processes from all selected servers. The process list provides detailed information. It depends on the database type you are chosen.

If you want to take action on auto-refreshing the process list in assigned seconds, choose **Server Monitor** -> **Set Auto Refresh Time** and enter a refresh time value. To enable or disable the Auto Refresh feature, choose **Server Monitor** -> **Auto Refresh**.

Note: Effect will take once you assign the value.

To set a selected process always show on the top of the grid, control-click and select **Set Always On Top** -> **Always On Top**. To cancel this setting, choose **Cancel** / **Cancel All**.

To stop a selected process, click the button.

Variables

Note: Available only for MySQL, Oracle, PostgreSQL, MariaDB, MongoDB, Redis and Snowflake.

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

You can edit MySQL, MariaDB, Oracle and Redis variable values here. Click to open an editor for editing.

Status

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

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

Schema Analysis (Available only in Navicat Premium, Enterprise and Standard 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 , or click in the Data Editor.

Note: Available only for MongoDB.

Hint: Schema Analysis Profiles (.nsatmongodb) are stored under the Settings Location.

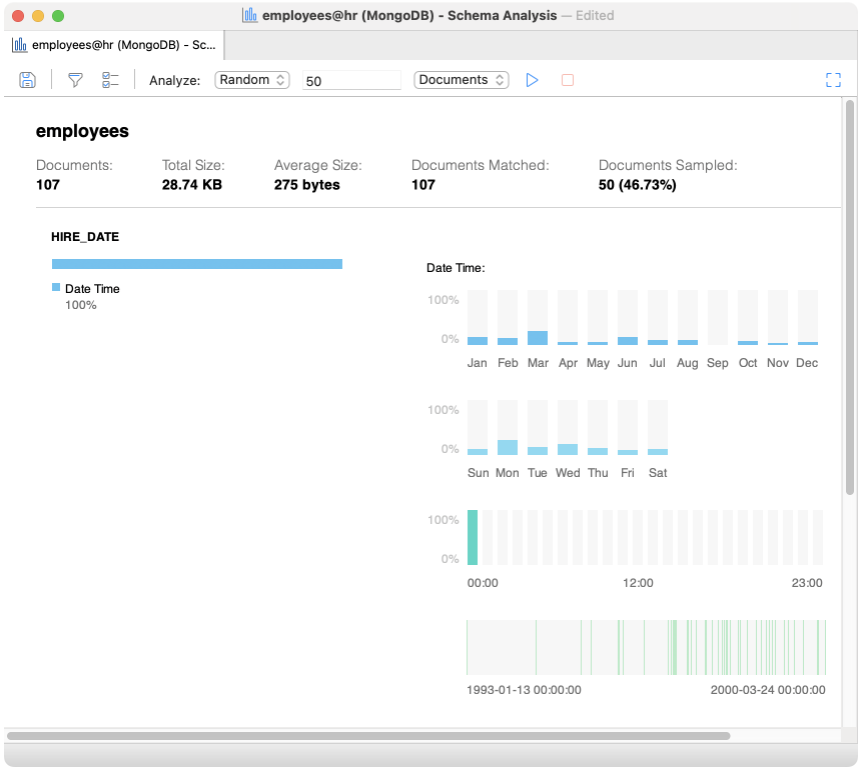
Toolbar

Option / Button	Description
	Filter the documents for analyzing.
	Include or exclude fields for analyzing.
Analyze:	Select the sample documents from the collection for analyzing.
	Start analyzing the sample documents.
	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.



Command Monitor (Available only in Enterprise and Standard Edition)

Command Monitor is a real-time command monitoring tool that allows you to monitor every command processed by the Redis server instantly. It can help you understand what is happening to the database. To open the monitor, control-click on the connection and select **Command Monitor**.

Note: Available only for Redis.

Note: Command Monitor may reduce the performance of the Redis server significantly.

Toolbar

The toolbar provides the following functions:

Button	Description
	Start monitoring the Redis server.
	Stop monitoring the Redis server.
	Break long words and wrap onto the next line.
	Export the commands to a text file.
	Clear the commands.

MongoImport & MongoExport

MongoDB provides two utilities for importing and exporting data: MongoImport and MongoExport. You can use these tools to import or export your data according to specific conditions and formats.

MongoImport

MongoImport allows you to import data from a JSON, CSV or TSV file into MongoDB database.

Note: You must have mongoimport executable for this feature to work.

To import a file

1. In Navicat main window, control-click your database and select **MongoImport**.
2. In the **General** and **Advanced** tabs, select the input file path, the target collection, the file type, and the appropriate import options.
3. Click the **Start** button to begin the import process. The **Message Log** tab will display the import progress, execution time, and success or failure messages.

MongoExport

MongoExport allows you to export MongoDB collections to a JSON or CSV file.

Note: You must have mongoexport executable for this feature to work.

To export collections

1. In Navicat main window, control-click your database and select **MongoExport**.
2. In the **General** and **Advanced** tabs, select the export file path, the source collection, the file type, and the appropriate export options.

3. Click the **Start** button to begin the export process. The **Message Log** tab will display the export progress, execution time, and success or failure messages.

Save Profile

You can save your settings as a profile for future use or for setting up automation tasks. To open a saved profile, click the **Load Profile** button and select a profile from the list.

Hint: Profiles are saved under the default path, e.g. ~/Library/Application Support/PremiumSoft CyberTech/Navicat CC/Common/Profiles

Console

Console allows you to use a command-line interface to work with your server. In other words, it provides interactive text-based screen for you to query input and result output from databases. To open the Console window, open a connection and choose **Tools** -> **Console** from the menu bar or press COMMAND-SHIFT-C.

Hint: You are allowed to open multiple console windows which each represents a different connection.

Oracle

For Oracle servers, you must have **SQL*Plus** executable for this feature to work. By default, Navicat will look for SQL*Plus under client folder (e.g. ORACLE_HOME\bin). However, if Navicat cannot locate SQL*Plus under the SQL*Plus Executable Path, you are prompted to locate the executable.

Note: SQL*Plus does not support Unicode.

MongoDB

For MongoDB servers, you must have **Mongo Shell** executable for this feature to work. If Navicat cannot locate Mongo Shell under the Mongo Shell default path, you are prompted to locate the executable.

Redis

For Redis servers, code completion and syntax highlighting are supported. It lets you type Redis commands smoothly.

Snowflake

For Snowflake servers, you must have **SnowSQL** executable for this feature to work. If Navicat cannot locate SnowSQL under the SnowSQL default path, you are prompted to locate the executable.

Share via URI

Navicat allows you share an object with your teammates by the URI of the object. Navicat users can use the generated URI to access the object.

Here are the objects that can be shared:

- Connection
- Database / Schema
- Table / Collection / Data
- View / Materialized View
- Function / Procedure
- Query / Aggregation Pipeline
- Model
- BI

Obtain URI

You can obtain the URI of an object in the General tab of the Information pane. Simply click **Share** and copy the URI in the popup window. You can enable **Hide host info** to remove the connection host parameter in the URI.

Open Object via URI

1. In the main window, choose **File** -> **Open with Navicat URI**.
2. Paste the URI.
3. Click **OK**.
4. Change the connection mapping by clicking **Other Options** if necessary.

Option	Description
Mapped Connection	Automatically map the connection in the URI to the connection with the most similar information in Navicat.
Existing Connection	Choose an existing connection in Navicat.
New Connection	Create a new connection in Navicat.

5. Open the object.

Favorites (Available only in Enterprise and Standard Edition)

Favorites are links to objects that you visit frequently. By adding a path to your favorites list, you can go to that objects with a single click, instead of having to navigate the connection, database and/or schema in the Navigation pane.

Add Link

1. Open an object, e.g. table.
2. Choose **Favorites** -> **Add to Favorites** or press OPTION-SHIFT-#.

3. Enter **Favorite Name** and select **Favorite ID**.

Open Object via Link

1. Choose **Favorites** -> **favorite_name** or press CONTROL-SHIFT-#.

Remove Link

- Choose **Favorites** -> **Clear Favorites** -> **favorite_name** to remove a link.
- Choose **Favorites** -> **Clear Favorites** -> **Clear All** to remove all links from the favorites list.

Note: # represents 1, 2, 3, 4, 5, 6, 7, 8 or 9.

Search & Filter Tools

Navicat offers robust search capabilities to help you quickly locate specific data, analyze database structures, and filter through extensive lists of objects across your workspace.

Find in Database/Schema (Available only in Enterprise and Standard 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.

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

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 menu.
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.

Search Filter

Navicat provides search filters to help you quickly locate specific objects or items:

- Using the Search Box - Simply enter your search string directly into the **Search** text box to filter and display matching objects or items.

Workspace Organization & Customization

Navicat offers intuitive tools to help you manage, structure, and personalize your database environments. By utilizing logical object grouping, color-coded connections, visual themes, and distraction-free modes, you can easily navigate complex workspaces and ensure you are always working efficiently.

Virtual Grouping

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, Data, View, Materialized View, Function, Index, Trigger, MapReduce, GridFS, Pub/Sub, Query, Aggregation Pipeline, Backup, Automation, Model and BI.

Hint: The vgroup.json file is saved under the default path, e.g. ~/Library/Application Support/PremiumSoft CyberTech/Navicat CC/Navicat Premium/Profiles

If you want to hide the group structure, choose **View** -> **Navigation Pane** -> **Flatten Connection** and choose **View** -> **Flatten Object List**.

Create a new group

1. In the main window, control-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, control-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, control-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 working on database objects. The highlighted color displays in the Navigation pane and the tab of its object window.

To highlight a connection, control-click a connection in the Navigation pane and select **Color**.

Hint: You can synchronize your settings to Navicat Cloud or Navicat On-Prem Server. See Synchronize Personal Profiles.

Focus Mode (Available only in Enterprise and Standard Edition)

Focus is a feature that helps you reduce distractions and set boundaries. It removes everything from the screen except the form you are working and enters the full screen mode.

When you want to concentrate on a specific activity, you can turn it on by simply clicking the icon.

The following tools support Focus Mode:

- Data Editor
- Object Designer
- Query
- Aggregation Pipeline
- Automation
- Model
- BI
- Server Monitor

To exit Focus Mode, you can simply click the icon at the top right.

Dark Theme

In Dark Theme, Navicat uses a darker color palette for all windows, views, menus, and controls.

To change your theme, choose **Navicat XXX** -> **Settings** -> **General**. Then, select **Dark**.

Chapter 27 - Configurations

Navicat provides a comprehensive Settings window to customize the user interface, optimize database performance, configure file locations, and manage external environment integrations.

To open the Settings window, choose **Navicat XXX** -> **Settings** from the menu bar.

General

These settings govern core workspace behaviors, interface themes, hierarchical navigation layouts, and protective confirmation dialogs to streamline your daily workflow.

Option	Description
Appearance	Change the appearance of Navicat: System Default, Light or Dark.
Main Window	
Show objects under schema in navigation pane	Display database objects hierarchically inside the Navigation pane. **Hint:** Reopen the database or schema to apply this change.
Show objects under table in navigation pane	Dynamically expand tables in the Navigation pane to show structural sub-elements (fields, indexes, foreign keys) via an arrow icon. **Hint:** Reopen the database or schema to apply this change.
Font	Define the font and its size used by the object list.
Use default font	Check this option to use the default font settings.
Confirm Dialog	
Use safe confirm dialog	With this option is on, Navicat prompts a double confirmation dialog for safe deletion when deleting objects in the main window.
Ask to save new queries/profiles before closing	With this option is on, Navicat prompts a warning dialogue to save modifications to any new queries or profiles upon closing their respective sub-windows.
Ask to save new table profiles before closing	With this option is on, Navicat prompts a warning dialogue to save modifications to any new table profiles upon closing their respective sub-windows.
Show SQL preview before saving	Display the generated SQL statements for your modifications in the Save dialog before writing the changes permanently to the server.
Database Items	
Show function wizard	Automatically launch the Function Wizard whenever you create a new function or procedure (supported for MySQL, Oracle, PostgreSQL, SQL Server, and MariaDB).
Usage Data	

Share Usage Data	Allow Navicat to securely transmit anonymous usage analytics from your device to assist developers with stability and feature improvements. Click the **Usage Data** button to inspect exactly what telemetry data is shared.
Update	
Automatically check for updates	Allow Navicat to automatically ping update servers on launch to check for newer version releases.

Tabs

The Tabs preferences allow you to customize how asset windows, editor forms, and navigation layers organize themselves upon startup or when spawning new objects.

Option	Description
On Startup	
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**.
Open Tabs	
Main window	Open a new tab in the main window.
Last tab window	Open a new tab in the last opened window (including the main window).
Last tab window (except main 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.
Allow opening multiple forms for same object	Enable this option to allow multiple instances or windows of the exact same database object to be open simultaneously.
Tab Bar Style	
Always show the tab bar	Keep the structural tab row visible at all times when a window is open, even if only a single standalone tab is currently active.

Code Insight

The Code Insight settings allow you to customize the behavior of the editor's intelligent auto-suggestion and syntax highlighting features.

Option	Description
Use code completion	Automatically trigger an intelligent suggestion drop-down window when you type a character or a dot (.) separator in the editor.
Auto update code completion info	Instruct Navicat to automatically scrape the latest database structural schema updates from the server the moment you open a connection. If disabled, metadata must be manually refreshed within the Query window.
Include system objects when	Include core system tables and internal dictionaries in the suggestion

updating code completion info	database. **Hint:** Only available for MySQL, MariaDB, and PostgreSQL. Including massive system objects may degrade code completion performance.
Auto select first suggestion	Automatically highlight the top suggestion in a pop-up list. When active, pressing ENTER or TAB instantly inserts the selected item. If disabled, you must manually use the arrow keys to navigate choices.
Show details when hovering over SQL elements	Display informative tooltips when resting your cursor over specific SQL elements in the editor.
Hover Delay (ms)	Set the exact delay time (in milliseconds) before the hover tooltip appears on the screen.
Cmd-click Default Action	Choose the specific action that is triggered when you hover over or press COMMAND and click on database identifiers.
Cmd-click resolve identifier references locally first	Prioritize resolving referenced identifiers within your query when you press COMMAND and click on a database identifier.
Clear Code Completion Info	Purge all locally cached code completion information stored on your local machine.

Editor

The Editor settings help you configure the visual layout, typography, and code-formatting rules for all script editing windows.

Option	Description
Disable syntax highlight and code completion if SQL larger than: MB	Restrict resource-heavy parsing features by setting a maximum file size threshold (e.g., 10 MB). Disabling these features on massive scripts significantly increases editor performance and prevents lagging.
Show	
Show line number	Render progressive line numbering on the left-hand margin of the editor.
Use code folding	Enable code blocks to collapse cleanly down into a single visible line.
Use brace highlighting	Visually mark corresponding pairs of brackets or parentheses whenever your text cursor rests on one of them.
Use syntax highlighting	Color and format keywords, strings, values, and comments uniquely.
Text Layout	
Insert spaces when pressing Tab	Convert tab characters directly into regular space formatting sequences based on your defined tab width.
Tab Width	Set the character span spacing mapped to a single press of the TAB key.
Use word wrap	Automatically break long single lines of SQL code horizontally to fit

	within the visible boundaries of the editor window.
Font and Colors	
Font	Define the font and its size used across all editors.
Use default font	Check this option to use the default font settings.
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.

Records

The Records settings govern how data is fetched, displayed, and manipulated within Navicat's Data Editor.

Option	Description
Records	
Limit records ☐ records per page	Control global pagination by restricting how many rows load at once inside the data grid or foreign key selection window. If disabled, all table rows attempt to pull simultaneously into a single view page. **Note:** To override this for distinct tables or collections, adjust the settings directly inside the Data Editor.
Auto begin transaction	Automatically initiate a database transaction context the moment you alter any values in a data grid. If disabled, Auto-Commit is active by default; you must use the **Begin Transaction** button in the Data Editor to track batch updates manually.
Auto-apply single-record changes	Automatically apply modifications as soon as you finish editing a single record and move your cursor to another row.
Grid	
Font	Define the font and its size used inside the data grids of the Data Editor.
Use default font	Check this option to use the default font settings.
Row Shading	Apply shading to alternate rows or every third row in the grid for viewing data clearly. Choose **None** if you do not want to apply shading.
Zoom	Adjust the default zoom scaling level for the data grid display.
Data Profiling	
Colors	Customize colors for data bars, spotlight tracking flags, and valid NOT NULL visualization elements.
Pending Records Color	Choose the color of the pending changes in the data editor.
MongoDB Time Zone Offset	Specify the local time zone offset used when displaying MongoDB date/time values in the grid (as MongoDB inherently stores all datetime values in UTC).

AI

The AI settings allow you to integrate and configure AI features directly within Navicat to assist with query writing and database management.

Option	Description
Show AI features	Show the integrated AI Assistant and Ask AI functionalities in the Navicat UI. If disabled, the associated buttons and options will not be visible.
Enable AI Assistant	AI Assistant helps you work more efficiently on query writing. After enabled AI Assistant, you can click + and choose an AI provider to add an assistant. **Hint:** By enabling AI Assistant, you agree to our Navicat AI Assistant Disclaimer.
AI Assistant	
AI Assistant Name	Enter the name of the AI Assistant.
AI Provider	Show the name of the AI Provider.
API Host	Enter the API host address. Navicat will automatically fill in the host for you when you select the AI Provider.
API Key	Enter your API key or token.
Model / Model ID	Browse or enter your chat model or model ID.
Max Tokens	Set the maximum number of tokens to limit the model's response.
Temperature	Adjust the randomness of the generated output by AI Assistant. Higher temperatures result in more random and creative outputs, while lower temperatures result in more predictable and conservative outputs.
Instructions	Enter the instruction to set the tone and rules for the conversation. The instruction guides the AI in its responses, ensuring relevance and appropriate behavior. For example, "Respond succinctly" or "Avoid technical terms in your response". This helps the AI in delivering tailored, pertinent responses that meet your specific requirements effectively.
AI Chat UI	
Action for Enter key	Choose the action for the ENTER key, either sending message or starting a new line.
Enable compare with other assistants	Allow you to compare AI responses from the current assistant with those from other AI assistants.
Ask AI	
Language	Choose the default language for the AI's response. If you choose "Auto", the default language will match the application's interface language.

Auto Recovery

Protect your work from unexpected application closures or crashes by configuring automated background backup tasks.

Option	Description
Autosave Modified Queries	Define your frequency threshold to regularly save draft changes made to query files.
Autosave Modified Models	Define your frequency threshold to regularly save draft changes made to model workspaces.
Autosave Modified BI Workspaces	Define your frequency threshold to regularly save draft changes made to BI workspaces.

Environment

The Environment settings let you map external command-line tools and runtime libraries to support interactive terminal operations and specific database connections.

Option	Description
Executables	
SQL*Plus Executable Path	Specify the location of SQL*Plus used in the console of Oracle connections. SQL*Plus is included in Oracle Client / Oracle Instant Client.
SQLite3 Dynamic Library Path	Specify the location of SQLite3 Dynamic Library.
Mongo Shell Path	Specify the location of Mongo Shell used in the console of MongoDB connections.
MongoDump Executable Path	Specify the location of the mongodump executable that used for MongoDump.
MongoRestore Executable Path	Specify the location of the mongorestore executable that used for MongoRestore.
MongoImport Executable Path	Specify the location of the mongoimport executable that used for MongoImport.
MongoExport Executable Path	Specify the location of the mongoexport executable that used for MongoExport.
SnowSQL Executable Path	Specify the location of SnowSQL used in the console of Snowflake connections.
External Editor	Specify the location of an external editors for opening query files.
OCI Environment	
OCI library (libclntsh.dylib)	Specify the location of the Oracle Call Interface runtime library (libclntsh.dylib). 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.

	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.
Use bundled OCI library	OCI library is already included in Navicat. Check this option to use the bundled library.
ORACLE_HOME	Specify the location of ORACLE_HOME for full client only. Instant client should leave it blank.
TNS_ADMIN	Specify the location of the tnsnames.ora file (e.g. ORACLE_HOME/network/admin). It is optional. Required when using TNS connection.

Logging

Logging preferences help you track operational history and troubleshoot application issues by writing data directly to your local machine.

Option	Description
Logs Location	Define the system output folder where Navicat writes performance logs, import histories, and application diagnostics.
Show in Finder / Export Logs	Open the physical directory on your local machine where log files are stored, or export your active log files into a compressed file.
Logging	
Enable history logging	Store the statements or scripts of all operations executed over databases and database objects inside your designated Logs location. You can set the maximum number of files to keep and the file size of each file.
Enable diagnostic logging	Generate diagnostic execution scripts directly inside your designated Logs location to trace underlying errors and troubleshoot runtime application issues. You can set the maximum number of files to keep and the file size of each file.

Advanced

The Advanced settings control core application behavior within your host operating system.

Option	Description
Navicat URI Protocol	
Register Navicat URI Protocol	Bind the Navicat URI network communication protocol handler across the macOS environment. Once registered, clicking a structured navicat:// web hyperlink pattern will automatically launch your local Navicat program and parse the parameters to link with target object automatically.
Connectivity	
Verify server certificate against CA	Activate strict security verification requirements demanding

	remote server certificates pass validation checks against your machine's trusted Certificate Authority (CA) registry list.
Test Connectivity	Perform a real-time network diagnosis to check live communication stability between the active web services and your machine.

Chapter 28 - Hot Keys

Here is the comprehensive guide to Navicat's keyboard shortcuts, broken down by functional areas so you can find exactly what you need to keep clicking to a minimum.

Common

Keys	Action
COMMAND-R	Refresh
COMMAND-N	New Object
COMMAND-D	Design Object
SHIFT-COMMAND-D	Duplicate Object
OPTION-SHIFT-# (# represents 1 to 9)	Add to Favorites
CONTROL-SHIFT-# (# represents 1 to 9)	Open Favorites Link
COMMAND-} or COMMAND-{	Select Next / Previous Tab
COMMAND-> or COMMAND-<	Select Next / Previous Page
COMMAND-Y	New Query
CONTROL-COMMAND-F	Full Screen
COMMAND-S	Save
SHIFT-COMMAND-S	Save As
COMMAND-W	Close Tab
SHIFT-COMMAND-W	Close Window
COMMAND-,	Open Settings Window

Navicat Main Window

Keys	Action
COMMAND-1	Show / Hide Navigation Pane
COMMAND-2	Show / Hide Information Pane
OPTION-COMMAND-T	Show / Hide Toolbar
SHIFT-COMMAND-C	Console
SHIFT-COMMAND-H	History Log
SHIFT-COMMAND-.	Close Connection / Database / Schema
SHIFT-COMMAND-T	Data Transfer
SHIFT-COMMAND-F	Find in Database/Schema

ER Diagram View

Keys	Action
ESC	Select
H	Move Diagram
R	New Foreign Key
DELETE	Delete Selected Foreign Key
COMMAND-Mousewheel Up	Zoom In

COMMAND-Mousewheel Down	Zoom Out
COMMAND-0	Reset Zoom

Table / Collection Designer

Keys	Action
COMMAND-O	Open Table / Collection
COMMAND-+	Add Field
COMMAND-D	Duplicate Field
COMMAND--	Delete Field
SHIFT-COMMAND-K	Set Field as Primary Key
COMMAND-UP ARROW	Move Up
COMMAND-DOWN ARROW	Move Down
COMMAND-F	Find Field
COMMAND-G	Find Next Field
SHIFT-COMMAND-G	Find Previous Field

Data Editor

Keys	Action
COMMAND-D	Design Object (Table, Collection, View, Materialized View)
SHIFT-COMMAND-Y	Query Object (Table, Collection)
COMMAND-F	Find Text
COMMAND-G	Find Next Text
SHIFT-COMMAND-G	Find Previous Text
OPTION-COMMAND-F	Find and Replace
COMMAND-UP ARROW	Sort Ascending
COMMAND-DOWN ARROW	Sort Descending
CONTROL-OPTION-COMMAND-F	Filter Wizard
COMMAND-+	Add Record
COMMAND--	Delete Records
COMMAND-RETURN	Apply Record Changes
COMMAND-ESC	Discard Record Changes
COMMAND-.	Stop Loading Data
CONTROL-0	Set to NULL
CONTROL-SHIFT-B	Toggle Image Editor
CONTROL-SHIFT-T	Toggle Text Editor
CONTROL-SHIFT-H	Toggle Hex Editor
CONTROL-SHIFT-W	Toggle Web Editor
SHIFT-COMMAND-V	Switch View

View / Materialized View Designer

Keys	Action
COMMAND-R	Preview
COMMAND-.	Stop

Query Designer

Keys	Action
COMMAND-R	Run / Run Selected
SHIFT-COMMAND-R	Run Current Statement
COMMAND-.	Stop

Query Editor

Keys	Action
COMMAND-SHIFT-V	Paste from Clipboard Stack
COMMAND-F	Find Text
COMMAND-G	Find Next Text
SHIFT-COMMAND-G	Find Previous Text
OPTION-COMMAND-F	Find and Replace
COMMAND-UP ARROW	Go to the Beginning of Page
COMMAND-DOWN ARROW	Go to the End of Page
COMMAND-LEFT ARROW	Go to the Beginning of Current Line
COMMAND-RIGHT ARROW	Go to the End of Current Line
COMMAND-]	Increase Indent
COMMAND-[	Decrease Indent
COMMAND-/	Toggle Comment
SHIFT-COMMAND-U	Upper Case
COMMAND-U	Lower Case
COMMAND-I	Ask AI
COMMAND-+	Zoom In
COMMAND--	Zoom Out
COMMAND-0	Reset Zoom

Query Builder

Keys	Action
COMMAND-+	Zoom In
COMMAND--	Zoom Out
COMMAND-0	Reset Zoom

Debugger

Keys	Action
F9	Run
F10	Step Over

F11	Step In
COMMAND-F11	Step Out

Model

Keys	Action
Diagram	
OPTION-COMMAND-/	Show Keyboard Shortcuts
A	New Label
F	New Function
L	New Layer
M	New Materialized View
N	New Note
P	New Procedure
R	New Foreign Key/Relation
T	New Table/Collection/Entity
V	New View
E	Add Existing Model Objects
S	Repeat Last Shape
H	Move
SPACE	Temporary Move
OPTION-COMMAND-P	Preview
SHIFT-TAB	Select Previous Object
TAB	Select Next Object
SHIFT-RETURN	Select Previous Level
RETURN	Select Next Level
SPACE	Model Assistant
OPTION	Distance Guide
COMMAND-F	Find Object by Name
COMMAND-P	Print
HOME / Fn-LEFT ARROW	Scroll to Top Edge
END / Fn-RIGHT ARROW	Scroll to Bottom Edge
SHIFT-HOME / Fn-SHIFT-LEFT ARROW	Scroll to Left Edge
SHIFT-END / Fn-SHIFT-RIGHT ARROW	Scroll to Right Edge
PAGE UP / Fn-UP ARROW	Scroll Up
PAGE DOWN / Fn-DOWN ARROW	Scroll Down
SHIFT-PAGE UP / Fn-SHIFT-UP ARROW	Scroll Left
SHIFT-PAGE DOWN / Fn-SHIFT-DOWN ARROW	Scroll Right
COMMAND-+ or COMMAND-Mousewheel Up	Zoom In
COMMAND-- or COMMAND-Mousewheel Down	Zoom Out

COMMAND-0	Reset Zoom
F2	Rename Object
DELETE	Delete from Diagram
SHIFT-DELETE	Delete from Diagram and Model

BI

Keys	Action
Workspace	
COMMAND-D	Design Object
Data Source	
COMMAND-R	Refresh Data
Chart	
COMMAND-R	Refresh Data
OPTION-COMMAND-P	Present
CTRL+P	Print
Dashboard	
OPTION-COMMAND-/	Show Keyboard Shortcuts
SPACE	Temporary Move
COMMAND-R	Refresh Data
OPTION-COMMAND-P	Present
HOME / Fn-LEFT ARROW	First Page
END / Fn-RIGHT ARROW	Last Page
PAGE UP / Fn-UP ARROW	Previous Page
PAGE DOWN / Fn-DOWN ARROW	Next Page
COMMAND-+	Zoom In
COMMAND--	Zoom Out
F2 / Fn-F2	Rename Object
COMMAND-P	Print

Chapter 29 - Log Files

Navicat maintains several log files to keep track of the actions and operations performed within the software. By default, these files are located in your logs directory (for example, ~/Library/Application Support/PremiumSoft CyberTech/Navicat CC/Navicat Premium/Logs), though you can customize this destination path in Settings.

Available Log Files

File	Description
QueryExec.log	Store the statements or scripts of all operations executed over databases and database objects in Navicat. **Note:** You can enable this log and set the maximum number of files to keep and the file size in Settings.
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.
navicat.log	Store information to assist with tracking down any problems in Navicat. **Note:** You can enable this log and set the maximum number of files to keep and the file size in Settings.

History Log Viewer

The History Log Viewer provides a real-time chronological look at the statements or scripts that have been executed or are currently executing within Navicat.

To open the viewer, choose **Tools** -> **History Log** or press SHIFT-COMMAND-H.

Isolate Failures

If you want to filter out successful transactions and only display error messages, click ⚠.

Pause Tracking

Clicking ⏸ temporarily freezes the stream. Any actions you perform while history is paused will immediately populate the viewer once you click resume.

Customize Display

You can toggle what metadata accompanies your log entries by navigating to the **View** menu and choosing from the following options:

- Show Date
- Show Time
- Show Server Name
- Show Session ID
- Show Connection Type
- Show Execute Time