

Navicat Monitor

Version 3 User Guide

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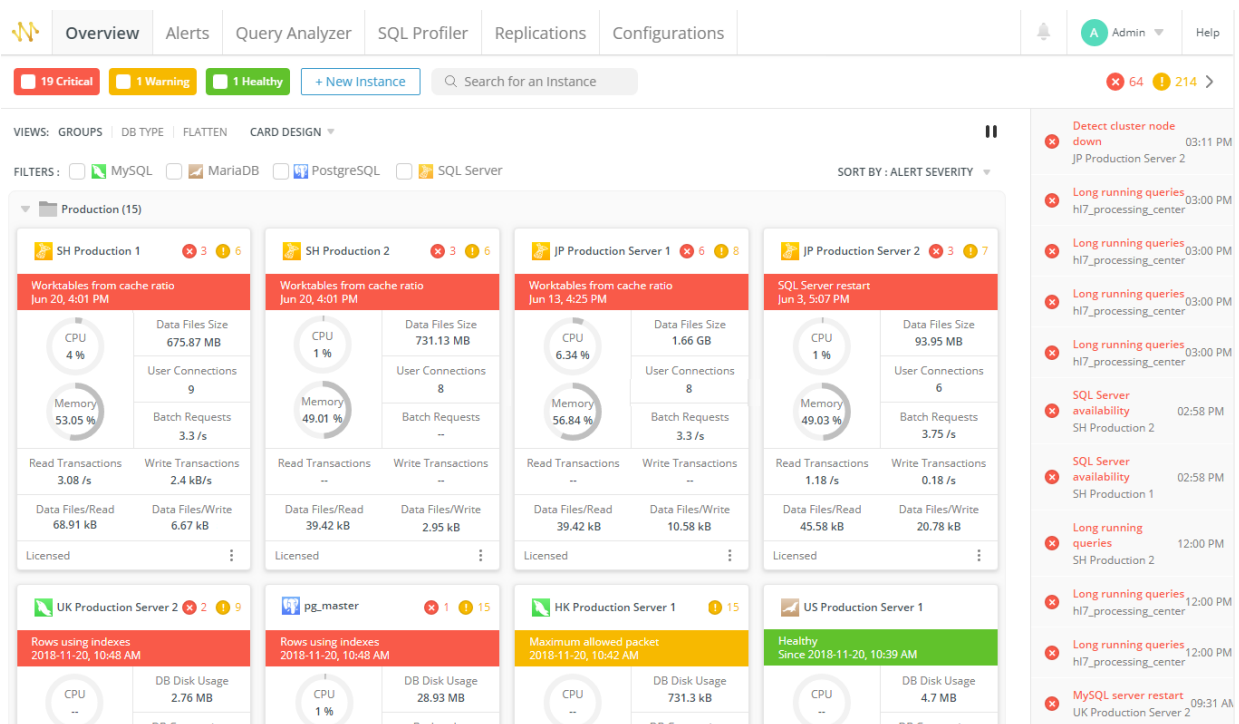
Chapter 1 - Introduction

About Navicat Monitor

Navicat Monitor is a safe, simple and agentless remote server monitoring tool that is packed with powerful features to make your monitoring effective as possible. Monitored servers include MySQL, MariaDB, PostgreSQL and SQL Server, and compatible with cloud databases like Amazon RDS, Amazon Aurora, Oracle Cloud, Google Cloud, Microsoft Azure and Alibaba Cloud. Navicat Monitor is a server-based software which can be accessed from anywhere via a web browser. With web access, you can easily and seamlessly keep track of your servers around the world, around the clock.

Here are some highlights of Navicat Monitor:

- Real-time instance performance monitoring
- Getting alert notification and setting alert policies
- Customizing alert metrics
- Query analyzer for identifying slow queries
- SQL Profiler for locating and optimizing inefficient queries
- Monitoring replications
- Comparing and printing charts
- Set schedule for sending report emails



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

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Chapter 2 - Getting Started

Requirements

Supported Platforms for Installing Navicat Monitor

Windows

- Windows 7, Windows 8, Windows 8.1, Windows 10, Windows 11, Server 2012, Server 2016, Server 2019, Server 2022
- 64-bit

macOS

- macOS 11 Big Sur, macOS 12 Monterey, macOS 13 Ventura, macOS 14 Sonoma, macOS 15 Sequoia
- 64-bit

Linux

- Red Hat Enterprise Linux 6.6 or later, CentOS 6.6 or later, Oracle Linux 6.6 or later, Fedora 20 or later, Debian 8.0 or later, SuSE Linux Enterprise 12 or later, Ubuntu 14.04 LTS or later, openSUSE 42.x or later, Linux Mint 20 or later, Amazon Linux 2, Deepin 20, KylinOS Desktop 10
- 64-bit

Docker

- Docker 17 or later
- 64-bit

FreeBSD

- FreeBSD 10.4 or later
- 64-bit

Hardware Requirements for Installing Navicat Monitor

Minimum hardware requirements

- 2-core CPU
- 2GB RAM

Recommended hardware requirements

- 4-core CPU or more
- 8GB RAM or more
- RAID-1 disk mirroring

Disk space minimum requirements

- 4GB/opt

Supported Web Browsers

- Firefox (Latest Version)
- Chrome (Latest Version)
- Microsoft Edge (Latest Version)
- Safari (Latest Version)

Supported Instance Types

Monitored Servers

- MySQL 5.6 or later
- MariaDB 10.0 or later
- PostgreSQL 10 or later
- SQL Server 2012 or later

Cloud Providers and Vendors

Amazon AWS

- Amazon RDS for MySQL
- Amazon RDS for MariaDB
- Amazon RDS for PostgreSQL
- Amazon RDS for SQL Server
- Amazon Aurora for MySQL

Google Cloud

- Google Cloud SQL for MySQL

- Google Cloud SQL for PostgreSQL

Oracle Cloud

- Oracle MySQL Cloud Service
- Oracle PostgreSQL Cloud Service

Microsoft

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

Alibaba Cloud

- Alibaba Cloud ApsaraDB RDS for MySQL
- Alibaba Cloud ApsaraDB RDS for PostgreSQL
- Alibaba Cloud ApsaraDB RDS for SQL Server

Tencent Cloud

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

Huawei Cloud

- Huawei Cloud RDS for MySQL
- Huawei Cloud RDS for PostgreSQL
- Huawei Cloud RDS for SQL Server

Supported Repository Databases

- MySQL 5.6 or later
- MariaDB 10.0 or later
- PostgreSQL 10 or later
- SQL Server 2012 or later
- Amazon RDS for MySQL

- Amazon RDS for MariaDB
- Amazon RDS for PostgreSQL
- Amazon RDS for SQL Server

Installation

Offline Installation

Offline Installation is available for all platforms supported by Navicat Monitor, except Amazon Linux 2 and Docker container.

Windows

Follow the steps below to install Navicat Monitor on Windows:

1. Download Navicat Monitor Windows version.
2. Open the **.exe** file.
3. Click **Next** at the Welcome Screen.
4. Read the License Agreement. Accept it and click **Next**.
5. Accept the location of the program by clicking **Next**. If you wish to change the destination of the folder, click **Browse**.
6. Follow the remaining steps.
7. After the installation, Navicat Monitor starts automatically. Configure the [Initial Settings](#) in the pop-up browser.

macOS

Follow the steps below to install Navicat Monitor on macOS:

1. Download Navicat Monitor macOS version.
2. Open the **.dmg** file.
3. Drag Navicat Monitor to your Applications folder to install.
4. After the installation, Navicat Monitor starts automatically. Configure the [Initial Settings](#) in the pop-up browser.

Linux

Follow the steps below to install Navicat Monitor on Linux:

1. Download Navicat Monitor Linux version installation package for your OS version.

2. Open Terminal. Execute the following commands as "root".

3. Install Navicat Monitor:

OS Version	Command
RHEL, CentOS, Oracle Linux, Fedora	yum localinstall navicatmonitor-x.y.z.rpm
Ubuntu, Debian, Linux Mint, Deepin, KylinOS	dpkg -i navicatmonitor
openSUSE, SuSE	zypper in navicatmonitor-x.y.z.rpm

4. Start Navicat Monitor:

```
sudo /etc/init.d/navicatmonitor start
```

5. After Navicat Monitor is started, you can configure the [Initial Settings](#) through a browser at `http://your-ip-address:3000`.

FreeBSD

Follow the steps below to install Navicat Monitor on FreeBSD:

1. Download Navicat Monitor FreeBSD version.

2. Open Terminal. Execute the following commands.

3. Install Navicat Monitor:

```
pkg add -f navicatmonitor-x.y.z.txz
```

4. Start Navicat Monitor:

```
/etc/rc.d/navicatmonitor start
```

5. After Navicat Monitor is started, you can configure the [Initial Settings](#) through a browser at `http://your-ip-address:3000`.

Online Installation

Online Installation is only available for macOS and Linux platforms and Docker container. You can visit our website for the installation instruction.

Upgrade

Major Version Upgrade

Before you upgrade Navicat Monitor to the latest major version (e.g. from 1.x to 2.x), we recommend that you back up your Repository Database, as the major upgrade is irreversible.

Follow the steps below to upgrade Navicat Monitor:

1. Go to **Configurations**.

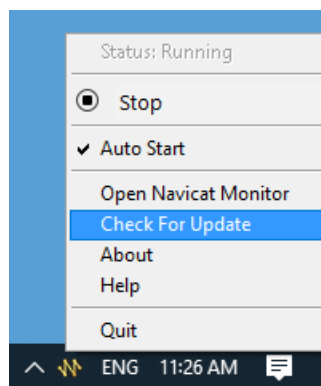
2. Click **Backup / Upgrade / Migrate**.
3. Select **Upgrade to latest major version**.
4. Click **Download Monitor Settings Zip** to back up the current Navicat Monitor settings.
5. [Skip this step if you are using Subscription plan] Click **Deactivate** to deactivate all token keys.
6. [Skip this step if you are using Subscription plan] Go to [Customer Center](#) to upgrade your token keys that are valid for the latest major version.
7. Uninstall the current version.
8. [Download](#) and [install](#) the latest version.
9. Start Navicat Monitor and login your account.

Minor Version Upgrade

Windows

Follow the steps below to upgrade Navicat Monitor on Windows:


1. In the notification area, right-click  and choose **Check For Update**.

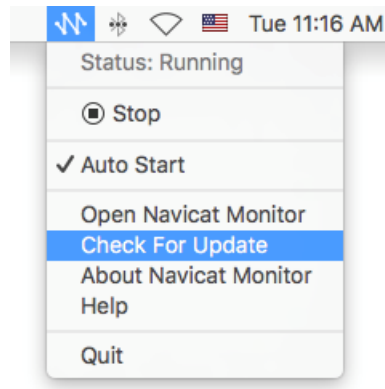


2. If a new version is available, click **Install**.
3. After the upgrade is finished, Navicat Monitor starts automatically.

macOS

Follow the steps below to upgrade Navicat Monitor on macOS:

1. In the menu bar, click  and choose **Check For Update**.



2. If a new version is available, click **Install Update**.
3. After the download is finished, click **Install**.
4. After the upgrade is finished, Navicat Monitor starts automatically.

Linux

Follow the steps below to upgrade Navicat Monitor on Linux:

1. Open Terminal. Execute the following commands as "root".

2. Stop Navicat Monitor:

```
sudo /etc/init.d/navicatmonitor stop
```

3. Update Navicat Monitor:

OS Version	Command
Red Hat Enterprise Linux, CentOS, Oracle Linux, Fedora	yum clean all; yum update navicatmonitor
Ubuntu, Debian, Linux Mint, Deepin, KylinOS	apt-get upgrade
SUSE	zypper refresh; zypper update navicatmonitor

4. Start Navicat Monitor:

```
sudo /etc/init.d/navicatmonitor start
```

FreeBSD

Follow the steps below to upgrade Navicat Monitor on FreeBSD:

1. Open Terminal. Execute the following commands as "root".

2. Stop Navicat Monitor:

```
/etc/rc.d/navicatmonitor stop
```

3. Remove old package:

```
pkg remove navicatmonitor
```


4. Install new package:

```
pkg add -f navicatmonitor-2.1.0-0.x86_64.txz
```

5. Start Navicat Monitor:

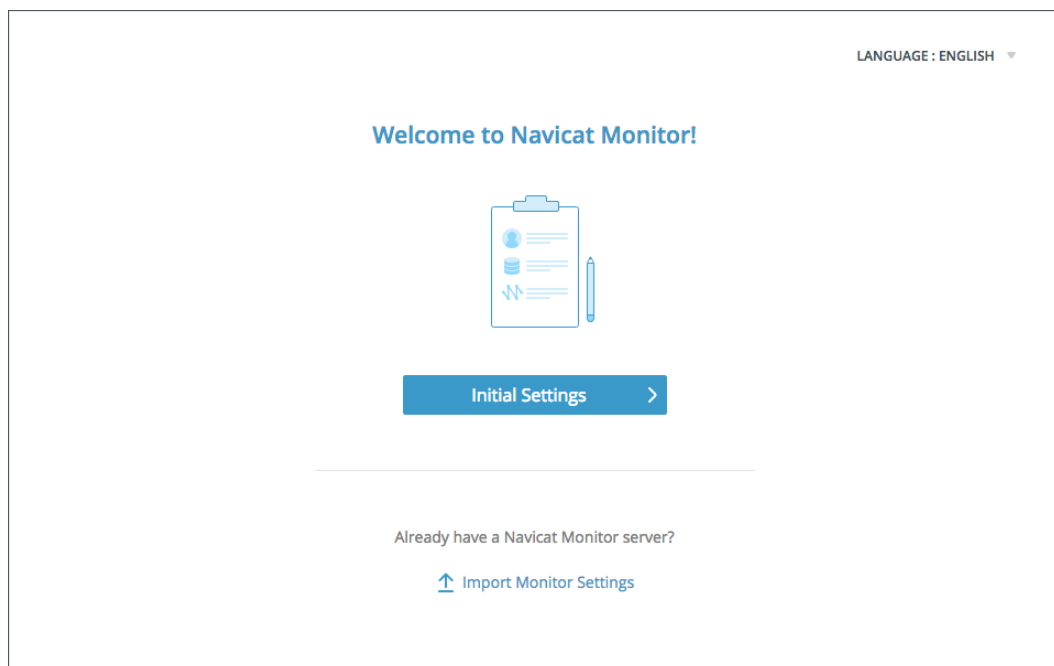
```
/etc/rc.d/navicatmonitor start
```

Initial Setup

After you have installed Navicat Monitor and start it for the first time, a browser will pop up and open the URL **http://<your_ip_address>:<port_number>** of your Navicat Monitor. You need to complete the basic configuration of Navicat Monitor in the Welcome page.

Note: <your_host_address> is the host name of the system that installed Navicat Monitor, and <port_number> is 3000 by default. For Linux version, you need to open the browser and go to **http://<your_ip_address>:<port_number>** manually.

If you want to import Navicat Monitor configuration settings, see [Migration / Backup](#) for details.



Create Superuser Account

Superuser is a local user (Manager) account which has unlimited access to Navicat Monitor functionalities.

1. In the Welcome page, click **Initial Settings**.
2. Enter the profile information of the superuser: USERNAME, PASSWORD, FULL NAME, PREFERRED LANGUAGE, EMAIL, MOBILE.

2. Enter the connection information to connect the repository database.

HOST NAME	The host name or IP address of the database server.
PORT	The TCP/IP port for connecting to the database server.
SIGN IN METHOD	[SQL Server] The authentication method: SQL Server Authentication or Windows Authentication.
DATABASE NAME	The name of the repository database. It can be either an empty existing database or a new database created by Navicat Monitor.
USERNAME	User name for connecting to the database server. The user account must have the following privileges: MySQL / MariaDB - SELECT, INSERT, UPDATE, DELETE, CREATE, DROP, INDEX, ALTER, CREATE TEMPORARY TABLES, CREATE VIEW on all database objects PostgreSQL - Can login, Can create database and Superuser SQL Server - CREATE, UPDATE, SELECT and DELETE
PASSWORD	Password for connecting to the database server.

Initial Settings
Repository Database

DATABASE TYPE: MySQL

DATABASE NAME*: monitor_en

HOST NAME*: 192.168.1.68

USERNAME*: root

PORT*: 3355

PASSWORD:

< Back Test Connection Next >

3. Click **Next**.

Set Application Information

1. Edit the application information if necessary.

PORT	The port number that Navicat Monitor will listen.
WEB URL	The website URL of Navicat Monitor that will be used in Alert emails.
IP ADDRESS	If the machine has been assigned multiple IP addresses, you can specify an IP address for users to access Navicat Monitor. 0.0.0.0 means all IPv4 addresses on the machine. :: means all IPv4 and IPv6 addresses on the machine.

Initial Settings

Application

HOST NAME
Admin-iMac.local

IP ADDRESS ?
0.0.0.0

PORT*
3000

IPV6
Enabled

WEB URL*
http://admin-imac.local:3000

DNS SERVER
192.168.1.1

Back Test Connection Next

2. Click **Next**.

Confirm Settings

Confirm the configuration information, and click **Finish**. Initial configuration process may take a few minutes for setting up the repository database.

Initial Settings

Confirmation

Superuser

USERNAME

admin

FULL NAME

Mary Brown

EMAIL

marybrown@xxx.com

MOBILE

12345678

PASSWORD

Repository Database

DATABASE TYPE

MySQL

HOST NAME

192.168.1.68

PORT

3355

DATABASE NAME

monitor_en

USERNAME

root

PASSWORD

Application

PORT

3000

WEB URL

http://admin-imac.local:3000

IP ADDRESS

0.0.0.0

Back Finish

Log in Navicat Monitor

After the configuration completed successfully, a login page will be displayed and you can log in Navicat Monitor with the manager user account.

LANGUAGE : ENGLISH ▼

Registration Success!

Sign In & Get Started Now

USERNAME

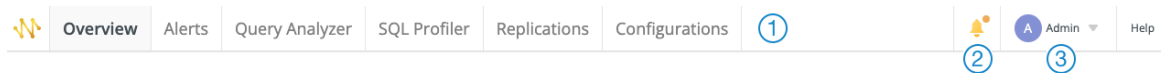
PASSWORD

☒ Keep me signed in

Sign In

User Interface

Main Toolbar



① Navigation Menu

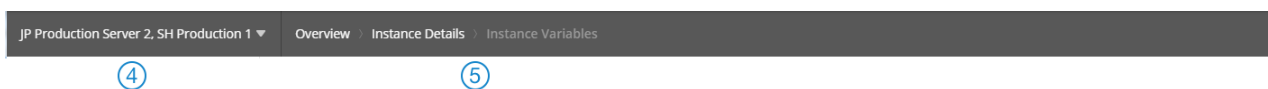
The Navigation Menu allows you to access basic features, such as Overview, Alerts, Query Analyzer, SQL Profiler, Replications and Configurations.

② Bell Icon

When an upgrade is available, a dot next to the bell icon lets you know there are notifications to view. Click the bell icon to view the notification.

③ User Menu

The User Menu allows you to open your own profile page, choose to adopt a light or dark appearance, change the UI language, and log out the current user's session. If you have enough privileges, you can open the Activation page.



④ Selected Instances

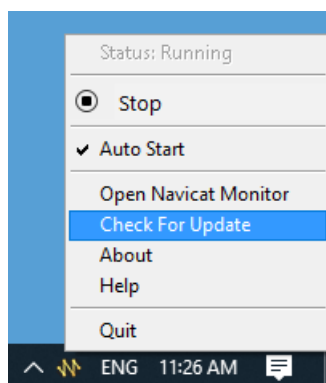
The selected instances on the left instance pane are shown. Click it to show or hide the Instance pane.

⑤ Location Breadcrumb

The Location Breadcrumb shows the position of the current page. Click on a level to jump to that page.

Navicat Monitor Application

Navicat Monitor Application is a small utility that provides quick access to Navicat Monitor, shows the status information of the Navicat Monitor service, notifies you any changes and updates. It is only available in Windows and macOS versions.



Status	The current status of the Navicat Monitor service.
Start / Stop	Start or stop the Navicat Monitor service.
Auto Start	Automatically start the Navicat Monitor service when you turn on your computer and start Navicat Monitor Application when you login your computer.
Open Navicat Monitor	Launch Navicat Monitor in a browser.
Check For Update	Check for an update, and prompt to install the latest version if any.
About Navicat Monitor / About	Show the version number of your Navicat Monitor.
Help	Open the user manual.
Quit	Exit Navicat Monitor Application. It does not stop the Navicat Monitor service.

Create Instances

Once you have finished the Initial Settings and have logged in Navicat Monitor, you can create the instances you want to monitor. Navicat Monitor uses an agentless architecture to monitor your database servers and collect data at regular intervals. It does not require installing any agent software on the servers being monitored.

You can create new instances on the following pages by clicking **+ New Instance** and selecting the server type.

- [Overview](#)
- [Configurations](#)

In the New Instance window, enter a friendly name to best describe your instance in **INSTANCE NAME** and select the **GROUP** of your instance. If you want to add a new group, click **New Group**. Then, provide the following information to connect your server.

New MySQL Instance

✕


INSTANCE NAME *

Production Server 1

GROUP


Production

+ New Group



Navicat Monitor


1



Gateway

2

3



Database

Connect Gateway Server

Navicat Monitor can connect the database server over a secure SSH tunnel to send and receive monitoring data. It allows you to connect your servers even remote connections are disabled or are blocked by firewalls.

1. In the **Gateway Server** section, enable **Connect to gateway server through SSH tunnel**.
2. Enter the following information:

HOST NAME	The host name of the SSH server.
PORT	The port where SSH server is activated, by default it is 22.
USERNAME	A user on SSH server machine. (It is not a user of database server.)
AUTHENTICATION METHOD	The SSH authentication method: Password or Public Key.
PASSWORD	[Password Authentication] Password for login SSH server.
PRIVATE KEY	[Public Key Authentication] It is used together with your public key. Note: You can add the private key in SSH / SSL Certificates .
PASSPHRASE	[Public Key Authentication] A passphrase is exactly like a password, except that it applies to the keys you are generating and not an account.

Enter Instance Connection Details

1. In the **MySQL Server**, **MariaDB Server** or **SQL Server** section, enter the following information:

HOST NAME / ENDPOINT	The host name or IP address of the database server. / The Endpoint for connecting to Amazon Web Services instance.
PORT	The TCP/IP port for connecting to the database server.
AUTHENTICATION	[SQL Server] The authentication method: SQL Server Authentication or Windows Authentication.
DATABASE NAME	The name of the repository database. It can be either an empty existing database or a new database created by Navicat Monitor.
USERNAME	A monitoring user for connecting to the database server. We recommend creating a separate account for the monitoring user which does not causes load on the monitored instance. MySQL / MariaDB - You should grant REPLICATION CLIENT,

	<p>SUPER, PROCESS, SELECT and INDEX on all database objects to the monitoring user.</p> <p>PostgreSQL - You should grant SUPERUSER and pg_signal_backend role to the monitoring user.</p> <p>SQL Server - You should grant VIEW SERVER STATE, VIEW DATABASE STATE, SELECT and the membership of the sysadmin server role to the monitoring user.</p>
PASSWORD	The login password of the monitoring user.
SERVER TYPE	[MySQL / MariaDB / PostgreSQL] The type of the server: Unix-like or Windows.
Use SSL Authentication	[MySQL / MariaDB / PostgreSQL] Enable to use Secure Sockets Layer (SSL) certificates.
SSL CERT	<p>[MySQL / MariaDB] The SSL certificate for establishing an encrypted connection.</p> <p>Note: You can add the SSL certificate in SSH / SSL Certificates.</p>
DATABASE	[Azure SQL Database] The database that you want to monitor.

2. Click **New**.

Login SSH / SNMP to Access System Metrics

Navicat Monitor works over SSH / SNMP to access and collect server's system performance metrics such as CPU and memory resources. If you do not provide this login, you can still monitoring your server without the system performance metrics shown.

Note: Available only for MySQL and MariaDB.

Unix-like Servers

1. In the **CPU & Memories** section, enable **Login SSH to access data of CPU & Memories**.
2. Enter the following information:

PORT	The port where SSH server is activated, by default it is 22.
USERNAME	A user on SSH server machine. (It is not the user of database server.)
AUTHENTICATION METHOD	The SSH authentication method: Password or Public Key.
PASSWORD	[Password Authentication] Password for login SSH server.
PRIVATE KEY	<p>[Public Key Authentication] It is used together with your public key.</p> <p>Note: You can add the private key in SSH / SSL Certificates.</p>
PASSPHRASE	[Public Key Authentication] A passphrase is exactly like a password, except that it applies to the keys you are generating and not an account.

3. Click **New**.

Windows Type Servers

1. In the **CPU & Memories** section, enable **Login SNMP to access data of CPU & Memories**.
2. Enter the following information:

COMMUNITY	The SNMP community string (acts as a password) that is assigned on the server for authentication.
-----------	---

3. Click **New**.

Note: When you connect a Windows type server using a gateway, Navicat Monitor cannot access system metrics.

Chapter 3 - Configurations

Activation

When the trial period of an instance is finished, Navicat Monitor requires tokens to continue monitoring that instance. Tokens can be bought as a perpetual license or on a subscription basis. To manage your tokens and license your instances, go to **Configurations -> Activate Tokens & License Instances**.

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

Perpetual License

If you have purchased a perpetual license, you will receive a token key for activating the purchased tokens in Navicat Monitor.

In the **Perpetual Plan** section, paste your token key into the **ENTER TOKEN KEY NUMBER** text box and click the **Activate** button. Navicat Monitor contacts our licensing server to activate the token key. If the activation process is successful, the token key details are displayed.

Offline Activation

Offline 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. In the No Internet Connection dialog, click **Offline 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 Monitor.
8. Paste the Activation Code into the **Paste the Activation Code Here:** box.
9. Click **Activate**.

Deactivate Token Key

In the **# Local Activated Tokens** section, click the **Deactivate** button next to the token key you want to deactivate. Navicat Monitor contacts our licensing server to deactivate the token key. If the deactivation process is successful, the token key details are removed from the list.

If there are not enough available tokens for deactivating your token key, you may need to unlicense your instances to release some tokens. Otherwise, the **Deactivate** button will not be enabled.

Subscription Plan

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

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

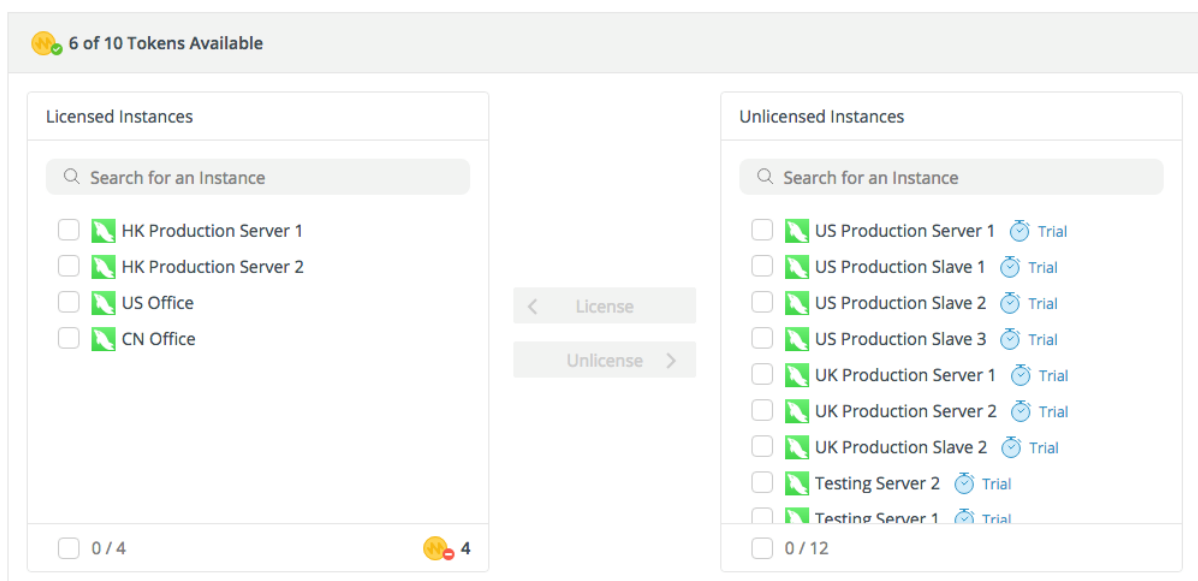
In the **Subscription Plan** section, provide your **NAVICAT ID** and **PASSWORD**. After signed in, the subscription plan details are displayed.

Navicat Monitor 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 Monitor. If you sign in your Navicat ID in another Navicat Monitor, you will be signed out from the current Navicat Monitor and all instances will be unlicensed automatically.

Allocate Tokens

In the **# of # Tokens Available** section, all unlicensed instances are displayed in the **Unlicensed Instances** list and all licensed instances are displayed in the **Licensed Instances** list. You can allocate available tokens to your unlicensed instances, select an unlicensed instance and click the **License >** button. If you want to release tokens for licensing other instances, select a licensed instance and click the **< Unlicense** button.



Note: When the trial period expires, Navicat Monitor stops monitoring and collecting data from all unlicensed instances, and will not raise alerts for them.

Application

Configure Application Settings

You can view or change the application settings of Navicat Monitor, such as Port, Web URL and IP Address. To configure the application settings, go to **Configurations -> Application Settings**.

The application settings of Navicat Monitor are listed. You can edit the following settings:

PORT	The port number that Navicat Monitor will listen.
WEB URL	The website URL of Navicat Monitor that will be used in Alert emails.
IP ADDRESS	If the machine has been assigned multiple IP addresses, you can specify an IP address for users to access Navicat Monitor. 0.0.0.0 means all IPv4 addresses on the machine. :: means all IPv4 and IPv6 addresses on the machine.

Note: Once you have changed the above settings, you should restart the Navicat Monitor service for it to take effect.

Configure Date & Time

You can view or change the date & time settings of Navicat Monitor. To configure the settings, go to **Configurations -> Date & Time**.

The date and time information of Navicat Monitor is listed. You can enable the **Use a 24-hour clock** to use the 24 hour system.

Configure Log House Keeping

Navicat Monitor logs the detailed server errors and messages for tracking down any problems occurred in the servers. To configure the settings, go to **Configurations -> Log House Keeping**.

You can control the build retention policy for logs by specifying both the **MAXIMUM SIZE OF EACH BUILD** and the **MAXIMUM NO. OF BUILDS TO KEEP**.

Backup / Migration

Exporting Navicat Monitor settings can be useful for application server migration or backup purposes. The exported zip file includes Token Keys, Instance Settings, Repository Database Settings and all the files necessary for the restoration. To backup Navicat Monitor settings, go to **Configurations -> Backup / Upgrade / Migrate**.

Note: You can only migrate settings within the same major and minor release. For example, Navicat Monitor v1.1.x only accept v1.1.y zip file.

Backup Navicat Monitor settings

1. Select **Backup only**.

2. Click **Download Monitor Settings Zip** to back up the current Navicat Monitor settings.

Migrate Navicat Monitor to another server

1. Select **Migrate to another monitor server**.
2. Click **Download Monitor Settings Zip** to back up the current Navicat Monitor settings.
3. [Skip this step if you are using Subscription Plan] Click **Deactivate** to deactivate all token keys.
4. Go to the new server and install Navicat Monitor.
5. Start and open Navicat Monitor on the new server.
6. In **Initial Settings**, click **Import Monitor Settings**.
7. Drop or browse the zip file to upload it.
8. After the settings are imported, click **Continue**.
9. Modify the repository database settings if necessary.
10. Click **Restore Monitor Settings**.
11. If the restoration is successful, click **Continue**.
12. [Skip this step if you are using Subscription Plan] All existing tokens are listed. Click **Activate** if you want to activate them now. And then, click **Continue**.
13. Allocate the activated tokens to license the existing instances.
14. Click **Finish**.

Users & Roles

Manage Users

Navicat Monitor allows creating local users, or creating external users using LDAP or AD authentication. To configure users, go to **Configurations -> Users**.


Note: The manager user account created during [Initial Setup](#) cannot be changed to LDAP or AD user.

Hint: You can view or edit your own profile by clicking your user icon on the top right corner and selecting **My Profile**.


Create New Users

You can create new users by clicking **+ Create New User** in the left pane.

To create local users


1. Select the **Local User** tab.
2. Enter the **USERNAME** and **NAME**.
3. Assign a **ROLE** to the new user.
4. Enter the **PASSWORD, CONFIRM PASSWORD**.
5. Click the  icon and enter user's email and phone number.
6. Repeat Step 2 - 5 to add another new user.
7. Click **Create User**.

To create LDAP users

1. Select the **LDAP User** tab.
2. Enter the **LDAP USERNAME** and **NAME**.
3. Assign a **ROLE** to the new user.
4. Click the  icon and enter user's email and phone number.
5. Repeat Step 2 - 4 to add another new user.
6. Click **Create User**.

Hint: To set the LDAP settings, you can go to [LDAP / AD Settings](#).

To create AD users

1. Select the **AD User** tab.
2. Enter the **AD USERNAME** and **NAME**.
3. Assign a **ROLE** to the new user.
4. Click the  icon and enter user's email and phone number.
5. Repeat Step 2 - 4 to add another new user.
6. Click **Create User**.

Hint: To set the Microsoft AD settings, you can go to [LDAP / AD Settings](#).


Manage Existing Users

To edit a user

1. In the left pane, select a user.

2. Modify the user profile, change the UI language or choose to adopt a light or dark appearance.
3. Click **Update Profile**.

To delete a user

1. In the left pane, hover over a user..
2. Click the  icon and select **Remove User**.

Manage Roles & Privileges

Roles are collections of privileges to which users are assigned. By default, Navicat Monitor includes three predefined roles for you to assign to different users for restricting their access. It also allows you to create new roles with customized privileges settings. To configure roles and their privileges, go to **Configurations -> Roles & Privileges**.

Each predefined role has different privileges:

Role	Privileges
Manager	Can access all pages with full control. The privileges of this role are non-editable.
DBA	Can access all pages, except the following features: <ul style="list-style-type: none"> - Activate Token Keys, and License / Unlicense instances - Edit Application & Storage - Retrieve all log files - Edit Alert Notification Settings - Add / Remove / Edit Users' Profiles, Roles & Privileges - Edit LDAP / AD Settings & Security
Operator	Can access all pages, except the following features: <ul style="list-style-type: none"> - Assign Alerts to Group Members - Show SQL Text in All Alert - Use Query Analyzer & SQL Profiler - All configuration changes

Set IP Address Restrictions

As a manager, you can restrict login access at the role-level to prevent users from logging in to Navicat Monitor from any unauthorized locations. If IP address restrictions are defined for a role, the restrictions impacts all users belong to that role. To set a range of IP addresses or a single IP address to restrict for a role:

1. In the left pane, select a role.
2. In the **IP Address Restrictions** section, click **+ Add Range**.
3. Choose the **TYPE** of the IP address: IPv4 / IPv6.
4. Enter the **SUBNET**.

5. Click **Save**.

Create New Roles

You can also create new roles to suit the access control needs of users. Based on their needs, you can create customized roles which can be assigned to the desired users to empower them to perform tasks within the specified boundaries.


1. In the left pane, click **+ New Customized Role**.
2. Enter the **ROLE NAME**.
3. In the **IP Address Restrictions** section, click **+ Add Range** if you want to restrict the access of the new role from an IP Address range.
4. In the **Privileges** section, turn on the privileges that you want to grant to the role.
5. Click **Save**.

Manage Existing Roles


To edit a role

1. In the left pane, select a role.
2. Modify the role settings: Role Name (only for customized roles), IP Address Restrictions settings or Privileges.
3. Click **Save**.

To duplicate a role

1. In the left pane, hover over a role.
2. Click the  icon and select **Duplicate**.
3. The newly created role is named **role_name Copy**.

To delete a customized role

1. In the left pane, hover over a role.
2. Click the  icon and select **Delete**.

Configure LDAP / AD Settings

You can configure Navicat Monitor to authenticate users via an externally hosted LDAP server or authenticate users with Microsoft Active Directory (AD) credentials. To configure the LDAP / AD settings, go to **Configurations -> LDAP / AD Settings**.

LDAP Settings

To use LDAP authentication, configure the following information:

LDAP SERVER HOST NAME	Enter the host name, IP address or URL of your LDAP server.
ENCRYPTION	Select the encryption method for communicating with your LDAP server.
PORT	Enter the port for connecting your LDAP server.
LDAP server allows anonymous bind	Turn on this option if your LDAP server allows anonymous binds.
USER SEARCH BASE	Enter the search base filter to search for the user. (For example: If your users are located in "domain.com", then the search base filter would be dc=domain,dc=com)
USER DN	Enter the user distinguished name to bind to your LDAP server if it does not allow anonymous binds. (For example: If your user name is admin, then the User DN would be cn=admin,dc=domain,dc=com)
PASSWORD	Enter the password for the USER DN specified.
Test Settings	Click this button to test the connection between Navicat Monitor and your LDAP server.
AUTHENTICATION MODE	Select the authentication mode to use for authenticating the user with your LDAP server.
[Comparison Authentication] PASSWORD ATTRIBUTE NAME	Enter the attribute name that contains the password-based authentication mechanism name.
[Comparison Authentication] PASSWORD DIGEST MECHANISM	Select the password-based authentication mechanism.
USER SEARCH ATTRIBUTE	Enter the attribute name that contains the user login name.

Microsoft AD Settings

To use Active Directory authentication, configure the following information:

AD SERVER HOST NAME	Enter the host name or IP address of your AD server.
USER SEARCH BASE	Enter the search base filter to search for the user. (For example: If your users are located in "domain.com", then the search base filter would be dc=domain,dc=com)
USER DN	Enter the user distinguished name to bind to your AD server. (For example: If your user name is admin, then the User DN would be cn=admin,dc=domain,dc=com)

PASSWORD	Enter the password for the USER DN specified.
Test Settings	Click this button to test the connection between Navicat Monitor and your AD server.

Configure Security Settings

To configure the security settings, go to **Configurations -> Security**.

You can change the complexity requirements of the user passwords to increase the password strength and enforce all other user sessions to log out.

If you want to use encrypted connections (HTTPS sessions) between Navicat Monitor and clients, you can configure Navicat Monitor to use the SSL/TLS protocol. Click **+ Add Certificate** and configure the following information:

NAME	Enter the name of the certificate.
CERTIFICATE	Paste the contents of the certificate file.
PRIVATE KEY	Paste the contents of the private key file.
CERTIFICATE CHAIN	Paste the contents of the certificate chain file.

Instances & Groups

Manage Instances & Groups

Navicat Monitor can monitor multiple servers. You can create instances, categorize your instances into groups, and assign members. To configure instances and groups, go to **Configurations -> All Instances**.

To create a new instance to monitor your server, click **+ New Instance** and select the server type. Then, enter the appropriate information in the New Instance window. See [Create Instances](#) for details.

Manage Instances

To edit an instance

1. Select an instance.
2. Click **Edit Instance**.
3. Modify the instance settings.
4. Click **Save**.

Hint: To change the group of instances, simply drag-and-drop selected instances from a group to another.

To suspend monitoring an instance

1. Select an instance.
2. Click **More Action** and select **Pause Monitoring**.

To change the group of an instance

1. Drag and drop an instance into a group in the left pane.

To delete an instance

1. Select an instance you want to delete.
2. Click **More Action** and select **Delete Instance**.

Hint: Deleting multiple instances is supported.

Manage Groups & Members


Groups allow you to organize your instances into collections. Each group is shown as a tab label in the Overview page for filtering the instances quickly. You can also assign users to specific groups as members. If alert notification has configured, Navicat Monitor will send notifications to all members in the group at once when a alert is raised.

All groups are displayed on the left pane and the members of the selected group are displayed on the right pane.


To create a new group

1. Click **+ New Group**.
2. Enter the name of the new group.
3. Click **New**.



To rename a group

1. In the left pane, hover over a group.
2. Click the  icon and select **Rename Group**.
3. Enter a new group name.
4. Click **Rename**.


To add members to a group

1. In the left pane, hover over a group.
2. Click the  icon and select **Add Members to Group**.
3. Enter the name or username of users.
4. Click **Add to Group**.

To remove a member from a group

1. In the left pane, hover over a group.
2. Click the  icon and select **Add Members to Group**.
3. Click the  icon next to the member that you want to remove and select **Remove from Group**.

To delete a group

1. In the left pane, hover over a group.
2. Click the  icon and select **Delete**.

Set Maintenance Windows

If you have to do maintenance work on your servers regularly, you may want to suspend monitoring and stop receiving alerts from Navicat Monitor during maintenance. Navicat Monitor provides the ability for you to set maintenance window time periods to disable monitoring selected instances. During that period, no alerts are raised and no notifications are sent out. To set the maintenance windows of instances, go to **Configurations -> All Instances**.

Note: You can also suspend monitoring on an individual instance manually. See [To suspend monitoring an instance](#).

To set maintenance window

1. Find the relevant instance.
2. Click the **Set Maintenance Window** button in the **Maintenance Window** column.
3. Enter / select the date and time that you want the maintenance window to start, its duration and recurrence pattern.

Set Maintenance Window

×

Start Date & Time

2018-10-16

17:21

Duration

1

↑

↓

Hours

0

↑

↓

Minutes

Recurrence

☐ None
 ☐ Daily
 ☐ Weekly
 ☒ Monthly

☐ Day

1

of every

1

Months

☒ The

First

Monday

of every

1

month(s)

Cancel

Save

4. Click **Save**.

Hint: Click **More Action** and select **Set Maintenance Window** to set maintenance window for all selected instances.

To edit the maintenance window

1. Find the relevant instance.
2. Click the **Edit** button in the **Maintenance Window** column.
3. Modify the time period.
4. Click **Save**.

To delete the maintenance window

1. Find the relevant instance.
2. Click the **Delete** button in the **Maintenance Window** column.

Hint: Click **More Action** and select **Delete Maintenance Window** to delete maintenance window for all selected instances.

Add SSH / SSL Certificates

You can add SSH / SSL certificates for connecting your instances. To configure SSH / SSL certificates, go to **Configurations -> SSH / SSL Certificates**.

Add SSH Certificates

To create a new certificate, click **+ New Certificate** and select **SSH Certificates**.

NAME	The name of the SSH certificate.
PRIVATE KEY	Paste the contents of the private key file.

Add SSL Certificates

To create a new certificate, click **+ New Certificate** and select **SSL Certificates**.

NAME	The name of the SSL certificate.
CA CERTIFICATE	Paste the trusted SSL certificate authorities.
CLIENT KEY	Paste the contents of the SSL key file.
CLIENT CERTIFICATE	Paste the contents of the SSL certificate file.
Verify server certificate against CA	Enable to check the server's Common Name value in the certificate that the server sends to the client.
SPECIFIED CIPHER	Choose a permissible cipher to use for SSL encryption.

Manage Certificates

To delete a certificate

1. Select a certificate you want to delete.

2. Click **Delete Certificate**.

Hint: Deleting multiple certificates is supported.

Query Policy

You can edit the criteria of slow query, restore QueryID and exclude queries from query list. To configure the long running query policy settings, go to **Configurations -> Query Policy**.

In the **Custom Name For Queries** section, you can modify the customized query names or restore their QueryIDs.

In the **Slow Query Criteria** section, you can set to show queries that have an average hourly wait time for longer than a specified duration.

Queries that are excluded from Long Running Query Charts are listed in the **Excluded Queries from Long Running Query Charts** table. To remove the query from the exclude list, click the **Remove** button next to the query and click **Save**.

Alerts & Reports

Set Up Notifications

Navicat Monitor provides 4 channels (emails, SNMP traps, Slack notification and SMS messages) to send notifications whenever an alert is raised in your monitoring. To configure the alert notifications, go to **Configurations -> Notifications**.

Email Notifications

1. In the **Email Server** section, enable **Alert raised**.
2. Configure the following information:

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.
Require a secure (TLS) connection	Enable this option if your SMTP server requires a secure encrypted connection.
Mail server requires a username and password	Enable this option if your SMTP server requires authorization to send email. Enter ACCOUNT USERNAME and PASSWORD .
SEND FROM EMAIL ADDRESS	Enter an email address that used in the "From" field for all notification emails sent by Navicat Monitor.
SEND A TEST EMAIL TO THIS EMAIL ADDRESS / Send Test	Enter an email address to send a test email for checking your configuration.

Email	
-------	--

3. Click **Save**.

SNMP Notifications

1. In the **SNMP v2c** section, enable **Alert raised**.
2. Configure the following information:

SNMP TARGET ADDRESS	Enter the IP address of your server which receive the SNMP traps.
SNMP TARGET PORT	Enter the Port number of your server which receive the SNMP traps.
SNMP COMMUNITY STRING	Enter the SNMP community string (acts as a password) that is assigned on your server for authentication.
Download MIB file	Download the MIB file provided by Navicat Monitor and load it into your server.
Send Test Trap	Send a test trap to the target and port you specified.

3. Click **Save**.

Slack Notifications

1. In the **Slack notification** section, enable **Alert raised**.
2. Configure the following information:

SLACK WEBHOOK	Enter the incoming Webhook URL copied from Slack.
SLACK CHANNEL	Enter the name of the channel that want to send message to.
Send Test Message	Send a test message to the channel you specified.

3. Click **Save**.

SMS Notifications

1. In the **SMS** section, enable **Alert raised**.
2. Configure the following information:

SERVICE PROVIDER	Select the SMS service provider based on your requirement: Clickatell, Twilio or Others.
API KEY	[Clickatell] Enter the unique API Key of your Clickatell account.
ACCOUNT SID	[Twilio] Enter the unique Account SID of your Twilio account.
AUTH TOKEN	[Twilio] Enter the unique Auth Token of your Twilio account.
SEND SMS FROM	[Twilio] Enter the sender's Twilio phone number or messaging service SID.
HTTP API URL	[Others] Enter the URL of the HTTP-API for sending SMS messages.
Post / Get	[Others] Choose to send SMS messages using a HTTP POST or HTTP

	GET request.
MESSAGE KEY	[Others] Enter the parameter name of the text of the SMS message.
RECIPIENT MOBILE NO. KEY	[Others] Enter the parameter name of recipients' mobile number.
OTHER KEY(S)	[Others] Enter the other parameter names required for sending messages through your SMS provider, e.g. username, password.
VALUE	[Others] Enter the value of the parameter you specified.
SEND A TEST SMS TO THIS PHONE NUMBER / Send Test SMS	Select a country/region and enter a phone number to send a test SMS message for checking your configuration.

- Click **Save**.

Adjust Alert Policy

Alert is triggered when a monitored metric value crosses a specified threshold for a certain duration. You can enable or disable alerts and change their thresholds and inherit settings. To configure the alert policy, go to **Configurations -> Alert Policy**.

The Alert Type table displays all available alerts and their details. There are three types of alerts: System, Security and Performance.

<input type="checkbox"/> ALERT TYPE	INHERIT FROM	ENABLED	THRESHOLD	NOTIFICATION & RECIPIENT
<input type="checkbox"/> SYSTEM ALERTS				
<input type="checkbox"/> CPU Usage	Parent	✓	> 90 % > 70 % 5m	Email, SNMP, SMS, Slack All Users
<input type="checkbox"/> Maximum allowed packet	Parent	✓	< 32 0m	Email, SNMP, SMS, Slack All Users
<input type="checkbox"/> Memory usage	This level	✓	> 90 % > 70 % 5m	Email, SNMP, SMS, Slack All Users
<input type="checkbox"/> MySQL replication availability	Parent	✗	Critical 0m	Email, SNMP, SMS, Slack All Users
<input type="checkbox"/> MySQL server availability	Parent	✓	Critical 0m	Email, SNMP, SMS, Slack All Users
<input type="checkbox"/> MySQL server restart	This level	✓	Warning 0m	Email, Slack All Users
<input type="checkbox"/> Swap space usage	Parent	✓	> 90 % > 70 % 5m	Email, SNMP, SMS, Slack All Users

Change Inherit Settings

By default, when you open the Alert Policy page, you are at the All Instances level. You can select a level on the left pane to view its alert policy settings. Those alerts that have been customized at the selected level are marked as **This level** in the **INHERIT FROM** column.

Customize inherit settings

- In the left pane, select a level.
- In the Alert Type table, check the box of an alert.
- Click **Configure Alerts**.
- Choose **INHERIT SETTINGS FROM:**

Parent	Inherit the Alert Settings and Notification Settings from its parent level.
Customize for this level and level below	Apply customized Alert Settings and Notification Settings for the selected level and all levels below it.

5. Click **Save**.

Hint: Changing inherit settings for multiple alerts is supported.

Inherit parent settings

1. In the left pane, select a sub-level.
2. In the Alert Type table, check the box of an alert.
3. Click **Inherit Settings from Parent**.

Hint: Changing inherit settings for multiple alerts is supported.

Enable / Disable Alerts

When Navicat Monitor is first installed, all alerts are enabled by default to identify any potential problems with your instances.

1. In the left pane, select a level.
2. In the Alert Type table, check the box of an alert.
3. Click **Configure Alerts**.
4. Turn **Enable Alert** to ON or OFF.
5. Click **Save**.

Hint: Enabling or disabling multiple alerts is supported.

Set Alert Thresholds

Navicat Monitor raises alerts when certain thresholds are reached. Each alert has its default thresholds. You can adjust the settings to suit your case.

1. In the left pane, select a level.
2. In the Alert Type table, check the box of an alert.
3. Click **Configure Alerts**.
4. In the **Alert Settings** section, configure the following information:

RAISE THIS ALERT WHEN:	Set the threshold that triggers the alert.
------------------------	--

Critical	If the monitored value crosses the defined value, Navicat Monitor will raise a Critical alert.
Warning	If the monitored value crosses the defined value, Navicat Monitor will raise a Warning alert.
for longer than	Set the duration that the monitored value crosses the defined value.

5. Click **Save**.

Set Notification Settings

Navicat Monitor can send notifications to recipients each time an alert is triggered. You can set who will receive the notifications when an alert is triggered.

1. In the left pane, select a level.
2. In the Alert Type table, check the box of an alert.
3. Click **Configure Alerts**.
4. In the **Notification Settings** section, configure the following information:

SEND NOTIFICATION WHEN:	Select the alert statuses (raised, ended) you want to send notifications.
VIA:	Select the methods (Email, SMS, SNMP, Slack) you want to send notifications.
RECIPIENT (EMAIL & SMS):	Select users and/or specific email addresses you want to notify.

5. Click **Save**.

Note: Notification is generated when the alert is "Enabled" and [the channels](#) to receive notifications must be configured.

Hint: Changing notification settings for multiple alerts is supported.

Edit Manager Note

Managers and users who have permission assigned to their roles can create manager notes to help other users investigate alerts. It will show in the [Alert Details](#) page when the alert is triggered. With manager notes, users can understand the status of an alert, or help resolve problems identified by the alert.

1. In the left pane, select a level.
2. In the Alert Type table, check the box of an alert.
3. Click **Configure Alerts**.
4. Enter a note for that alert in the **MANAGER NOTE:** text box.

5. Click **Save**.

Scheduled Reports

Navicat Monitor allows you to schedule reports and send email to specific recipients. To manage the scheduled reports, go to **Configurations -> Scheduled Report**.




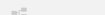
Scheduled Report

+ New Report

Select All

More Actions

SORT BY : LAST MODIFIED

<input type="checkbox"/>	<div>Weekly Query Report</div> <div></div>	<div>NEXT RUN</div> <div>2019-10-10, 12:00 AM</div>	<div>FEQUENCY</div> <div>Weekly</div>	<div>RECIPIENT</div> <div>Member of related Instance group(s)</div>	<div></div>
<input type="checkbox"/>	<div>2019 Review</div> <div></div>	<div>NEXT RUN</div> <div>2020-01-01, 12:00 AM</div>		<div>RECIPIENT</div> <div>All users</div>	<div></div>
<input type="checkbox"/>	<div>2018 Review</div> <div></div>	<div>LAST RUN</div> <div>2019-10-04, 03:16 PM [Overdue]</div>		<div>RECIPIENT</div> <div>All users, admin@abc.com</div>	<div></div>
<input type="checkbox"/>	<div>2017 Review</div> <div></div>	<div>LAST RUN</div> <div>2019-10-04, 03:15 PM [Overdue]</div>		<div>RECIPIENT</div> <div>admin@abc.com</div>	<div></div>

Create a new report

1. Click **+ New Report**.
2. Configure the report. See [Create Reports](#) for more information.
3. Click **Create Report**.


Edit a report

1. Select a report.
2. Click **Edit Report**.
3. Modify the report settings.
4. Click **Save**.

Pause / Resume a report

1. Find the relevant report.
2. Click the  icon and select **Pause Report / Resume Report**.

Delete a report

1. Find the relevant report.
2. Click the  icon and select **Delete Report**.

Create Custom Metrics

By default, Navicat Monitor collects a preset set of server metrics from the monitored instances. You might want to add your own query to collect some custom performance metrics for specific instances, and receive alerts about your custom data when the metric value passes certain thresholds and durations. To configure a custom metric, go to **Configurations -> Custom Metrics**.

Create Custom Metric & Alert

1. In the Custom Metrics page, click **+ New Custom Metric**.
2. [Step 1] Enter the custom metric definition:

METRIC NAME	Enter the name of the custom metric.
DESCRIPTION	Enter a metric description that helps users understand the metric values.
DATABASE TYPE	Choose the database type of your instances.
SELECT INSTANCE TO COLLECT FROM	Select specific instances from which to collect data. A custom metric chart will show in the Instance Details page of the selected instances.
QUERY	Enter the query used to collect data. It must return a single, numeric scalar or NULL value.
Test Metric Collection	Test the query to make sure that data can be successfully collected from selected instances within a reasonable duration.
DATA DISPLAY	Choose to use collected or calculated values. Collected Values - The actual values collected after running the query. Use a calculated rate of change between collections - Measure the difference of metric value divided by the number of seconds between each collection.

3. [Step 2] Click **+ Add a custom alert for this metric** to add an alert to a custom metric.


Enable Alert	Choose to enable or disable the alert.
ALERT NAME	Enter the name of the alert.
DESCRIPTION	Enter an alert description that helps users understand what conditions may cause the alert to be raised.
Alert Settings	Set alert threshold duration. See Set Alert Thresholds for more information.
Notification Settings	Define alert notification. See Set Notification Settings for more information.

4. [Step 3] The settings completed earlier are displayed:

ENABLE DATA COLLECTION	By default, metric collection is enabled, so data collection can start after the wizard has been completed. If you want to delay collection, turn off this option.
ENABLE ALERT	Choose to enable or disable the alert.

5. Click **Create Custom Metric**.

View Custom Metric Chart

1. Find the relevant metric.
2. Click the  icon and select **Open Chart in New Tab**.
3. The [chart](#) of the custom metric will open in a new tab.

Modify Custom Metrics and Alerts

Edit a custom metric and alert


1. In the Custom Metrics page, click a metric name or an alert name.
2. Modify the settings.
3. Click **Save** in the last step.

Enable / Disable metric collection

1. Find the relevant metric.
2. Click the  icon and select **Enable Data Collection / Disable Data Collection**.


Hint: Click **More Action** and select **Enable Data Collection / Disable Data Collection** to enable or disable metric collection for all selected metrics.

Enable / Disable an alert

1. Find the relevant metric.
2. Click the  icon and select **Enable Alert / Disable Alert**.


Hint: Click **More Action** and select **Enable Alert / Disable Alert** to enable or disable alerts for all selected metrics.

Delete an alert

1. Find the relevant metric.
2. Click the  icon and select **Delete Alert**.

Hint: Click **More Action** and select **Delete Alert** to delete the alerts of all selected metrics.

Delete a custom metric and its alert

1. Find the relevant metric.
2. Click the  icon and select **Delete Metric and Alert**.

Note: Deletion of custom metrics and alerts is a permanent action that cannot be reversed.

Hint: Click **More Action** and select **Delete Metric and Alert** to delete all selected metrics and their alerts.

Storage

Manage Repository Database

Migrating an existing repository database to a different database can include moving to a different database in the same server, or migrating to a database on a different operating system (for example from Windows to macOS).

If you want to migrate your Repository Database, follow these steps:

1. Stop the Navicat Monitor service by executing [command](#) or using the icon in the notification area / menu bar.
2. In your database management tool, copy your current repository database (all tables with both structure and data) to your new repository database.
3. Start the Navicat Monitor service and launch Navicat Monitor in your browser.
4. Go to **Configurations**.
5. Click **Repository Database**.
6. Click **Edit Settings**.
7. Edit the repository database settings.

HOST NAME	The host name or IP address of the database server.
PORT	The TCP/IP port for connecting to the database server.
SIGN IN METHOD	[SQL Server] The authentication method: SQL Server Authentication or Windows Authentication.
DATABASE NAME	The name of the repository database.
USERNAME	User name for connecting to the database server. The user account must have the following privileges: MySQL / MariaDB - SELECT, INSERT, UPDATE, DELETE, CREATE, DROP, INDEX, ALTER, CREATE TEMPORARY TABLES, CREATE VIEW on all database objects PostgreSQL - Can login, Can create database and Superuser SQL Server - CREATE, UPDATE, SELECT and DELETE
PASSWORD	Password for connecting to the database server.

8. Restart the Navicat Monitor service to resume monitoring.

Purge Monitor Data

The repository database stores all data collected by Navicat Monitor during monitoring process. It might consume large amounts of your hard disk space. To prevent the database from growing too large or use all your hard disk space, you can set a regular automatic data purge. To configure the data purging settings, go to **Configurations -> Data Purging**.

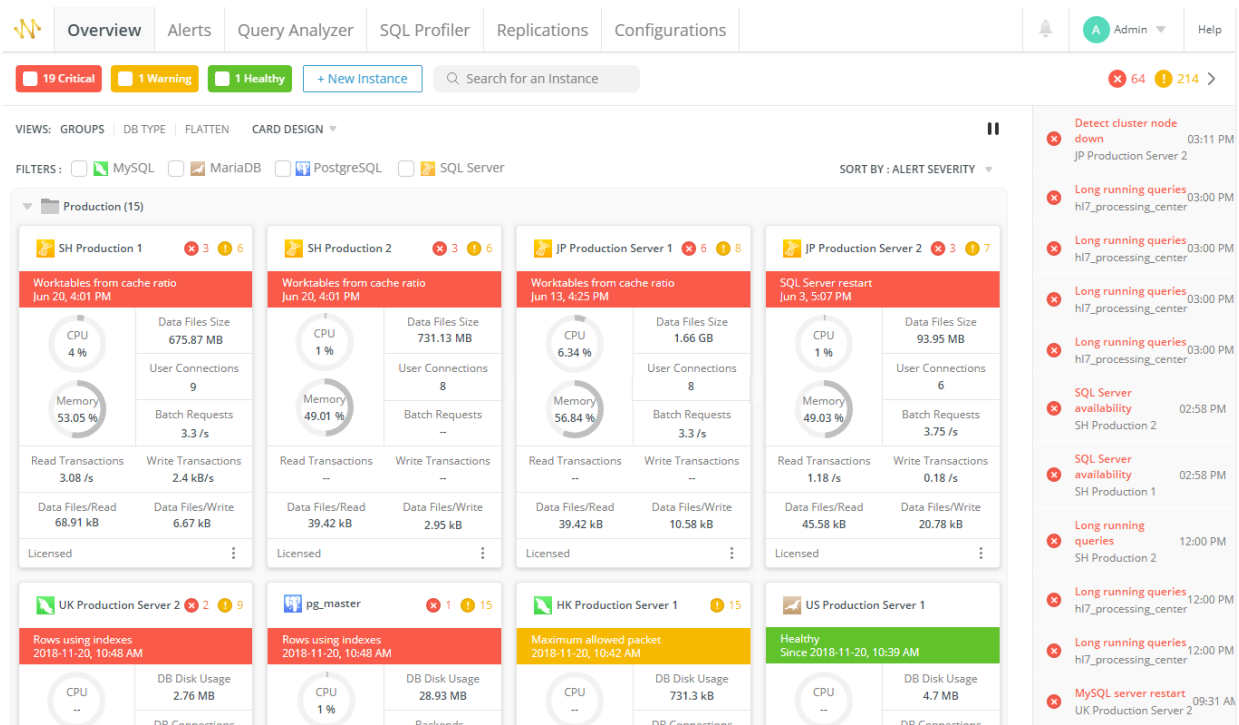
Data is stored in two categories: alert and performance data. Alert Data is displayed on various sections of Overview, Alert History and Alert Details pages and Performance Data is displayed on various sections of Overview, Instance Details and Chart pages.

You can choose how long to keep data in each category. 'Do Not Purge' is set as default. It means data will be stored indefinitely in the Repository Database. To change this setting, select a time option from the **PURGE DATA OLDER THAN** drop-down menu and click **Save**.

Chapter 4 - Overview

Overview Dashboard

The **Overview** dashboard page shows all instances that are monitored by Navicat Monitor. You can get a high-level summary information and the healthy status of your instances, identify instances which require critical attention.



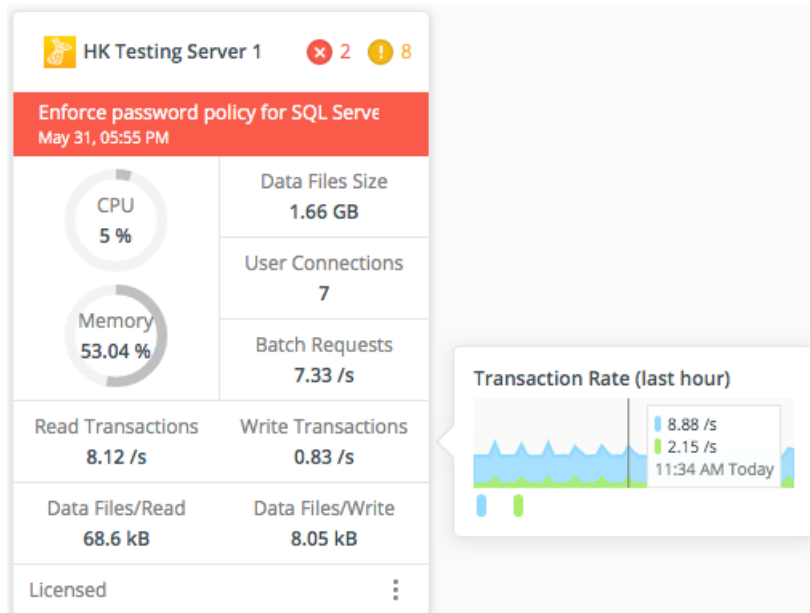
Instance Cards

The instance cards let you identify the server status and system resource usage. To create a new instance to monitor your server, click **+ New Instance** and select the server type. Then, enter the appropriate information in the New Instance window. See [Create Instances](#) for details.

By default, instance cards show all available system resource usages. Click **CARD DESIGN** and uncheck the metrics that you are not interested in. You can change the display style that works best for you by choosing **Compact** or **Comfortable**. Comfortable View shows the selected metrics on the cards, while Compact View hides all metric information.

When creating a new instance, you are allowed to assign it to an availability group. You can change the view of the dashboard by choosing **GROUPS**, **DB TYPE** or **FLATTEN**.

Hover over a metric in a card to bring up a small chart. Move the mouse pointer over on the chart to show the time and the values at that point.



You can click on an instance to view its [details and metrics](#).

Pause monitoring an instance

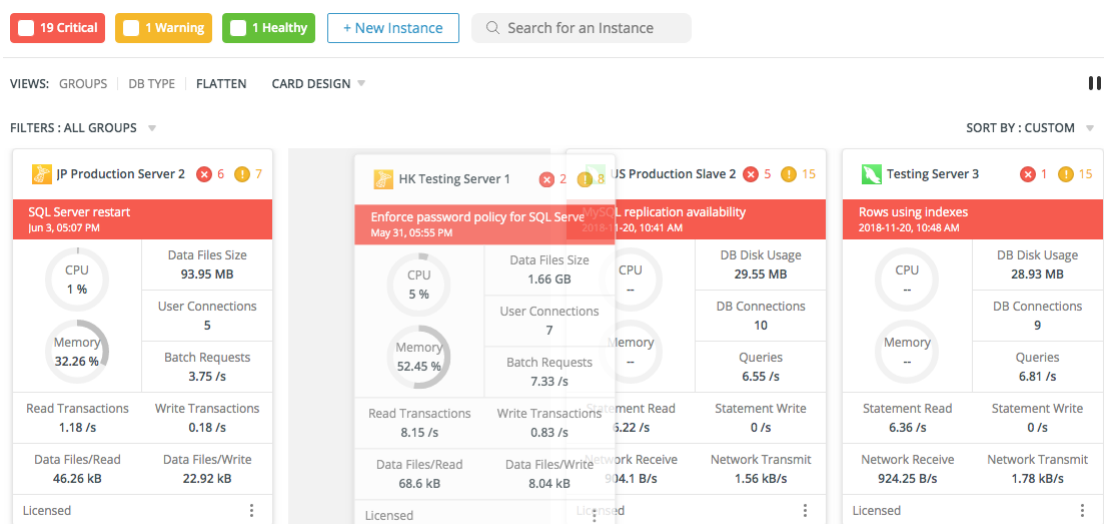
You may want to pause monitoring a specific instance temporarily. Click the icon and select **Pause Monitoring**. Navicat Monitor stops collecting information from the server until the monitoring resumes. To start monitoring again, select **Resume Monitoring** from .

Stop refreshing metrics

Navicat Monitor refreshes the metrics on the dashboard every 60 seconds. To stop or start refreshing the metrics, click the or icon. Server data collection does not stop during the stop period.

Change the order of instances

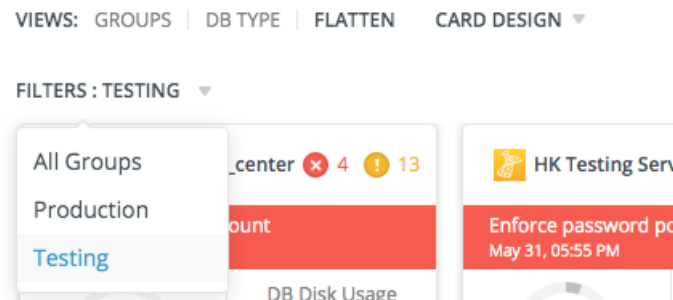
Click **SORT BY** and select a sorting option. If you choose **Alert Severity**, the instance cards will be sorted by the severity level from critical to low. To customize the position, click and hold the icon on an instance card and then drag-and-drop the card to the desired position. Navicat Monitor automatically remembers your custom order. If moving an instance to another group, the group to which the instance belongs will change.



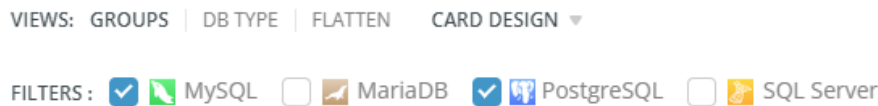
Note: Custom sorting is only available in FLATTEN view.

Filter instances

If using DB TYPE / FLATTEN view, click **FILTERS** and choose a group name to shows all instances that belong to it.



If using GROUPS view, check the server type to filter the instances by server types.




You can also filter instances by their health states. The colored tags show the total number of servers having critical alerts (red), servers having warnings (orange), healthy servers (green), and servers that have paused or stopped monitoring (grey). Click on a tag to filter the instances by states in the selected group.



Search instances

If you are monitoring many instances, you can find the instances you want easily by the search feature. Enter a search string in the **Search for an Instance** text box. Instance cards will be filtered by the search string immediately.

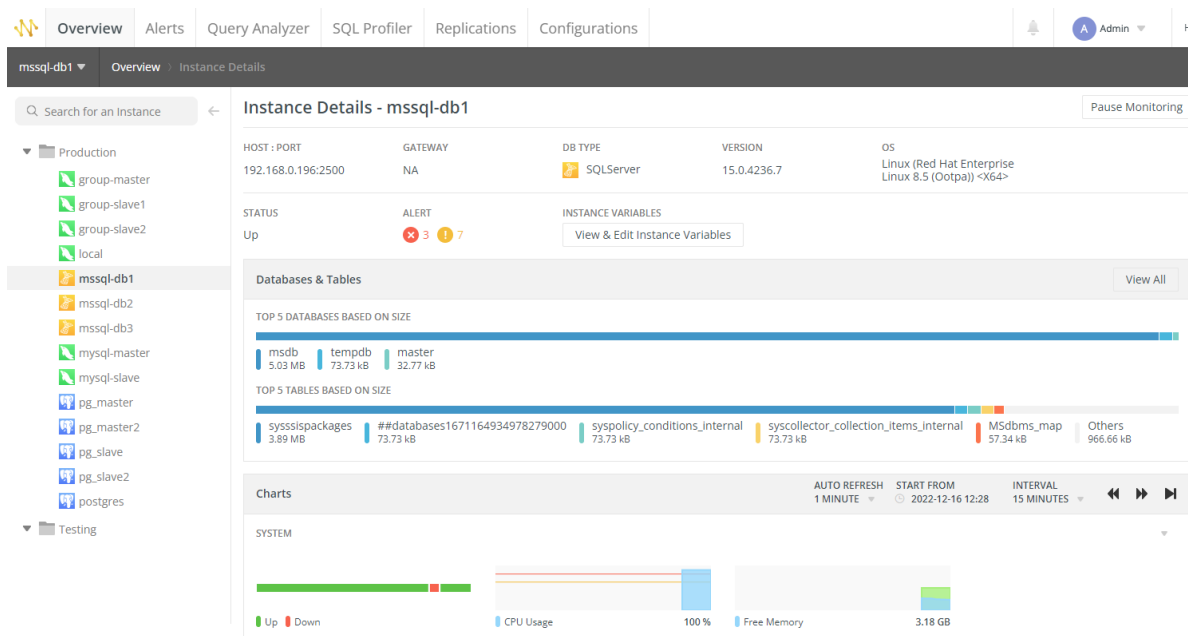
Latest Alerts

The right pane displays the recent alerts raised in Navicat Monitor. It can be hidden by clicking the  icon. Click on an individual alert, you will be redirected to its details page, or click **View All History** to open the [Alerts](#) page.

Instance Details

View Instance Details

In the Overview page, click on an instance card to open its **Instance Details** page. It shows the server parameters and metrics visually, gives you a quick view of the server load and performance. You can pause and resume monitoring the instance here by using the **Pause Monitoring** and **Resume Monitoring** buttons. Navicat Monitor stops collecting information from the server until the monitoring resumes.



All monitored instances are shown in the left pane. Select an instance to view information related to it.

Information on Instance Details Page

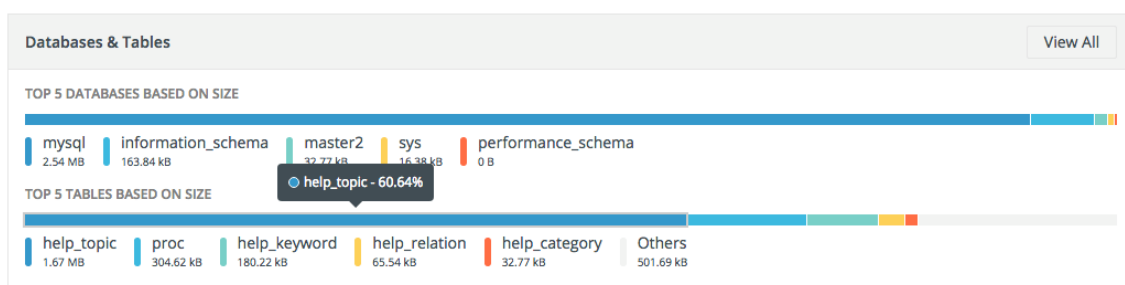
Summary

It displays host information about the server, server properties, alerts and status. To view or edit the [instance variables](#), click **View & Edit Instance Variables**. If an alert is raised, click on it to open the [alert](#) page.

Databases & Tables

It displays the top five databases or tables by size, and a sixth category called "Others" that groups the remaining databases or tables. It is a quick and easy way to see which databases and tables on your server are the largest.

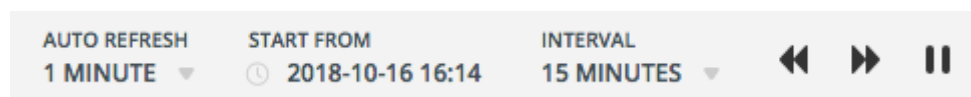
You can hover over each segment to show the size percentage. To view [size information](#) of all databases and tables in the instance, click **View All**.



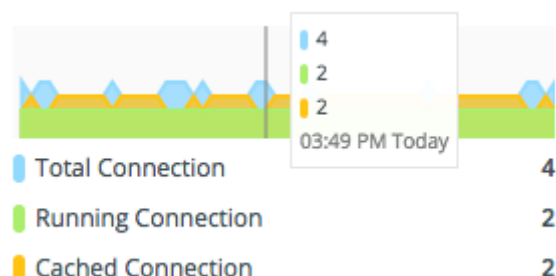
Charts

Navicat Monitor displays server performance metrics (including [custom metrics](#) created by you) in the form of visualizations that are represented as small charts. The charts track and refresh the data at the certain intervals, displays related metrics using different predefined colors and symbols. In the small charts, the axis scales and labels are not printed.

The time interval (X-axis) and refresh options are configurable, use the **AURO REFRESH** drop-down menu, the **START FROM** datetime picker, the time **INTERVAL** drop-down menu and the panning arrows.



You can move the mouse pointer a point on the chart to read the values. To view the details of an individual chart or more charts, click on a chart to open the [Chart](#) page.



View & Edit Instance Variables

In the Instance Details page, click **View & Edit Instance Variables** to view or edit the server variables. The **Instance Variables** page displays the server variables, allows you to compare variables of multiple servers to determine why the performance of one server is not as well as the others in the same condition.

Select multiple instances on the left pane to compare their variables. The values are listed side-by-side, differences can be clear at a glance. Inapplicable variables are marked as *N/A*.

UK Production Server 2, US Production Server 1 ▾ Overview ▸ Instance Details ▸ Instance Variables			
<div>Search for an Instance</div> <div> <div>Main Office</div> <div> <div>Production</div> <div> <div><input type="checkbox"/> HK Production Server 1</div> <div><input type="checkbox"/> HK Production Server 2</div> <div><input type="checkbox"/> UK Production Server 1</div> <div><input checked="" type="checkbox"/> UK Production Server 2</div> <div><input type="checkbox"/> UK Production Slave 2</div> <div><input checked="" type="checkbox"/> US Production Server 1</div> <div><input type="checkbox"/> US Production Slave 1</div> <div><input type="checkbox"/> US Production Slave 2</div> <div><input type="checkbox"/> US Production Slave 3</div> </div> </div> <div>Testing</div> <div> <div><input type="checkbox"/> Testing Server 1</div> <div><input type="checkbox"/> Testing Server 2</div> <div><input type="checkbox"/> Testing Server 3</div> </div> </div>	<div>Instance Variables</div> <div>Expand All Collapse All</div> <div>GENERAL</div> <div>MEMORY</div>		
	<div>bulk_insert_buffer_size</div> <div>host_cache_size</div> <div>join_buffer_size</div> <div>large_pages</div> <div>large_page_size</div> <div>parser_max_mem_size</div> <div>preload_buffer_size</div> <div>query_alloc_block_size</div> <div>query_cache_limit</div> <div>query_cache_min_res_unit</div> <div>query_cache_size</div> <div>query_cache_type</div> <div>query_cache_wlock_invalidate</div> <div>query_prealloc_size</div> <div>range_alloc_block_size</div> <div>read_buffer_size</div> <div>read_rnd_buffer_size</div> <div>sort_buffer_size</div> <div>stored_program_cache</div>	<div>UK Production Server 2</div> <div> 8388608 279 262144 OFF 0 18446744073709551615 32768 8192 1048576 4096 1048576 OFF OFF 8192 4096 131072 262144 262144 256 </div>	<div>US Production Server 1</div> <div> 8388608 N/A 131072 OFF 0 N/A 32768 8192 1048576 4096 33554432 ON OFF 8192 4096 131072 262144 2097144 N/A </div>

To edit a variable, hover over a value and click **Edit**.

Expand All
Collapse All

GENERAL
autocommit
auto_generate_certs
basedir
big_tables
block_encryption_mode
completion_type
core_file
datadir

UK Production Server 2
ON
N/A
/usr/
OFF
Edit
aes-128-ecb
NO_CHAIN
OFF
/var/lib/mysql/

View Database & Table Size

In the Instance Details page, click **View All** under the Databases & Tables section. The **Databases & Tables** page displays a list of databases and tables with their size in the server. The list is ordered by size. Click an instance in the left pane to jump to its Databases & Tables page.

Databases & Tables

DATABASE	SIZE
mysql	657.57 kB
test	49.15 kB
test-rep	16.38 kB
information_schema	8.19 kB

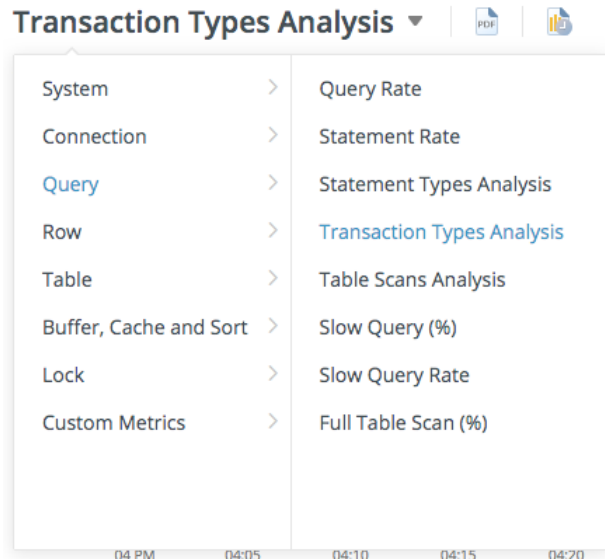
TABLE	DATABASE	SIZE
help_topic	mysql	484.82 kB
help_keyword	mysql	105.63 kB
alert_contents	test	49.15 kB
help_relation	mysql	26.49 kB
alert_descriptions	test-rep	16.38 kB
db	mysql	6 kB
help_category	mysql	4.19 kB

Charts

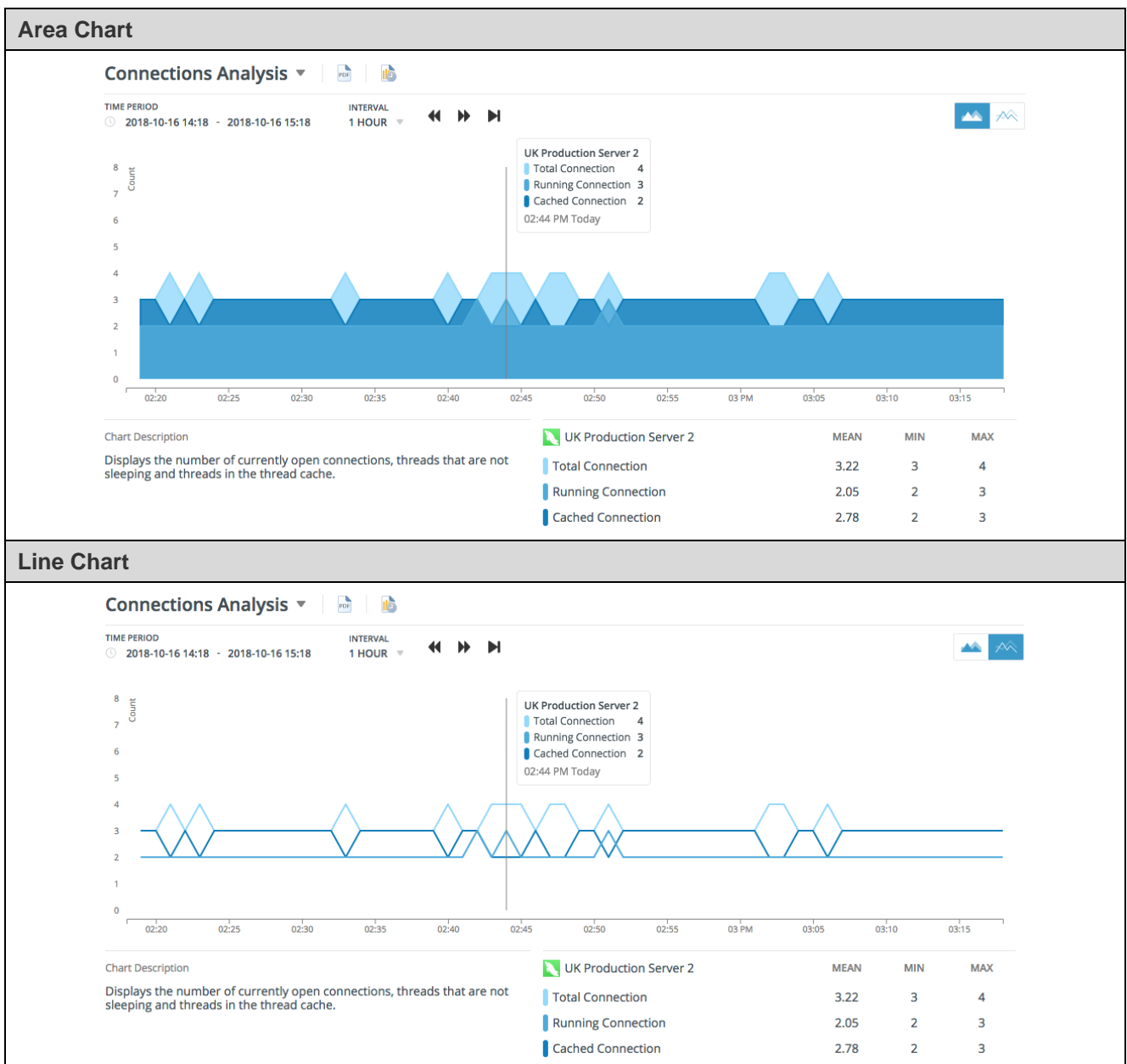
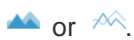
About Charts

Each small chart in the Instance Details page can be opened as a large chart. The **Chart** page shows metrics against a specified sample interval and the detailed chart information. It displays related metrics using different predefined colors and symbols. When the instance was stopped monitoring in a period, no metrics are available for that period in the chart.

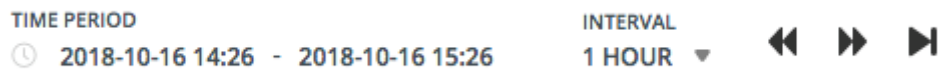
Navicat Monitor provides over 40 types of charts. You can change the chart type by clicking the chart title.



Navicat Monitor supports 2 time series charts: Area Chart and Line Chart. To switch between line and area charts, click

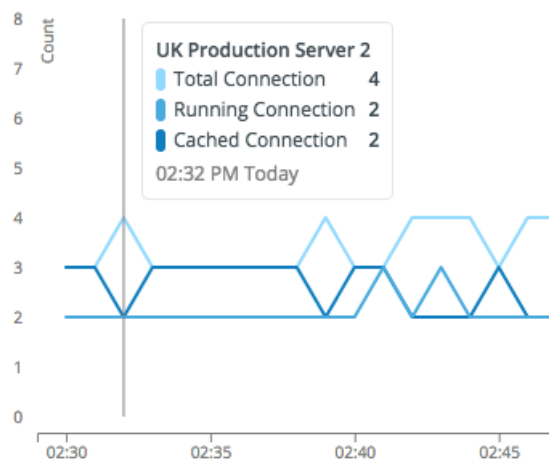



The time selector is for selecting a time span and an interval (X-axis) to display within the chart. It contains a datetime picker, an interval drop-down menu and panning arrows.



Hint: Zoom in/out of the chart using the mouse wheel to customize the time interval. Click and drag the chart left or right to change the time span.

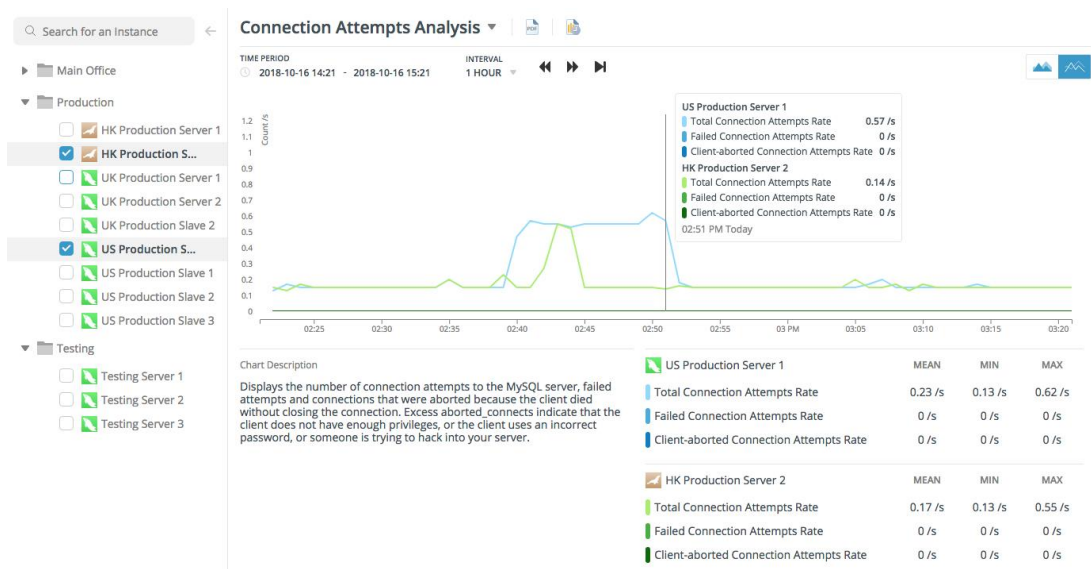
Move the mouse pointer over a point on the chart to show the time and the legend with metrics at that point. Calculated statistics (Mean, Min and Max) for the selected instance within the sample time are shown at the bottom.




Hint: Click  to set schedule to send [report](#) email.

Compare Metrics

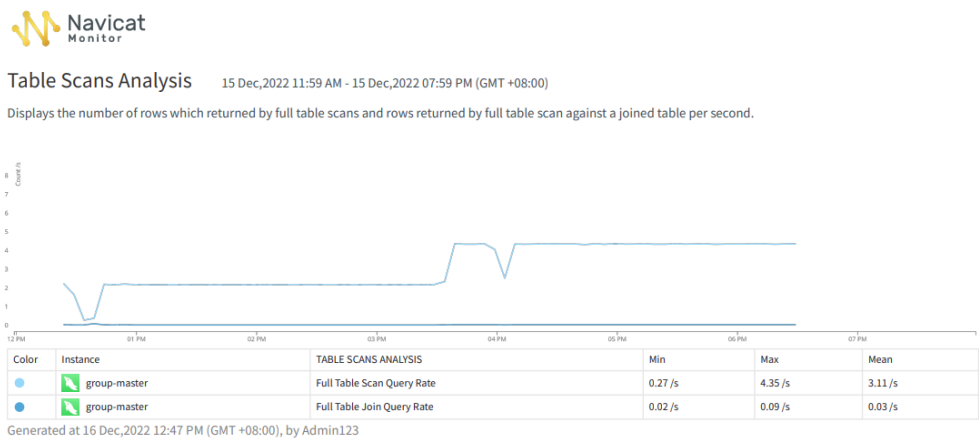
You can display metrics of multiple instances on the same chart simultaneously to compare and analysis data. Each line / area on the chart represents the performance of a selected instance. Select the instances in the left pane to add their metrics to the chart. Remove the metrics from the chart in the same way.



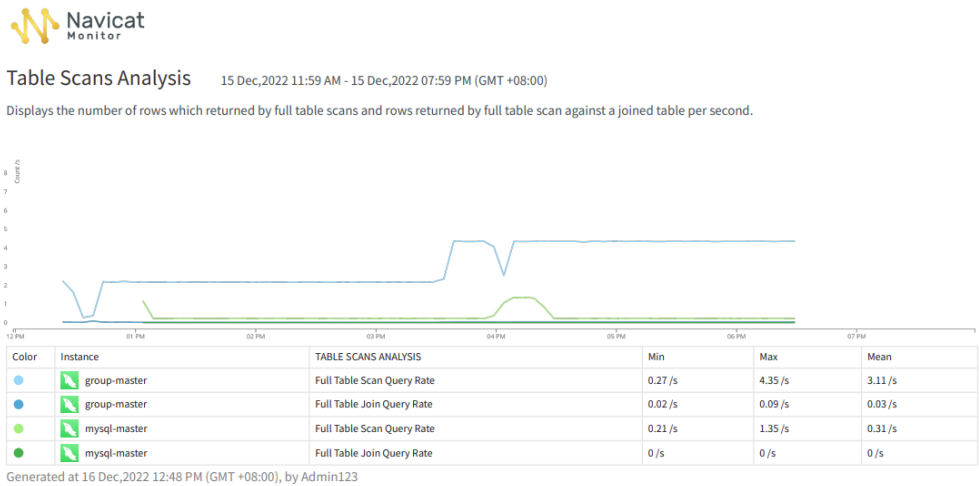
Export Charts

All charts can be exported as PDF files. To export the current chart, click  .

A Single Chart



A Compared Chart



Chapter 5 - Alerts

About Alerts

Navicat Monitor raises alerts when it detects problems across your servers. There is two types of alerts: **Warning** (orange) and **Critical** (red). Warning alert does not affect the performance of the server, but may indicate a problem and require investigation. Critical alert indicates a serious issue which is affecting or will affect the performance of the server. Such issues require immediate attention.

When an alert is raised, it displays on the Alerts History page and the Overview dashboard. Notifications will be sent to the assigned group members or specific people.

You can customize thresholds to trigger alerts for specific instances and groups, and set sending alert notifications to whom. See [Alert Policy](#) and [Alert Notification](#) for details.

Alert History

View Alert History

In the **Alert History** page, you can browse through the alert table, open a particular alert, assign it to a user, or select multiple alerts at a time.

The alert table updates automatically to check for new alerts every 60 seconds. It displays the last 10 alerts based on the time when the alerts were triggered. Alerts are sorted by the time they were raised (Start Time). Click a column title to sort by that column.

Alert History

FILTER: OPEN

Advanced Filter

SHOW / HIDE COLUMNS 1 - 10 of 171 10 / PAGE < 1 2 3 4 5 6 ... 18 >

Total: 171 Alerts

<input type="checkbox"/>	TYPE	ID	INSTANCE	SEVERITY	STATUS	START TIME	END TIME	ASSIGNEE
<input type="checkbox"/>	Detect cluster node down	26007	JP Productio...	Critical	Open	01:09 PM	Not end yet	
<input type="checkbox"/>	MySQL server restart	25913	US Productio...	Critical	Open	11:39 AM	Not end yet	<div>T Tommy</div>
<input type="checkbox"/>	MySQL server restart	25910	UK Productio...	Critical	Open	11:37 AM	Not end yet	
<input type="checkbox"/>	MySQL server restart	25779	UK Productio...	Critical	Open	09:29 AM	Not end yet	
<input type="checkbox"/>	MySQL server restart	25778	UK Productio...	Critical	Open	09:29 AM	Not end yet	
<input type="checkbox"/>	Database is not ready for a failover	25722	JP Productio...	Critical	Open	09:07 AM	Not end yet	
<input type="checkbox"/>	Check status of availability group	25721	JP Productio...	Critical	Open	09:07 AM	Not end yet	<div>S Steven</div>
<input type="checkbox"/>	Monitor availability group replica synchro...	25720	JP Productio...	Critical	Open	09:07 AM	Not end yet	
<input type="checkbox"/>	SQL Server Browser Service status	25718	JP Productio...	Warning	Open	09:07 AM	Not end yet	
<input type="checkbox"/>	SQL Server availability	24515	SH Productio...	Critical	Open	Jun 21, 02:58 PM	Not end yet	

< 1 2 3 4 5 6 ... 18 >

All monitored instances are shown in the left pane. Select a level to show only alerts related to it.

To change the number of alerts shown per page, click **X / PAGE** and select a predefined number. By default, all available columns in the table are shown. Click **SHOW / HIDE COLUMNS** and select the columns that you want to hide. Select **Restore Default** to restore the table to its default settings.

If you want to view the detailed information of an alert, click on an alert to redirect to its [details](#) page. It is automatically marked as read when you open it.

Assign Alerts

1. Hover over the alert and click **Assign to**.

<input type="checkbox"/>	TYPE	ID	INSTANCE	SEVERITY	STATUS	START TIME	END TIME	ASSIGNEE
<input type="checkbox"/>	Detect cluster node down	26007	JP Productio...	Critical	Open	01:09 PM	Not end yet	
<input type="checkbox"/>	MySQL server restart	25913	US Producti...	Critical	Open	11:39 AM	Not end yet	Tommy
<input type="checkbox"/>	MySQL server restart	25910	UK Producti...	Critical	Open	11:37 AM	Not end yet	Assign to...
<input type="checkbox"/>	MySQL server restart	25779	UK Producti...	Critical	Open	09:29 AM	Not end yet	

2. Select a user.
3. Click **Assign User**.

Filter Alerts

By default, the Alert History table displays the "Open" alerts in all instances. You can filter the alerts by using the left instances pane, using the predefined filters, or creating your own filters.

Note: Applied filter is persisted when you select an instance or a group in the instances pane.

Instances Pane

The Instances Pane controls the instances for which alerts are displayed. If you select a group in the left list, then the table only lists alerts relating to all instances in that group. And, the names of the instances are shown in the page heading.

HK Production Server 2 ▾ Alerts

✕ ←

All Instances

Production

HK Production Server 1

HK Production Server 2

Testing

HK Testing Server 1

Alert History

FILTER: OPEN ▾ [Advanced Filter](#)

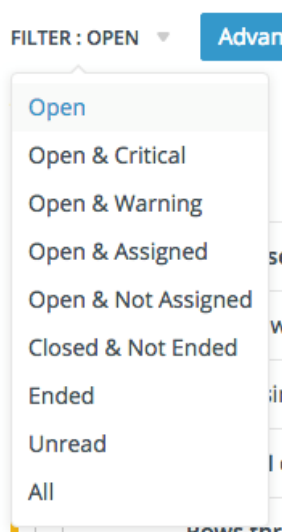
Total: 18 Alerts

<input type="checkbox"/>	TYPE	ID	INSTANCE	SEVERITY	STATUS
<input type="checkbox"/>	Rows using indexes	128	HK Producti...	Critical	Open
<input type="checkbox"/>	InnoDB buffer pool in use	130	HK Producti...	Warning	Open
<input type="checkbox"/>	MyISAM cache in use	129	HK Producti...	Warning	Open
<input type="checkbox"/>	Temp tables on disk	127	HK Producti...	Warning	Open
<input type="checkbox"/>	Rows through full table scan	126	HK Producti...	Warning	Open
<input type="checkbox"/>	Tables in cache	125	HK Producti...	Warning	Open
<input type="checkbox"/>	Thread cache hit ratio	124	HK Producti...	Warning	Open
<input type="checkbox"/>	Query cache hit ratio	123	HK Producti...	Warning	Open
<input type="checkbox"/>	Maximum allowed packet	55	HK Producti...	Warning	Open
<input type="checkbox"/>	Investigating slow running queries	54	HK Producti...	Warning	Open

Predefined Filters

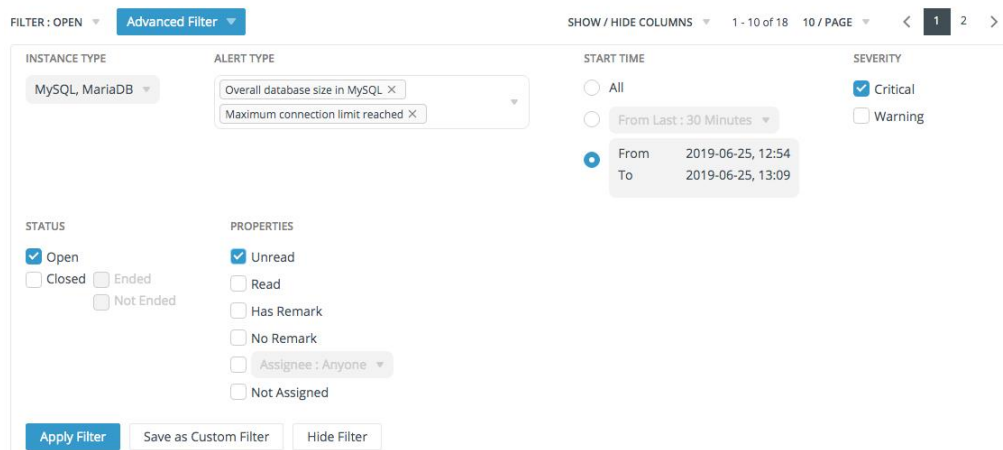
The **FILTER** drop-down menu contains several predefined filters for filtering alerts. For example, you can view opened critical or warning alerts, or all opened alerts.

Simply click on **FILTER** and select a filter from the drop-down menu.



Advanced Filter

The Advanced Filter enables you to filter your alerts based on customized criteria. Click **Advanced Filter** to expand the Advanced Filter pane.



To collapse the Advanced Filter pane, click **Advanced Filter** again, or click **Hide Filter** at the bottom of the pane.

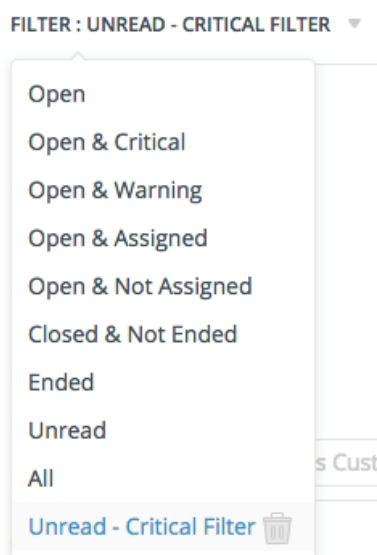
Apply an advanced filter

1. In the Advanced Filter pane, choose any combination of filter options you want.
2. Click **Apply Filter**.

Create a user-defined filter

1. After choosing the filter options in the Advanced Filter pane, click **Save as Custom Filter**.
2. Enter the filter name and click **Save**.

3. The custom filter is appeared in the **FILTER** drop-down menu.



Note: Delete a custom filter by clicking . The Alert History table defaults back to Open.

Alert Details

Click on an alert in the Overview page or the Alert History page to view its details page. In the **Alert Details** page, you can view the detailed information of a raised alert, mark it as read/unread, open/close it, assign it to a member, add a remark. When you open this page, the alert is automatically marked as "Read".

Information on Alert Details Page

Summary

It displays the current status of the alert, and its raised time and ended time.

Alert Details

It displays the alert name, the explanation of this alert, and the advice from Navicat Monitor which helps you investigate and resolve the issue. Click **Add Remark** to write a remark for this alert.

Last Occurrences

It lists the latest 7 alerts of this type raised for the current instance. Click **View All** to view all occurrences.

Charts

Various charts are shown depends on the alert type. They display various performance counter values and process information captured around the time the alert was raised. Move the mouse pointer over a point on a chart to read the values.

Assign Alerts

Assign an alert to a member

1. Click **Assign to**.
2. Select a user.
3. Click **Assign User**.

Unassign a user

1. In the **ASSIGNEE** column, click on the user avatar.
2. Select **Clear Assigned User**.

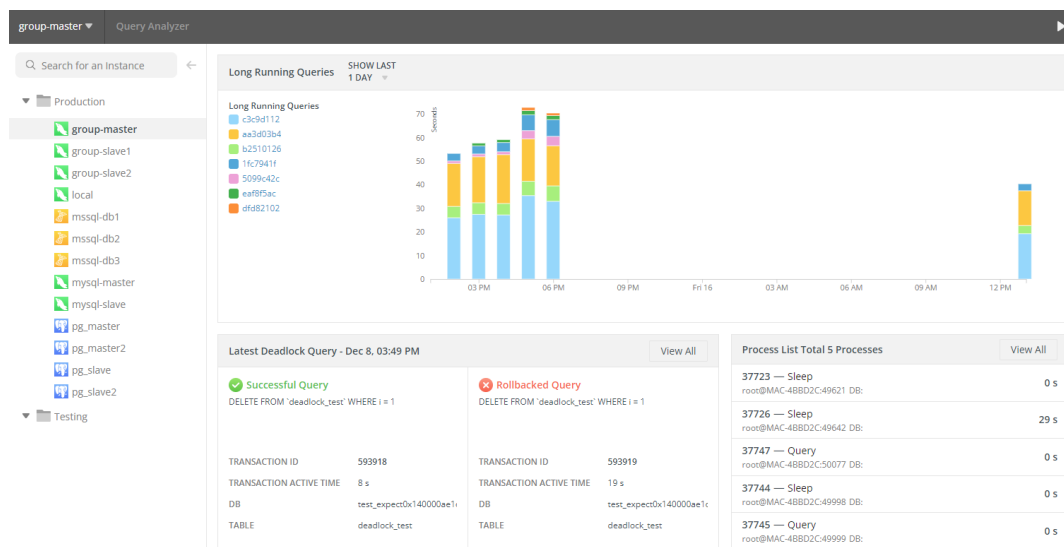
Chapter 6 - Query Analyzer

Start Query Analyzer

The **Query Analyzer** tool provides a graphical representation for the query logs, enables you to monitor and optimize query performance, visualize query activity statistics, analyze SQL statements, quickly identify and resolve long running queries. To start using Query Analyzer, select an instance you want to analyze in the left pane, and analysis starts immediately.

Note: A prompt may pop up asking you to authorize Navicat Monitor to get relevant data from your instance.

After a while, analysis results are displayed:

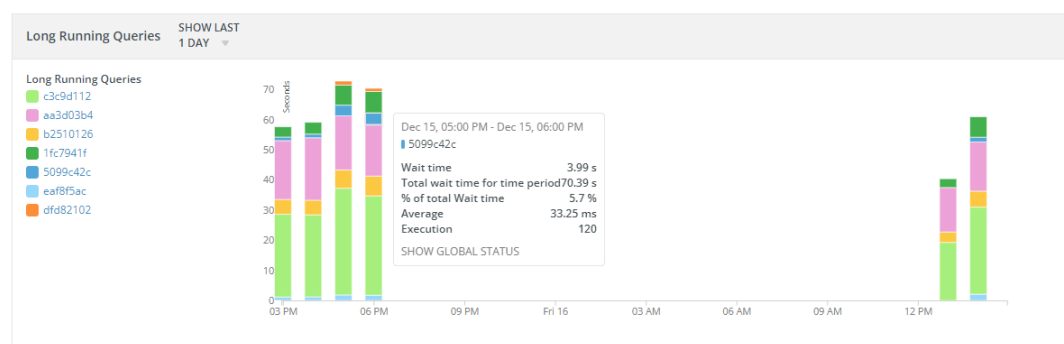


Navicat Monitor refreshes the metrics in the Query Analyzer every 60 seconds. To stop or start refreshing the metrics, click the **||** or **▶** icon. Server data collection does not stop during the stop period.

Long Running Queries

Long Running Queries chart shows queries with an average hourly wait time greater than the [policy](#). Use the **SHOW LAST** drop-down menu to select a time period.

Each query is represented by a unique color. Hover over a bar segment provides a detail view of the query, including query statement and total wait time. To drill down into the chart, click on it to open the [Long Running Queries](#) page.



Latest Deadlock Query

It shows the transaction information of the latest deadlock detected in the selected instance. You can click **View All** to [view all deadlocks](#).

Process List

It displays the total number of running processes for the selected instance, and lists the last 5 processes including ID, command type, user, database and time information. You can click **View All** to [view all processes](#).

Query Analyzer

Query Analyzer collects information about query statements by the following methods.

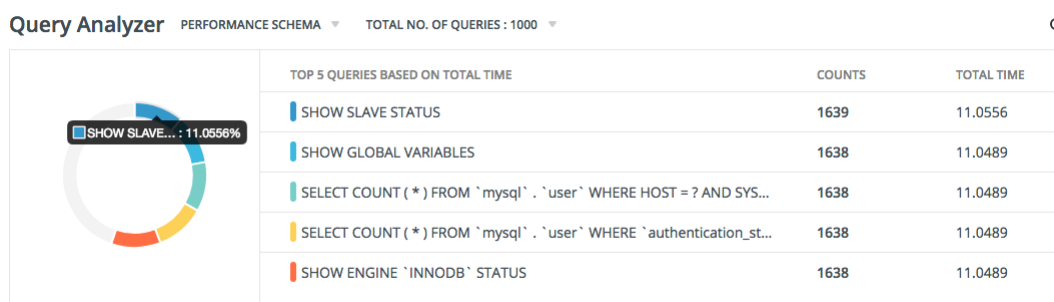
For MySQL / MariaDB instances, Navicat Monitor

- retrieves the General Query Log from the server and analyze the information.
- retrieves the Slow Query Log from the server and analyze the information.
- queries the performance_schema database and analyze specific performance information.


Note: Performance Schema is supported in MySQL Server 5.5.3 or later. Query statements are normalized and the maximum length is 1024 bytes. Similar queries with different literal values are combined. Quoted values and numbers are replaced by "?".

For SQL Server instances, Navicat Monitor

- queries execution related dynamic management views and analyze specific performance information.



Top 5 Queries

The top 5 most time-consuming queries are displayed with a graph, giving you an immediate place to observe the potential problems. You can click  to refresh and update the top 5 queries list.

- TOP 5 QUERIES BASED ON TOTAL TIME - The query statement.
- COUNTS - The number of times that the query has been executed.
- TOTAL TIME - The cumulative execution time for all executions of the query.

- **USER@HOST** - The user who executed the query.

Query Table

The query table provides the summary information for all of the queries executed. Occurrence statistics are calculated and the result is displayed. Hover over a query to show the full query statement and click **Copy Query** to copy it. If your instance is PostgreSQL, you can also click **Create New Trace in SQL Profiler** to create a new [trace](#) using that query.

QUERY	COUNT	QUERY OCCURRENCE	TIME TOTAL	TIME MAX
SELECT 'SUBSTRING_INDEX' ('event_name', ?, ...) AS 'wait_type', 'sum_ti...	128389	<div><div></div></div> 37.6	95.85	0.713
SELECT 'a', 'digest', 'a', 'thread_id' AS 'session_id', 'b', 'PROCESSLIST_...	128389	<div><div></div></div> 37.6	581.35	0.9036
SELECT NOW AS 'nowtime'	21811	<div><div></div></div> 6.39	2.13	0.0122
SELECT * FROM 'connections'	4899	<div><div></div></div> 1.43	0.903	0.0099
SHOW VARIABLES LIKE ?	4652	<div><div></div></div> 1.36	11.94	0.2635

Click **SHOW / HIDE COLUMNS** and select the columns that you want to hide. Select **Restore Default** to restore the table to its default settings.

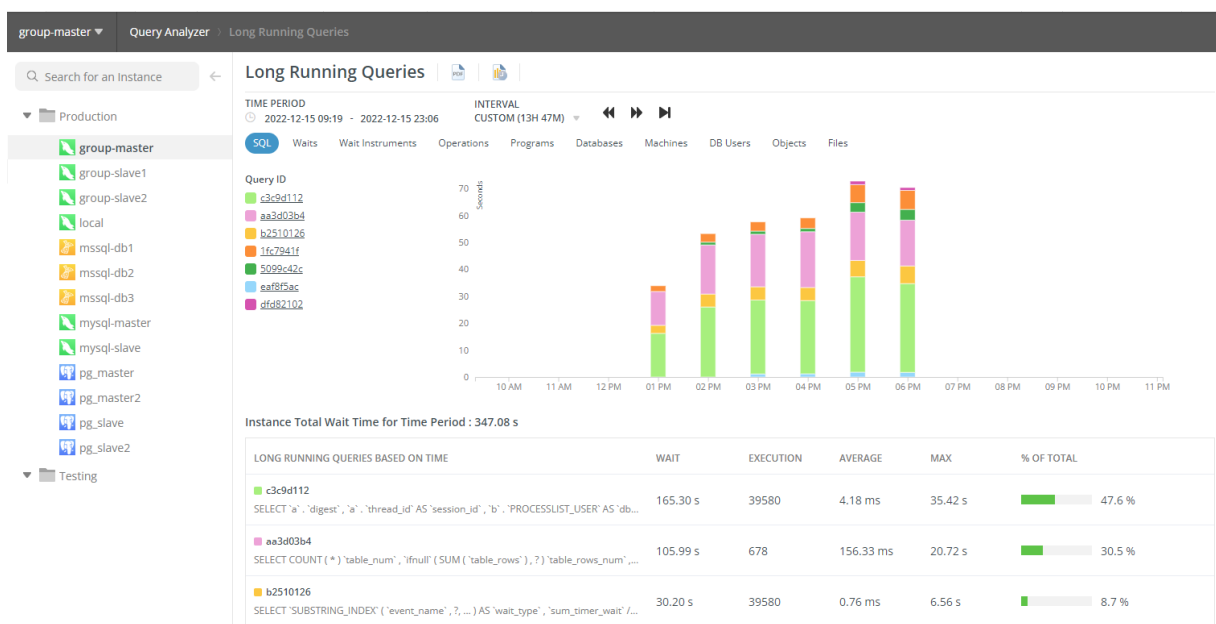
Queries can be filtered and sorted. Simply enter a search string in the **Search for a query** box to filter the table and click the column name to sort the table.

To change the number of queries per page, click **X / PAGE** and select a predefined number. To change the total number of queries in the table, click **TOTAL NO. OF QUERIES** and select a predefined number.

Long Running Queries

About Long Running Queries

In the Query Analyzer page, click the Long Running Queries chart. The **Long Running Queries** page uses historical data to help you identify long running queries that are consuming resources and investigate the root cause of performance issues. Data is collected every second and automatically condensed over time.



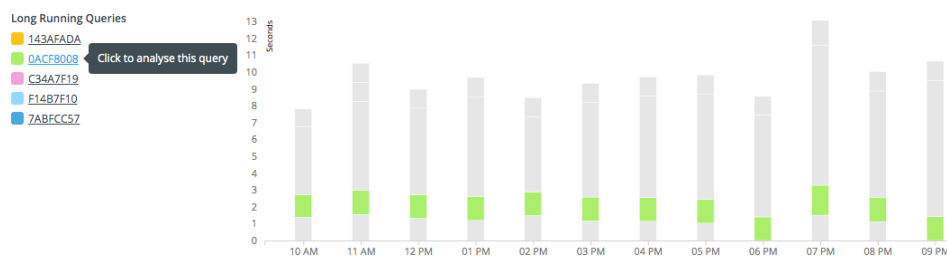
All monitored instances are shown in the left pane. Select an instance to view its Long Running Queries chart.

Navicat Monitor provides several additional information about the queries. Click on a tab to show the corresponding chart. The available tabs depend on the server type of the selected instance.

Hint: When viewing the **Plans** chart for SQL Server instance, you can save execution plan information as XML files by clicking an entry in the **DOWNLOAD XML** column, and open them for viewing.



Hover over an entry in the legend to highlight the respective series in the chart for better visualization.



The time selector is for selecting a time span and an interval (X-axis) to display within the chart. It contains a datetime picker, an interval drop-down menu and panning arrows.

TIME PERIOD
 2019-06-24 09:19 - 2019-06-24 21:19
 INTERVAL
 CUSTOM (11H 59M)

Hint: Zoom in/out of the chart using the mouse wheel to customize the time interval. Click and drag the chart left or right to change the time span.

Hint: Click to set schedule to send [report](#) email.

Edit Query Details

Change the name of a query

By default, Navicat Monitor generates a hashed name for each query. You can change it to a human-readable name.

1. Hover over a query name in the table and click **Edit**.
2. Enter a new name in **QUERY NAME/QUERY ID**.

3. Click **Save**.

Exclude a query

It may be helpful to exclude a query from the chart and Query Analyzer. For example, you can exclude queries associated with backups, replication, and so on.

1. Hover over a query name in the table and click **Edit**.
2. Enable **Exclude this query in Query Analyzer & Long Running Query Charts**.
3. Click **Save**.

Note: All renamed and excluded queries are listed in [Query Policy](#).

Analyze Particular Query

On the **SQL** chart, you can analyze a query and determine why it is slow.

To drill down into a specific query, click a legend label or double-click a bar segment on the chart. You can learn how the query has performed in the past and view all the relevant troubleshooting information in a single view. Click on a tab to show more charts related to the query.

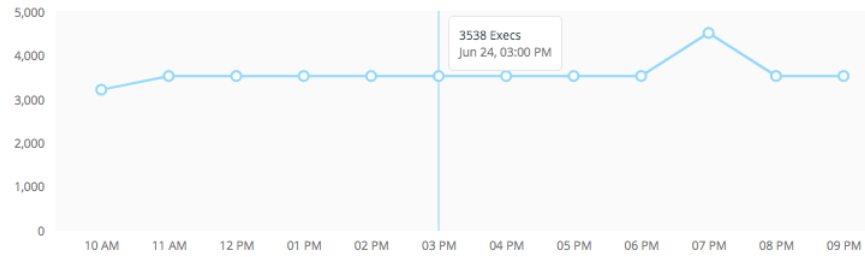


Analysis Charts

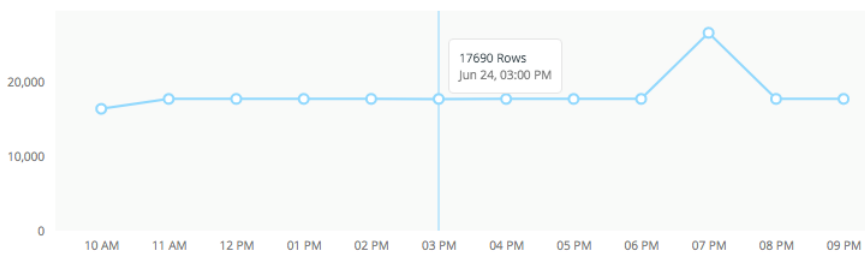
Select **Analysis** tab and scroll down the page to review the analysis charts. Hover over a point on one of the charts and tooltip values with a vertical line will automatically pop up among them.

Analysis

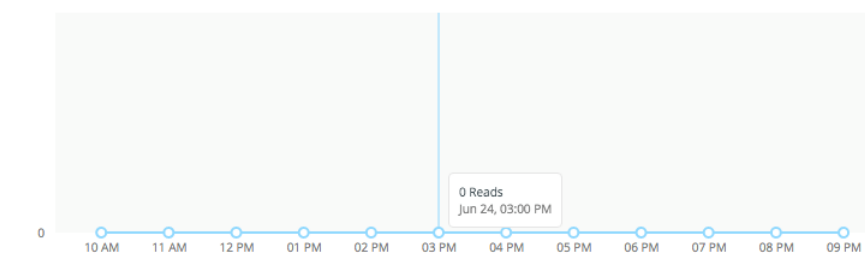
Executions



Rows Processed



Physical Reads



Export Long Running Queries Charts

Long Running Queries charts can be exported as PDF files. To export the current chart, click [PDF](#).

All Queries Chart

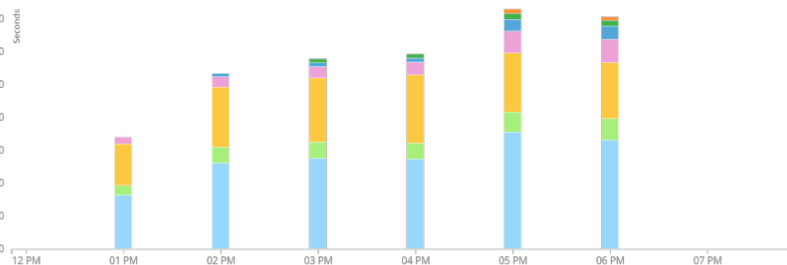


Long Running Queries 15 Dec,2022 11:51 - 15 Dec,2022 19:51 (GMT +08:00)

alex2 - SQL

Queries

- c3c9d112
- aa3d03b4
- b2510126
- 1fc7941f
- 5099c42c
- ea8f5ac
- dfd82102



Instance Total Wait Time for Time Period : 347.08 s

Query ID	Query	Wait	Execution	Average	Max	% of Total
c3c9d112	SELECT 'a', 'digest', 'a', 'thread_id' AS 'session_id', 'b', 'PROCESSLIST_USER' AS 'db_user', 'SUBSTRING_INDEX('b', 'PROCESSLIST_HOST', 7, ...) AS 'machine', 'b', 'PROCESSLIST_DB' AS 'db_name', 'ATTR_VALUE' AS 'program', SUM('timer_wait') AS 'timer_wait' FROM 'performance_schema', 'events_statements_history' 'a' LEFT JOIN 'performance_schema', 'threads' 'b' ON 'a', 'THREAD_ID' = 'b', 'THREAD_ID' LEFT JOIN 'performance_schema', 'session_connect_attrs' 'd' ON 'b', 'PROCESSLIST_ID' = 'd', 'PROCESSLIST_ID' WHERE 'timer_wait' / 7 > 7 AND 'a', 'sql_text' IS NOT NULL AND ('d', 'ATTR_NAME' = 'OR' 'd', 'ATTR_NAME' IS NULL) GROUP BY 'session_id', 'a', 'digest', 'db_user', 'machine', 'program', 'db_name'	165.30 s	39580	4.18 ms	35.42 s	47.6 %
aa3d03b4		105.99 s	678	156.33 ms	20.72 s	30.5 %

A Single Query Chart



View Deadlocks

The **Deadlock** page displays all deadlocks detected on the selected instance that Navicat Monitor has information about.

Deadlock

REFRESH TIME : 5 SECONDS

10 / PAGE

02:54 PM Today

Successful

DELETE FROM t WHERE i = 2

TRANSACTION ID	17184801
TRANSACTION ACTIVE TIME	14
TABLES IN USE	1
TABLES LOCKED	1
ROW LOCKS	1
THREAD ID	4297
HOST	localhost
USER	root
DB	test
TABLE	t

Rollbacked

DELETE FROM t WHERE i = 2

TRANSACTION ID	17185253
TRANSACTION ACTIVE TIME	27
TABLES IN USE	1
TABLES LOCKED	1
ROW LOCKS	4
THREAD ID	4294
HOST	localhost
USER	root
DB	test
TABLE	t

02:48 PM Today

Successful

DELETE FROM t WHERE i = 1

TRANSACTION ID	17182395
TRANSACTION ACTIVE TIME	10
TABLES IN USE	1
TABLES LOCKED	1
ROW LOCKS	1
THREAD ID	4114
HOST	localhost

Rollbacked

DELETE FROM t WHERE i = 1

TRANSACTION ID	17182396
TRANSACTION ACTIVE TIME	21
TABLES IN USE	1
TABLES LOCKED	1
ROW LOCKS	3
THREAD ID	4128
HOST	localhost

All monitored instances are shown in the left pane. Select an instance to show its deadlocks.

By default, the deadlock list refreshes every 5 seconds automatically. If you want to change the auto-refreshing time, use the **REFRESH TIME** drop-down menu. To pause the auto refresh, click **||**.

REFRESH TIME : 5 SECONDS ▾ **||**

Deadlocks can be filtered. Simply enter a search string in the **Search for a deadlock** box to filter the list.

To change the number of deadlocks shown per page, click **X / PAGE** and select a predefined number.

View Process List

The **Process List** page displays all processes currently running on the selected instance. You can check which queries are currently being executed. The process list provides the following detailed information.

Process List							REFRESH TIME : 5 SECONDS ▾
<input type="text" value="Search for a thread"/>							10 / PAGE ▾
ID ▾	USER@HOST ▾	DB ▾	COMMAND ▾	TIME ▾	STATE ▾	INFO ▾	ACTION
73	slave_user@192.168.0.251:56538		Binlog Dump	6541	Master has sent al...		✕
928	root@192.168.0.59:49749		Sleep	0	-		✕
930	root@192.168.0.59:49788		Sleep	0	-		✕
941	root@192.168.1.181:65002		Sleep	1	-		✕
942	root@192.168.1.181:65003		Sleep	1	-		✕

All monitored instances are shown in the left pane. Select an instance to show its process list.

By default, the process list refreshes every 5 seconds automatically. If you want to change the auto-refreshing time, use the **REFRESH TIME** drop-down menu. To pause the auto refresh, click **||**.

REFRESH TIME : 5 SECONDS ▾ **||**

The list of threads can be filtered and sorted. Simply enter a search string in the **Search for a thread** box to filter the list and click the column name to sort the list.

To change the number of threads shown per page, click **X / PAGE** and select a predefined number.

End Process

You may find slow or long running queries use lots of available CPU and memory resources and may block other valid queries. To stop a thread instantly, click **✕** in the **ACTION** column, and then click **End Process** in the pop-up dialog.

Chapter 7 – SQL Profiler

About SQL Profiler

SQL Profiler provides graphical query execution details for locating inefficient and slow queries. You can create traces to collect data about the queries executed over your instance. The data can later be analyzed and used to troubleshoot performance issues. For example, you can see which queries are affecting performances in the production environment.

Note: Available only for PostgreSQL.

Create Traces

A trace collects data based on selected filters from the server log. The data will be stored in the repository database. When creating a trace, you can define criteria to filter the data collected by SQL Profiler and set a schedule for executing the trace.

You can create new traces on the following pages by clicking the  icon or **+ New Trace**.

- [SQL Profiler](#)
- [Query Analyzer](#)
- [Long Running Queries](#)

Hint: You can go to the SQL Profiler page to edit and delete traces.

1. Select the instance.

Note: A prompt may pop up asking you to authorize Navicat Monitor to get relevant data from your instance.

2. Enter the trace details:

TRACE NAME	Enter the name of the trace.
USER FILTER	Specify the users/roles whose queries to include in the trace. Empty means including queries from all users/roles.
DATABASE FILTER	Specify the databases to trace. Empty means including queries against all databases.
QUERY FILTER	Enter search strings or QueryIDs to filter queries for the trace.
MAX TRACE ROW COUNT	Specify the maximum number of rows for the trace. SQL Profiler will terminate the trace when it reaches the row count.
SCHEDULE	Specify scheduling details for executing the trace. See Set Trace Schedule .
Share with	Specify who can see the trace.

3. Click **Create Trace**.

Set Trace Schedule

Navicat Monitor lets you specify the time period for collecting the data and specify a schedule for the trace execution.

SCHEDULE*

Scheduled Weekly

from Monday at 00:00

to Friday at 12:00

Trace will be generated on 2022-12-09, 12:00.

You can choose **SCHEDULE** to set the schedule for the trace, and then choose the frequency for generating trace reports:

- **One time only** - Trace will be generated once on the end date time. If the end date time is earlier than the current date time, the trace will be generated immediately.
- **Scheduled Daily** - Trace will be generated daily on the end date time.
- **Scheduled Weekly** - Trace will be generated weekly on the end date time.
- **Scheduled Monthly** - Trace will be generated monthly on the end date time.

Manage Scheduled Traces

To view a list of scheduled traces, select the instance on the left pane.

Note: A prompt may pop up asking you to authorize Navicat Monitor to get relevant data from your instance.

postgres

SQL Profiler

Q Search for an Instance

Production

pg_master

pg_master2







pg_slave

pg_slave2

postgres

Testing

+ New Trace

TRACE NAME	OWNER	START TIME	FINISHED AT	USER	DB	QUERY	QUERY ID
Trace 1	me	 Scheduled Daily From 00:00 To 00:00					
		 2022-12-07 00:00	2022-12-08 00:00				
		 2022-12-06 00:00	2022-12-07 00:00				
		 2022-11-25 00:00	2022-11-26 00:00				
Trace 3	me	 2022-12-08 15:10	2022-12-15 00:00				
Trace 2	me	 2022-11-21 00:00	2022-11-22 00:00				

Q Search for a trace

To enable or disable a trace

1. Select the trace.
2. Click the  icon and select **Enable Trace / Disable Trace**.

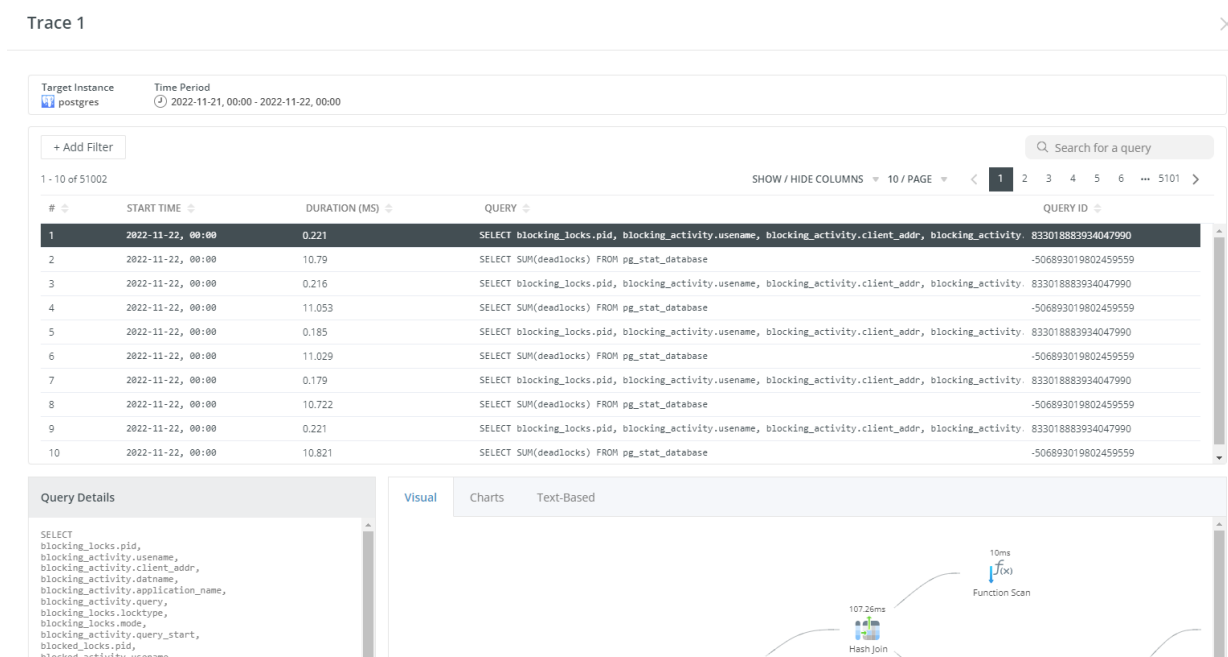
To delete a trace

1. Select the trace.

2. Click the  icon and select **Delete Trace**.

View and Analyze Trace

A trace provides a graphical representation of the execution plan for each query with statistics for its components. The execution plan that is generated for each query can be viewed in three different formats: Visual, Charts and Text-Based.



Query Table

The query table shows the basic information for the queries. Select a query to show its details and plans.

Click **SHOW / HIDE COLUMNS** and select the columns that you want to hide. Select **Restore Default** to restore the table to its default settings.

Queries can be filtered and sorted. Simply enter a search string in the **Search for a query** box to filter the table and click the column name to sort the table.

You can also add an advanced filter to hide queries. Click **+ Add Filter** to add the filter conditions.

To change the number of queries per page, click **X / PAGE** and select a predefined number.

Query Details

You can get the complete statement of the query.

Execution Plan - Visual

The diagram displays the operations performed by the query and the data passed between them. If the cost of an operation equals or exceeds 50% of the total cost in the diagram, 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.

Hint: In full screen mode, you can download the diagram and the query as a PDF file.



Analysis - A tree view shows a high level overview of the execution plan hierarchy.

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



73


Chapter 8 - Replications

Monitored Replications

The **Monitored Replications** page displays all information related to monitored replication. You can monitor the health of replication, diagnose replication issues and ensure the replication works seamlessly. Navicat Monitor provides detailed information on status, configuration and performance of slaves.

Navicat Monitor supports 2 replication views: Diagram View and List View. To switch the view, click  or .

If you want to view the detailed information of a replication, click on a slave to redirect to its [details](#) page.

Hint: Click  to set schedule to send [report](#) email.

Filter Replications

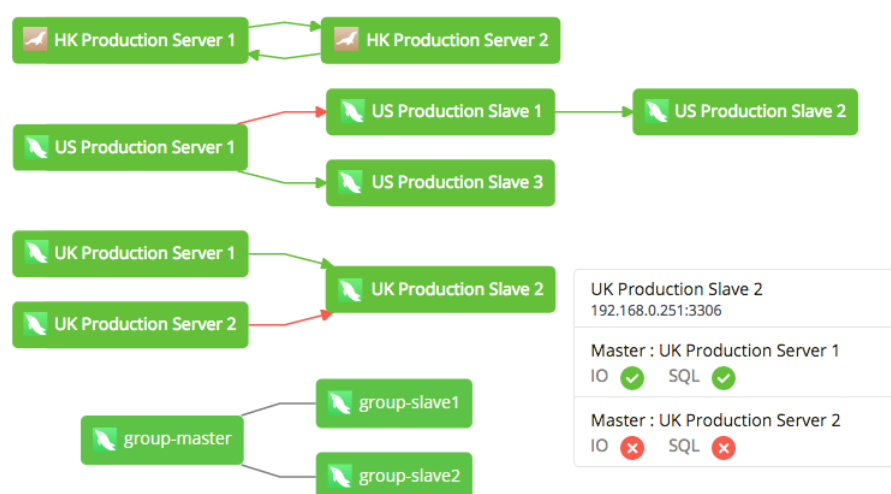
Navicat Monitor displays all replication relationship of the monitored instances. To show the replications for a specific server type, check the server type checkbox.

Occasionally, you may want to hide healthy replications and focus on the unhealthy replications. You can enable the **Hide healthy replications** option in Diagram View.

MySQL / MariaDB Replications

Diagram View

This view visually displays the hierarchy and relationship of master servers and their slaves. Hover over a slave to show its I/O thread and SQL thread statuses.



The instance blocks and the arrows are color-coded to represent the different states of the replication.

























- Green block indicates that the server is up (stable).

- Red block indicates that the server is down.
- Green arrow indicates that the replication is up and the slave is up-to-date with its master.
- Red arrow indicates that the replication is down (disconnected) and the slave may be not up-to-date with its master.
- Black line indicates group replication.

Hint: Zoom in/out of the graph using the mouse wheel. Click and drag the graph to move it.

List View

This view shows all registered master servers and slave servers and illustrates the replication details in a table. It groups all master servers with their slaves. Common status information is displayed in columns. Click the arrow to the left of each master name to expand or collapse its slaves status and configuration.

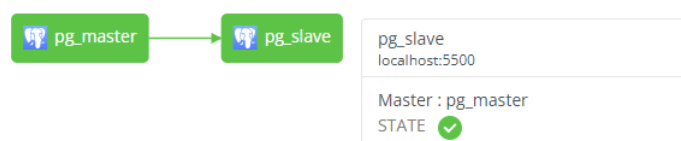
MASTER	SLAVE NAME	HOST : PORT	STATUS		MASTER LOG FILE	POSITION	SLAVE IO STATE
▼  HK Production Server 1		192.168.0.246:3306	IO	SQL			
<div><div></div></div>  HK Production Server 2		192.168.1.247:3306			mysql-bin.000557	106	Waiting for master to send event
▼  HK Production Server 2		192.168.1.247:3306	IO	SQL			
<div><div></div></div>  HK Production Server 1		192.168.0.246:3306			mysql-bin.000610	106	Waiting for master to send event
▼  UK Production Server 1		192.168.0.249:3306	IO	SQL			
<div><div></div></div>  UK Production Slave 2		192.168.0.251:3306			mysql-bin.000300	150	Waiting for master to send event
▼  UK Production Server 2		192.168.0.250:3306	IO	SQL			
<div><div></div></div>  UK Production Slave 2		192.168.0.251:3306			mysql-bin.000290	154	Waiting for master to send event
▼  US Production Server 1		192.168.0.162:3306	IO	SQL			
<div><div></div></div>  US Production Slave 3		192.168.0.99:3306			mysql-bin.000790	106	Waiting for master to send event
▼  US Production Slave 1		192.168.0.98:3306	IO	SQL			
<div><div></div></div>  US Production Slave 2		192.168.1.232:3306			mysql-bin.000433	106	Connecting to master

The color bar represents different states of the replication slaves: stable (green), disconnected (red). Hover over it to show the time.

PostgreSQL Replications

Diagram View

This view visually displays the hierarchy and relationship of master servers and slave servers. Hover over a slave to show its I/O thread and SQL thread statuses.



The instance blocks and the arrows are color-coded to represent the different states of the replication.

- Green block indicates that the server is up (stable).
- Red block indicates that the server is down.
- Green arrow indicates that the replication is up and the slave is up-to-date with its master.
- Red arrow indicates that the replication is down (disconnected) and the slave may be not up-to-date with its master.

Hint: Zoom in/out of the graph using the mouse wheel. Click and drag the graph to move it.

List View

This view shows all registered master servers and slave servers and illustrates the replication details in a table. It groups all master servers with their slaves. Common status information is displayed in columns. Click the arrow to the left of each master name to expand or collapse its slaves status and configuration.

MASTER ↕	SLAVE NAME	HOST : PORT ↕	STATUS	SENT LSN	RECEIVED LSN	CONN INFO
pg_master		localhost:5400	STATE			
	pg_slave	localhost:5500	✓	0/16C6598	0/16C6598	

The color bar represents different states of the replication slaves: stable (green), disconnected (red). Hover over it to show the time.

SQL Server Transactional / Merge Replications

Diagram View

This view visually displays the hierarchy and relationship of Publishers and their Subscribers. Hover over a Subscriber to show its synchronization status.



The instance blocks are color-coded to represent the different states of the servers.







- Green block indicates that the server is up (stable).
- Red block indicates that the server is down.
- Green arrow indicates that transactional replication is up and the Subscriber is up-to-date with its master.
- Red arrow indicates that transactional replication is down (disconnected) and the Subscriber may be not up-to-date with its master.

- Black arrow indicates merge replication.

Hint: Zoom in/out of the graph using the mouse wheel. Click and drag the graph to move it.


List View

This view shows all registered Publishers and Subscribers and illustrates the replication details in a table. It groups all Publishers with their Subscribers. Common status information is displayed in columns. Click the arrow to the left of each Publisher name to expand or collapse its Subscriber information.

PUBLISHER ↕	SUBSCRIBER	HOST : PORT ↕	STATUS	SUBSCRIBER IO STATE
▼  SH Production 1		192.168.2.68:1433	STATE	
	 SH Production 2	192.168.2.69:1433	Last sync at 03:33 PM Today Successful	Waiting 60 second(s) before poll...
▼  TW Production		192.168.2.64:1433	STATE	
	 TW Production backup	192.168.2.65:1433	✓	No replicated transactions are a...

The color bar represents different states of the replication: success / stable (green), fail / disconnected (red). Hover over it to show the time.

Export Replications

You can export the replication diagram and list as a PDF file. To export the replication, click  .

Replication Diagram

Replication Diagram

Generated at 16 Dec, 2022 02:29 PM (GMT +08:00), by Admin123



Navicat Monitor by PremiumSoft CyberTech Ltd.

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Replication List

Replication List

16 Dec, 2022 01:29 PM - 16 Dec, 2022 02:29 PM (GMT +08:00)

Master	Slave Name	Host : Port	IO	SQL	Master Log File	Position	Slave IO State
HK Production Server 1		192.168.0.246:3306					
	HK Production Server 2	192.168.1.247:3306	✓	✓	mysql-bin.000557	106	Waiting for master to send event
HK Production Server 2		192.168.1.247:3306					
	HK Production Server 1	192.168.0.246:3306	✓	✓	mysql-bin.000610	106	Waiting for master to send event
UK Production Server 1		192.168.0.249:3306					
	UK Production Slave 2	192.168.0.251:3306	✓	✓	mysql-bin.000300	150	Waiting for master to send event
UK Production Server 2		192.168.0.250:3306					
	UK Production Slave 2	192.168.0.251:3306	✓	✗	mysql-bin.000290	154	Waiting for master to send event
US Production Server 1		192.168.0.162:3306					
	US Production Slave 3	192.168.0.99:3306	✓	✓	mysql-bin.000790	106	Waiting for master to send event

Master	Slave Name	Host : Port	State	Sent LSN	Received LSN	Conn Info
pg_master		localhost:5400				
	pg_slave	localhost:5500	✓	0/16C6598	0/16C6598	

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View Replication Details

The **Replication Details** page displays the detailed replication information for a slave / subscriber you chosen in the Monitored Replication page.

Information on Replication Details Page

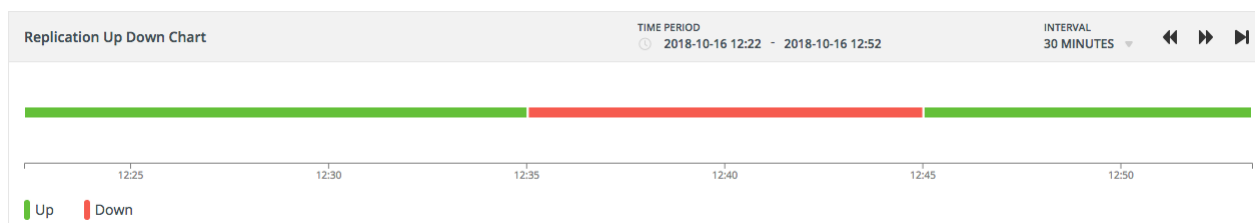
Summary

At the beginning of this page, the information about the servers is listed. For MySQL / MariaDB multi-source replication, you can click the master name to view its replication details.

SLAVE IP : HOST 192.168.0.251:3306		
Master : UK Production Server 1		Master : UK Production Server 2
MASTER HOST : PORT	MASTER LOG FILE	POSITION
192.168.0.249:3306	mysql-bin.000300	150
CURRENT STATUS		SLAVE IO STATE
IO  SQL 		Waiting for master to send event

Replication Up Down Chart

It shows the Up Down Status chat or Success Fail Status chart of the replication. The time selector is for selecting a time span and an interval (X-axis) to display within the chart. It contains a datetime picker, an interval drop-down menu and panning arrows.



Error History

It shows the replication errors occurred during monitoring. To change the number of errors shown, click **X / PAGE** and select a predefined number.

Slave Status & Slave Configuration - MySQL and MariaDB

These two sections show the result set of the SHOW SLAVE STATUS statement.

Slave Status & Slave Configuration - PostgreSQL

These two sections show the result set of querying pg_stat_replication and pg_stat_wal_receiver tables.

Replication Status & Replication Configuration - SQL Server

These two sections show the result set of querying MSdistribution_agents or MSmerge_agents table.

Create Reports

- Up Down Status
- Area/Line Charts
- Replication Diagram
- Long Running Query Analysis

You can create new reports on the following pages by clicking the icon or **+ New Report**.

- Hint:** You can go to the Configurations page to edit and delete reports.

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1. Select the instances.
2. Add charts/diagrams that you want to include in the report. See [Add Charts / Diagrams](#) for more information about adding charts/diagrams to reports.
3. Enter the email details:

REPORT NAME	Enter the name of the report. It will be shown in the email title.
LANGUAGE	Choose the language that you want to use for the PDF reports.
MESSAGE	(Optional) Enter a message to describe the report.
SCHEDULE	Select when you would like the report emailed to the recipients. See Set Report Schedule for more information about emailing reports.
RECIPIENT(S)	Enter the email addresses of recipients. Use comma to separate the recipients.
Add members of related Instance Group	Send report email to all members of the selected instances.
Add All Users	Send report email to all users.
Send test report to this email address / Test Run	Enter an email address to send a test email for checking your configuration.

4. Click **Create Report**.

Hint: You can include multiple types of instances in a report.

Add Charts / Diagrams

Multiple charts and diagrams can be included in a report.

Up Down Status

Include the Up/Down Status charts of your instances.

Area/Line Charts

Include the [charts](#) of your instances.

CHART(S)	Select the charts that you want to include in the report. Note: If multiple types of instances are selected, you can add corresponding Area/Line Charts for each type of instances.
CHART TYPE	Choose the type of the charts: Area Chart or Line Chart.

Replication Diagram

Include the [Replication](#) diagram of your instances. If you want to include the replication list details, check the **Include Replication List** option.

Long Running Query Analysis

Include the [Long Running Queries](#) charts of your instances.

ANALYSIS	Choose which queries you want to analyze: All Long Running Queries or Focus Query Analysis.
QUERY NAME	Enter the name of the query that you want to analyze.
CHART TYPE	Choose the type of the charts. Note: If multiple types of instances are selected, you can add corresponding Long Running Queries Charts for each type of instances.

Set Report Schedule

Navicat Monitor lets you set up a schedule to email reports. Each report will be emailed as PDF files containing charts and diagrams. When creating or editing a report, there is a section to configure the email schedule.

The screenshot shows the 'SCHEDULE*' configuration section. A dropdown menu is set to 'Monthly'. Below it, the schedule is defined as 'on Day 31 of every month at 09:02'. A note states: 'Upcoming report data will be from 2019-09-30, 09:02 AM, to 2019-10-31, 09:02 AM.' The 'RECIPIENT(S)*' section contains two entries: 'Members of related Instance Group' and 'admin@test.com'. Below these are links to '+ Add members of related Instance Group' and '+ Add All Users'. At the bottom, there is a field 'SEND TEST REPORT TO THIS EMAIL ADDRESS' with an empty input box and a 'Test Run' button.

You can choose **SCHEDULE** to set the schedule for the report, and then choose the frequency for the report:

- **One time only** - Report will be generated with the data between the Report Data Period and sent only once at the date and time that you choose for the end date. If the end date is earlier than the current date, it will be sent immediately.
- **Daily** - Report will be generated with the previous one day data and sent daily at the same time.
- **Weekly** - Report will be generated with the previous seven days data and sent each week on the same day at the same time.
- **Monthly** - Report will be generated with the previous one month data and sent on the same day of the month at the same time.

Note: You must configure Navicat Monitor to send emails, see [Set Up Notifications](#) for more information.

Chapter 10 - Commands

Navicat Monitor Commands

You can use the command line to manage Navicat Monitor service on Windows, macOS or Linux. The installation folder or the program path of Navicat Monitor is:

Windows

C:\Program Files\PremiumSoft\Navicat Monitor

macOS

/Applications/Navicat Monitor.app/Contents/Resources/

Linux

/opt/navicatmonitor/x86_64-linux-gnu/

Note: On Linux operating systems, commands must be run by the "navicatmonitor" account.

Syntax

navicatmonitor [command]

Available Commands

browser	Open a browser with Navicat Monitor Web URL.
diagnostic	Show diagnostic information.
help	Print the help information of any command.
passwd	Reset the Superuser password.
restart	Restart Navicat Monitor.
start	Start Navicat Monitor.
status	Print the status information of Navicat Monitor.
stop	Stop Navicat Monitor.
version	Print the version number of Navicat Monitor.

Examples

navicatmonitor stop

navicatmonitor restart

Chapter 11 - Troubleshooting

Log Files

Navicat Monitor log files have detailed records of all sorts of server errors and messages. These files can help in tracking down any problems with Navicat Monitor. Follow these steps to download the log files:

1. Go to **Configurations**.
2. Click **About**.
3. Scroll to the **Diagnostics** section.
4. Click **Retrieve All Log Files** to download a .zip file containing log files.

Chapter 12 - Open Source Libraries

Open Source Libraries & Licensing

The following table lists the open source libraries used by Navicat Monitor.

License	Libraries
Apache 2.0	<ul style="list-style-type: none">• github.com/ScaleFT/sshkeys• github.com/docker/docker• github.com/ory/dockertest• github.com/spf13/cobra
MIT	<ul style="list-style-type: none">• github.com/Konstantin8105/FreePort• github.com/abadojack/whatlanggo• github.com/fatih/structs• github.com/mutecomm/go-sqlcipher• github.com/jinzhu/gorm• github.com/jung-kurt/gofpdf• github.com/k-sone/snmpgo• github.com/korylprince/go-ad-auth• github.com/mileusna/useragent• github.com/mitchellh/mapstructure• github.com/natefinch/lumberjack• github.com/nicksnyder/go-i18n• github.com/sadlil/go-trigger• github.com/satori/go.uuid• github.com/ttacon/libphonenumber• gopkg.in/gomail.v2• gopkg.in/gormigrate.v1

	<ul style="list-style-type: none"> • gopkg.in/h2non/gock.v1 • gopkg.in/ldap.v2 • github.com/axios/axios • github.com/babel/babel • www.npmjs.com/package/blob-stream • www.npmjs.com/package/canvas • www.npmjs.com/package/canvg • www.npmjs.com/package/chart.js • github.com/gshk/dagre-d3-rendere • www.npmjs.com/package/element-ui • www.npmjs.com/package/franc • www.npmjs.com/package/hashids • www.npmjs.com/package/ip-address • www.npmjs.com/package/jquery • www.npmjs.com/package/lodash • www.npmjs.com/package/moment • www.npmjs.com/package/moment-timezone • www.npmjs.com/package/normalize.css • www.npmjs.com/package/normalizr • www.npmjs.com/package/@popperjs/core • www.npmjs.com/package/portal-vue • www.npmjs.com/package/resize-observer-polyfill • www.npmjs.com/package/shortid • www.npmjs.com/package/vue • www.npmjs.com/package/vue-chartjs
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	<ul style="list-style-type: none"> • www.npmjs.com/package/vue-i18n • www.npmjs.com/package/vue-native-websocket • www.npmjs.com/package/vue-outside-events • www.npmjs.com/package/vue-router • www.npmjs.com/package/vuedraggable • www.npmjs.com/package/vuex • www.npmjs.com/package/vuex-router-sync • www.npmjs.com/package/retinajs
MPL 2.0	<ul style="list-style-type: none"> • github.com/go-sql-driver/mysql • github.com/tredoe/osutil
Hippocratic	<ul style="list-style-type: none"> • github.com/animate-css/animate.css
BSD 3-Clause	<ul style="list-style-type: none"> • github.com/gonum/plot • github.com/kataras/iris • github.com/namsral/flag • golang.org/x/crypto • golang.org/x/sync • golang.org/x/text • github.com/shirou/gopsutil
BSD 2-Clause	<ul style="list-style-type: none"> • github.com/pkg/errors • github.com/sfreiberg/gotwilio • gopkg.in/guregu/null.v3 • www.npmjs.com/package/stackblur
IST	<ul style="list-style-type: none"> • github.com/howeyc/gopass
ISC	<ul style="list-style-type: none"> • www.npmjs.com/package/d3

	<ul style="list-style-type: none"> • www.npmjs.com/package/save • www.npmjs.com/package/vue-sticky
CC0 1.0	<ul style="list-style-type: none"> • www.npmjs.com/package/randomcolor
None	<ul style="list-style-type: none"> • github.com/AvraamMavridis/randomcolor