

Silect Grafana Dashboards for SCOM

Getting Started Guide

For System Center Operations Manager 2019 and 2022

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Introduction

Welcome to the **Getting Started Guide** for [Silect Software](#)'s **Grafana Dashboards for SCOM**.

[Grafana](#) is a powerful and flexible observability and graphing engine designed to easily create visually compelling and interactive reports based on information obtained from many different types of data sources.

Microsoft's [System Center Operations Manager](#) documentation describes it as “providing infrastructure monitoring that helps ensure the predictable performance and availability of vital applications”. Its data storage backend consists of two **SQL Server** databases, commonly known as its main **Operations Manager** database, as well as its **Data Warehouse**.

Silect's Grafana Dashboards for SCOM connect to both databases to extract raw information and presenting it into reports intended to assist SCOM administrators in their day-to-day tasks by summarizing high-level data in a single pane of glass and surfacing trends that might be taking place over time.

Who is this intended for?

It is assumed readers of this document already have a functional SCOM environment, and have access to a system hosting Grafana. This document is not intended to teach a reader how to use either software; as such, familiarity with both is assumed. That being said, this document covers everything needed to set up and start making use of the Grafana Dashboards for SCOM without necessarily having much knowledge of either SCOM or Grafana.

Requirements

In order to use these dashboards, you will need access to:

- **A SCOM environment.** Specifically, you will need access to a SQL Server instance hosting SCOM's databases (the main **Operations Manager** database, as well as its **Data Warehouse**, as mentioned in the [introduction](#) section). These dashboards have been developed and tested using SCOM 2019 and 2022. As such, any SQL Server version supporting those versions of SCOM can be used by the dashboards. Strictly speaking, in order to use the dashboards, you do not need to have the SCOM console on the system you will be using, or even be a SCOM user. Of course familiarity with SCOM will allow you to better understand the data you're looking at.
- **A Grafana environment.** The dashboards have been developed and tested against an on-premise instance of Grafana OSS version 11 hosted on Windows Server. That being said, in theory you could be hosting Grafana on any supported Linux distribution, or the cloud version of Grafana. The only “Grafana-specific” requirements to use the dashboards are that you are able to log into a Grafana instance from a web browser, define data sources, and import a dashboard file.

- **The dashboards themselves.** The dashboards are distributed as a single .JSON file. You have probably received a package from Silect consisting of that .JSON file, as well as the document you are reading right now.

Please note that Grafana screenshots for this document were taken using Grafana version 11. While it's entirely possible user interface elements could appear in different locations on newer versions, you should still be able to find the items being described in this document.

Preparing SQL Server

It's assumed you have access to the SQL Server instance hosting the SCOM databases the dashboards need to run queries against. If you do not, create an account that is at a minimum a member of the `db_datareader` role, and grants you at least the following permissions:

- Connect (login)
- View database state
 - A subset of the reports that are part of the dashboard require this additional permission in order to be able to query data. Granting this permission should be a simple matter of having someone with the proper permission to execute the following command:
`GRANT VIEW DATABASE STATE TO [UserName]`
...where `[UserName]` is the name of the account used to log into the database. This has to be repeated for both the **Operations Manager** and **Data Warehouse** databases.

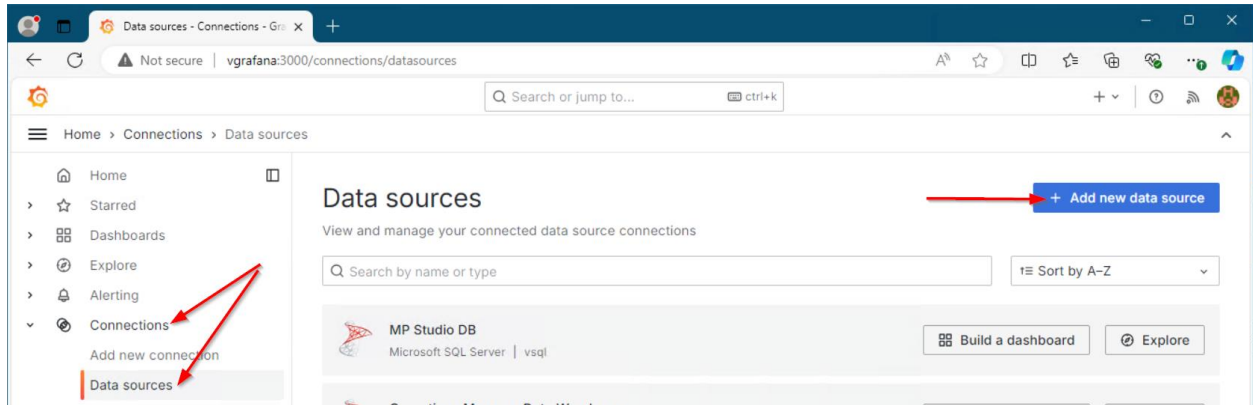
While a database administrator would already have these permissions, it's generally not recommended to needlessly use an account having more access than these basic permissions to make full use of the dashboards. In fact, one might make the argument that it's probably more secure to define a low-privileged SQL Account with only the minimal permissions needed to use the dashboards (as described above), than having a full-fledged Active Directory or Microsoft Entra account which, if misconfigured, could inadvertently grant its user access to resources going beyond SQL Server itself. This is a discussion for you to have with your system administrator and policymakers.

Preparing Grafana

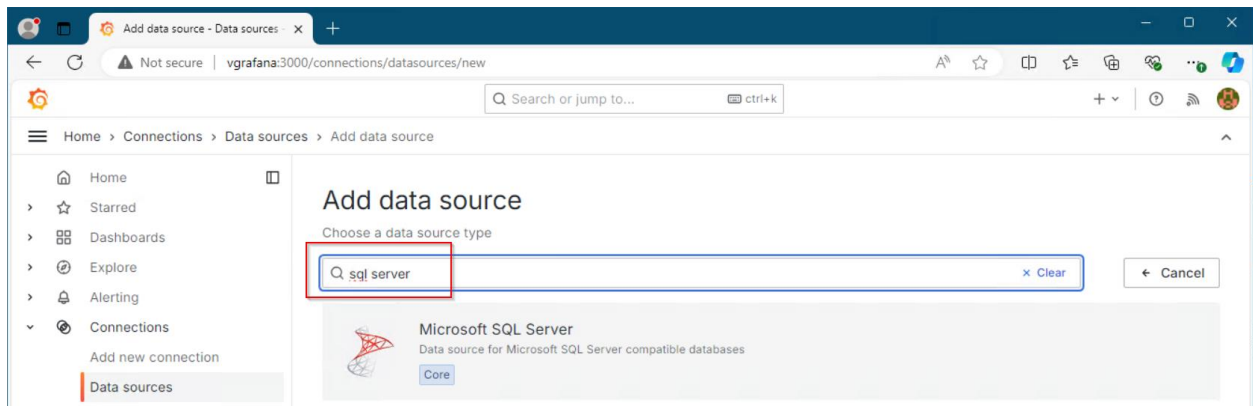
It's assumed you have an account defined in Grafana that allows you to log into it using a web browser, define SQL Server data sources, and import a dashboard. If you do not, create such an account for yourself, or ask your Grafana administrator to do so on your behalf.

Defining Data Sources

Using your Grafana account, login into Grafana with a web browser and navigate to **Connections / Data sources**. Then click on the **Add new data source** button.



Type “sql server” in the **Choose a data source type** field to narrow down the list of available sources so you can quickly locate the **Microsoft SQL Server** entry. Select the **Microsoft SQL Server** entry from the list.



After selecting **Microsoft SQL Server** as the type of data source, Grafana prompts you to fill in details about the connection to SQL Server. In the following example, we’ll assume we’re going to be logging into SQL Server using a SQL account (as opposed to using Windows Authentication).

The first **Name** Grafana prompts for – which defaults to “mssql” – is a generic name you can use to identify this as a connection to SCOM’s main **Operations Manager** database. When SCOM is installed, the default name suggested for this database is `Operations Manager` (although your SCOM administrator might have chosen a different name), so you may find it makes sense to use something similar, and perhaps also combine it with the name of the SQL Server instance used to host it, to make it easier to make the distinction between multiple SCOM instances, if you happen to have more than one, for example if you have separate **lab** and **production** environments. The name chosen is entirely irrelevant to the dashboards; this is just an identifier for yourself as a Grafana user. In the screenshot below, we’ve chosen “**SCOM 2022 DB (lab)**”

Type: Microsoft SQL Server

Settings

Name



SCOM 2022 DB (lab)

Next, the **Connection section** prompts for **Host** and **Database**. The first field is used to identify the name of the SQL Server instance that is hosting your main **Operations Manager** database, as well as the port to use to connect to it (separated by a “:” character). The default port used by SQL Server is 1433; you can omit it unless you know it’s been changed from its default. In the screenshot below, our SQL Server is called **vsq** and we’ve omitted the default port of 1433. Our main Operations Manager database is called **OperationsManager2022**. You should recognize these parts if you’ve ever connected to your SCOM database using a tool such as Microsoft’s **SQL Server Management Studio**.

Connection

Host *

vsq

Database *

OperationsManager2022

The next section, **TLS/SSL Auth**, allows you to specify whether encryption should be used or not, or disabled altogether. The page provides a longer explanation describing what each option does. In our case, we have not changed our default SQL Server configuration, and have left the field to its default value of **false**.

TLS/SSL Auth

Encrypt

Determines whether or to which extent a secure SSL TCP/IP connection will be negotiated with the server.

- *disable* - Data sent between client and server is not encrypted.
- *false* - Data sent between client and server is not encrypted beyond the login packet. (default)
- *true* - Data sent between client and server is encrypted.

If you're using an older version of Microsoft SQL Server like 2008 and 2008R2 you may need to ~~disable~~ encryption to be able to connect.

Next up, the **Authentication** section prompts for details that define how to connect and the credentials used to perform the connection. As mentioned before, in our case we've opted for **SQL Server Authentication**, and have provided the name and password for [the account that was created](#) in SQL Server to allow Grafana to log into the SCOM databases.

Authentication

Authentication Type

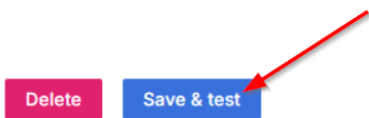
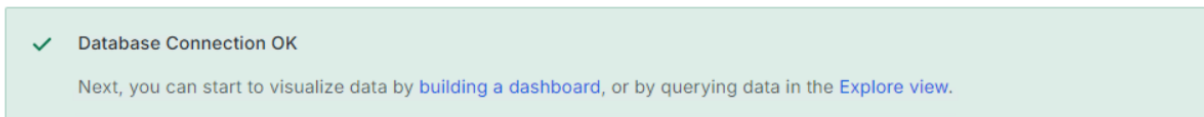
- *SQL Server Authentication* This is the default mechanism to connect to MS SQL Server. Enter the SQL Server Authentication login or the Windows Authentication login in the DOMAIN\User format.
- *Windows Authentication* Windows Integrated Security - single sign on for users who are already logged onto Windows and have enabled this option for MS SQL Server.
- *Windows AD: Username + password* Windows Active Directory - Sign on for domain user via username/password.
- *Windows AD: Keytab* Windows Active Directory - Sign on for domain user via keytab file.
- *Windows AD: Credential cache* Windows Active Directory - Sign on for domain user via credential cache.
- *Windows AD: Credential cache file* Windows Active Directory - Sign on for domain user via credential cache file.



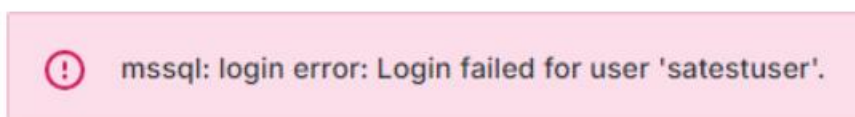
The screenshot shows a form with three input fields. The first is a dropdown menu with 'SQL Server Authentication' selected. The second is a text box containing 'satestuser'. The third is a password field with a masked password of ten dots and a visibility toggle icon. Red arrows point to each of these three fields.

Generally speaking, the rest of the options under **Additional settings** don't need to be modified, unless you either choose otherwise or need to match settings that have been customized elsewhere. No screenshot is presented here since we're not changing any setting. Refer to the Grafana documentation on using [SQL Server as a data source](#) if needed.

Finally, there's a **Save & Test** button at the bottom of the page. Always click this button before exiting this page, so a test is performed and you are immediately told whether the settings provided allow for a successful connection (shown in a green success message) or not (shown in a red failure message). The following screenshot shows a successful connection:



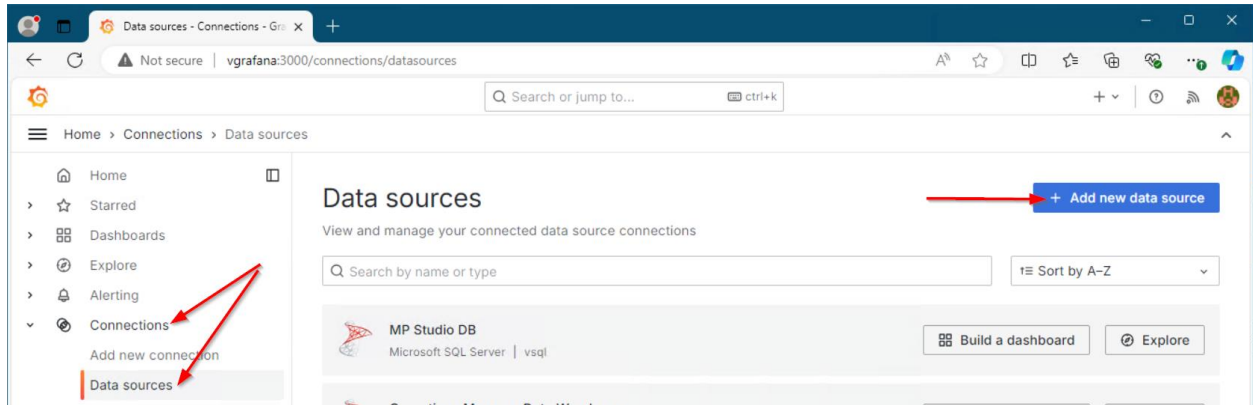
The following screenshot shows a failure to connect. If any failure is reported after clicking on **Save & test**, review the settings supplied until you succeed – otherwise you will not be able to use this connection with the dashboard and it will be pointless to try to proceed.



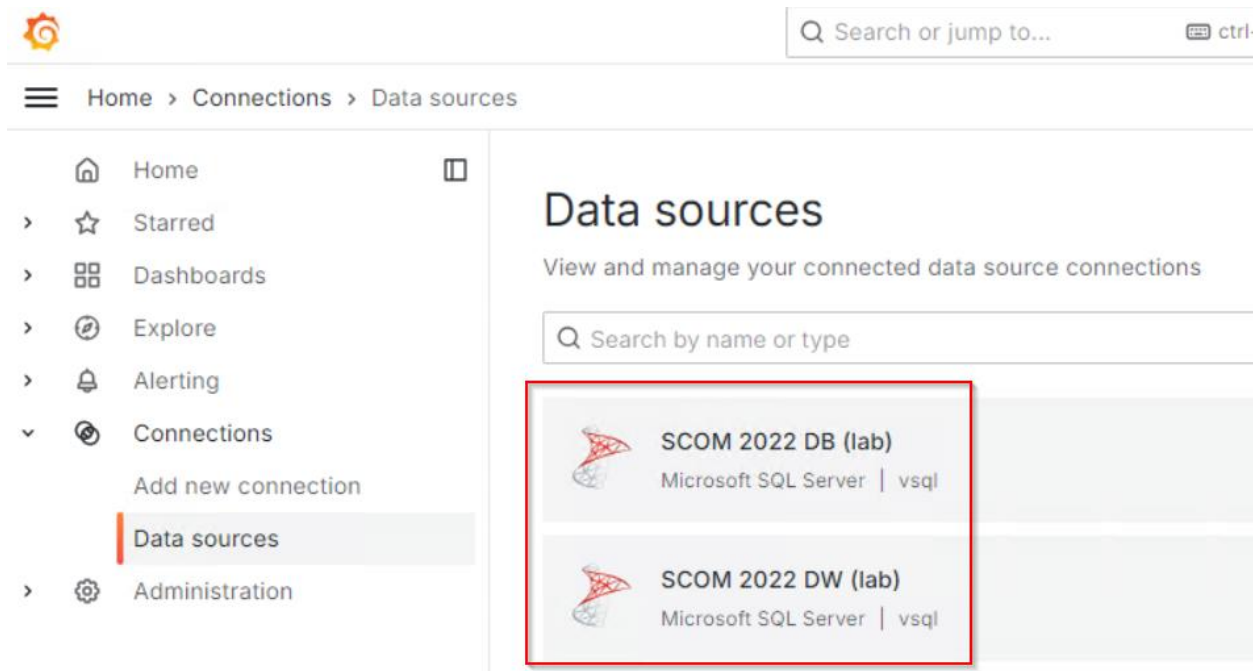
This guide cannot possibly cover all potential failures and their solutions. If you're still unable to connect to your database, the best place to start, the official Grafana documentation covering SQL Server data sources, is located at:

<https://grafana.com/docs/grafana/latest/datasources/mssql/>

After having created a SQL Server Data Source that can successfully connect to your main **Operations Manager** database, click on **Connection / Data sources** in the navigation tree on the left side of the screen to return to the list of data sources that are currently defined, and click on the **Add new data source** button once more to repeat the same steps, but this time for your **Operations Manager Data Warehouse** database. The default name for this database is `OperationsManagerDW`, but again, your SCOM administrator might have chosen something else.



In our case, we called the data source for our data warehouse database “**SCOM 2022 DW (lab)**” to remain consistent with our main Operations Manager database. Once the two are defined, our list of Data Sources looks like this:

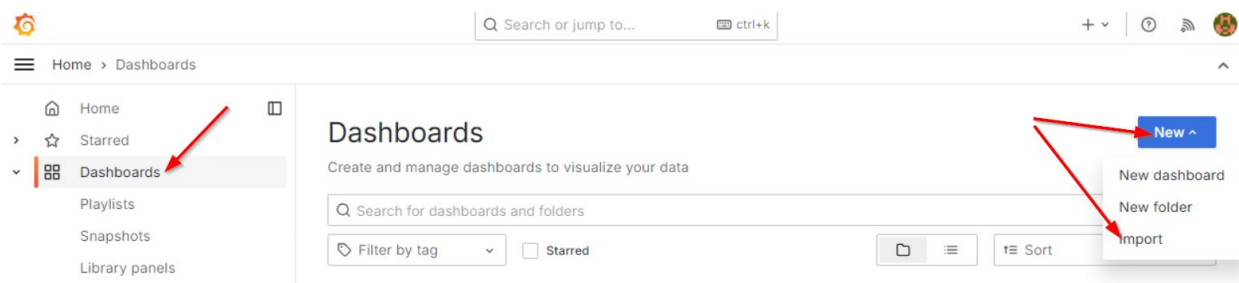


Unless your Grafana environment is brand new, you’re likely to see additional names in the list, but the ones that are important to you as you walk through this document are those you just defined. Remember those names, as you will need them right after importing the dashboard file.

Importing the dashboards

With the data sources defined, you can now import the **Silect Grafana Dashboards for SCOM**. As previously mentioned, [you should have received a .JSON file](#) along with the document you’re currently reading.

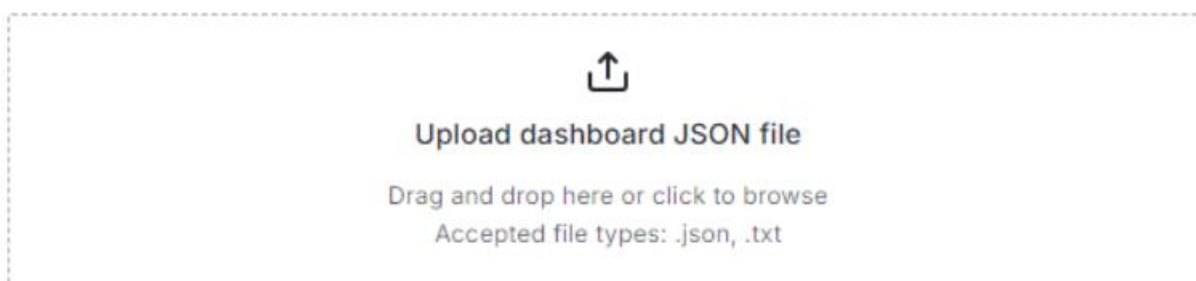
Click on the **Dashboards** entry in the navigation tree on the left side of the screen; this will show the list of dashboards that currently exist – which might be empty if you’re using a brand new Grafana environment. Click on the **New** button, followed by **Import**:



The **Import dashboard** screen lets you import a dashboard using various methods; in our case, you have been provided with a .JSON file. Either drag the file from Windows Explorer (assuming you’re running your browser on a Windows computer) and drop it on top of the dotted **Upload dashboard JSON file** box, or click on the inside of the box to open a standard Open File dialog box, which you can then use to navigate to the location where the .JSON file is located on disk, and then select it from there:

Import dashboard

Import dashboard from file or Grafana.com



After selecting the file (either by dragging and dropping it, or by browsing to it), the **Import dashboard** page prompts you for two items: The two data sources that you’ve defined [earlier](#).

Import dashboard

Import dashboard from file or Grafana.com

Options

Name

Folder

Unique identifier (UID)

The unique identifier (UID) of a dashboard can be used for uniquely identify a dashboard between multiple Grafana installs. The UID allows having consistent URLs for accessing dashboards so changing the title of a dashboard will not break any bookmarked links to that dashboard.

[Change uid](#)

Operations Manager Database

Operations Manager Data Warehouse

[Import](#)[Cancel](#)

Use the dropdown lists to select the data sources. Make sure you select the correct data source for each field: The first is asking for the main **Operations Manager Database**. The second is asking for the **Operations Manager Data Warehouse**. After making the selections, based on the names we've assigned previously, you should now see something such as the following – substituting with your own data source names:

Operations Manager Database

SCOM 2022 DB (lab)

Operations Manager Data Warehouse

SCOM 2022 DW (lab)

Import Cancel


After clicking on **Import**, the dashboards will be displayed with data coming from your SCOM database and data warehouse. It should be similar to this (computer names have been blanked out for this screenshot):

Current Status

Total Computers Monitored


12

Active Alerts by Severity




Critical 1
Warning 4

Active Alerts by Priority



Normal 5

Management Servers Health State



Healthy 1

Active Alerts

Raised Date/Time	Path	Rule vs Monitor	Alert Name	Alert Name (System)	Alert Description	Severity	Priority
2024-08-22 12:04:39		Monitor	System Computer Te	Silect.Errors.On.Dem		Critical	Normal
2024-08-26 14:41:58		Rule	Power Shell Script fai			Warning	Normal
2024-08-23 20:21:36		Rule	Operations Manager			Warning	Normal
2024-08-22 12:05:25		Monitor	System Computer Te	Silect.Errors.On.Dem		Warning	Normal
2024-08-22 12:04:27		Monitor	System Computer Te	Silect.Errors.On.Dem		Warning	Normal

Current Overall Health State

Name	Health State	Heartbeat
	Critical	true
	Warning	true
	Warning	true
	Healthy	true
	Healthy	false
	Healthy	true

> Trends (3 panels) ⋮
 > Alerts per MP (6 panels) ⋮

Using the Actual Dashboards

At this point, the **Silect Grafana Dashboards for SCOM** are installed and functional, and this is where this guide assumes it can rely on the user's familiarity with Grafana to navigate through the various panels, expand/collapse rows, apply a date or time selection range to use as a filter, etc. That being said, the dashboards consist of the following sections (rows) – at the time this document was last updated:

- Current State
- Trends
- Alerts per MP
- SCOM Health Check
- DB Backup
- DW Backup
- Config Churn
- Operations Manager Event Log
- Monitor State Changes
- Performance Collection
- SCOM DB Tables
- SCOM DW Tables
- Queries

The last row, **Queries**, defines a number of queries that are re-used by multiple visuals. Strictly speaking, these contain raw tabular data that is not intended to be used directly. It's recommended you leave this row in its default collapsed state.

Important Notes

The dashboards ship in a state where only the **Current State** row is expanded. All other rows are collapsed. This is intentional. Expanding a row executes all the database queries needed to fill in the visual controls contained in that row. If all rows were expanded, *all* queries associated with *all* visual controls from *all* rows would be submitted to the SQL server to execute at the same time. In a large environment, this could have a performance impact on the server instance hosting your SCOM databases. By keeping rows collapsed, the queries needed to fill in a given row are only executed when the row is opened (or refreshed – see the next paragraph).

Similarly, the date/time range selector at the top of the screen applies to any visual control that shows data that has a time component associated with it. As such, whenever the time selection is changed, each row that is expanded will cause at least one query to be re-executed, with the new time constraint. The more rows you have opened at that time, the more queries will be run against your SQL Server.

For this reason, it's therefore recommended that you collapse any row you don't need if you're going to change the selected time range, especially if you choose a large time period that includes a more distant past. A query including all data collected from a year ago until today will obviously be most costly than a query returning only the data collected from 2 days ago and moving forward.

That being said, SCOM includes **database grooming** settings, which allow it to regularly purge data that is older than some fixed number of days. In a lot of cases, this defaults to 7 days. Therefore, do note that even though you may use Grafana's time range selector to ask the dashboards to bring back data from a month ago, if SCOM's settings say data older than 7 days should be purged, this would explain why in some cases you may *not* get data that is older than the number of days specified. There are good reasons SCOM includes these grooming settings – **do not** ask your SCOM administrator to increase these values to retain more data over a longer period of time, unless you understand the performance and storage size implications of doing so.

The database grooming settings can be viewed in the SCOM console, under the **Administration** tab, then under the **Settings** section at the bottom of the navigation tree.



Under **Type: General**, right-click on **Database Grooming** and select **Properties**:

Settings (9)

Look for: Find Now Clear

Name

- ▲ Type: Agent (1)
 - Heartbeat
- ▲ Type: General (6)
 - Alerts
 - Database Grooming**
 - Miscellaneous
 - Privacy
 - Reporting
 - Web Addresses
- ▲ Type: Server (2)
 - Heartbeat
 - Security

Global Management Group Settings - Database Grooming

General

Database Grooming Settings:

The grooming process removes unnecessary data from the Operations Manager database in order to maintain performance. For each data type in the database, you can specify how much time can pass before that data is deleted. Data deleted during database grooming is not recoverable unless it has been specifically backed up.

[Edit...](#)

Records to delete	Older than
Resolved Alerts	7 days
Event data	7 days
Performance data	7 days
Task history	7 days
Monitoring job data	7 days
State change events data	30 days
Performance signature	2 days
Maintenance mode history	7 days
Availability history	7 days

Uninstalling the Dashboards

To delete the **Silect Grafana Dashboards for SCOM**, click on the **Dashboards** entry in Grafana's navigation tree; this will bring up the list of dashboards that currently exist. Place a checkmark next to the **Silect Grafana Dashboards for SCOM** entry, then click on the Delete button above the list.

Home > Dashboards

- Home
- Starred
- Dashboards**
 - Playlists
 - Snapshots
 - Library panels
 - Public dashboards
- Explore
- Alerting
- Connections

Dashboards

Create and manage dashboards to visualize your data

Search for dashboards and folders

Move

Delete



Name



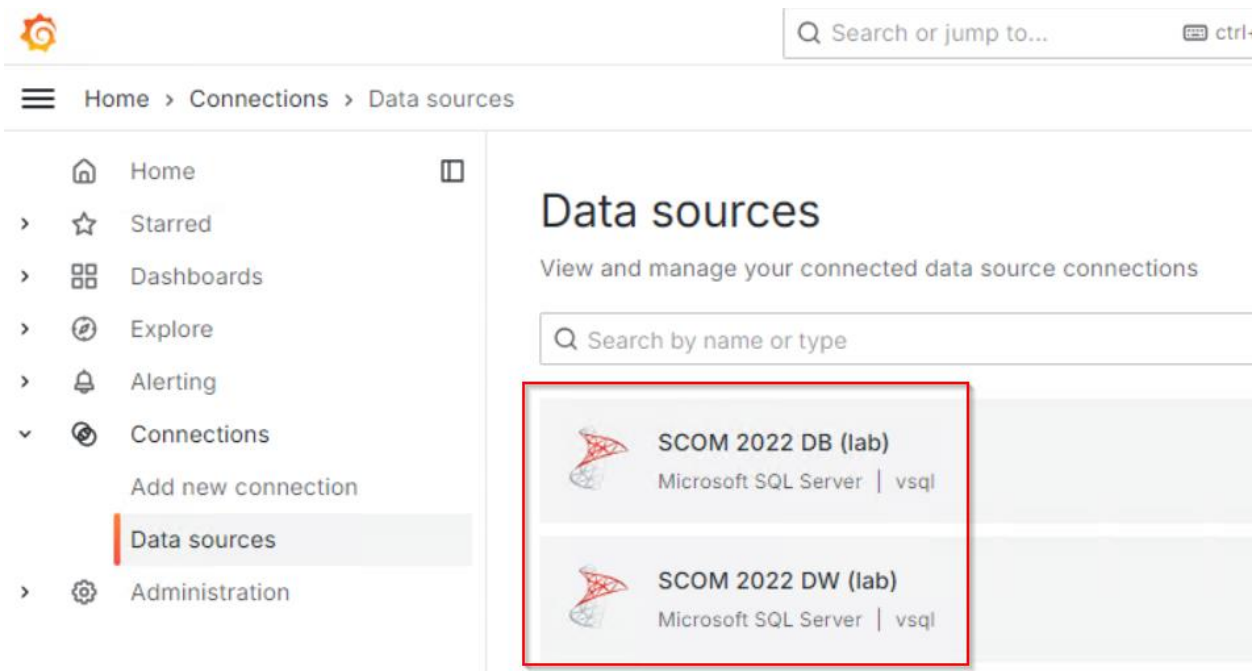
MP Studio DB



Silect Grafana Dashboards for SCOM

Then type “delete” in the confirmation dialog box, and click on Delete.

You may also want to delete the two data sources that were created, for the database and the data warehouse. Click on **Connections / Data sources**:





Home > Connections > Data sources

Data sources

View and manage your connected data source connections

Search by name or type

-  **SCOM 2022 DB (lab)**
Microsoft SQL Server | vsql
-  **SCOM 2022 DW (lab)**
Microsoft SQL Server | vsql

...then click on the entry for the main Operations Manager database, scroll down to the bottom of the page, and click on the Delete button. Repeat for the data warehouse database.

Support

The **Silect Grafana Dashboards for SCOM** are released as a free product, and don't include technical support. It is important that you follow the steps as described in this document as closely as possible when configuring SQL Server to grant a user account access to the SCOM databases, as well as defining the data sources in Grafana and importing the dashboard .JSON file. You may need to consult SQL Server or Grafana documentation for setup instructions going beyond what is described in this guide, especially if you have a locked down environment.

Silect support will not be able to provide assistance if the dashboard has been modified or customized in any way.

That being said, in a situation where a visual control might report an error while others are working correctly, you are encouraged to reach out to us at support@silect.com and provide details.

Additionally, if you'd like to see any specific report added, you can contact info@silect.com to discuss contracting options.

Other Resources

The following resources are not affiliated with Silect Software, Inc. These resources are only mentioned as references to documentation related to the products used with the dashboards, mainly Grafana and Microsoft's SQL Server.

The main **Grafana documentation** page (which might be helpful for initial setup issues going beyond what is covered in this guide) is located at <https://grafana.com/docs/grafana/latest/>

The main technical documentation for Microsoft's **SQL Server** is located at <https://learn.microsoft.com/en-us/sql/sql-server/>