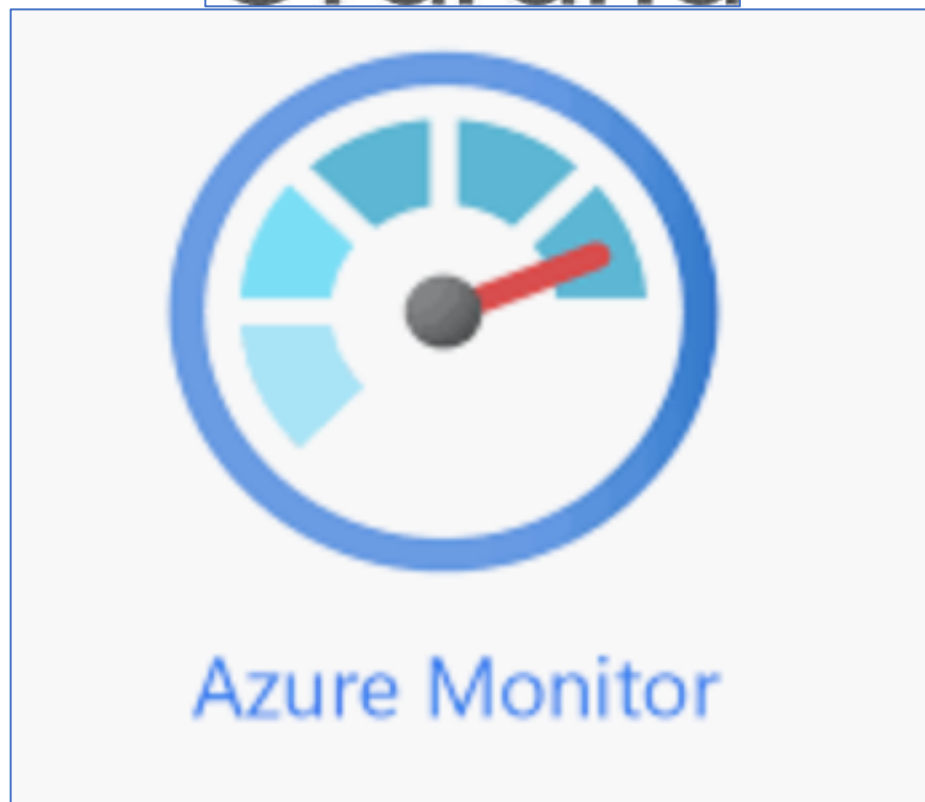


## Azure with Grafana Monitoring

Grafana allows you to query, visualize, alert on and understand your metrics no matter where they are stored. Create, explore, and share dashboards with your team and foster a data driven culture.





<https://grafana.com/grafana/#visualize-content>

## Uses of Grafana :

1. **Visualize** → Fast and flexible visualizations with a multitude of options allow you to visualize your data any way you want.
2. **Dynamic Dashboards** → Create dynamic & reusable dashboards with template variables that appear as dropdowns at the top of the dashboard.
3. **Explore Metrics** → Explore your data through ad-hoc queries and dynamic drilldown. Split view and compare different time ranges, queries and data sources side by side.
4. **Explore Logs** → Experience the magic of switching from metrics to logs with preserved label filters. Quickly search through all your logs or streaming them live.
5. **Alerting** → Visually define alert rules for your most important metrics. Grafana will continuously evaluate and send notifications to systems like Slack, PagerDuty, VictorOps, OpsGenie.
6. **Mixed Data Sources** → Mix different data sources in the same graph! You can specify a data source on a per-query basis. This works for even custom datasources.

7. **Annotations** → Annotate graphs with rich events from different data sources. Hover over events shows you the full event metadata and tags.

8. **Ad-hoc Filters** → Ad-hoc filters allow you to create new key/value filters on the fly, which are automatically applied to all queries that use that data source.



## Azure Monitor Data Source For Grafana

Azure Monitor is the platform service that provides a single source for monitoring Azure resources. Application Insights is an extensible Application Performance Management (APM) service for web developers on multiple platforms and can be used to monitor your live web application—it will automatically detect performance anomalies.

The Azure Monitor Data Source plugin supports Azure Monitor, Azure Log Analytics and Application Insights metrics in Grafana.

## Features

- Support for all the Azure Monitor metrics
- includes support for the latest API version that allows multi-dimensional filtering for the Storage and SQL metrics.
- Automatic time grain mode which will group the metrics by the most appropriate time grain value depending on whether you have zoomed in to look at fine-grained metrics or zoomed out to look at an overview.
- Application Insights metrics

- Write raw log analytics queries, and select x-axis, y-axis, and grouped values manually.
- Automatic time grain support
- Support for Log Analytics (both for Azure Monitor and Application Insights)
- You can combine metrics from both services in the same graph.

## Install Grafana on macOS

### Download and install

Before you begin, you must have Home-brew installed on your mac machine.

1. On the [Grafana download page](#), select the Grafana version you want to install.
2. Select an **Edition**.
  - **Open Source**—Functionally identical to the enterprise version, but you will need to download the enterprise version if you want enterprise features.
  - **Enterprise**—Not currently available for Mac.

3. Click **Mac**.

4. Copy and paste the code from the installation page into your command line and run. It follows the pattern shown below.

```
brew update
brew install grafana
```

### Start Grafana

Start Grafana using Home-brew services:

```
brew services start grafana
```

To upgrade Grafana, use the reinstall command:

```
brew update
brew reinstall grafana
```

### Installing the Plugin on an Existing Grafana with the CLI

Grafana comes with a command line tool that can be used to install plugins.

1. Upgrade Grafana to the latest version.
2. Run this command: `grafana-cli plugins install grafana-azure-monitor-datasource`
3. Restart the Grafana server.
4. Open the browser at: <http://localhost:3000> or <http://your-domain-name:3000>
5. Log in with a user that has admin rights. This is needed to create data sources.

6. To make sure the plugin was installed, check the list of installed data sources. Click the Plugins item in the main menu. Both core data sources and installed data sources will appear.

### Installing the Plugin Manually on an Existing Grafana

If the server where Grafana is installed has no access to the Grafana.com server, then the plugin can be downloaded and manually copied to the server.

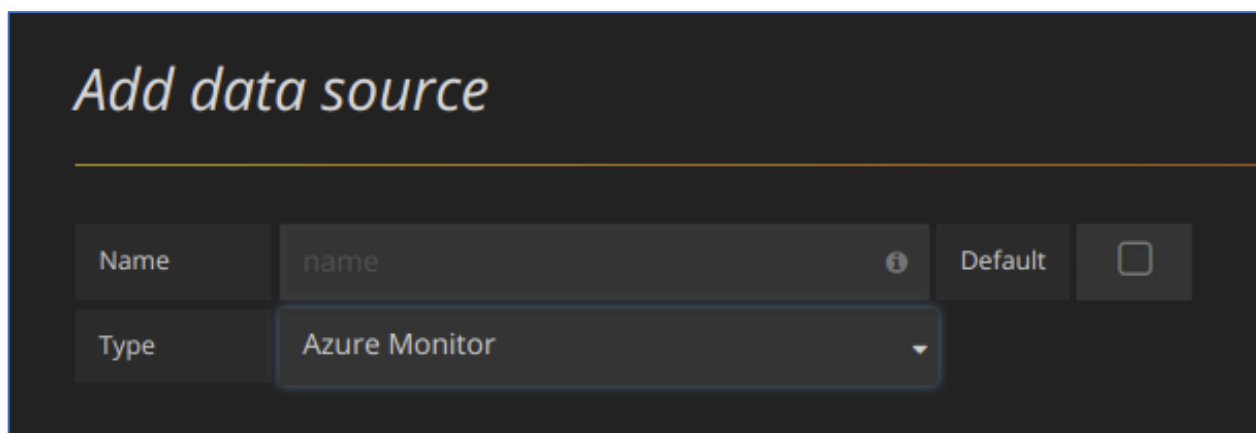
1. Upgrade Grafana to the latest version.
2. Get the zip file from Grafana.com: <https://grafana.com/plugins/grafana-azure-monitor-datasource/installation> and click on the link in step 1.
3. Extract the zip file into the data/plugins subdirectory for Grafana.
4. Restart the Grafana server
5. To make sure the plugin was installed, check the list of installed data sources. Click the Plugins item in the main menu. Both core data sources and installed data sources will appear.

### Configure the data source

The plugin can access metrics from both the Azure Monitor service and the Application Insights API. You can configure access to one service or both services.

- [Guide to setting up an Azure Active Directory Application for Azure Monitor.](#)
  - [Guide to setting up an Azure Active Directory Application for Azure Log Analytics.](#)
1. Accessed from the Grafana main menu, newly installed data sources can be added immediately within the Data Sources section. Next, click the “Add data source” button in the upper right. The data source will be available for selection in the Type select box.

2. Select Azure Monitor from the Type dropdown:

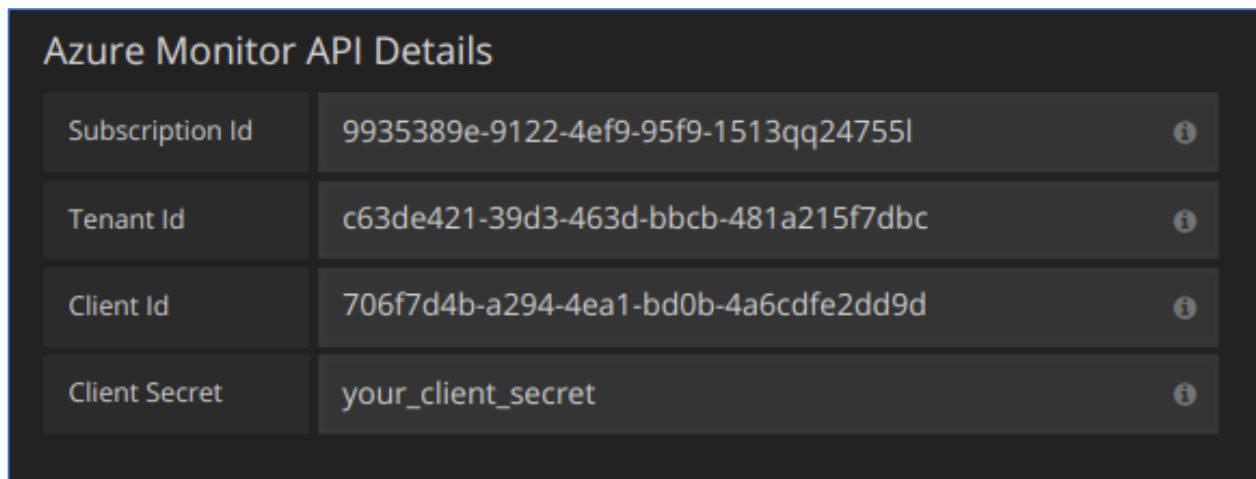


3. In the name field, fill in a name for the data source. It can be anything. Some suggestions are Azure Monitor or App Insights.

4. If you are using Azure Monitor, then you need 4 pieces of information from the Azure portal (see link above for detailed instructions):

- **Tenant Id** (Azure Active Directory -> Properties -> Directory ID)
- **Subscription Id** (Subscriptions -> Choose subscription -> Overview -> Subscription ID)
- **Client Id** (Azure Active Directory -> App Registrations -> Choose your app -> Application ID)
- **Client Secret** ( Azure Active Directory -> App Registrations -> Choose your app -> Keys)

5. Paste these four items into the fields in the Azure Monitor API Details section:



Azure Monitor API Details	
Subscription Id	9935389e-9122-4ef9-95f9-1513qq24755l
Tenant Id	c63de421-39d3-463d-bbcb-481a215f7dbc
Client Id	706f7d4b-a294-4ea1-bd0b-4a6cdfe2dd9d
Client Secret	your_client_secret

6. If you are also using the Azure Log Analytics service, then you need to specify these two config values (or you can reuse the Client Id and Secret from the previous step).

- **Client Id** (Azure Active Directory -> App Registrations -> Choose your app -> Application ID)
- **Client Secret** ( Azure Active Directory -> App Registrations -> Choose your app -> Keys -> Create a key -> Use client secret)

7. If you are are using Application Insights, then you need two pieces of information from the Azure Portal (see link above for detailed instructions):

- **Application ID**
- **API Key**

8. Paste these two items into the appropriate fields in the Application Insights API Details section:

### Application Insights Details

API Key	your_api_key	i
Application Id	3ad4400f-ea7d-465d-a8fb-43fb20544c86	i

9. Test that the configuration details are correct by clicking on the “Save & Test” button:

✓ 1. Successfully queried the Azure Monitor service. 2. Successfully queried the Application Insights service.

Save & Test

Delete

Cancel

Alternatively on step 4 if creating a new Azure Active Directory App, use the Azure CLI:

```
az ad sp create-for-rbac -n "http://localhost:3000"
```



## Configuration

Organization: Main Org.



Data Sources



Users



Teams



Plugins



Preferences



API Keys



Filter by name or type



Add data source



Azure Monitor

default

/api/datasources/proxy/10

GRAFANA-AZURE-MONITOR-DATASOURCE



Microsoft SQL Server

demoheathclinic2020.database.windows.net:1433

MSSQL





## Data Sources / Azure Monitor

Type: Azure Monitor

Settings

Name ⓘ Azure Monitor

Default



### Azure Monitor Details

Azure Cloud ⓘ Azure

Directory (tenant) ID a57b09f3-dbb7-48b4-a6d8-f9812ce62806

Application (client) ID 311816d9-d3f1-48f9-b01d-7cbfecf92e06

Client Secret configured

reset

Default Subscription AYM-Proctor-Gamble - a33f8d03-3c5a-4b63-958c-927

Load Subscriptions

### Azure Log Analytics API Details

Same details as Azure Monitor API



Directory (tenant) ID XXXXXXXX-XXXX-XXXX-XXXX-XXXXXXXXXXXX

Application (client) ID XXXXXXXX-XXXX-XXXX-XXXX-XXXXXXXXXXXX

Client Secret XXXXXXXX-XXXX-XXXX-XXXX-XXXXXXXXXXXX

Default Subscription Choose

Load Subscriptions

Default Workspace ⓘ Choose

Load Workspaces

### Application Insights Details

API Key configured

reset

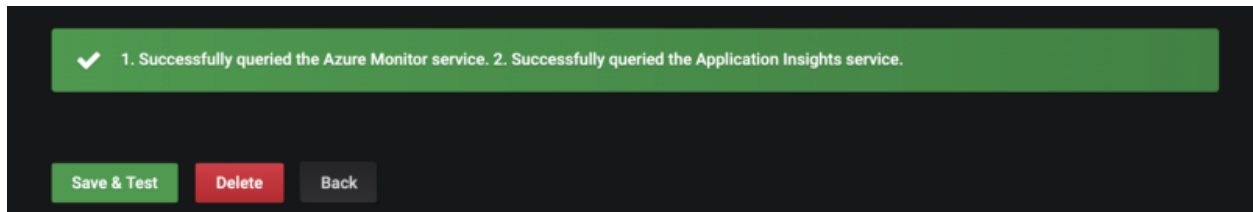
Application ID ca2b1572-92c1-409c-9f1d-f64ef95846c8

Save & Test

Delete

Back

Once after all the details are passed on , we need to click on Save & Test and we must get this output below :



### **Importing a Dashboard from the Grafana Dashboard :**

1. Click on the below website and then choose the Dashboards and we can choose any template that we wanted to do so .

#### **[Grafana Dashboards - discover and share dashboards for Grafana.](#)**

*[Grafana.com provides a central repository where the community can come together to discover and share dashboards.grafana.com](#)*

2. Filter the Data Source as Azure monitor since we have used that as our Data Source .

Filter by:

**Name / Description**



**Data Source**

Azure Monitor ▼

**Panel Type**

All ▼

**Category**

All ▼






**Collector**

All ▼

**Sort By**

Name ▼

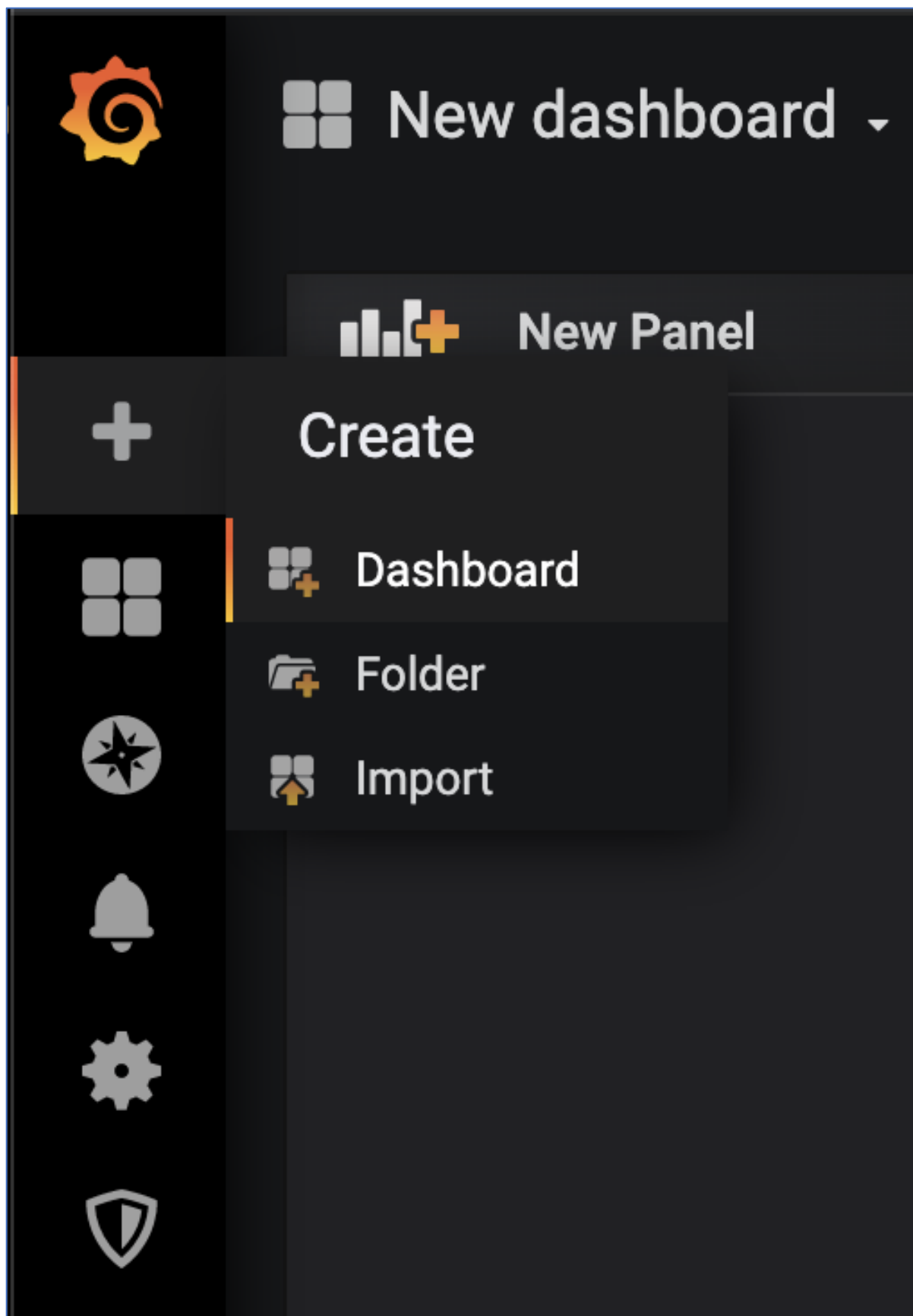
3. We can see these are the major reviewed and downloaded ones , so we can use this on our project .

	<b>Azure Monitor for Containers - Metrics</b> by vishiy Azure Monitor - Container Insights metrics for Kubernetes clusters. Cluster utilization,... AZURE MONITOR OTHER	Downloads: 486340 Reviews: 4 ★★★★★
	<b>Azure Virtual Machine</b> by yesoreyeram <a href="https://github.com/yesoreyeram/grafana-azure-dashboards">https://github.com/yesoreyeram/grafana-azure-dashboards</a> AZURE MONITOR	Downloads: 503 Reviews: 2 ★★★★★
	<b>Microsoft Azure Storage</b> by Jorge de la Cruz AZURE MONITOR OTHER	Downloads: 459 Reviews: 1 ★★★★★
	<b>Azure Event Hub</b> by yesoreyeram <a href="https://github.com/yesoreyeram/grafana-azure-dashboards">https://github.com/yesoreyeram/grafana-azure-dashboards</a> AZURE MONITOR	Downloads: 199 Reviews: 1 ★★★★★
	<b>AKS Container Insights</b> by fb1w2w3y Azure Monitor Container Insights Global view for multiple AKS... AZURE MONITOR	Downloads: 484547 Reviews: 1 ★★★★★

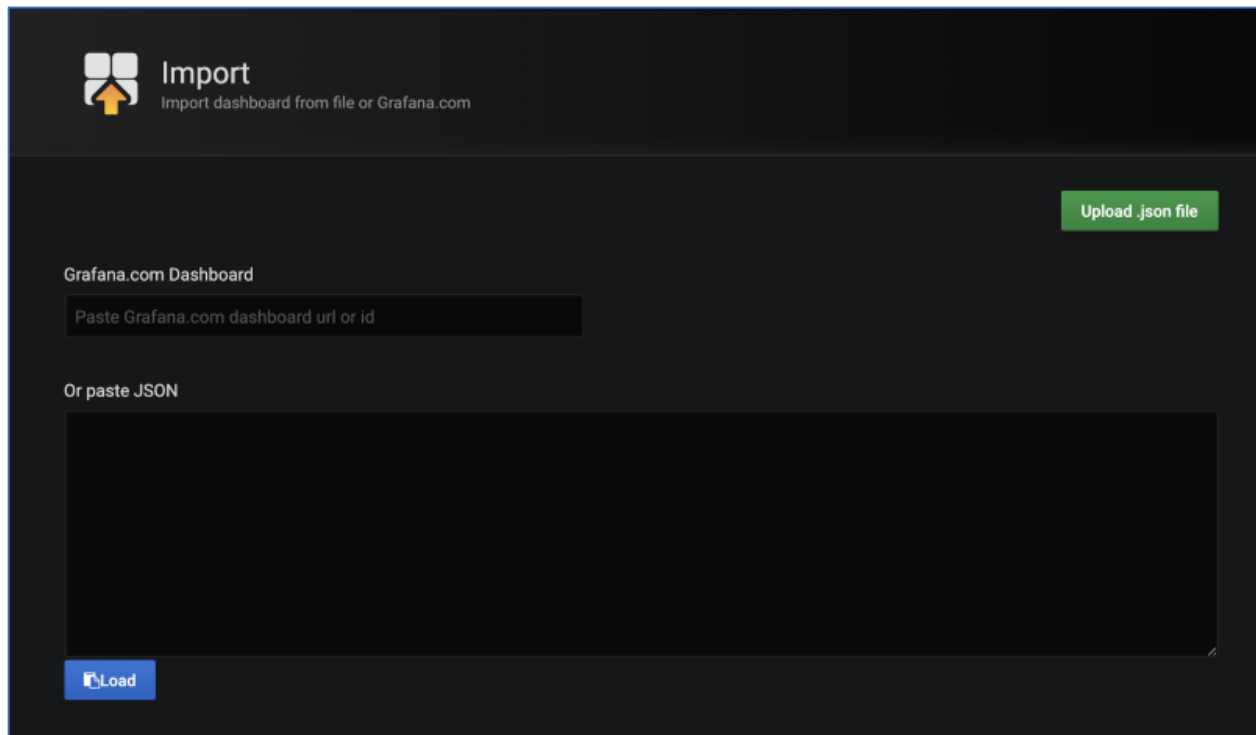
4. Click on any of these and then download the json file as export .

Download JSON  
How do I import this dashboard?

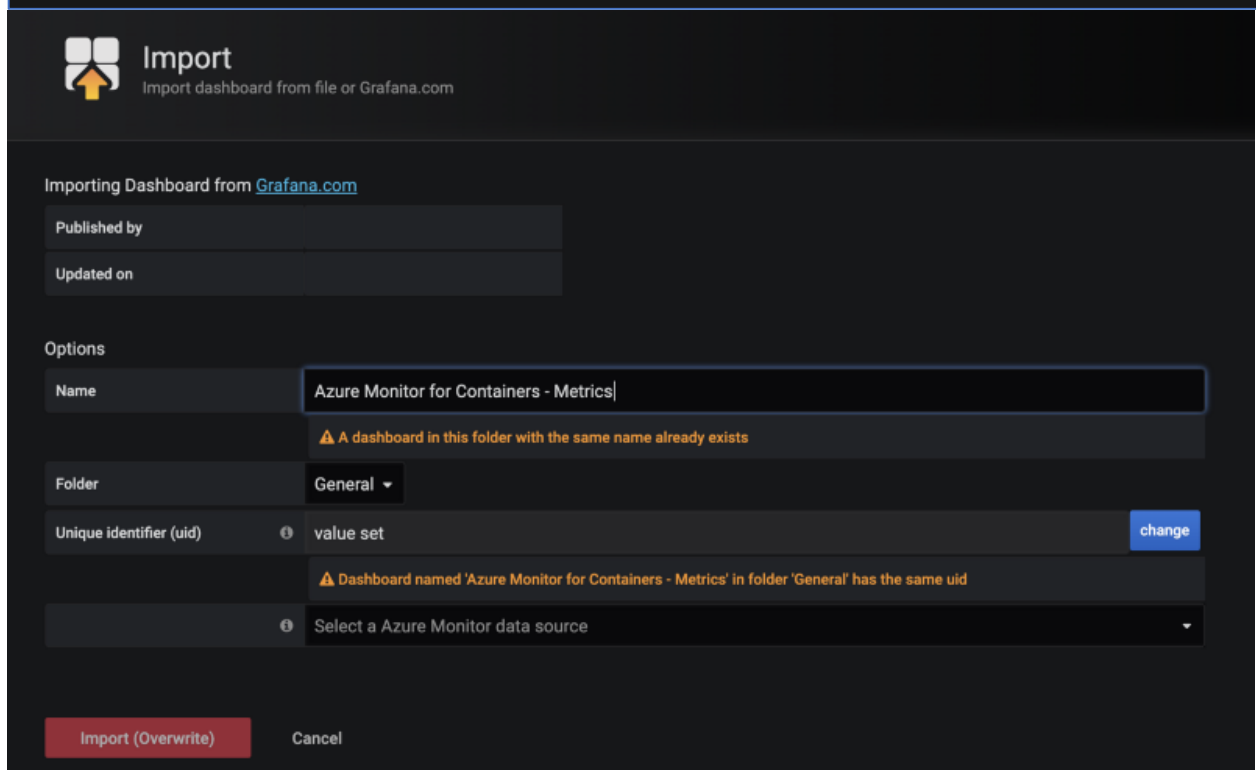
5. Now we need to login to Grafana Dashboard and then we need to click on the Dashboard section and import the json file which we downloaded it.



6. After importing we can see the Dashboard and its corresponding Data Source .

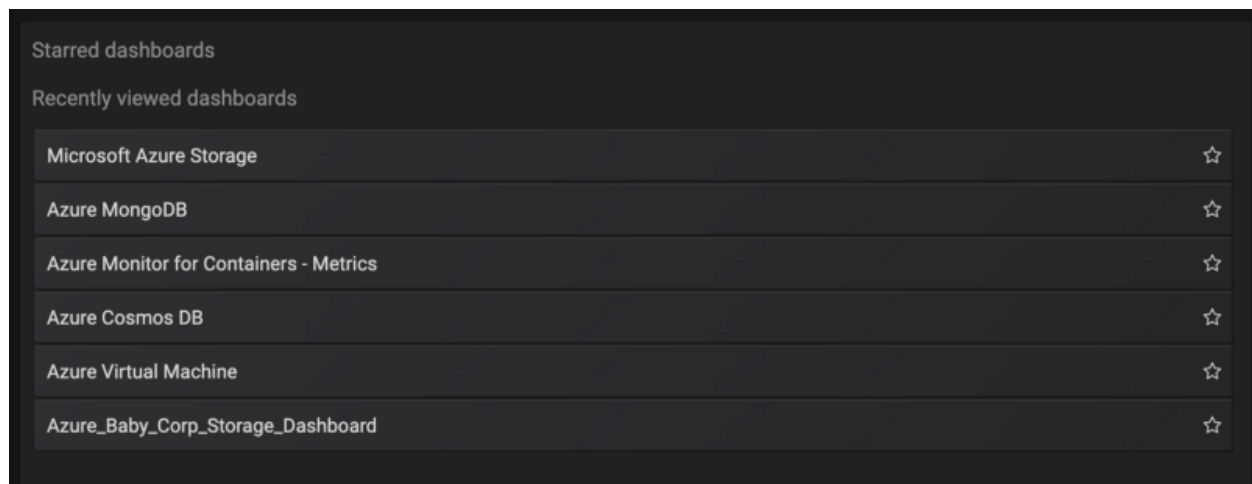


The screenshot shows the Grafana 'Import' interface. At the top, there's a header with the Grafana logo and the text 'Import' and 'Import dashboard from file or Grafana.com'. On the right, there's a green button labeled 'Upload .json file'. Below this, there's a section titled 'Grafana.com Dashboard' with a text input field labeled 'Paste Grafana.com dashboard url or id'. Underneath, it says 'Or paste JSON' followed by a large text area for pasting JSON. At the bottom left, there's a blue button labeled 'Load'.

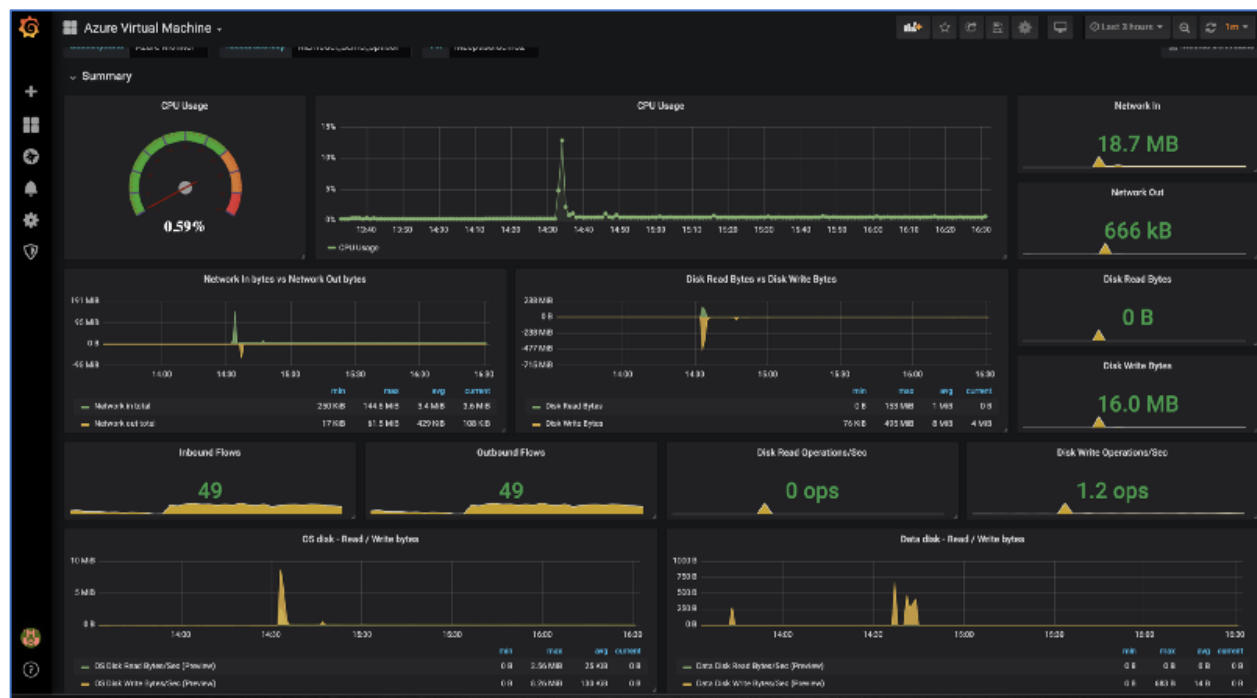


The screenshot shows the Grafana 'Import' interface with configuration options. At the top, there's a header with the Grafana logo and the text 'Import' and 'Import dashboard from file or Grafana.com'. Below this, there's a section titled 'Importing Dashboard from [Grafana.com](#)'. Underneath, there are two input fields: 'Published by' and 'Updated on'. Below these, there's a section titled 'Options'. In the 'Options' section, there's a 'Name' field with the value 'Azure Monitor for Containers - Metrics'. Below the 'Name' field, there's a warning message: '⚠ A dashboard in this folder with the same name already exists'. Below the warning, there's a 'Folder' dropdown menu with the value 'General'. Below the 'Folder' dropdown, there's a 'Unique identifier (uid)' field with the value 'value set' and a blue 'change' button. Below the 'Unique identifier (uid)' field, there's another warning message: '⚠ Dashboard named 'Azure Monitor for Containers - Metrics' in folder 'General' has the same uid'. Below the warning, there's a dropdown menu with the value 'Select a Azure Monitor data source'. At the bottom, there are two buttons: 'Import (Overwrite)' and 'Cancel'.

7. Now we can click on the Dashboard and then we can check the output from it.



8. Here is the output of the same for the Azure VM's that are monitored by the Azure monitor.




9. Here is the output for the same for the Mongo DB monitored by the Azure monitor.




Similarly we have some many Data sources and we can make use of this Grafana as much as we can.








## Configuration


Organization: Main Org.


 Data Sources



 Users

 Teams


 Plugins

 Preferences

 API Keys



Add data source




Azure Monitor

default

/api/datasources/proxy/10


GRAFANA-AZURE-MONITOR-DATASOURCE



Microsoft SQL Server

demohealthclinic2020.database.windows.net:1433

MSSQL




## Add data source

Choose a data source type


Cancel

Time series databases




Prometheus

Open source time series database & alerting




Graphite

Open source time series database



OpenTSDB


Open source time series database




InfluxDB

Open source time series database

### Logging & document databases




**Loki**  
Like Prometheus but for logs. OSS logging solution from Grafana Labs




**Elasticsearch**  
Open source logging & analytics database


### SQL



**MySQL**  
Data source for MySQL databases




**PostgreSQL**  
Data source for PostgreSQL and compatible databases




**Microsoft SQL Server**  
Data source for Microsoft SQL Server compatible databases


### Cloud




**Stackdriver**  
Data source for Google's monitoring service



**CloudWatch**  
Data source for Amazon AWS monitoring service




**Azure Monitor**  
Data source for Microsoft Azure Monitor & Application Insights




**Grafana Cloud**  
Hosted Graphite, Prometheus and Loki

### Others



**TestData DB**  
Generates test data in different forms



**Azure Data Explorer Datasource**  
Grafana data source for Azure Data Explorer

Find more data source plugins on [grafana.com](https://grafana.com)

Here are some of the examples of the Grafana Dashboards .

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