

Application Delivery Fundamentals :

Grafana



High performance. Delivered.

consulting | technology | outsourcing



Goals

- Introduction and Overview
- Installation
- Getting Started with Grafana
- Data sources in Grafana
- Dashboards & Explore in Grafana
- Panels in Grafana
- Authentication in Grafana
- Administration in Grafana



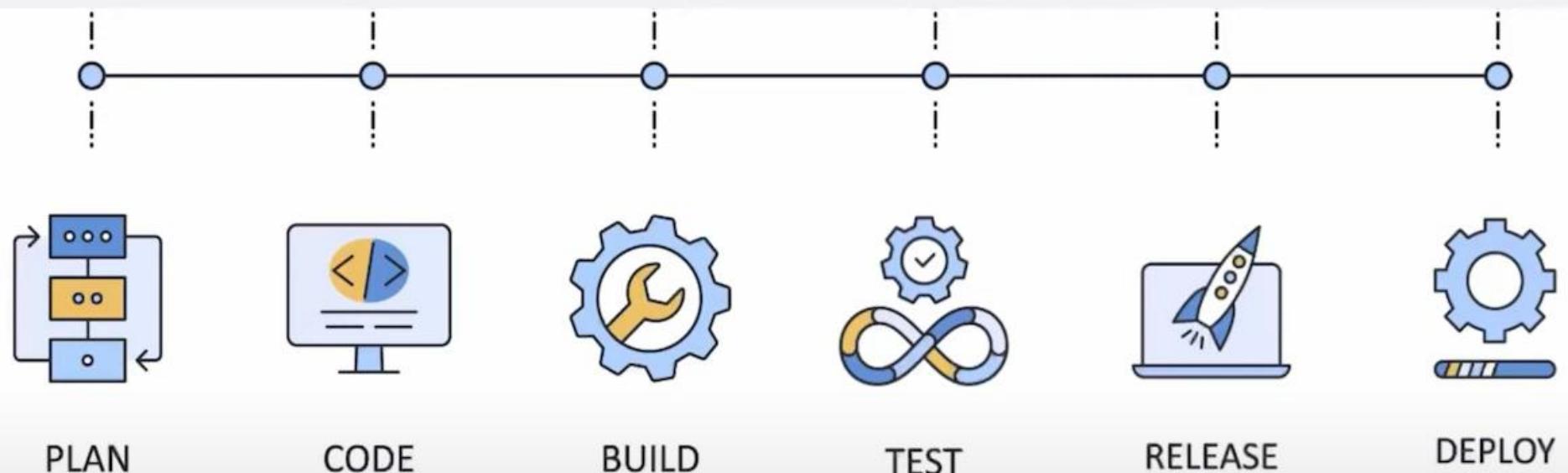
Goals

- Templates and variables
- Grafana Enterprise
- Plugins



Delivery Process

Software delivery process





Devops

Culture

Development team

Here is the code.
Please deploy it!



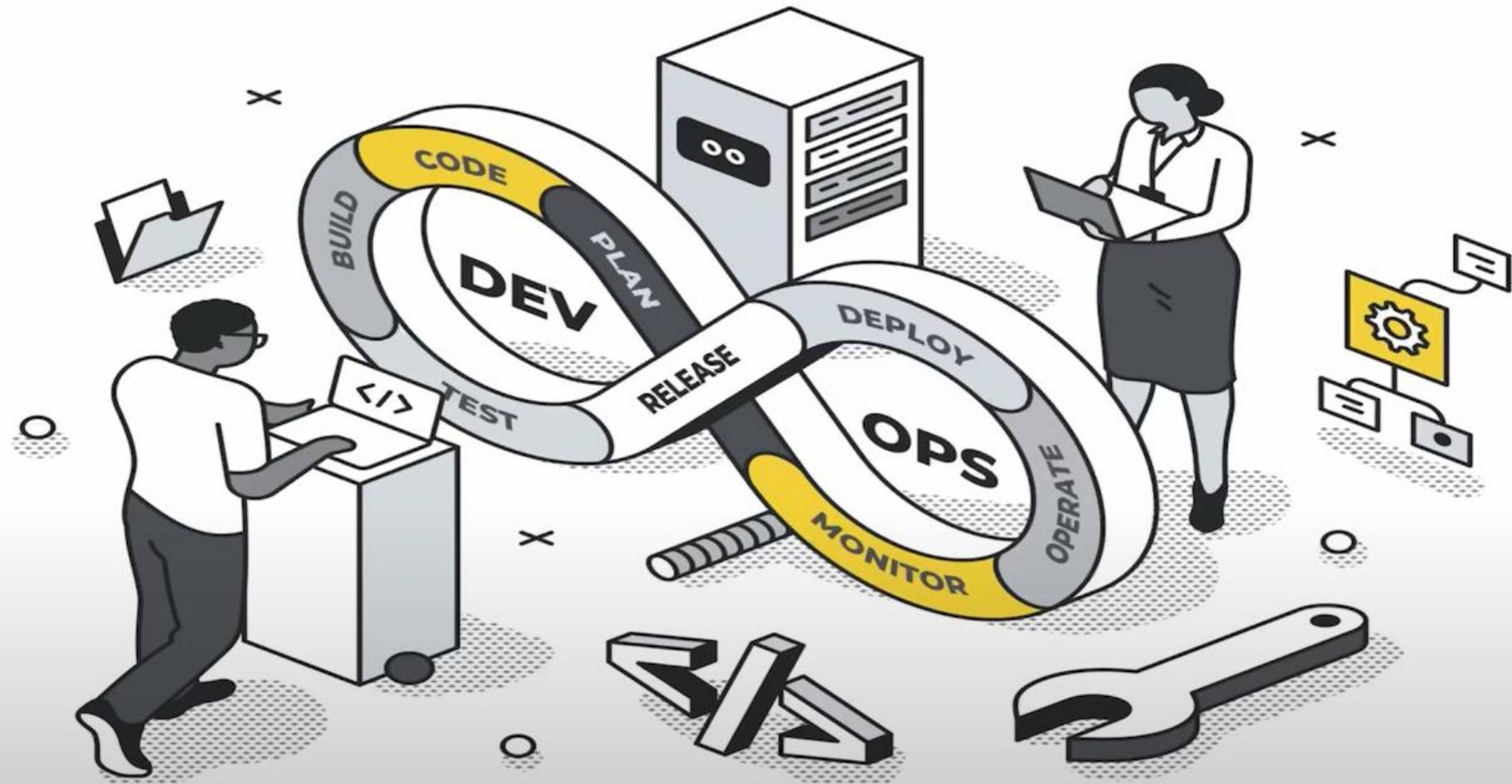
Operations team





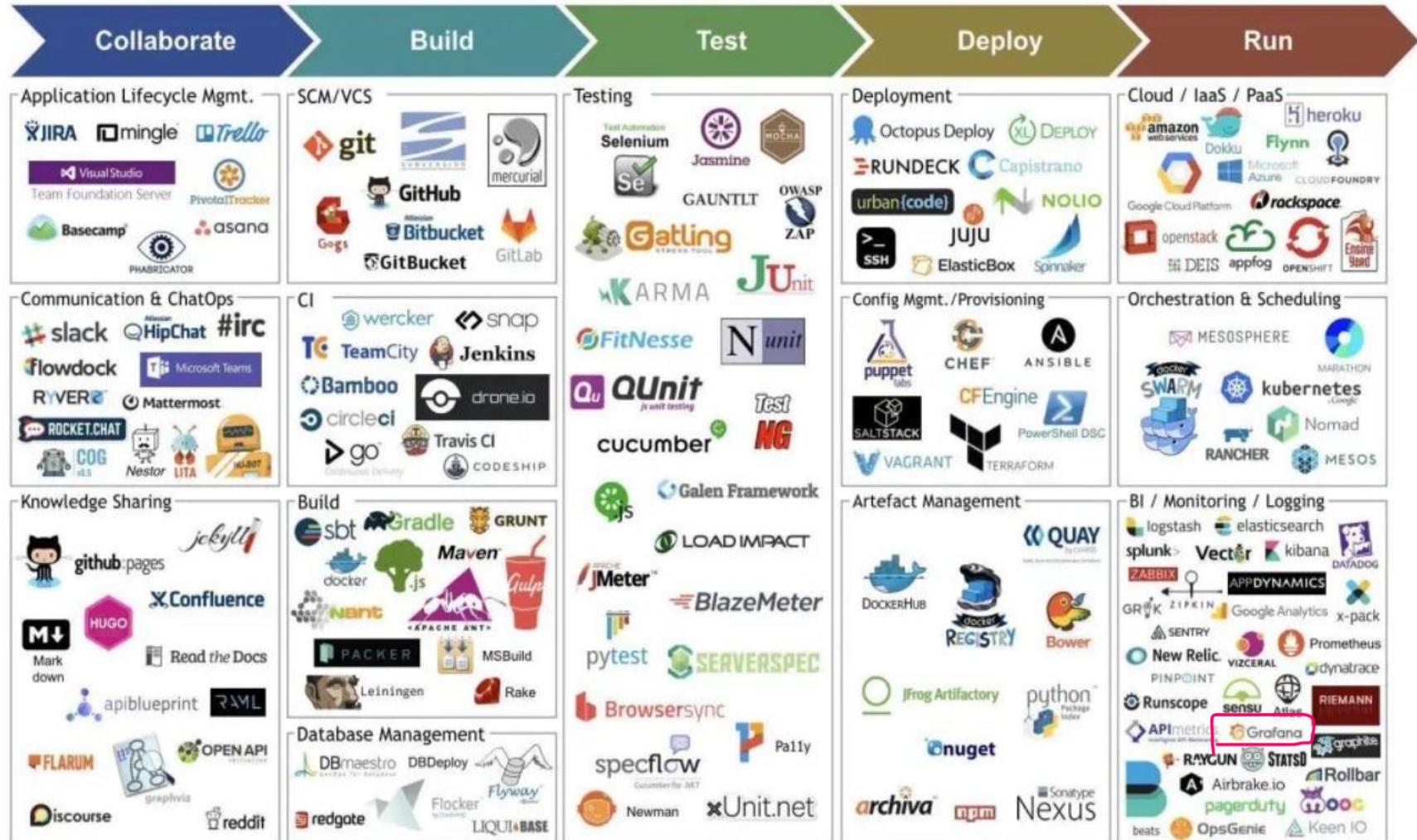
Devops

Culture



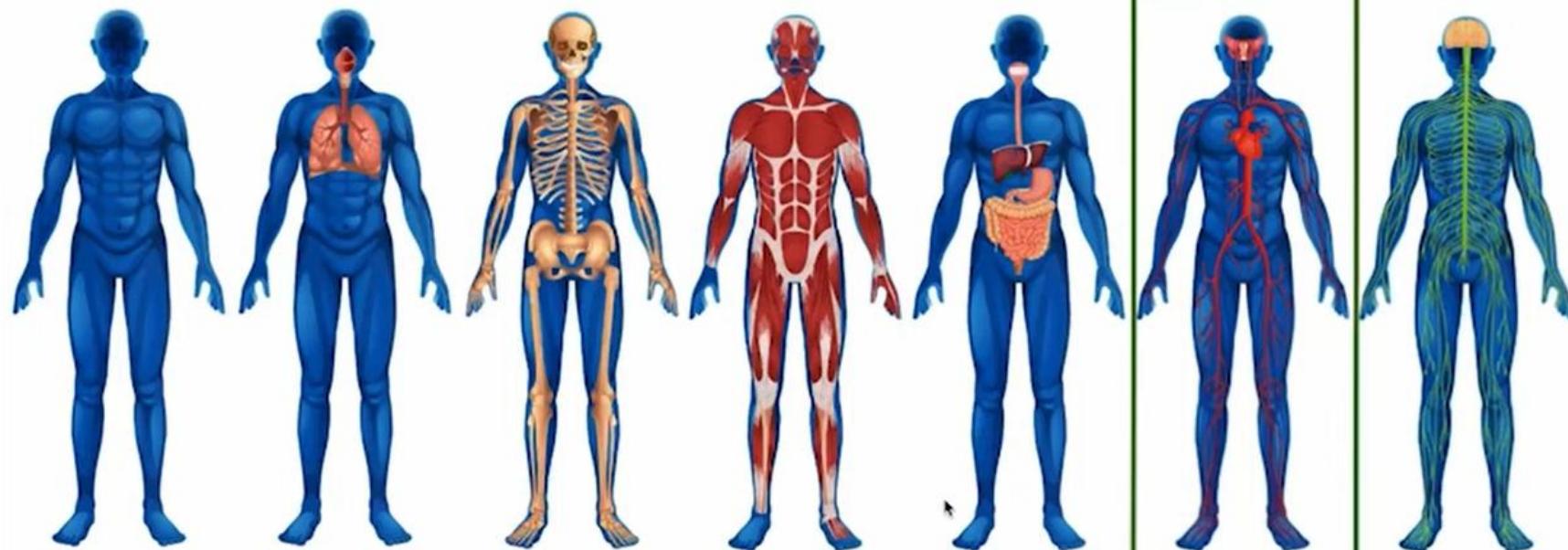


Devops Tools





What is continuous monitoring





What is continuous monitoring

Is something happening?





What is continuous monitoring



What's happening?





What is continuous monitoring

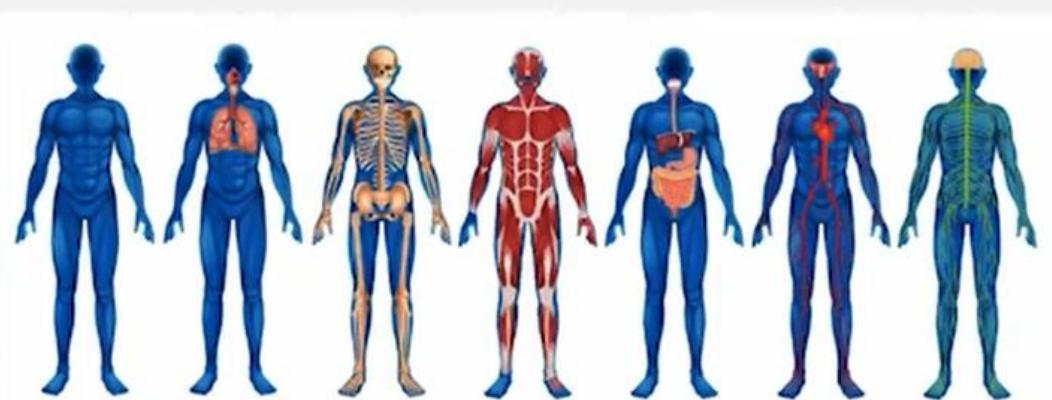
Observability in software systems





What is continuous monitoring

Application /
Infrastructure





What is continuous monitoring

Metrics

Something is happening

Take vital signs



Collect metrics data





What is continuous monitoring

Better Network Visibility & Transparency

Facilitates Rapid Responses

Minimizes System Downtime

Assists with Healthy Business Performance

by raising the alarm when there is a service outage or any application

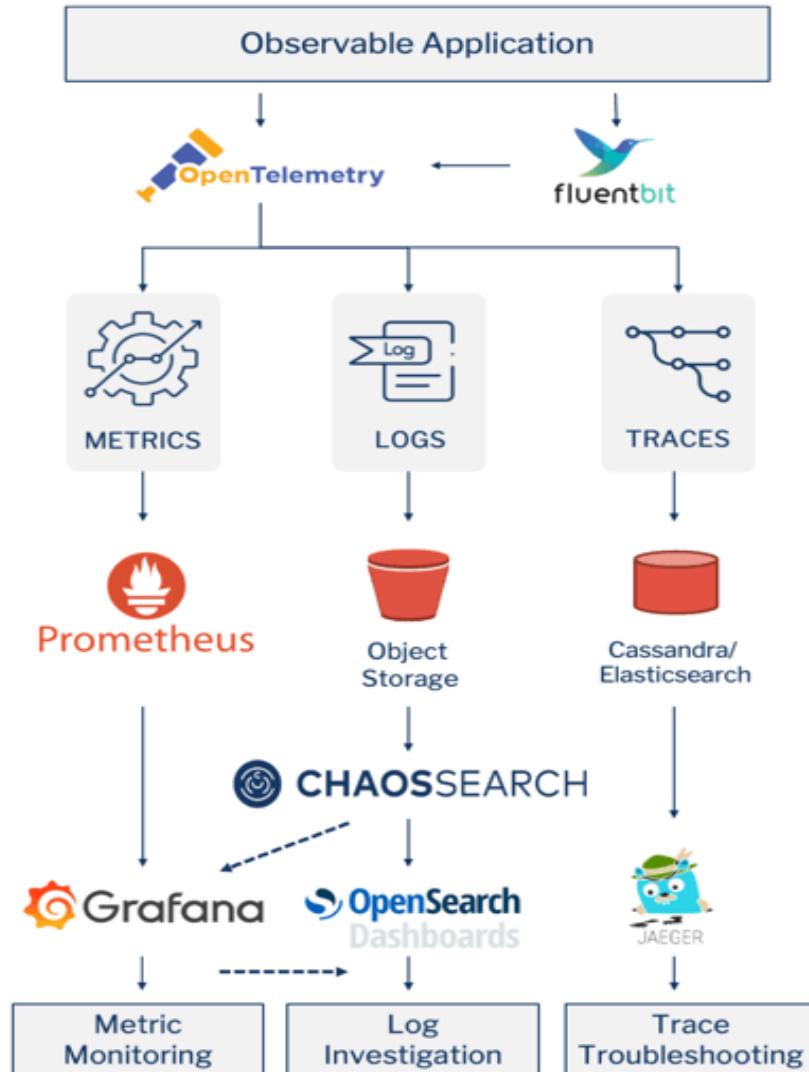


Monitoring Systems

- AppOptics
- Azure Monitor
- Netflix Atlas
- CloudWatch
- Datadog
- Dynatrace
- Elastic
- Ganglia
- Graphite
- Humio
- Influx/Telegraf
- JMX
- KairosDB
- New Relic
- Prometheus
- SignalFx
- Google Stackdriver
- StatsD
- Wavefront



Monitoring Systems





What is Grafana

- Grafana, an open-source data analysis solution, serves a vital role in the world of data analytics.
- Its main objective is to enable data analysis using metrics.
- Users can efficiently visualize their data by creating consolidated charts and graphs in a unified dashboard or multiple dashboards.
- It makes us to interpret and understand complex data sets.



What is Grafana

- Grafana has a thriving community of enthusiasts who share reusable dashboards.
- Grafana supports a huge number of data sources.
- The most common use case of Grafana is displaying time series data, such as memory or CPU over time, alongside the current usage data.
- For organizations that prioritize data security and are cautious about transmitting data to external cloud providers, Grafana offers an exceptional advantage.
- It can be deployed on-premises, ensuring that data remains within the organization's infrastructure.



What is Grafana

- Grafana runs as a process on our computer or server.
- We access the interface through our browser.
- Our dashboard can display data as single numbers, graphs, charts, or even a heat map.



What is Grafana





Why do we need Grafana

- Data Source Compatibility
 - One of the remarkable strengths of Grafana is its ability to seamlessly connect with an array of data sources.
 - These sources include Graphite, Prometheus, Influx DB, Elastic Search, MySQL, PostgreSQL, and many more.
 - Grafana allows users to develop custom plugins, affording them the flexibility to connect to data sources of their choosing.



Why do we need Grafana



NS1.





Why do we need Grafana

- Time Series Analysis
 - Grafana excels in the domain of time series analysis, making it an invaluable tool for
 - tracking user behaviour,
 - monitoring application performance,
 - assessing error frequencies across diverse environments (production, pre-production, etc.),
 - categorizing error types,
 - understanding contextual scenarios.
 - These insights are instrumental in improving operational performance and making informed decisions.



Grafana Features

- Dashboard templating
 - One of Grafana's most important functions, dashboard templating helps you to build dashboards that can be reused for different purposes and shared among your organization's teams.
- Provisioning.
 - While it's easy to construct a single dashboard by clicking, dragging, and dropping, users who need a lot of dashboards will want to use a script to automate the process.
 - Grafana allows you to script anything and get control of many dashboards.



Grafana Features

- Kiosk mode and playlists
 - If we want to display your Grafana dashboards on a TV monitor we can use the playlist function to choose which dashboards we need to look through and make them cycle through on the screen.
 - In view-only mode, the kiosk mode hides all the user interface elements you don't need.
- Custom plugins
 - We can use plugins to extend Grafana and integrate it with other software, visualizations, and more.
 - Anything that produces a timestamp and a value can be visualized in Grafana with just a few lines of code.



Grafana Features

- Alerting and alert hooks.
 - If an anticipated scenario occurs, alerts are activated like tripwires.
 - These events can be reported to the monitoring team through Slack or some other communication channel.
- Permissions and teams.
 - When a company has one Grafana and several teams, they often want to keep things apart while still sharing dashboards.
 - If we're using Grafana Enterprise, we can build a team of users and then set permissions on folders, dashboards, and down to the data source level.
- SQL data sources
 - Grafana's native SQL support allows you to turn anything in a SQL database into metric data that you can graph.
 - SQL data sources are used by power users to do a variety of fascinating things, such as building business dashboards.



Grafana Features

- Authentication
 - Grafana supports a variety of authentication styles, including LDAP and OAuth, and lets you map users to organizations.
 - We can also map users to teams in Grafana Enterprise:
 - Grafana helps us to map the teams in our internal systems to Grafana teams if our organization has its own authentication system.
 - As a result, we'll be able to automatically grant access to the dashboards to employees that belong to specific teams.



Why is Grafana so Popular?

- Grafana has garnered substantial popularity among professionals, including product leaders, security analysts, and developers.
- They rely on Grafana to make data-driven decisions, monitor performance, and gain critical insights into their systems.
- The main alternatives to Grafana are Kibana, Tableau and Power BI.
A thick, pink, curved underline starts under the word "alternatives" and sweeps across the page towards the right, ending under the word "Power BI".
- All of them are also tools that offer data visualization and analysis capabilities.
- It provides users with options to select the solution that best aligns with their specific requirements.



Advantage and Disadvantage of Grafana

Data Visualization: It excels in creating visually appealing and insightful graphs, charts, and dashboards. This aids in interpreting and analyzing data more effectively.

Data Source Agnostic: Grafana supports various data sources, including databases (like MySQL, PostgreSQL), cloud services (such as AWS CloudWatch, Google Stackdriver), and even custom APIs, allowing for centralized monitoring and visualization.

Alerting and Notifications: Grafana allows setting up alerts based on defined thresholds and conditions, sending notifications via various channels (email, Slack, etc.), facilitating proactive monitoring.

Easy Integration: Grafana integrates well with other tools like Prometheus for metrics collection and analysis, making it a versatile choice for monitoring and observability.

Open Source and Community-Driven: Being open source, Grafana benefits from continuous development, community support, and contributions, ensuring regular updates and improvements.



Advantage and Disadvantage of Grafana

complexity in Initial Setup: Setting up Grafana initially might require some technical expertise, especially when integrating with various data sources or configuring advanced functionalities.

Resource Intensiveness: Depending on the scale of usage and the complexity of dashboards, Grafana can be resource-intensive, requiring sufficient computing power and memory, particularly for large-scale deployments.

Learning Curve for Advanced Features: Mastery of Grafana's more advanced features, such as templating, scripting, or utilizing plugins, might demand a steep learning curve for beginners or users with limited technical background.

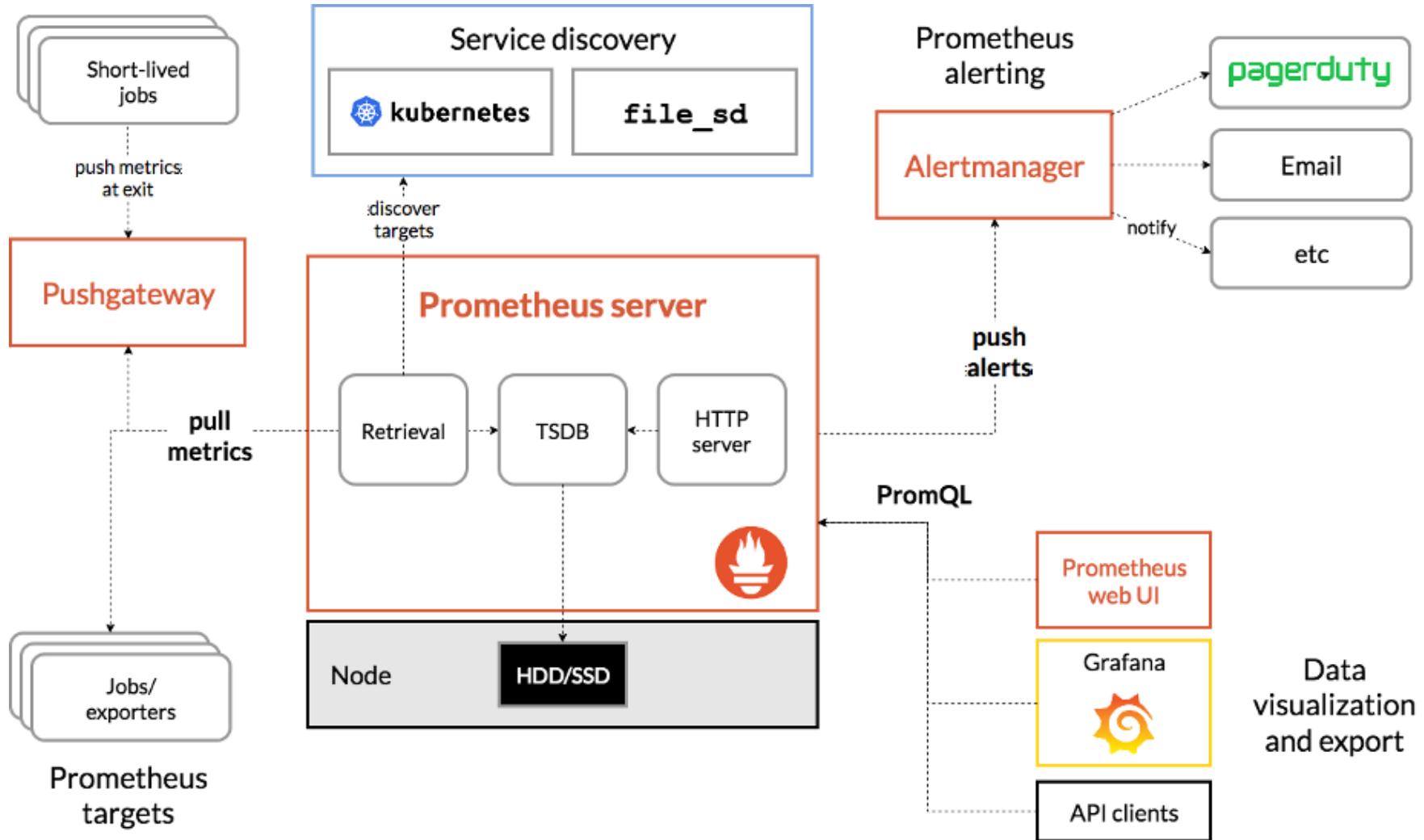
Maintenance Overhead: Regular maintenance and updates are necessary to ensure optimal performance and security, which might require dedicated administrative efforts and resources.

Security Considerations: As with any software that handles sensitive data, proper configurations and security measures need to be in place to safeguard against potential vulnerabilities or unauthorized access.

Dependency on Data Sources: The functionality and capabilities of Grafana heavily rely on the quality and availability of the connected data sources. Issues with data sources might affect the visualization and monitoring capabilities.



Grafana with other Tools





Prometheus vs Grafana

	Prometheus	Grafana	Monitoring as a Service based on Prometheus Technology
Visualization	Primitive support	Rich support	Advanced support
Alerting	Needs alertmanager	Basic support	Advanced capabilities
Offers single pane of glass view	No	Limited	OTB Single pane of glass view
Data Source Integrations	Via Exporters (mostly Linux ecosystem)	N/A	Advanced hybrid cloud support
Multi-Cluster Monitoring	No OTB support	N/A	Seamless multi-cluster monitoring
High Availability	No OTB support	N/A	HA and Fault-Tolerant



Grafana vs Kibana

	Grafana	Kibana
Cross-Platform Tool	It is a cross-platform tool.	It is not a cross-platform tool.
Support and Working	It supports InfluxDB, AWS, MySQL, PostgreSQL, etc and its working is metrics-based.	It supports Elasticsearch and its working is log based.
Syntax	It uses a query editor.	It follows the Lucene syntax.
Full-Text Queries	It does not support full-text queries	It supports full-text queries.
Alerts	It gives real-time alerts when the data arrives. Users can define its alert visually for the important metrics.	It supports alerts but only with the help of plugins.



Grafana vs Kibana

Usage	This tool is used by applications that require continuous real-time monitoring metrics.	This tool is used for log file analysis and full-text search queries.
Environment Variables	It is configured via the .ini file	YAML files store all the configuration details of an environment variable.
Speed	It is slow in speed.	It is fast.
Full-Text Search	It does not perform a full-text search.	It performs a full-text search.
Organizations using	9gag, Digitalocean, postmates, etc are the organizations using Grafana.	Trivago, bitbucket, Hubspot, etc are the organizations that are using Kibana.



Grafana Releases

Month	Grafana version	Release type
January 2023	9.3.x	Patch
February 2023	9.4	Minor
March 2023	9.4.x	Patch
April 2023	9.5	Minor
May 2023	9.5.x	Patch
June 2023	10	Major
July 2023	10.0.x	Patch
August 2023	10.1	Minor
September 2023	10.1.x	Patch
October 2023	10.2	Minor
November 2023	10.2.x	Patch
Dec-Jan 2024	10.3	Minor
January 2024	10.3.x	Patch



Grafana Installation

Containers [Give feedback](#)

Container CPU usage i		Container memory usage i		Show charts v		
0.87% / 800% (8 cores available)		134.76MB / 15.18GB				
<input type="text"/> Search		<input checked="" type="checkbox"/> Only show running containers				
<input type="checkbox"/>	Name			Image	Status	Actions
<input type="checkbox"/>	prometheus_v				Running (5/	... Delete
<input type="checkbox"/>	monitoring_node_exporter 63e16b2fe7f9 ...			prom/node	Running	... Delete
<input type="checkbox"/>	grafana-1 18852266a89d ...			grafana/grafana	Running	... Delete
<input type="checkbox"/>	statsd_exporter-1 29f4552fc863 ...			prom/statsd	Running	... Delete
<input type="checkbox"/>	alertmanager-1 2f58bd71c5b ...			prom/alertmanager	Running	... Delete
<input type="checkbox"/>	prometheus-1 37278af94218 ...			prom/prometheus	Running	... Delete



Grafana Loki

- Loki is an open-source log aggregation tool inspired by Prometheus architecture.
- It is designed as horizontally-scalable, highly-available, and multi-tenant to allow you to collect, store, and search log data.
- Loki was created by Grafana Labs, with its first version released in 2019.
- Loki is designed to keep indexing low.
- It does this by making use of labels.
- Labels are any key-value pairs that can be used to describe a log stream.



Grafana Loki

```
scrape_configs:
  - job_name: system
    pipeline_stages:
    static_configs:
      - targets:
          - localhost
        labels:
          job: syslog
          __path__: /var/log/syslog
```



Key Features of Grafana Loki

- It provides you with LogQL as its own query language, allowing you to powerfully query and filter your logs.
- Has support Grafana integration for real-time log visualizations and querying.
- It uses labels to identify log streams.
- Natively integrates with Prometheus, Grafana and K8s.
- PromQL-compatible to allow you access to Prometheus-like labels. This makes Loki easier to use to categorize and label log data while using PromQL to search and analyze logs.
- Prometheus Alert manager for sending alerts.
- Cost-effective and durable storage as Loki doesn't index logs text contents. It only needs labels for each log stream.
- Multi-tenancy support through to allows each tenant's data to be stored independently.



Grafana Loki Installation

- wget

```
https://raw.githubusercontent.com/grafana/loki/v3.0.0/  
production/docker-compose.yaml -O docker-  
compose.yaml
```



Get started with Grafana Cloud

- To sign up for a Grafana Cloud account, complete the following steps:
 - Navigate to <https://grafana.com/products/cloud/>.
 - Click Start for free on the banner.
 - Follow the instructions to finish setting up your account and access the Cloud Account Portal.



Get started with Grafana Cloud

Home > Connections > Add new connection

You have uncapped usage until June 23, 2024. Upgrade plans to continue using Grafana Cloud with unlimited, pay-as-you-go usage. [Upgrade now](#)

Add new connection

Browse and create new connections

Search connections

View all All Sort by A-Z

Linux Server Integration	Hosted Prometheus metrics Custom data	AWS Cloud app
InfluxDB Data source	HTTP Metrics Custom data	Kubernetes Monitoring Cloud app
MySQL Integration	macOS Integration	Synthetic Monitoring Cloud app

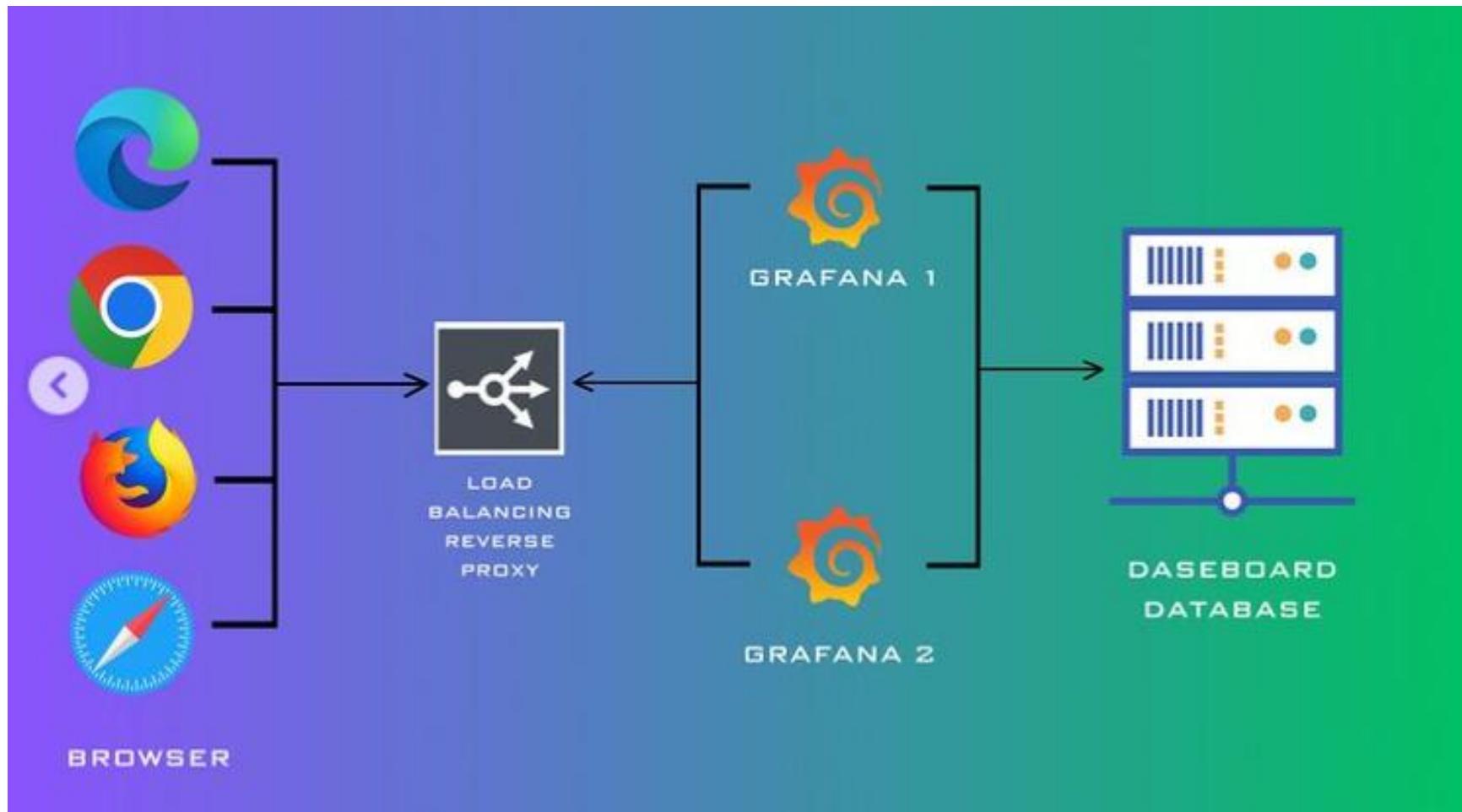


Get started with Grafana Cloud

The screenshot shows the Grafana Cloud home interface. On the left is a dark sidebar with navigation links: Home, Starred, Dashboards, Explore, Alerts & IRM, Testing & synthetics, Infrastructure, Application, Frontend, Connections (with sub-links: Add new connection, Collector, Data sources, Integrations, Private data source connect), Apps, and Administration. The main area has a dark background with a "Good evening." greeting at the top. It features a "Dashboards" section with three cards: "Demo Data" (green), "Account Usage" (blue), and "Sandbox Account" (purple). Below this is an "Account" section with cards for "Account plan" (Trial, 14 days left), "Active users" (0), "Docs", and "Support". A search bar at the top center says "Search or jump to..." and includes a keyboard shortcut "ctrl+k". A "Get started" button is visible in the top right of the main content area.

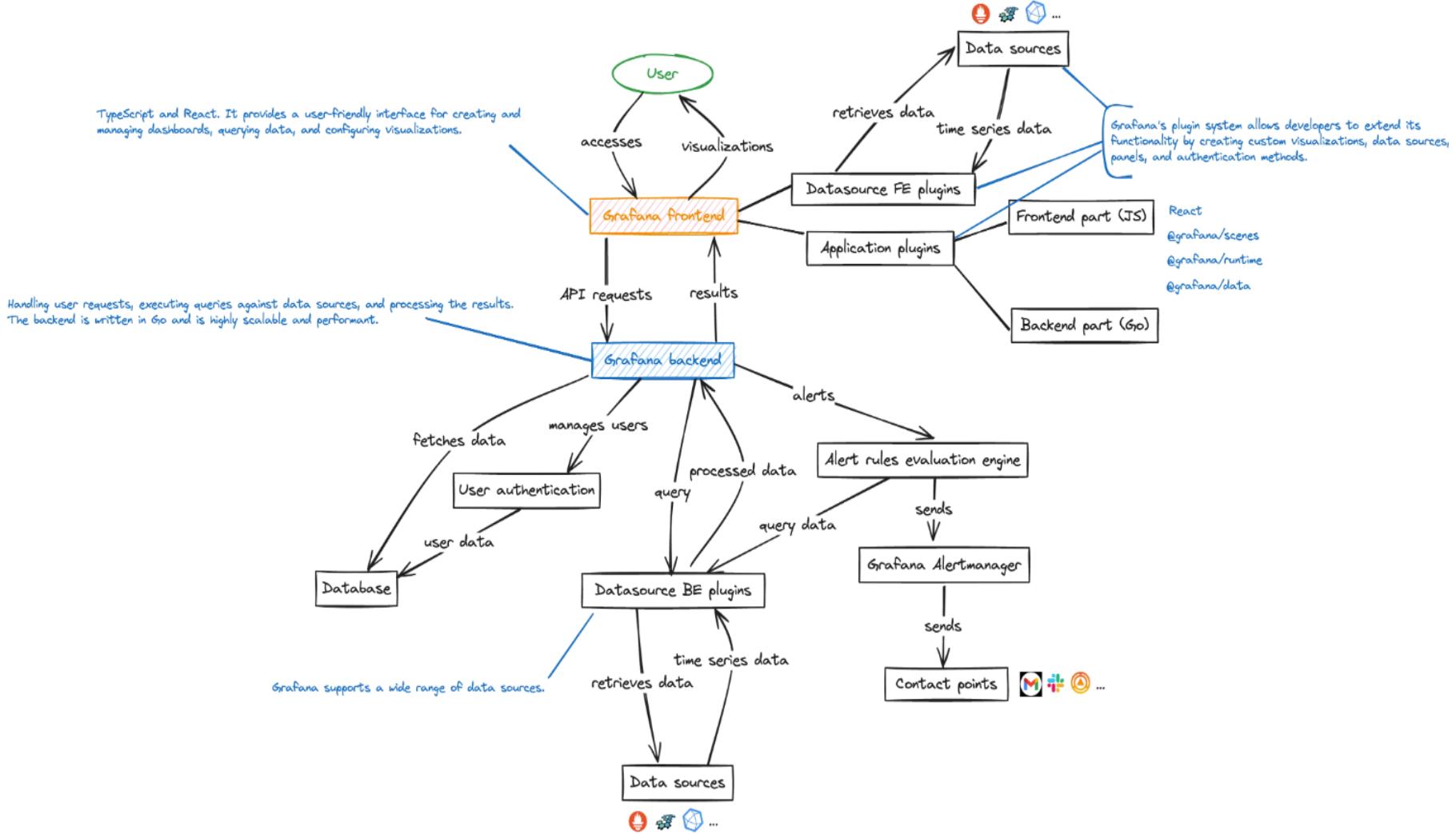


How Grafana Works





Grafana Architecture





Grafana Prometheus Connection

Screenshot of the Grafana interface showing the Prometheus connection configuration.

The top navigation bar includes links for Prometheus, Alerts, Graph, Status, and Help, along with a search bar and a dashboard switcher.

Targets

Filter by endpoint or labels:

Status filters: Unknown Unhealthy Healthy

Endpoint	State	Labels	Last Scrape	Scrape Duration	Error
http://host.docker.internal:8082/metrics	UP	instance="host.docker.internal:8082" job="customer-api"	2.115s ago	42.374ms	

customer-api (1/1 up) [show less](#)

Endpoint	State	Labels	Last Scrape	Scrape Duration	Error
http://node-exporter:9100/metrics	UP	instance="node-exporter:9100" job="node"	10.675s ago	77.367ms	

node (1/1 up) [show less](#)

Endpoint	State	Labels	Last Scrape	Scrape Duration	Error
http://localhost:9090/metrics	UP	instance="localhost:9090" job="prometheus"	902.000ms ago	16.973ms	

prometheus (1/1 up) [show less](#)

Endpoint	State	Labels	Last Scrape	Scrape Duration	Error
http://localhost:9090/metrics	UP	instance="localhost:9090" job="prometheus"	902.000ms ago	16.973ms	



Grafana MSSQL Connection

Screenshot of the Grafana interface showing the configuration of a Microsoft SQL Server data source named "mssql".

The left sidebar shows the navigation path: Home > Connections > Data sources > mssql. The "Data sources" option is highlighted with an orange bar.

The main panel displays the "mssql" connection settings:

- Name:** mssql
- Type:** Microsoft SQL Server
- Alerting:** Supported
- Explore data** and **Build a dashboard** buttons are visible.

The "Settings" tab is active. Below it, a note states: "Before you can use the Microsoft SQL Server data source, you must configure it below or in the config file. For detailed instructions, [view the documentation](#)".

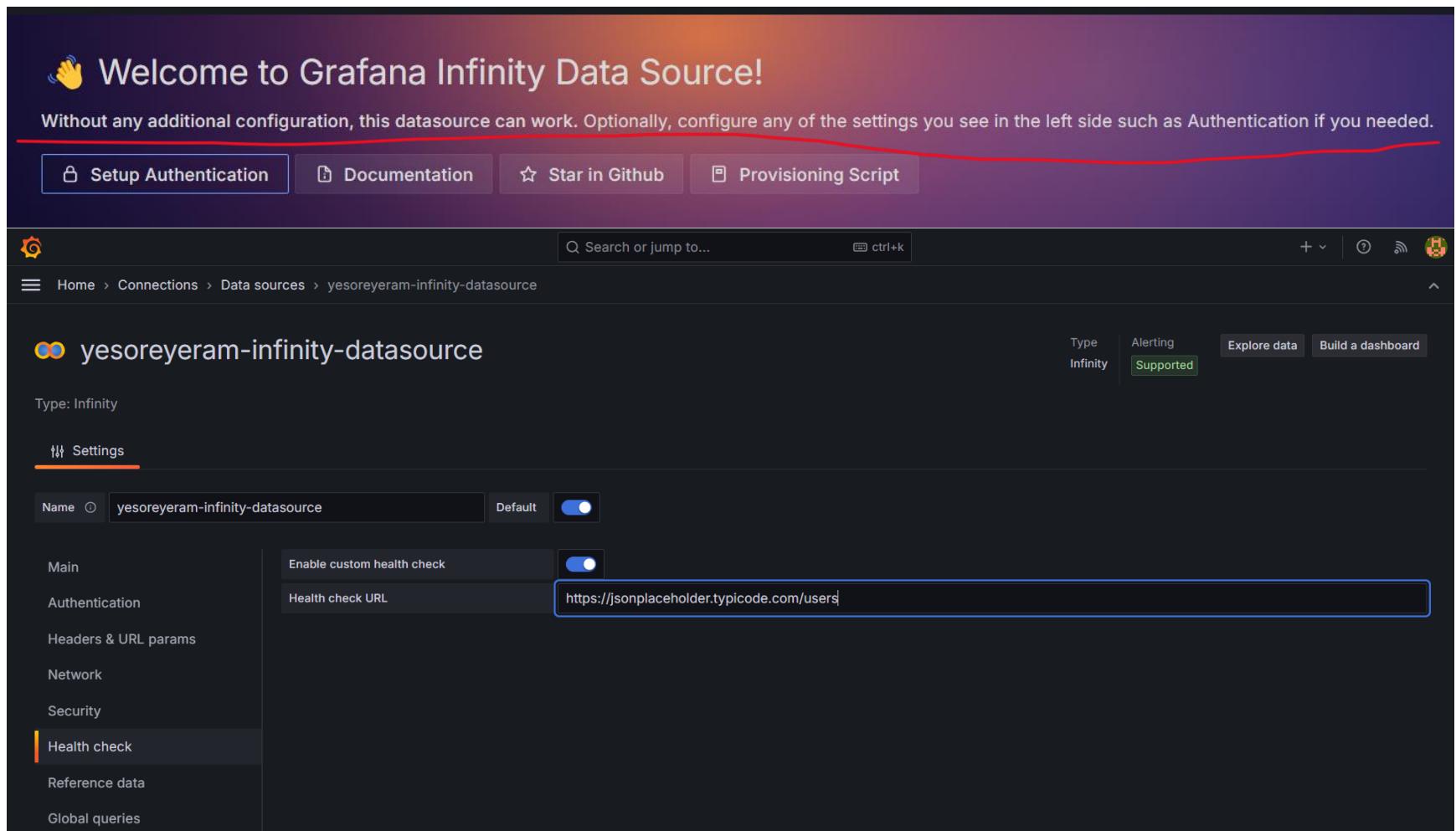
A callout box highlights the "User Permission" section, which contains the following text:

The database user should only be granted SELECT permissions on the specified database and tables you want to query. Grafana does not validate that queries are safe so queries can contain any SQL statement. For example, statements like `USE otherdb;` and `DROP TABLE user;` would be executed. To protect against this we *highly* recommend you create a specific MS SQL user with restricted permissions. Check out the Microsoft SQL Server Data Source Docs for more information.



Grafana Infinity DB – AI/LLM Native DB– JSON Data

- No need to create container.
- Just add infinity db plugin and create data source.



Welcome to Grafana Infinity Data Source!

Without any additional configuration, this datasource can work. Optionally, configure any of the settings you see in the left side such as Authentication if you needed.

Setup Authentication Documentation Star in Github Provisioning Script

Home > Connections > Data sources > yesoreyeram-infinity-datasource

yesoreyeram-infinity-datasource

Type: Infinity Alerting Supported

Name: yesoreyeram-infinity-datasource Default

Main

Authentication

Headers & URL params

Network

Security

Health check

Reference data

Global queries

Enable custom health check

Health check URL: https://jsonplaceholder.typicode.com/users

Explore data Build a dashboard

A screenshot of the Grafana interface showing the configuration for a "yesoreyeram-infinity-datasource". The top navigation bar includes links for "Setup Authentication", "Documentation", "Star in Github", and "Provisioning Script". Below the header, a message states: "Without any additional configuration, this datasource can work. Optionally, configure any of the settings you see in the left side such as Authentication if you needed." The main content area shows the data source configuration with tabs for "Type" (set to "Infinity") and "Alerting" (set to "Supported"). The "Name" field is set to "yesoreyeram-infinity-datasource" and has a "Default" button. On the left, a sidebar lists categories: Main, Authentication, Headers & URL params, Network, Security, Health check (which is selected), Reference data, and Global queries. Under "Health check", there is a section for "Enable custom health check" with a toggle switch and a "Health check URL" input field containing the value "https://jsonplaceholder.typicode.com/users". At the bottom right, there are buttons for "Explore data" and "Build a dashboard".



Grafana Infinity DB - CSV

Search or jump to... ctrl+k

Home > Dashboards > New dashboard > Edit panel

Table view Fill Actual Last 6 hours Q ↻

Panel Title

0	2	3	10	8370	1000001	P00069042
0	2	1	10	15200	1000001	P00248942
0	2	12	10	1422	1000001	P00087842
0	2	12	10	1057	1000001	P00085442
0	4+	8	16	7969	1000002	P00285442
0	3	1	15	15227	1000003	P00193542

Query 1 Transform data 0

Type CSV Parser Try backend parser! Default Source URL

Format Table Help Github

Method GET URL <https://raw.githubusercontent.com/eswaribala/rpsgrafanajun2024/master/walmart.csv>

localhost:3000



Grafana Infinity DB - XML

Home > Dashboards > Infinitydb CSV > Edit panel

Table view Fill Actual

Panel Title

Artist	Company	Country	Price	Title	Year
Bob Dylan	Columbia	USA	10.90	Empire Burlesque	1985
Bonnie Tyler	CBS Records	UK	9.90	Hide your heart	1988
Dolly Parton	RCA	USA	9.90	Greatest Hits	1982
Gary Moore	Virgin records	UK	10.20	Still got the blues	1990
Eros Ramazzotti	BMG	EU	9.90	Eros	1997

Query 1 Transform data 0

Type: XML Parser: Backend Source: URL Format: Table

Help Github

Method: GET URL: <https://gist.githubusercontent.com/yesoreyeram/655a362eed0f51be24e16d3f1127a31d/raw/aa5852>



Grafana Infinity DB - XML

Headers, Request params

Parsing options & Result fields Field types and alias

Rows/Root - *optional*

CATALOG.CD

Columns - *optional*

Selector	ARTIST	as	Artist	format as	String	▼	
Selector	COMPANY	as	Company	format as	String	▼	
Selector	COUNTRY	as	Country	format as	String	▼	
Selector	PRICE	as	Price	format as	String	▼	
Selector	TITLE	as	Title	format as	String	▼	
Selector	YEAR	as	Year	format as	String	▼	



Grafana Infinity DB - XML



Search or jump to... ctrl+k

Home > Dashboards > Infinitydb CSV > Edit panel

Table view

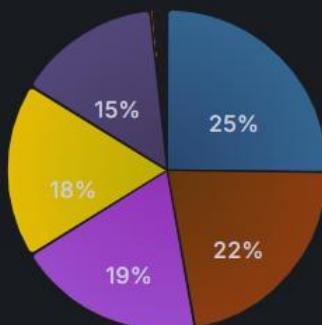
Fill

Actual

Last 6 hours



Panel Title



Query 1

Transform data 0

Data source

yesoreyeram-infinity-datasouli



Query options

MD = auto = 1060

Interval = 20s

Query inspector

A

(yesoreyeram-infinity-datasource)





Grafana Infinity DB - XML



Q Search or jump to... ctrl+k

Home > Dashboards > Infinitydb CSV > Edit panel

Table view

Fill

Actual

Last 6 hours



Panel Title



Query 1

Transform data 0

Data source

yesoreyeram-infinity-datasour



Query options

MD = auto = 1060 Interval = 20s

Query inspector



A

(yesoreyeram-infinity-datasource)



Type JSON

Parser Try backend!

Default

Source URL



Grafana Infinity DB - Graphql

Home > Dashboards > New dashboard > Edit panel

ctrl+k + Back to dashboard Discard panel Save dashboard

Table view Last 6 hours Refresh

A data A extensions

```
{"vehicles": [{"registrationNo": "TN-23-098978"}, {"registrationNo": "TN-23-098979"}], "tracing": {"duration": 7649800, "endTime": "2025-08-19T16:08:43.36497Z"}}
```

Queries 1 Transformations 0 Alert 0

Data source yesoreyeram-infinity-datasource Query options MD = auto = 500 Interval = 30s Query inspector

(yesoreyeram-infinity-datasource)

Type GraphQL Parser JSONNata Source URL Format Table

Help Github

Method POST URL http://host.docker.internal:7078/graphq

Visualization Table

Panel options Title New panel Description

Transparent background

Panel links

Repeat options

Table Show table header Cell height



Amazon CloudWatch

- Amazon CloudWatch is a **monitoring and observability service** for AWS resources, applications, and services running on AWS and on-premises. It helps you collect and track:
- **Metrics** (e.g., CPU utilization, memory, custom app metrics)
- **Logs** (application logs, server logs, Lambda logs)
- **Events** (state changes in AWS resources)
- **Alarms** (trigger notifications or automated actions when thresholds are crossed)



Key Features

- **Metrics Monitoring**
 - Predefined AWS metrics (EC2 CPU, RDS connections, S3 bucket size, etc.)
 - Custom application metrics (via API/SDK/CloudWatch Agent)
- **Logs Collection**
 - Store, search, and analyze logs (EC2, Lambda, ECS, Kubernetes, etc.)
 - Integrates with **CloudWatch Logs Insights** for querying logs.
- **Alarms & Notifications**
 - Trigger Amazon SNS, Auto Scaling, or custom actions when thresholds are breached.
- **Events**
 - React to AWS resource changes (like EC2 instance state changes) using **EventBridge**.
- **Dashboards**
 - Create real-time visualizations of metrics/logs for observability.



Common Use Cases

- Monitor **EC2 instance health** (CPU, Disk, Network).
- Collect **application logs** from ECS/EKS or Lambda.
- Trigger alarms for **high memory/CPU usage**.
- Automate scaling (Auto Scaling groups with CloudWatch alarms).
- Security monitoring (track unauthorized access patterns).



Getting Started

- **Enable CloudWatch** (by default active in AWS accounts).
- **Install CloudWatch Agent** on EC2/servers for detailed system-level metrics.
- **Push logs/metrics** from applications (via AWS SDK/CloudWatch API).
- **Set alarms** (e.g., alert if CPU > 80%).
- **Create dashboards** to visualize key metrics.



Amazon Cloud Watch as Data Source

cloudwatch

Type: CloudWatch

Settings Dashboards

Name: cloudwatch Default: On

Connection Details

Authentication Provider	Access & secret key
Access Key ID	Configured
Secret Access Key	Configured
Assume Role ARN	arn:aws:iam:*
External ID	External ID
Endpoint	https:// <code>{service}.{region}.amazonaws.com</code>
Default Region	us-east-1



Amazon Cloud Watch as Data Source

CloudWatch Logs

Query Result Timeout ⓘ 30m

Default Log Groups ⓘ Select log groups

X-ray trace link

Grafana will automatically create a link to a trace in X-ray data source if logs contain @xrayTraceld field

ⓘ There is no X-ray datasource to link to. First add an X-ray data source and then link it to Cloud Watch.

Data source ⓘ Select data source ▾

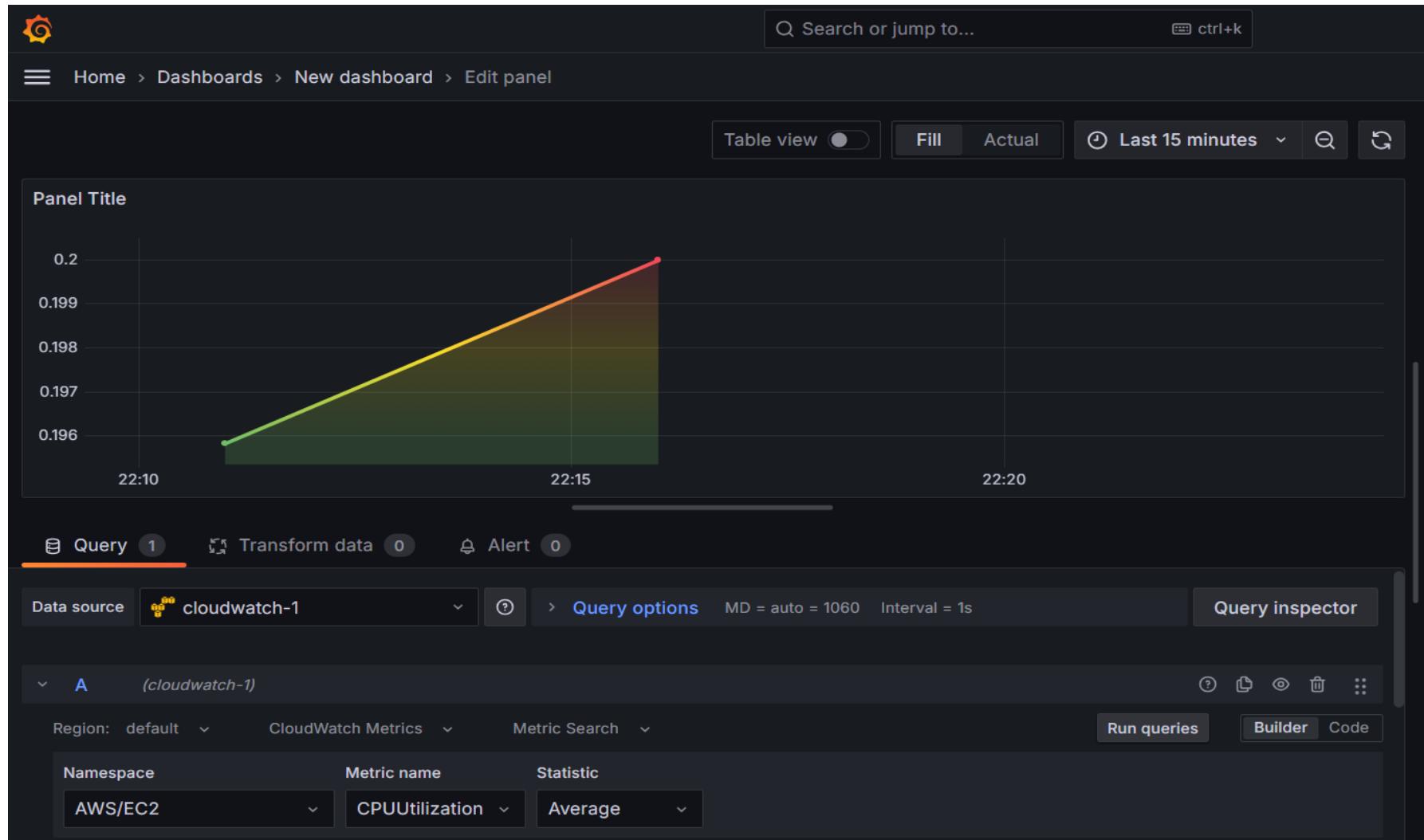
✓ 1. Successfully queried the CloudWatch metrics API. 2. Successfully queried the CloudWatch logs API.

Next, you can start to visualize data by [building a dashboard](#), or by querying data in the [Explore view](#).

Delete Save & test



Amazon Cloud Watch as Data Source





Amazon Cloud Watch as Data Source

Query 1 Transform data 0 Alert 0

Data source cloudwatch-1 [?](#) [Query options](#) MD = auto = 1060 Interval = 1s [Query inspector](#)

A (cloudwatch-1) [?](#) [D](#) [O](#) [W](#) [C](#) [M](#)

Region: default CloudWatch Metrics Metric Search [Run queries](#) [Builder](#) [Code](#)

Namespace	Metric name	Statistic
AWS/EC2	CPUUtilization	Average

Dimensions Match exact - optional [?](#)

InstanceId = i-0bd5964823efb9e15 [X](#) [+](#)



Grafana Elastic Search

Home > Connections > Data sources > elasticsearch

Type: Elasticsearch

Settings

Name ⓘ elasticsearch Default

Before you can use the Elasticsearch data source, you must configure it below or in the config file. [P](#)

Connection

URL *



Grafana Elastic Search Cloud

Download password while creating. Go to Applications ? Reset password

The screenshot shows the Grafana Elastic Search Cloud interface. The top navigation bar includes the elastic logo, a trial status (Trial - 14 days left), and user profile icons. The main navigation menu on the left lists Cloud, Hosted deployments, GrafanaElasticDeployment, Hosted deployments (selected), GrafanaElasticDeployment, and various management sections like Monitoring, Logs and metrics, Performance, Elasticsearch, Snapshots, Access and security, Network security, Trust management, Extensions, and Organization.

The central content area displays the details for the "GrafanaElasticDeployment". It includes fields for Deployment name (GrafanaElasticDeployment), Connection alias (grafanaelasticdeployment), Deployment version (v9.1.2), and a large yellow button labeled "Update autoscaling settings".

A red oval highlights the "Applications" section, which lists Elasticsearch, Kibana, APM, and Fleet components, each with "Copy endpoint" and "Copy cluster ID" buttons. Below this is a "Tags" section with an "Add tags" button.

To the right, there is a "Cloud ID" field containing a long string of characters: `GrafanaElasticDeployment:dxXMtZWFzdC0yLmF3cy5lbGFzdG1jLWNsb3VkLmNvbT0ONDmkNTc4ZmZmYWVjNTFjNGI3NTkwZjU2NzI4OWV1MjBLZjUkYzZmMDkzM2U0MGlwNDM5ND1jYjUxZGMzNTlhYjg4OTI=`, with a copy/paste icon next to it.



Grafana Elastic Search Cloud - Test

Download password while creating

← → ⌂ ⌂ grafanaelasticdeployment.es.us-east-2.aws.elastic-cloud.com

Insert title here 3 Empire G New Tab H How to use Assertio... 🎯 Browser Automatio... 📈 node.js - How can I...

pretty-print □

```
"name" : "instance-0000000001",
"cluster_name" : "b2f74315908a49c48c2a2cd56bd7b729",
"cluster_uuid" : "dUuVJiCoTZ-EMIC-UjXj7w",
"version" : {
    "number" : "9.1.2",
    "build_flavor" : "default",
    "build_type" : "docker",
    "build_hash" : "ca1a70216fbdefbef3c65b1dff04903ea5964ef5",
    "build_date" : "2025-08-11T15:04:41.449624592Z",
    "build_snapshot" : false,
    "lucene_version" : "10.2.2",
    "minimum_wire_compatibility_version" : "8.19.0",
    "minimum_index_compatibility_version" : "8.0.0"
},
"tagline" : "You Know, for Search"
```



Grafana Elastic Search Cloud

Home > Connections > Data sources > elasticsearch

Connection

URL *

Authentication

Authentication methods

Choose an authentication method to access the data source

Authentication method

Basic authentication

User *

Password * Reset



Grafana Elastic Search

Home > Connections > Data sources > elasticsearch

Specific settings for the Elasticsearch data source. [Learn more about Elasticsearch details](#)

Index name	<input type="text" value="orders"/>
Pattern	<input type="text" value="No pattern"/>
Time field name	<input type="text" value="purchased_at"/>
Max concurrent Shard Requests	<input type="text" value="5"/>
Min time interval	<input type="text" value="10s"/>
X-Pack enabled	<input checked="" type="checkbox"/>

Logs
Configure which fields the data source uses for log messages and log levels. [Learn more about Elasticsearch log fields](#)

Message field name	<input type="text" value="_source"/>
Level field name	<input type="text"/>

Data links
Add links to existing fields. Links will be shown in log row details next to the field value. [Learn more about Elasticsearch data links](#)

+ Add

✓ Data source successfully connected.

Next, you can start to visualize data by [building a dashboard](#), or by querying data in the [Explore view](#).



Grafana Elastic Search with Top10

Top 10

Graphite has the limit function.
InfluxDB has the limit and slimit functions
ElasticSearch has the Size option:

Saved search: Top 10 status.keyword to... ctrl+k

Table view Fill Actual < ⏰ 2016-01-01 00:00:00 to 2016-12-31 23:59:59 > Q

Panel Title

	Count
status.keyword	
processed	209
pending	199
confirmed	192

Query 1 Transform data 0

Data source: elasticsearch | Query options: MD = auto = 1261 | Interval = 6h | Query inspector

A (elasticsearch)

Query type: Metrics | Logs | Raw Data | Raw Document

Lucene Query: Enter a lucene query

Metric (1): Count | +

Group By: Terms | status.keyword | Top 10, Min Doc Count: 1, Order by: Term value | +



Grafana Elastic Search with Top10

Search or jump to... ctrl+k

Home > Dashboards > Order Dashboard > Edit panel

Table view Fill Actual < ⌚ 2016-01-01 00:00:00 to 2016-12-31 23:59:59 > Q ↻

Panel Title

salesman.name.keyword	Sum
Meghan Dumini	282
Agnesse Korbmaker	273
Etta Rowswell	261
Ardene Lipmann	260

Query 1 Transform data 0

Metric (1) Sum total_amount > Options +

Group By Terms salesman.name.keyword ▼ Top 10, Min Doc Count: 1, Order by: Sum total_amount +

Order Top ▼

Size 10 ▼

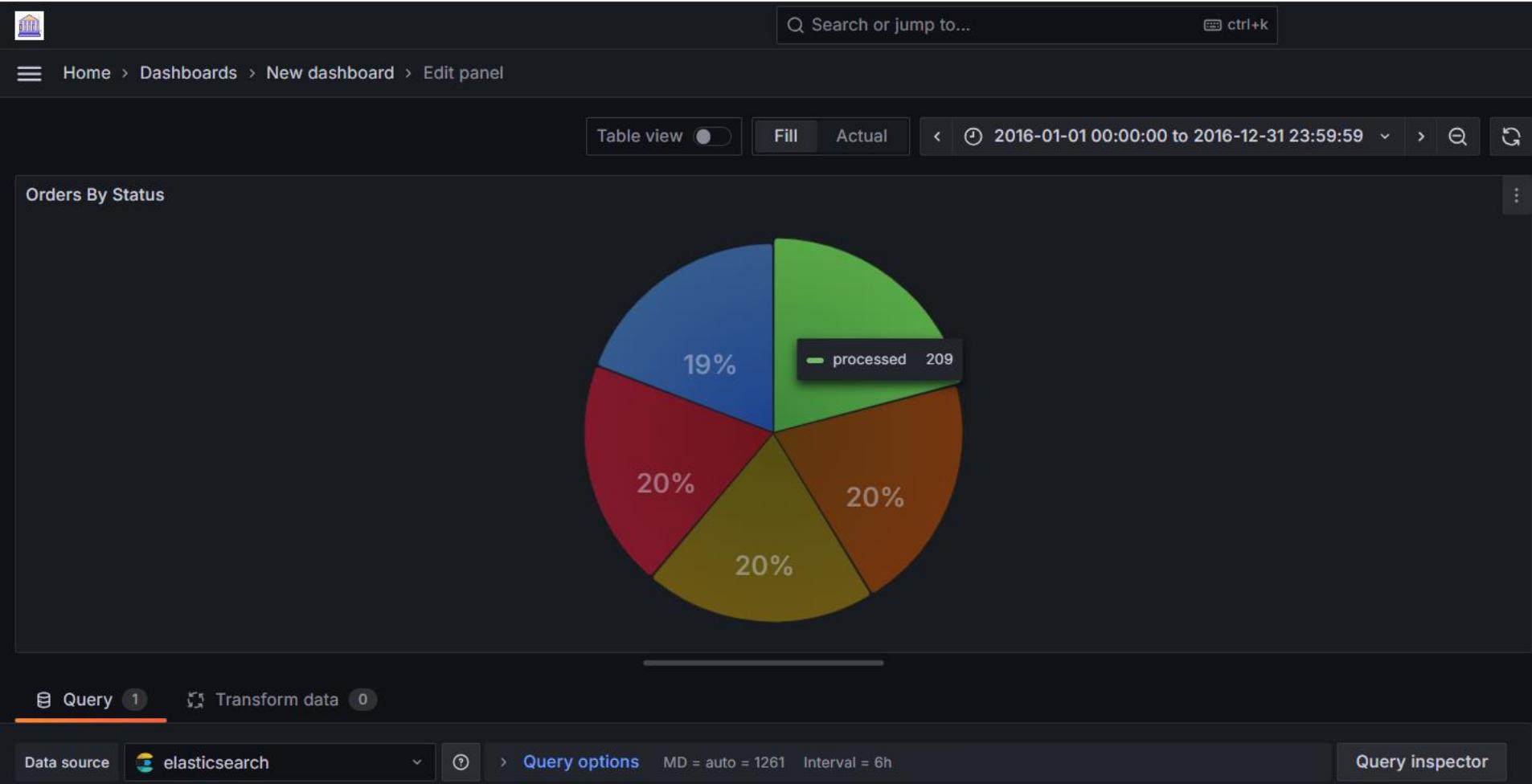
Min Doc Count

Order By Sum total_amount ▼

Missing



Grafana Elastic Search





Graphite

- **What is Graphite?**
- Graphite is a **time-series monitoring tool** that lets you:
- Collect metrics (from apps, servers, containers...).
- Store them in a time-series DB (Whisper).
- Visualize them in dashboards and graphs (Graphite-Web, or Grafana).
- It's one of the **older but still widely used** observability stacks.



Graphite

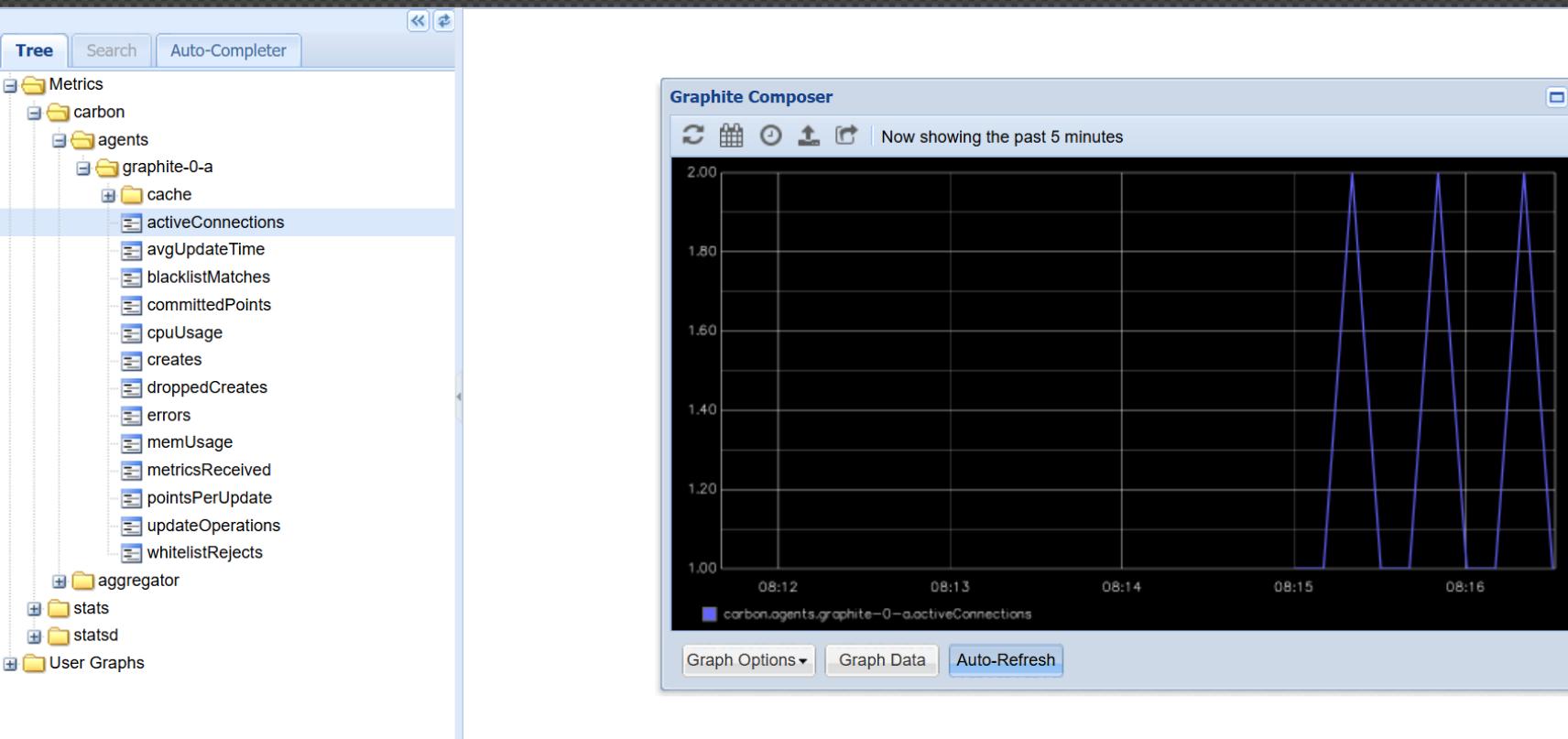
- **What is Graphite?**
- Graphite is an open-source monitoring tool designed for collecting, storing, and graphing real-time numeric time-series data. Its core components are:
- **Carbon**: a daemon that receives time-series data via protocols like StatsD or Graphite plaintext.
- **Whisper**: a lightweight, round-robin database optimized for storing time-series data.
- **Graphite webapp**: a Django-based front-end (using Cairo for rendering) that generates graphs on demand.



Graphite



Documentation Dashboard Events Login





Dashboard Playlists

- A playlist is a list of dashboards that are displayed in a sequence.
- We might use a playlist to build situational awareness or to present your metrics to our team or visitors.
- Grafana automatically scales dashboards to any resolution, which makes them perfect for big screens.
- We can access the Playlist feature from Grafana's side menu, in the Dashboards submenu.



Dashboard Playlists

New playlist

A playlist rotates through a pre-selected list of dashboards. A playlist can be a great way to build situational awareness, or just show off your metrics to your team or visitors.

Name

Team Demo

Interval

2s

Dashboards

Walmart Data

x ::

User DashBoard

x ::

Infinitydb CSV

x ::

MS SQL DASHBOARD

x ::

Elastic Order Index Dashboard

x ::

Add dashboards

Add by title

Select dashboard

Add by URL



Dashboard Playlists

Search or jump to... ctrl+k

Home > Dashboards > Playlists

Playlists

Groups of dashboards that are displayed in a sequence

Search by name or type

Team Demo

Start playlist Edit playlist Delete playlist Start Team Demo

Start playlist

Mode

Normal TV Kiosk

Autofit
Panel heights will be adjusted to fit screen size

X



Dashboard Playlists

Panel Title

Panel Title

Panel Title



Create and manage reports

- Reporting enables you to automatically generate PDFs from any of your dashboards and have Grafana email them to interested parties on a schedule.
- This is available in Grafana Cloud and in Grafana Enterprise.



Create and manage reports

The screenshot shows a web browser window with the URL eswaribala70.grafana.net/a/cloud-home-app. The browser's address bar and tab bar are visible at the top. The main content area displays the Grafana interface. On the left, a sidebar menu is open, showing various navigation options. A red oval highlights the 'Reports' link under the 'Public dashboards' section. The main dashboard area shows a large text 'evening.' and a list of dashboards with filters for 'Recent', 'Starred', and 'Explore'.

- Home
- Starred
- Dashboards
 - Playlists
 - Snapshots
 - Library panels
 - Public dashboards
 - Reporting
 - Reports**
 - Settings
 - Explore
- Alerts & IRM
- Testing & synthetics
- Infrastructure
- Application



Create and manage reports



Search or jump to... ctrl+k

Home > Dashboards > Reporting > Reports > New report

New report

1 Select dashboard — 2 Format report — 3 Schedule — 4 Share — 5 Confirm

1. Select dashboard

Source dashboard *

General/Infinity User Dashboard x v

[View dashboard](#)

Time range

Generate report with the data from specified time range. If custom time range is empty the time range from the report's dashboard is used.

Last 15 minutes x v

[+ Add another dashboard](#)

[Next: Format report](#)



Create and manage reports

1 / 1 | - 100% + | ⬆️ ⚡

Generated on Tuesday, Jun 11 2024

Data timerange: 2024-06-11 10:23:41 +0000
to 2024-06-11 16:23:41 +0000

Infinity User Dashboard 1/1

User Panel					
	age	country	name	occupation	salary
	38	USA	Leanne Graham	Devops Engineer	3000
	27	USA	Ervin Howell	Software Engineer	2300
	17	Canada	Clementine Bauch	Student	null
	42	UK	Patricia Lebsack	Software Engineer	2800
	38	USA	Leanne Bell	Senior Software Engineer	4000
	32	USA	Chelsey Dietrich	Software Engineer	3500



Create and manage reports

User Report ➔ Inbox x



 Grafana <grafana@eswaribala70.grafana.net>
to me ▾

🕒 9:56 PM (0 minutes ago) ☆ 😊 ↶ ⋮



Hi,

Please find attached a PDF status report. If you have any questions, feel free to contact me!
Best,

[View dashboards in Grafana](#)

[Infinity User Dashboard](#)

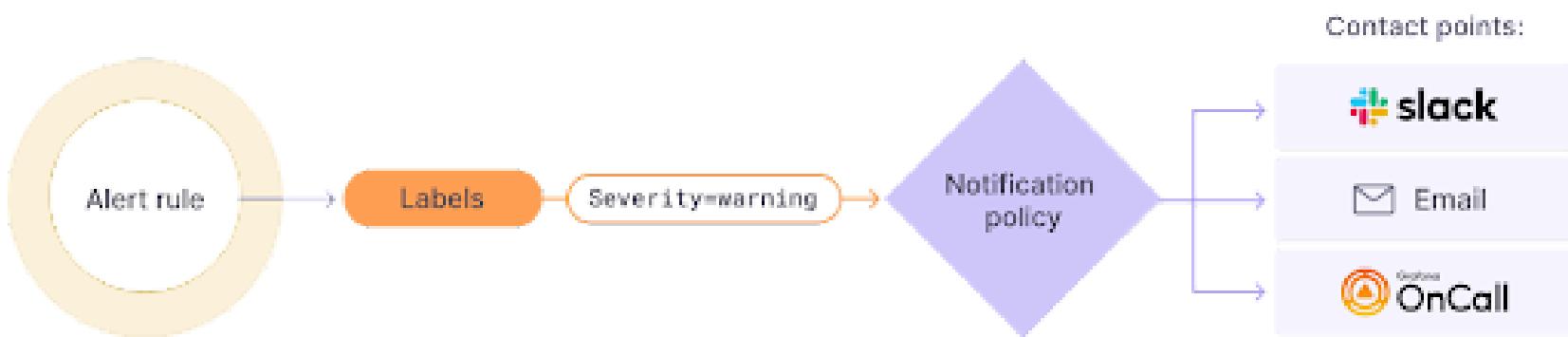


Grafana Alerting

- Grafana Alerting typically allows us to learn or understand the problems in our system, just a few moments after they occur.
- Enabling us to create, manage, and act on our alerts in a single, consolidated view, and overall improve our team's ability to identify and resolve issues as fast as possible.
- It is available for Grafana OSS, Grafana Enterprise, or Grafana Cloud.



How do Grafana alert works





How do Grafana alert works

Home > Alerting > Alert rules

Alert rules

Rules that determine whether an alert will fire

Search by data sources Dashboard State Rule type Health

Search View as

3 rules 1 firing 2 normal

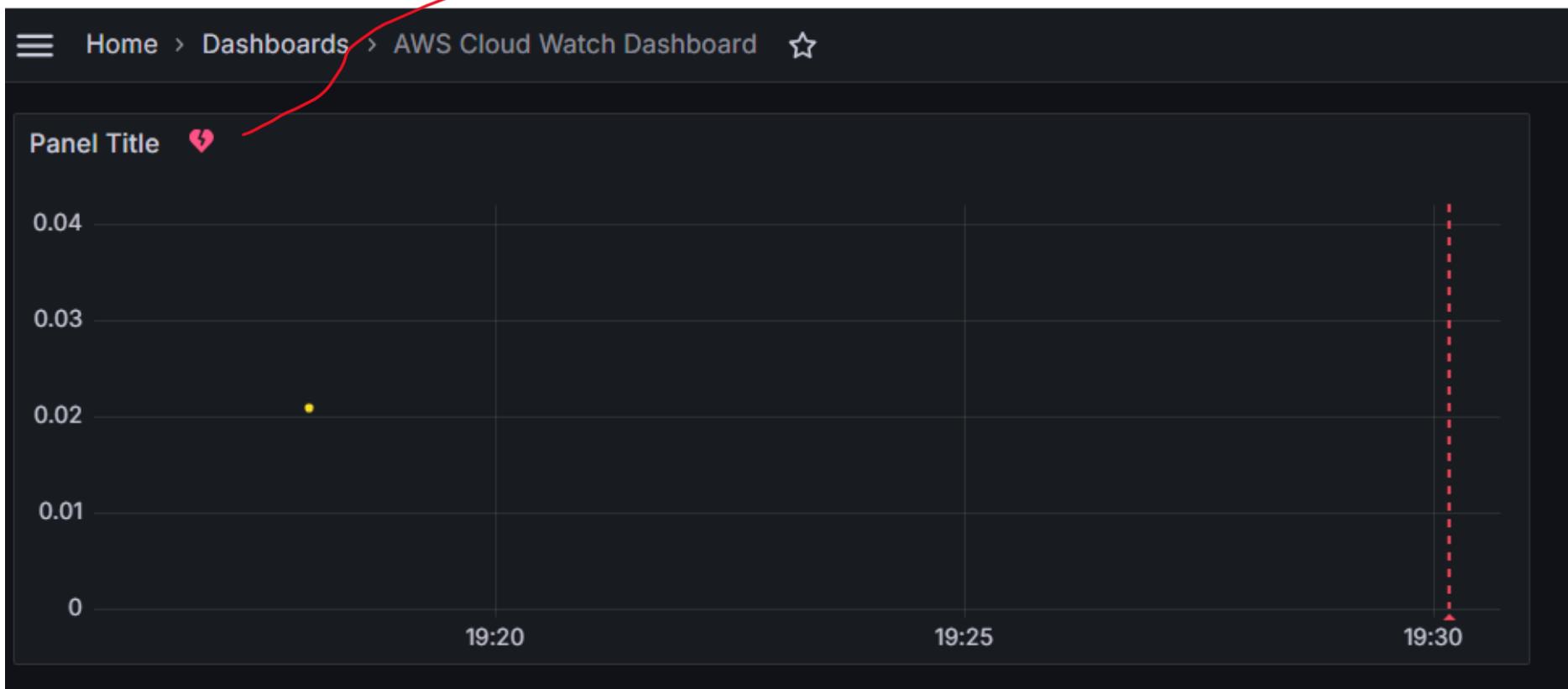
Grafana

ElasticAlert > alertevalgroup

State	Name	Health	Summary	Next evaluation	Actions
Normal	Elastic Order Alert	ok		within 5 minutes	<input type="button" value="More"/>
<input type="button" value="Silence"/> <input type="button" value="Show state history"/>					
Evaluate	Every 5m	Data source mssql			
Pending period	5m				
Matching instances	<input type="button" value="State"/> <input type="button" value="Labels"/>	Created			



How do Grafana alert works (Only Time Series)





How do Grafana alert works

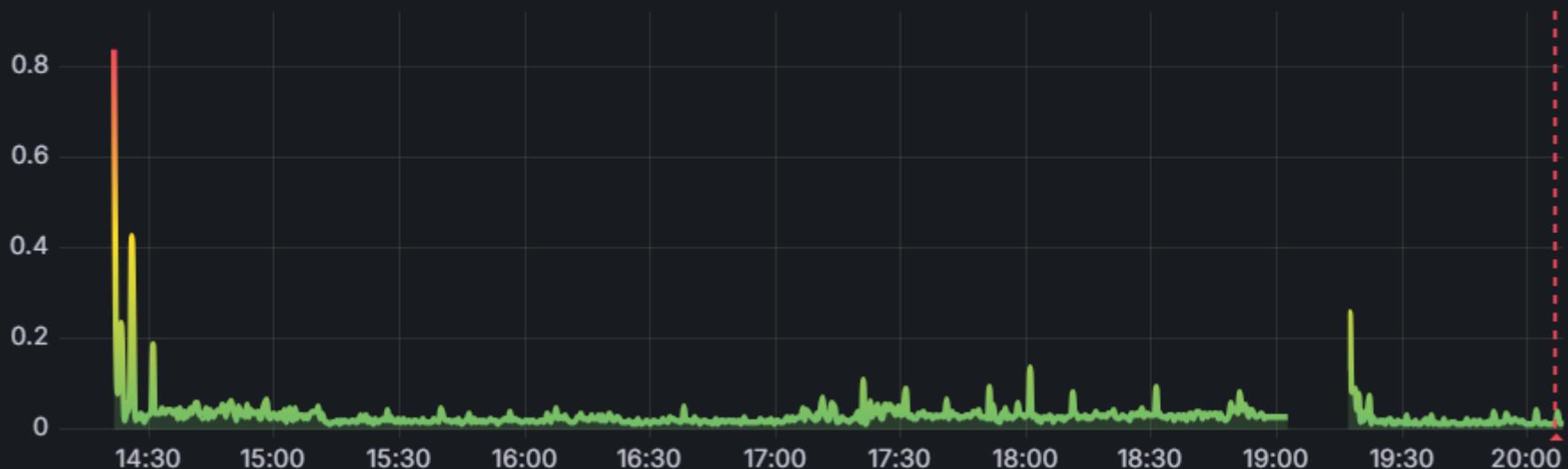
☰ Home > Dashboards > Prometheus Dashboard ☆





How do Grafana alert works

CPU Usage 💔





Grafana OAuth

- There are numerous authentication methods available in Grafana to verify user identity.
- The authentication configuration dictates which users can access Grafana and the methods they can use for logging in.
- We can also configure Grafana to automatically update users' roles and team memberships in Grafana based on the information returned by the auth provider integration.
- When deciding on an authentication method, it's important to take account your current identity and access management system.
- We should also consider the specific authentication and authorization features you require.



Grafana OAuth

- Grafana provides OAuth2 integrations for the following auth providers:
 - Azure AD OAuth
 - GitHub OAuth
 - GitLab OAuth
 - Google OAuth
 - Grafana Com OAuth
 - Keycloak OAuth
 - Okta OAuth



Grafana GITHUB OAuth2 Authentication

Administrator: Command Prompt - docker exec -it 05122875766b /bin/bash

```
build          gazetteer      maps      test
05122875766b:/usr/share/grafana/public$ cd ..
05122875766b:/usr/share/grafana$ cd /etc/grafana
05122875766b:/etc/grafana$ ls
grafana.ini  ldap.toml    provisioning
05122875766b:/etc/grafana$ ■
```



Grafana GITHUB OAuth2 Authentication

prometheus_intel-grafana-1
grafana/grafana-enterprise
05122875766b ⏺
[3000:3000](#) ↗

STATUS
Running (2 minutes ago) ⏺ ⏹ ⏵ ⏷ ⏸

Logs Inspect Bind mounts Exec **Files** Stats Hide file editor

Name	Note	Size	Last modified	Mode
istan	MODIFIED	0 Bytes	2 months ago	-rwxr-xr--
grafana	MODIFIED	81.6 kB	3 minutes ago	drwxr-xr-x
grafana.ini				-rw-r--r--
ldap.toml		2.9 kB	1 month ago	-rw-r--r--
provisioning			1 month ago	drwxrwxrwx
group		705 Bytes	1 month ago	-rw-r--r--
group-		697 Bytes	9 months ago	-rw-r--r--
hostname		13 Bytes	2 minutes ago	-rw-r--r--

/etc/grafana/grafana.ini

```
.., [auth.github]
588 name = GitHub
589 icon = github
590 enabled = true
591 allow_sign_up = true
592 auto_login = false
593 client_id = Ov23likxKK6HsEodBzoV
594 client_secret = bc3527e13dd2b3985d5e8eb89284ca93d722a28d
595 scopes = user:email,read:org
596 auth_url = https://github.com/login/oauth/authorize
597 token_url = https://github.com/login/oauth/access_token
598 api_url = https://api.github.com/user
599 ..,
```



Grafana GITHUB OAuth2 Authentication

Welcome to Grafana

Email or username
email or username

Password
password

Log in

Forgot your password?

or

Sign in with GitHub



Azure Active Directory- Microsoft Entra ID



Pick an account



Parameswari Bala

ParameswariBala@vhebcompany.onmicrosoft.com :

Signed in



Azure Active Directory- Microsoft Entra ID

Home >

Default Directory | Overview

Add Manage tenants What's new Preview features Got feedback? Go to Microsoft Entra Connect

Overview

Preview features

Diagnose and solve problems

Manage

Monitoring

Troubleshooting + Support

Feature highlights

- Access reviews**
Make sure only the right people have continued access.
- Authentication methods**
Configure your users in the authentication methods policy to enable passwordless authentication.
- Microsoft Entra Domain Services**
Lift-and-shift legacy applications running on-premises into Azure.
- Tenant restrictions**
Specify the list of tenants that their users are permitted to access.
- Entra Permissions Management**
Continuous protection of your critical cloud resources from accidental misuse and malicious exploitation of permissions.

Quick actions

Add user Add group Add enterprise application Add application registration



Azure Active Directory- Microsoft Entra ID

Home > Default Directory | Overview >

Register an application

...

Supported account types

Who can use this application or access this API?

- Accounts in this organizational directory only (Default Directory only - Single tenant)
- Accounts in any organizational directory (Any Microsoft Entra ID tenant - Multitenant)
- Accounts in any organizational directory (Any Microsoft Entra ID tenant - Multitenant) and personal Microsoft accounts (e.g. Skype, Xbox)
- Personal Microsoft accounts only

[Help me choose...](#)

Redirect URI (optional)

We'll return the authentication response to this URI after successfully authenticating the user. Providing this now is optional and it can be changed later, but a value is required for most authentication scenarios.

Web	▼	http://localhost:3000/login/azuread	✓
-----	---	-------------------------------------	---

Register an app you're working on here. Integrate gallery apps and other apps from outside your organization by adding from [Enterprise applications](#).

By proceeding, you agree to the Microsoft Platform Policies [↗](#)

Register



Azure Active Directory- Microsoft Entra ID

Home >

GrafanaApp ⚙ ...

Search

◊ ◀



Delete



Endpoints



Preview features

Overview

Quickstart

Integration assistant

> Manage

> Support + Troubleshooting

^ Essentials

Display name : [GrafanaApp](#)

Client credentials : [Add a certificate or secret](#)

Application (client) ID : 7db80a01-c1be-425a-bbe0-68fd76dc749c

Redirect URIs : [1 web, 0 spa, 0 public client](#)

Object ID : 650769c1-4b32-46d6-9890-f96b55b57e44

Application ID URI : [Add an Application ID URI](#)

Directory (tenant) ID : 2745b938-59b0-4c23-a48e-6cccd76923450

Managed application in l... : [GrafanaApp](#)

Supported account types : [My organization only](#)

Welcome to the new and improved App registrations. Looking to learn how it's changed from App registrations (Legacy)? [Learn more](#)

X

Starting June 30th, 2020 we will no longer add any new features to Azure Active Directory Authentication Library (ADAL) and Azure Active Directory Graph. We will continue to provide technical support and security updates but we will no longer provide feature updates. Applications will need to be upgraded to Microsoft Authentication Library (MSAL) and Microsoft Graph. [Learn more](#)

X

[Get Started](#)

[Documentation](#)



Azure Active Directory- Microsoft Entra ID

Home >

i Default Directory | Overview

◊ ◀ Add Manage tenants What's new Preview features Got feedback? ▾

Overview Preview features Diagnose and solve problems Manage Monitoring Troubleshooting + Support

Search your tenant

Basic information

Name	Default Directory	Users	1
Tenant ID	2745b938-59b0-4c23-a48e-6ccd76923450	Groups	0
Primary domain	parameswarientiappanoutlook.onmicrosoft.com	Applications	6
License	Microsoft Entra ID Free	Devices	0

Alerts



Azure Active Directory- Microsoft Entra ID

```
enabled = true
allow_sign_up = true
auto_login = false
client_id = 00f79ec8-7d6e-4f93-a275-a76c4c393e5c
client_secret = db5015b0-ab60-46c8-b6a1-07a8a35430b0
scopes = openid email profile
auth_url = https://login.microsoftonline.com/2745b938-59b0-4c23-a48e-6ccd76923450/oauth2/v2.0/authorize
token_url = https://login.microsoftonline.com/2745b938-59b0-4c23-a48e-6ccd76923450/oauth2/v2.0/token
signout_redirect_url =
allowed_domains =
allowed_groups = 6b4a3b35-7ac3-4f07-9b40-e56bdae90d88
allowed_organizations = 2745b938-59b0-4c23-a48e-6ccd76923450
role_attribute_strict = false
allow_assign_grafana_admin = false
use_pkce = true
# prevent synchronizing users organization roles
```



GITLAB Setup

/etc/grafana/grafana.ini

```
609 [auth.gitlab]
610 name = GitLab
611 icon = gitlab
612 enabled = true
613 allow_sign_up = true
614 auto_login = false
615 client_id = 444592f83dd21355d12e24e9d64680d2d6ec0abf2cd4c7f4a65f45fae3cd8ed3
616 client_secret = gloas-4c406ffafe48d097440baf66aec4102084b38936e16dc55fa3d876f59ba89674
617 scopes = openid email profile
618 auth_url = https://gitlab.com/oauth/authorize
619 token_url = https://gitlab.com/oauth/token
620 api_url = https://gitlab.com/api/v4
621 signout_redirect_url =
622 oauth_allow_insecure_email_lookup = true
623 allowed_domains =
624 allowed_groups =
625 role_attribute_path =
```



GITLAB Setup

/etc/grafana/grafana.ini

```
716 [auth.generic_oauth]
717 skip_org_role_sync = true
718 ;enabled = false
719 ;name = OAuth
720 ;allow_sign_up = true
721 ;auto_login = false
722 ;client_id = some_id
723 ;client_secret = some_secret
724 ;scopes = user:email,read:org
725 ;empty_scopes = false
726 ;email_attribute_name = email:primary
727 ;email_attribute_path =
728 ;login_attribute_path =
729 ;name_attribute_path =
730 ;id_token_attribute_name =
731 ;auth_url = https://foo.bar/login/oauth/authorize
```



Dashboard Link

Dashboards

Create and manage dashboards to visualize your data

Search for dashboards and folders

Filter by tag ▾ Starred

<input type="checkbox"/>	Name	Tags
<input type="checkbox"/>	> ⚒ ElasticAlert	
<input type="checkbox"/>	> ⚒ MSSQLALERT	
<input type="checkbox"/>	> ⚒ promfolder	
<input type="checkbox"/>	⌘ AWS Cloud Watch Dashboard	
<input type="checkbox"/>	⌘ Elastic Order Index Dashboard	
<input type="checkbox"/>	⌘ Infinitydb CSV	
<input type="checkbox"/>	⌘ MS SQL DASHBOARD	
<input type="checkbox"/>	⌘ Order Dashboard	
<input type="checkbox"/>	⌘ Prometheus Dashboard	
<input type="checkbox"/>	⌘ User DashBoard	
<input type="checkbox"/>	⌘ Walmart Data	
<input type="checkbox"/>	> ⚒ ElasticAlert	
<input type="checkbox"/>	> ⚒ MSSQLALERT	

LINK



Dashboard Link

Edit link

Edit a specific link of your dashboard

Title

InfinitydbCSV

Type

Dashboards

With tags

New tag (enter key to add)

Add

InfinityDB CSV X

Options

^

- Show as dropdown
- Include current time range
- Include current template variable values
- Open link in new tab

[Back to list](#)



Panel Link for Various Time Range

Home > Dashboards > Infinitydb CSV > Edit panel

Table view Fill Actual Last 6 hours

Edit link X

Title

URL

Open in new tab

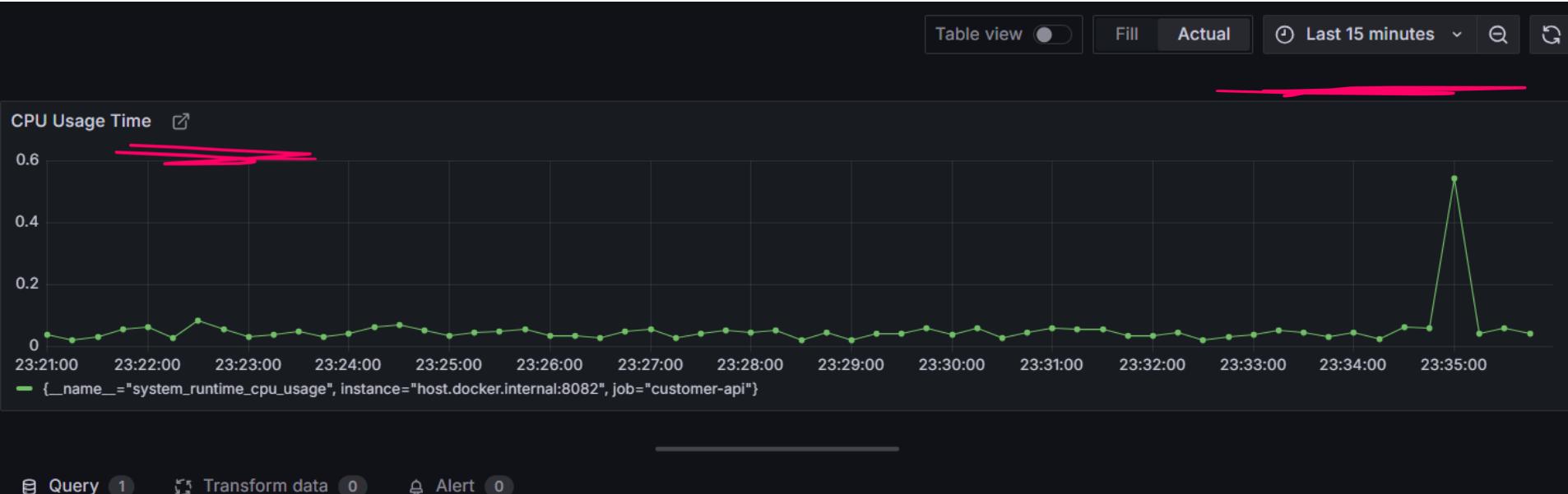
CPU Usage Time 
0.6
0.4
0.2
0
17:45 18:00 18:15 18:30 18:45 19:00 19:15 19:30
— {__name__="system_runtime_cpu_usage", instance="host.docker.internal"}

Query 1 Transform data 0 Alert 0

Data source MD = auto = 1290 Interval = 15s



Panel Link for Various Time Range





Panel Link for Various Time Range

Table view Fill Actual Last 6 hours





Image Renderer

```
Administrator: Command Prompt - docker exec -it 05122875766b /bin/bash
38da2418dce9    docker.elastic.co/elasticsearch/elasticsearch:7.17.21      "/bin/tini -- /usr/l..."   40 hours ago      Up 16 minutes
  0.0.0.0:9200->9200/tcp, 9300/tcp
3b3f6fe7b7ba    prom/statsd-exporter:latest          "/bin/statsd_exporter"   3 days ago       Up 17 minutes (healthy)
  0.0.0.0:9102->9102/tcp, 9125/tcp, 0.0.0.0:9125->9125/udp
a500b46168be    prom/alertmanager:v0.23.0           "/bin/alertmanager ..."  3 days ago       Up 17 minutes
  0.0.0.0:9093->9093/tcp
05122875766b    grafana/grafana-enterprise        "/run.sh"                 3 days ago       Up 17 minutes
  0.0.0.0:3000->3000/tcp
539c2a1f00fa    prom/prometheus                  "/bin/prometheus --c..."  3 days ago       Up 17 minutes
  0.0.0.0:9090->9090/tcp
09e7869de7e7    policyapi                      "dotnet PolicyAPI.dll"   3 days ago       Up 17 minutes
  0.0.0.0:8082->80/tcp, 0.0.0.0:53044->8080/tcp, 0.0.0.0:53045->8081/tcp
c6f4cf2196ac    mcr.microsoft.com/mssql/server     "/opt/mssql/bin/perm..."  3 days ago       Up 17 minutes
  0.0.0.0:1403->1433/tcp
```

C:\Windows\System32>docker exec -it 05122875766b /bin/bash

05122875766b:/usr/share/grafana\$ grafana-cli plugins install grafana-image-renderer

Deprecation warning: The standalone 'grafana-cli' program is deprecated and will be removed in the future. Please update all uses of 'grafana-cli' to 'grafana cli'

✓ Downloaded and extracted grafana-image-renderer v3.10.5 zip successfully to /var/lib/grafana/plugins/grafana-image-renderer

Please restart Grafana after installing or removing plugins. Refer to Grafana documentation for instructions if necessary.

05122875766b:/usr/share/grafana\$

05122875766b:/usr/share/grafana\$ grafana-cli plugins install grafana-image-renderer

Deprecation warning: The standalone 'grafana-cli' program is deprecated and will be removed in the future. Please update all uses of 'grafana-cli' to 'grafana cli'

✓ Downloaded and extracted grafana-image-renderer v3.10.5 zip successfully to /var/lib/grafana/plugins/grafana-image-renderer

Please restart Grafana after installing or removing plugins. Refer to Grafana documentation for instructions if necessary.

05122875766b:/usr/share/grafana\$





Image Renderer using docker-compose

```
version: '2'

services:
  grafana:
    image: grafana/grafana:latest
    ports:
      - '3002:3000'
    environment:
      GF_RENDERING_SERVER_URL: http://renderer:8081/render
      GF_RENDERING_CALLBACK_URL: http://grafana:3000/
      GF_LOG_FILTERS: rendering:debug
  renderer:
    image: grafana/grafana-image-renderer:latest
    ports:
      - 8081
```



Image Renderer-Grafana.ini

/etc/grafana/grafana.ini

```
1055 ##### Unified Alerting #####
1056 [unified_alerting.screenshots]
1057 capture = true
1058
1059
1060 [unified_alerting]
1061 #Enable the Unified Alerting sub-system and interface. When enabled we'll migrate all of your ale
1062 ;enabled = true
1063
1064 # Comma-separated list of organization IDs for which to disable unified alerting. Only supported
1065 ;disabled_orgs =
1066
1067 # Specify the frequency of polling for admin config changes.
1068 # The interval string is a possibly signed sequence of decimal numbers, followed by a unit suffix
1069 ;admin_config_poll_interval = 60s
1070
```

match case regexp by word



Grafana Elastic Query Variable

Home > Dashboards > Order Dashboard > Settings > OrderCriteria

OrderCriteria

Select variable type

Query

General

Name

The name of the template variable. (Max. 50 characters)

OrderCriteria

Label

Optional display name

OrderCriteria

Description

criteria values

Show on dashboard

Label and value

Value

Nothing



Grafana Elastic Query Variable

Query options

Data source

 DS_ESPRESSO-INTE ▾

Query

```
{"find":"terms","field":"salesman.name.keyword" }
```

Regex

Optional, if you want to extract part of a series name or metric node segment.
Named capture groups can be used to separate the display text and value ([see examples](#)).

```
/.*-(?<text>.*)-(?<value>.*)-.*/
```

Sort

How to sort the values of this variable

Disabled ▾

Refresh

When to update the values of this variable

On dashboard load

On time range change



Grafana Elastic Query Variable

Regex

Optional, if you want to extract part of a series name or metric node segment. Named capture groups can be used to separate the display text and value ([see examples](#)).

```
/.*-(?<text>.*)-(?<value>.*)-.*/
```

Sort

How to sort the values of this variable

Disabled

Refresh

When to update the values of this variable

On dashboard load

On time range change

Selection options

Multi-value

Enables multiple values to be selected at the same time

Include All option

Enables an option to include all variables

Preview of values

Abba Duigenan

Abe Cristofaro

Abigale Farrell

Abner Davys

Abran Soane

Ada Grimsdyke

Adams Straffon

Adara Rhymer

Adelle Challener

Alanna Martijn

Alard Ridgwell

Albie Banfill

Albie Kenrack

Aldus Peery

Alethea Fownes

Show more

Delete

Run query

Apply



Grafana Prometheus Query Variable

Show on dashboard
 Label and value Value Nothing

Query options

Data source
 prometheus

Query

Query type: Metrics
Metric regex: process

Regex
Optional, If you want to extract part of a series name or metric node segment.
Named capture groups can be used to separate the display text and value ([see examples](#)).
/.*-(?<text>.*)-(?<value>.*)-.*/

Sort
How to sort the values of this variable
 Disabled

Refresh
When to update the values of this variable
 On dashboard load On time range change

Selection options

Multi-value
Enables multiple values to be selected at the same time

Include All option
Enables an option to include all variables

Preview of values

process_cpu_seconds_total process_max_fds process_num_threads process_open_fds process_open_handles process_private_memory_bytes process_resident_memory_bytes process_start_time_seconds



Grafana Prometheus Query Variable

Home > Dashboards > Prometheus Dashboard > Edit panel

MetricType process_virtual_memory_bytes

Table view Fill Actu

CPU Usage

19:50 19:55 20:00 20:05 20:10 20:15 20:20 20:25 20:30

Query 1 Transform data 0 Alert 1

Data source prometheus

Query options MD = auto = 834 Interval = 15s

CPU Usage (prometheus)

Kick start your query Explain

Metric \$MetricType instance = host.docker.internal:8082

1 \$MetricType {instance="host.docker.internal:8082"}
Fetch all series matching metric name and label filters.



Grafana Prometheus Query Variable



Search or jump to...

Home > Dashboards > Prometheus Dashboard ☆

MetricType

process_virtual_memory_bytes ▾

CPU Usage



281642840000

281642830000

281642820000

281642810000

19:50 19:55 20:00 20:05 20:10 20:15 20:20 20:25 20:30 20:35 20:40 20:45





Grafana Cloud Watch Query Variable

cloudwatch

Type: CloudWatch

Settings Dashboards

Name: cloudwatch

Default:

Connection Details

Authentication

Authentication Provider: Specify which AWS credentials chain to use.

Access & secret key

Access Key ID: Configured

Secret Access Key: Configured



This screenshot shows the 'Settings' page for a 'cloudwatch' data source in Grafana. The page has a dark theme. At the top, it displays the data source name 'cloudwatch' with a CloudWatch icon, its type 'CloudWatch', and status 'Supported'. Below this, there are tabs for 'Settings' (which is active) and 'Dashboards'. A search bar contains the name 'cloudwatch'. Under 'Connection Details', there's a dropdown for 'Authentication Provider' set to 'Access & secret key'. Below it, fields for 'Access Key ID' and 'Secret Access Key' both show 'Configured'. A pink curly brace is drawn on the right side of the screen, covering the 'Access & secret key' section and extending down to the 'Secret Access Key' section.



Grafana Cloud Watch Query Variable

X-ray trace link

Grafana will automatically create a link to a trace in X-ray data source if logs contain @xrayTraceld field

- i There is no X-ray datasource to link to. First add an X-ray data source and then link it to Cloud Watch.

Data source

X-ray data source containing traces

Select data source

- ✓ 1. Successfully queried the CloudWatch metrics API. 2. Successfully queried the CloudWatch logs API.

Next, you can start to visualize data by [building a dashboard](#), or by querying data in the [Explore view](#).

Delete

Save & test



Grafana Cloud Watch Query Variable

Home > Dashboards > New dashboard > Edit panel Search...

Last 30 minutes Table view Refresh

New panel

21:35 21:40 21:45 21:50 21:55 22:00

CPUUtilization

Queries 1 Transformations 0 Alert 0

A (cloudwatch)

Region: default CloudWatch Metrics Metric Search Run queries Builder Code

Namespace	Metric name	Statistic
AWS/EC2	CPUUtilization	IQM

Dimensions Match exact - optional

InstanceId = i-046c8510fa9459a8f +

A screenshot of the Grafana interface. At the top, there's a navigation bar with 'Home', 'Dashboards', 'New dashboard', and 'Edit panel'. A search bar is on the right. Below the navigation is a time range selector set to 'Last 30 minutes' and a 'Table view' toggle. The main area shows a line chart titled 'New panel' with a single data series 'CPUUtilization'. The chart has data points at 21:35, 21:40, 21:45, 21:50, 21:55, and 22:00. The values are approximately 3.5, 3.5, 3.6, 3.6, 3.5, and 3.5 respectively. Below the chart is a timeline slider. At the bottom of the screen, there are tabs for 'Queries' (1), 'Transformations' (0), and 'Alert' (0). The 'Queries' tab is active. The 'CloudWatch Metrics' section shows a query for 'AWS/EC2' namespace, 'CPUUtilization' metric, and 'IQM' statistic. Dimensions are set to 'InstanceId' with value 'i-046c8510fa9459a8f'. There are buttons for 'Run queries', 'Builder', and 'Code'.



Grafana Cloud Watch Query Variable

Data source
cloudwatch

Query

Query type: Metrics
Region: us-east-1
Namespace: AWS/EC2

Regex
Optional, if you want to extract part of a series name or metric node segment. Named capture groups can be used to separate the display text and value (see examples).
`/.*-(?<text>.*)-(?<value>.*)-.*/`

Sort
How to sort the values of this variable
Disabled

Refresh
When to update the values of this variable
On dashboard load (selected) | On time range change

Selection options

Multi-value
Enables multiple values to be selected at the same time

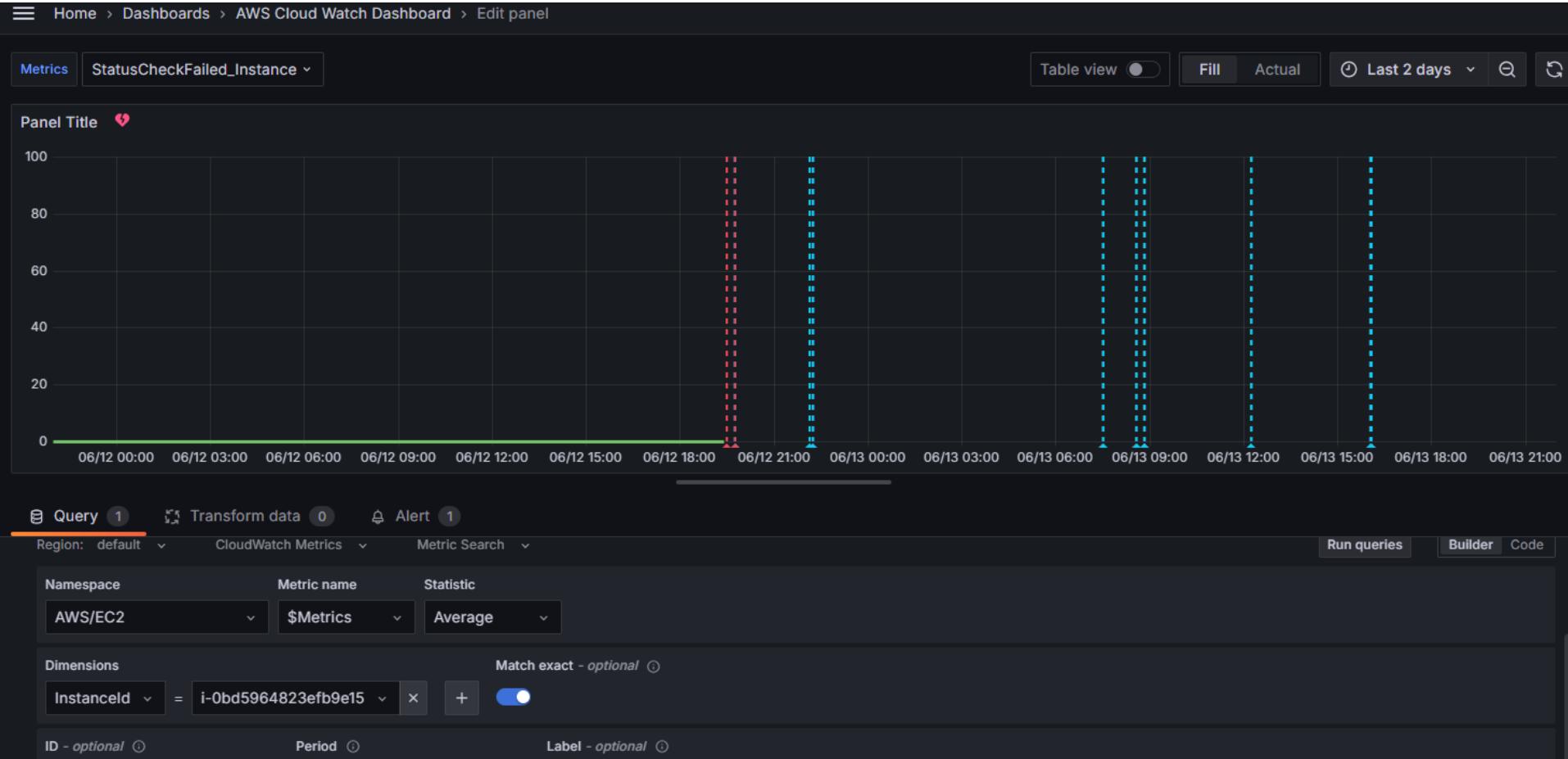
Include All option
Enables an option to include all variables

Preview of values

CPUCreditBalance | CPUCreditUsage | CPUSurplusCreditBalance | CPUSurplusCreditsCharged | CPUUtilization

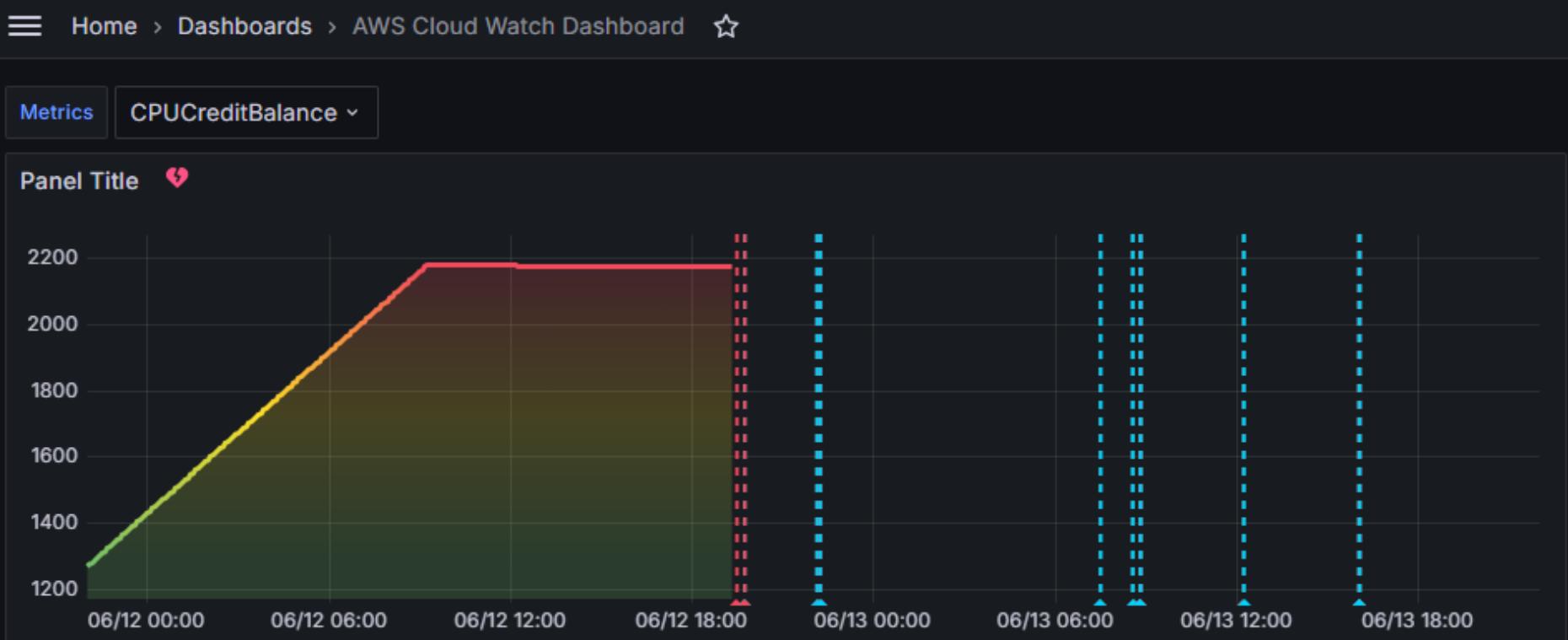


Grafana Cloud Watch Query Variable





Grafana Cloud Watch Query Variable





Grafana Cloud Watch Query Variable

Home > Dashboards > MS SQL DASHBOARD > Settings > DOR

DOR

Select variable type

Query

General

Name
The name of the template variable. (Max. 50 characters)
DOR

Label
Optional display name
DOR

Description
Descriptive text

Show on dashboard

Label and value Value Nothing

Query options

Data source

mssql

Query

```
select DOR from Vehicle;
```



Grafana Cloud Watch Query Variable

Regex

Optional, if you want to extract part of a series name or metric node segment. Named capture groups can be used to separate the display text and value ([see examples](#)).

```
/.*-(?<text>.*)-(?<value>.*)-.*/
```

Sort

How to sort the values of this variable

Disabled

Refresh

When to update the values of this variable

On dashboard load

On time range change

Selection options

Multi-value

Enables multiple values to be selected at the same time

Include All option

Enables an option to include all variables

Preview of values

2023-03-23

2023-04-23

Delete

Run query

Apply



Grafana MSSQL Query Variable

COLOR

Select variable type
Query

General

Name
The name of the template variable. (Max. 50 characters)
COLOR

Label
Optional display name
COLOR

Description
Descriptive text

Show on dashboard
Label and value Value Nothing

Query options

Data source
mssql

Query
select COLOR from Vehicle;



Grafana MSSQL Query Variable

Query

```
select COLOR from Vehicle;
```

Regex
Optional, if you want to extract part of a series name or metric node segment.
Named capture groups can be used to separate the display text and value (see examples).
`/.*-(?<text>.*)-(?<value>.*)-.*/`

Sort
How to sort the values of this variable
Alphabetical (asc) ▾

Refresh
When to update the values of this variable
On dashboard load On time range change

Selection options

Multi-value
Enables multiple values to be selected at the same time

Include All option
Enables an option to include all variables

Preview of values

BLUE NIGHT BLACK

Delete Run query Apply



Grafana MSSQL Query Variable

Home > Dashboards > MS SQL DASHBOARD > Edit panel

COLOR NIGHT BLACK ▾

Table view Fill Actual Last 6 hours Q

Vehicles

Registration_No

TN-31-07890

⋮

Query 1 Transform data 0

Data source mssql MD = auto = 1335 Interval = 1m

A (mssql)

Format: Table

```
1 SELECT Registration_No FROM PolicyDbBatch2.dbo.Vehicle WHERE Color=${COLOR:singlequote};
```



Grafana Postgres Connection – Password Postgres

Connection

Host URL *

Database name *

Authentication

Username *

Password *

Reset

TLS/SSL Auth Details

TLS/SSL Mode ⓘ

Additional settings



Grafana Postgres Query Variable

Searched: Search or jump to... ctrl+k

Home > Dashboards > Customer Database View > Edit panel Back to dashboard

namequery Vignesh

Table view Last 5 minutes ctrl+L Refresh ctrl+R

account_no	contact_no
2	1234567891

Queries 1 Transformations 0 Alert 0

Data source: grafana-postgresql-datasource Builder Code Query inspector

A (grafana-postgresql-datasource)

Format: Table Run query

```
1 SELECT account_no, contact_no FROM customer where first_name = '$namequery'
```



Grafana MSSQL Query Variable

A screenshot of a Grafana dashboard titled "MS SQL DASHBOARD". The dashboard has a dark theme with light-colored text. At the top, there is a navigation bar with a house icon, a menu icon, and the path "Home > Dashboards > MS SQL DASHBOARD" followed by a star icon. Below the navigation, there are three buttons: "COLOR", "NIGHT BLACK", and "MSSQL Annotation", with the "MSSQL Annotation" button being active (indicated by a blue outline). A toggle switch is also present next to the annotation button. The main content area is titled "Vehicles" and contains a single input field labeled "Registration_No" with the value "TN-31-07890".



Grafana Infinitydb Query Variable

≡ Home > Dashboards > Walmart Data > Settings > countryname

countryname

Select variable type

Text box



General

Name

The name of the template variable. (Max. 50 characters)

countryname

Label

Optional display name

select country name

Description

Descriptive text



Grafana Infinity db Query Variable

Search or jump to... ctrl+k

Home > Dashboards > Walmart Data > Edit panel

select country name Italy Table view Fill Actual Last 6 hours Q ↻

Covid19

Query 1 Transform data 1

> Parsing options & Result fields Field types and alias

▼ Results Filter 1 Filters. Try backend/UQL filter instead.

Results Filter

Filter 1 Country Equals \$countryname ✖

Add filter



Configure Vault with Grafana

Screenshot of the Grafana interface showing the configuration of a new connection for Vault.

The top navigation bar includes a search bar ("Search or jump to...") and a keyboard shortcut ("ctrl+k"). The main navigation path is "Home > Connections > Add new connection > Vault".

The "Vault" connection card is displayed, showing the following details:

- Type: Integration
- Author: Grafana Labs
- Integration version: -
- Status: Not installed

The "Configuration Details" tab is selected. Below it, the first step is listed:

1. Select platform

Select a platform environment to generate a configuration component.

Configuration options shown:

- Select platform: Debian
- Architecture: Amd64

A note at the bottom of the configuration section states: "Looking to configure integrations for your Kubernetes environment? Check out [Kubernetes Monitoring](#) with Grafana Cloud to enable this."

2. Install Grafana Alloy



Loki

- **◆ What is Grafana Loki?**
- Loki is a **horizontally scalable, highly available log aggregation system.**
- Inspired by Prometheus but for **logs instead of metrics.**
- It doesn't index the full log text like Elasticsearch — only **labels (metadata)** are indexed.
- This makes it **cheaper and faster** to run compared to Elastic stack.



Loki

- **Loki Components**
 - Loki (server) Stores and queries logs.
 - Promtail Agent that collects logs from files (e.g., `/var/log/*`) and pushes them to Loki.
 - Grafana
Used to visualize and query logs with LogQL (Loki Query Language).



Loki

- Promtail is an agent that collects logs from various sources and sends them to Loki for storage and querying.
- It's part of the Grafana Loki logging stack, designed to simplify log collection and forwarding.



Loki

- The Loki Stack Helm chart is a pre-configured set of resources that deploys the full Loki logging stack in Kubernetes.
- This Helm chart simplifies the deployment and management of Loki, Promtail, and other optional components like Grafana, making it easier to set up a complete logging solution within a Kubernetes cluster

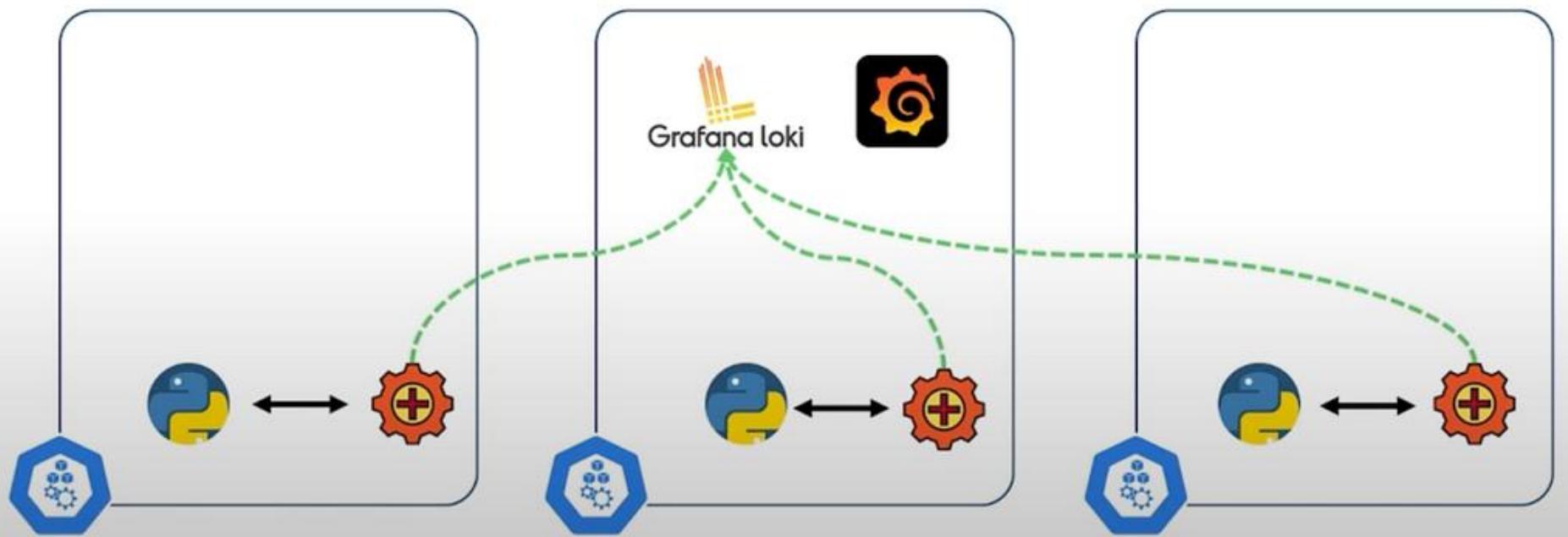


Loki



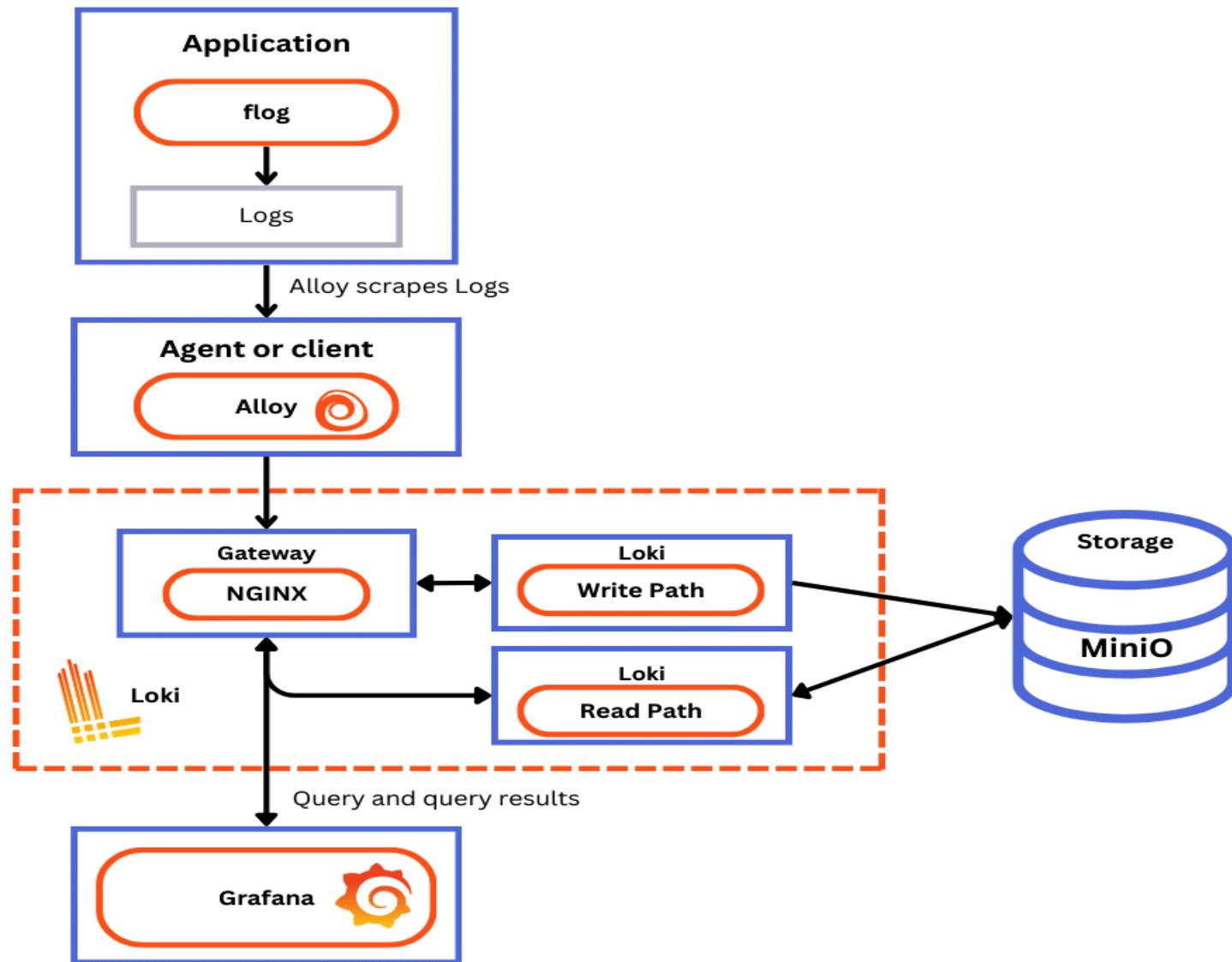


Loki



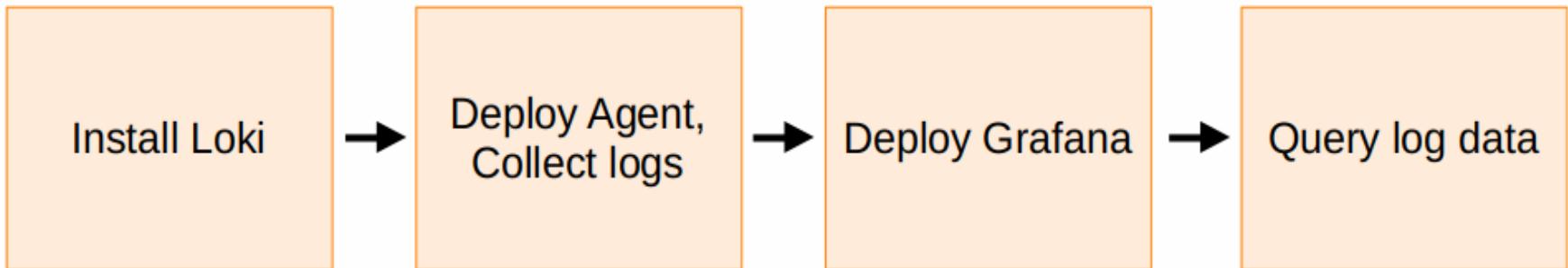


Loki





Loki





Loki

- Refer Loki.txt E:\accgrafana2025\lokiconfig



Loki DS Auto Generated

Home > Connections > Data sources > Loki

Search... ctrl+k +

Before you can use the Loki data source, you must configure it below or in the config file. For detailed instructions, [view the documentation](#).

Connection

URL * ⓘ http://loki:3100

Authentication

Authentication methods

Choose an authentication method to access the data source

Authentication method

No Authentication

TLS settings

Additional security measures that can be applied on top of authentication

Add self-signed certificate ⓘ

TLS Client Authentication ⓘ



Loki DS Auto Generated

The screenshot shows a Grafana interface with a dark theme. On the left, a "New panel" section displays log data in a table view. The columns are labeled "labels", "Time", "Line", "tsNs", and "id". Two log entries are shown:

labels	Time	Line	tsNs	id
{ "app": "loki", ... }	2025-08-20 08:17:16.	{"log": "level=info ts= 17556580363592604"}	17556580363592604	1755658036359260
{ "app": "loki", ... }	2025-08-20 08:17:16.	{"log": "level=info ts= 17556580363592595"}	17556580363592595	1755658036359259

Below the table are tabs for "Queries" (1) and "Transformations" (0). The "Data source" dropdown is set to "Loki". The "Query inspector" tab is active, showing a query editor with placeholder text "(Loki)". Other buttons include "Label browser", "Explain query", "Run query", "Builder", and "Code".

On the right, the "Visualization" section is set to "Table". The "Panel options" section includes fields for "Title" (set to "New panel") and "Description". Under "Table", there is an option "Show table header" which is checked.



Grafana Customization Cheatsheet

Categories of customization commands			
Configuration	Cleaning	Visual	Hands-On
What do the commands do			
update configuration defaults	remove unused plugin files	replace SVG files	update JS, HTML code
Low version dependency	Moderate version dependency	Moderate version dependency	Highest version dependency
How to			
Docker	rebuild docker container specifying all what suits your needs		Docker
Windows	ini file or specify when starting Grafana service	manual work or via your automated scripts	



Grafana Customization Cheatsheet

```
# Extra configmaps to mount in image-renderer pods
extraConfigmapMounts:
- name: custom-logos
  mountPath: /usr/share/grafana/public/img/grafana_icon.svg
  subPath: grafana_icon.svg
  readOnly: true

# Extra secrets to mount in image-renderer pods
extraSecretMounts: []

# Extra volumes to mount in image-renderer pods
extraVolumeMounts: []

# Extra volumes for image-renderer pods
extraVolumes:
- name: custom-logos
  configMap:
    name: grafana-logos
```



Grafana Customization Cheatsheet

```
# Extra configmaps to mount in image-renderer pods
extraConfigmapMounts:
- name: custom-logos
  mountPath: /usr/share/grafana/public/img/grafana_icon.svg
  subPath: grafana_icon.svg
  readOnly: true

# Extra secrets to mount in image-renderer pods
extraSecretMounts: []

# Extra volumes to mount in image-renderer pods
extraVolumeMounts: []

# Extra volumes for image-renderer pods
extraVolumes:
- name: custom-logos
  configMap:
    name: grafana-logos
```



Grafana Customization Cheatsheet

The screenshot shows the Grafana login interface. At the top center is a white flask icon containing red liquid. Below it, the text "Welcome to Grafana" is displayed in a large, white, sans-serif font. The main form area has a dark background. It contains two input fields: "Email or username" with a placeholder "email or username" and "Password" with a placeholder "password". To the right of the password field is a small circular icon with an eye symbol. At the bottom of the form is a large blue "Log in" button with white text. Below the button is a link "Forgot your password?".

Email or username

email or username

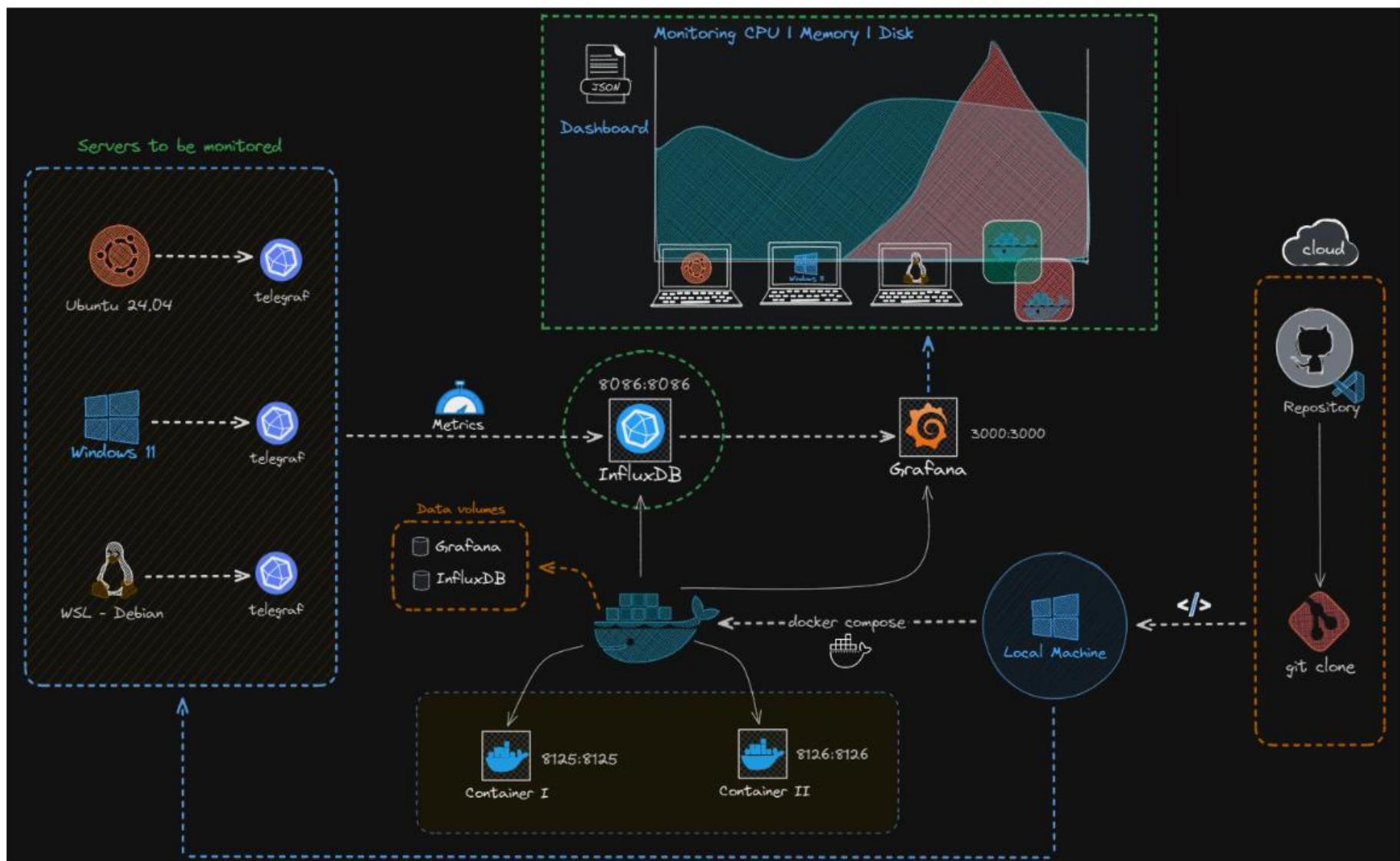
Password

password

Log in

Forgot your password?

Monitoring with Docker Compose using InfluxDB, Telegraf and Grafana





Influx DB Setup

 influxdb

Type: InfluxDB

Settings

Name	<input type="text" value="influxdb"/>	Default	<input checked="" type="checkbox"/>
------	---------------------------------------	---------	-------------------------------------

Query language

Flux

i Support for Flux in Grafana is currently in beta
Please report any issues to:
<https://github.com/grafana/grafana/issues>

HTTP

URL	<input type="text" value="http://influxdb:8086"/>
Allowed cookies	<input type="text" value="New tag (enter key to add)"/> Add
Timeout	<input type="text" value="Timeout in seconds"/>



Influx DB Setup

Auth

Basic auth	<input checked="" type="checkbox"/>	With Credentials	<input type="checkbox"/>
TLS Client Auth	<input type="checkbox"/>	With CA Cert	<input type="checkbox"/>
Skip TLS Verify	<input type="checkbox"/>		
Forward OAuth Identity	<input type="checkbox"/>		

Basic Auth Details

User	user
Password	Password

Custom HTTP Headers

+ Add header

InfluxDB Details

Organization	myorg	
Token	configured	Reset
Default Bucket	telegraf	
Min time interval	10s	
Max series	1000	

Monitoring with Docker Compose using InfluxDB, Telegraf and Grafana



Table view Last 6 hours

Time	usage_system {cpu="cpu0", host="fa0b9e6c8112"}
2025-04-18 22:26:43	1.20
2025-04-18 22:26:50	1.21
2025-04-18 22:27:00	0.697
2025-04-18 22:27:13	1.10
2025-04-18 22:27:20	1.50
2025-04-18 22:27:30	1.39

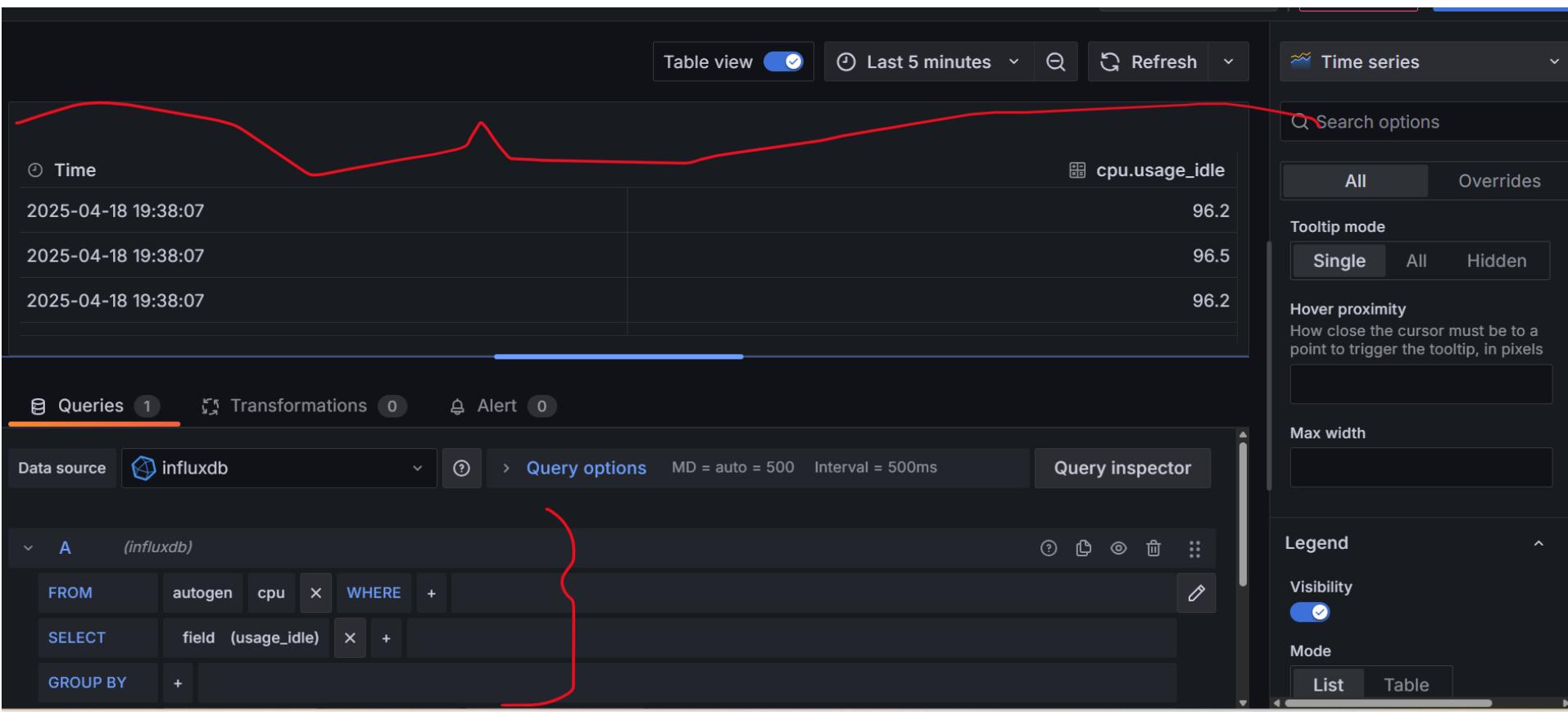
cpu

Queries 1 Transformations 0 Alert 0

Data source influxdb Query options MD = auto = 500 Interval = 30s Query inspector

```
from(bucket: "telegraf")
|> range(start: -15m)
|> filter(fn: (r) =>
  r._measurement == "cpu" and
  r._field == "usage_system" and
  r.cpu != "cpu-total"
)
```

Monitoring with Docker Compose using InfluxDB, Telegraf and Grafana



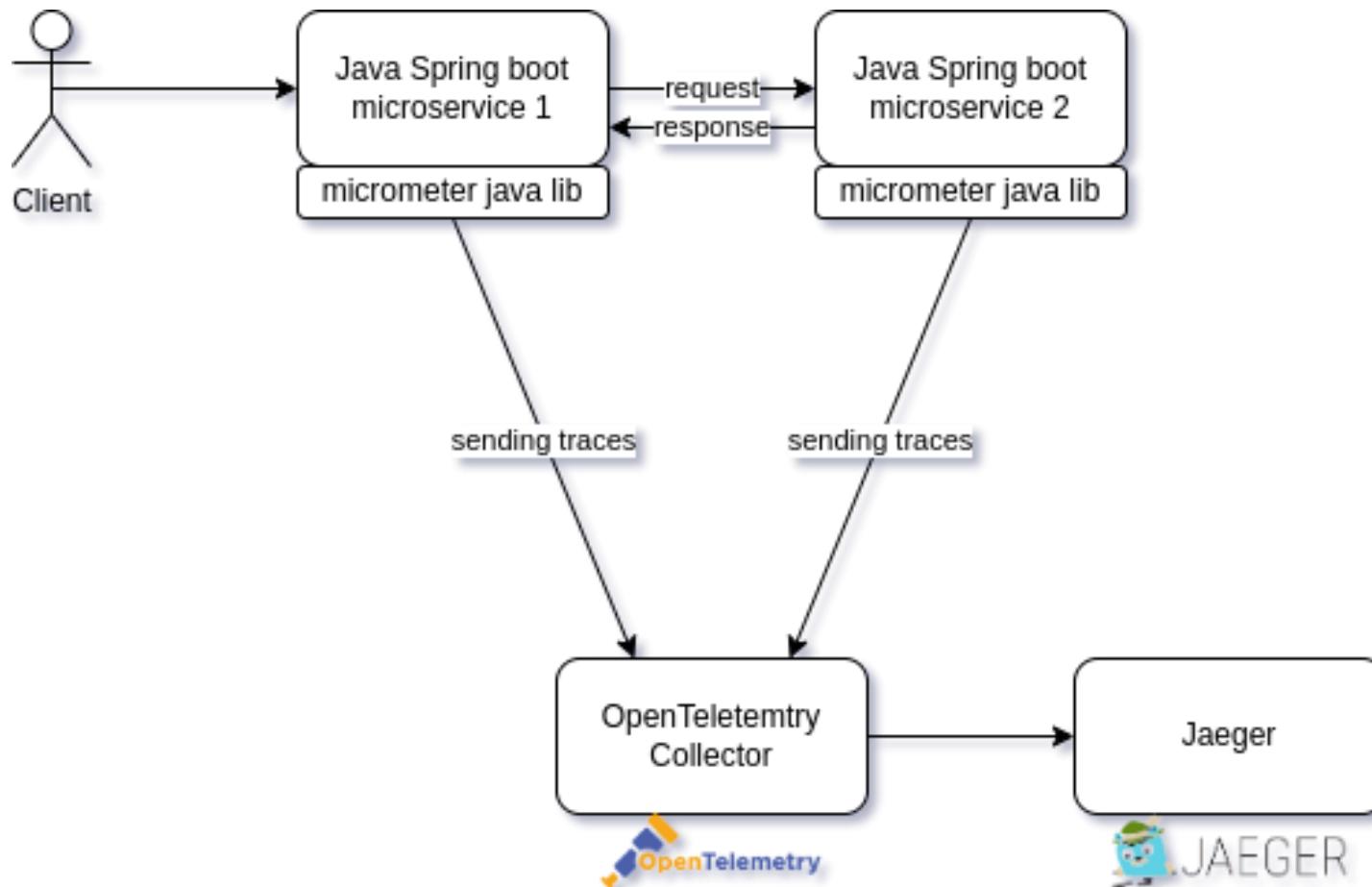


Grafana Jaeger

- 1. Create Jaeger Compose File with OTEL Collector
- 2. Create Spring Boot application and Integrate to Jaeger
- 3. Access Jaeger and see traces.



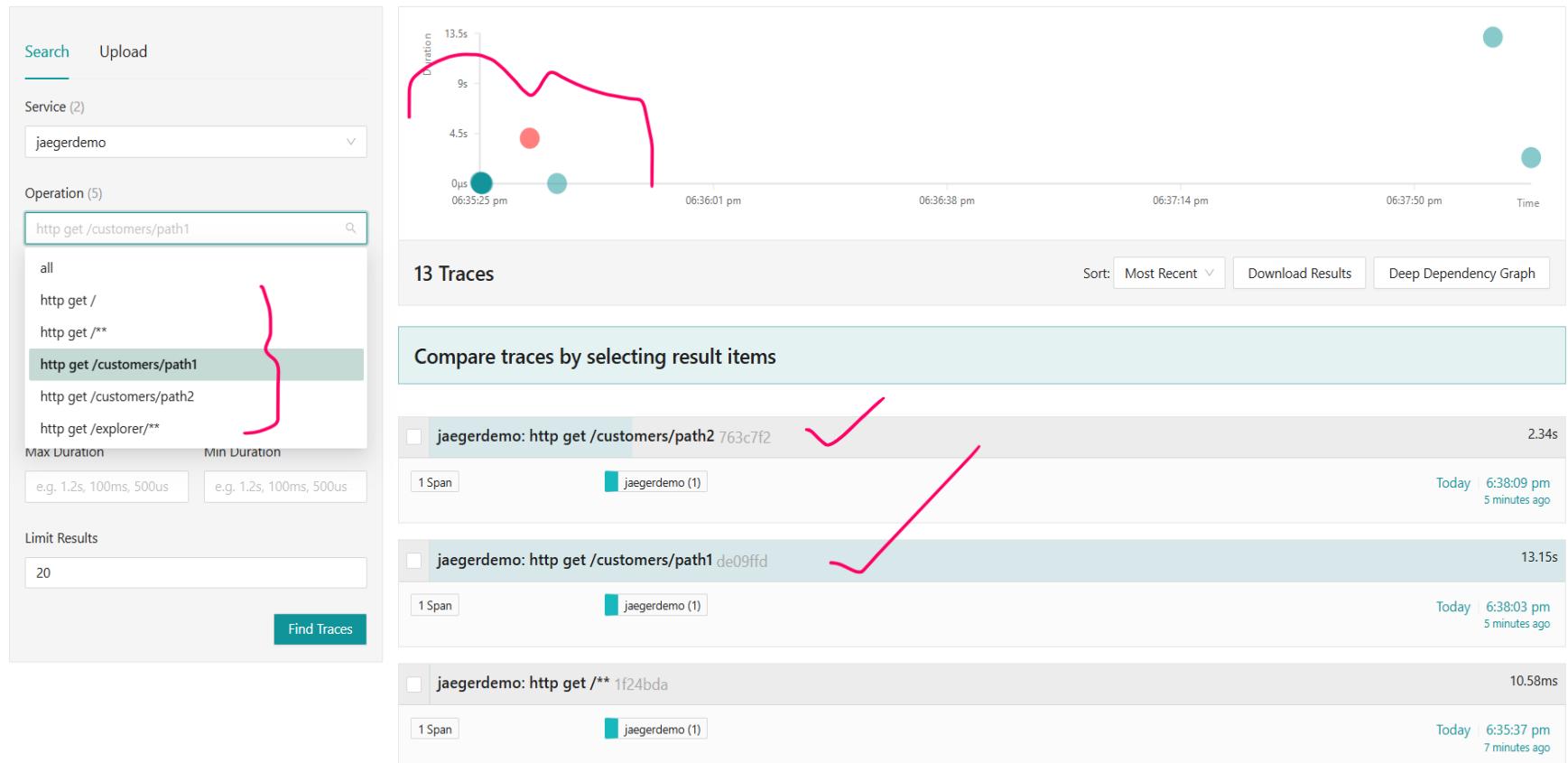
Grafana Jaeger





Grafana Jaeger

<http://localhost:16686>





Grafana Jaeger

Home > Connections > Data sources > jaeger

jaeger

Type: Jaeger

Settings

Name: jaeger Default:

Before you can use the Jaeger data source, you must configure it below or in the config file. For detailed instructions, [view the documentation](#).

Connection

URL *

Authentication

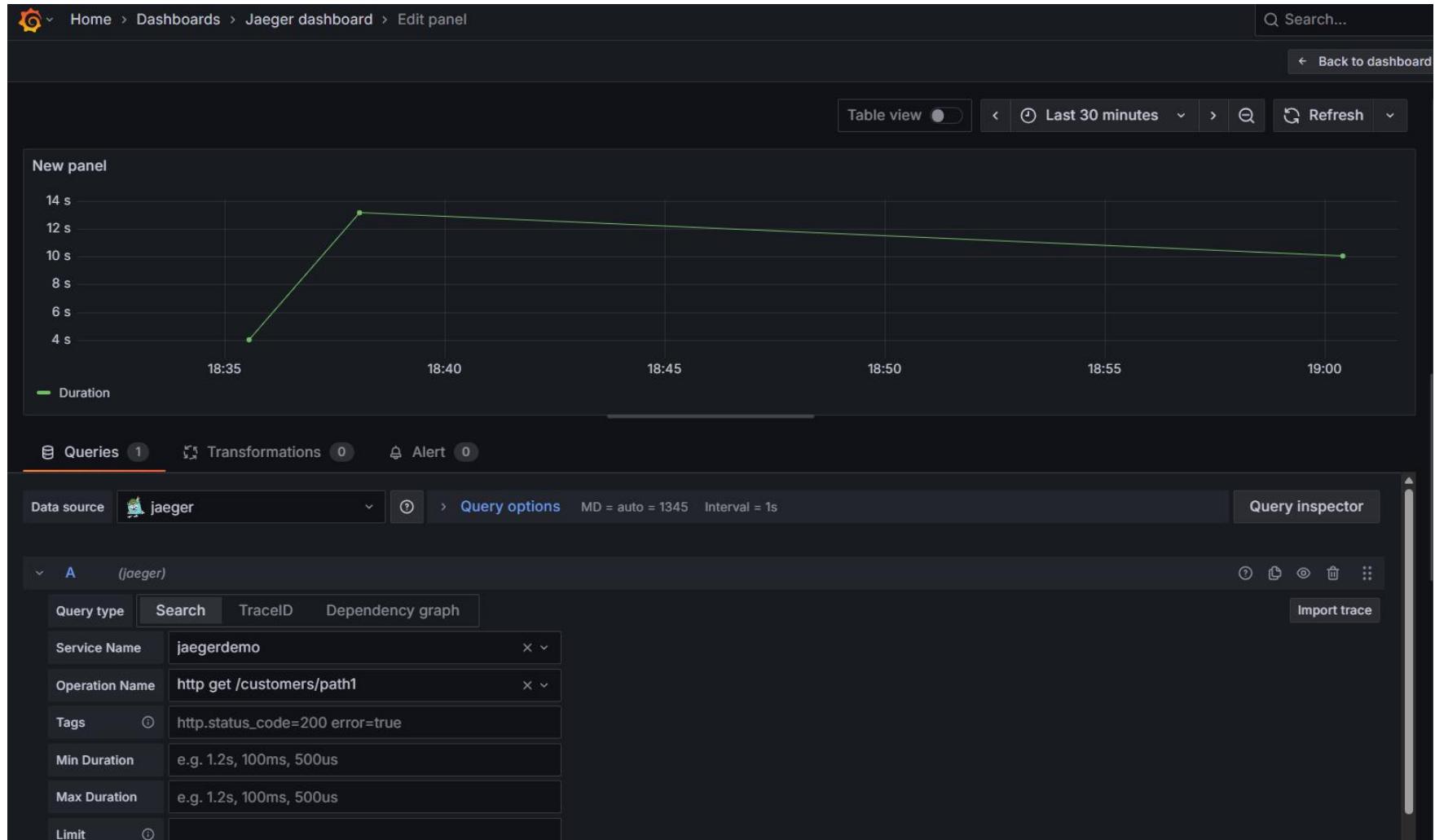
Authentication methods

Choose an authentication method to access the data source

Authentication method:



Grafana Jaeger





Transformation

Table view Last 5 minutes

CPU Usage Percentage

```
sum(node_cpu_seconds_total{mode = "idle"}) / sum(node_cpu_seconds_total{mode != "idle"}) * 100
```

Queries 2 Transformations 3

Data source prometheus Query options MD = auto = 1060 Interval = 15s

idle (prometheus)

Kick start your query Explain Metrics browser > `sum(node_cpu_seconds_total{mode = "idle"})`

> Options Legend: Auto Format: Time series Step: auto Type: Range Exemplars: false

notidle (prometheus)

Kick start your query Explain Metrics browser > `sum(node_cpu_seconds_total{mode != "idle"})`

> Options Legend: Auto Format: Time series Step: auto Type: Range Exemplars: false



Transformation

1 - Add field from calculation

Collapse transformation row

Binary operation

Operation	sum(node_cpu_seconds_total{mode != "idle"})	/	sum(node_cpu_seconds_total{mode = "idle"})
Alias	percentage		
Replace all fields	<input checked="" type="checkbox"/>		

2 - Add field from calculation

Mode

Binary operation

Operation	percentage	*	\$PercentageFactor
Alias			
Replace all fields	<input checked="" type="checkbox"/>		



Transformation

3 - Organize fields by name

Field order **Manual** Auto

{ Time
① sum(node_cpu_seconds_total{mode = "idle"})
① sum(node_cpu_seconds_total{mode != "idle"})
percentage

+ Add another transformation x Delete all transformations

Rename Time
Rename sum(node_cpu_seconds_total{mode = "idle"})
Rename sum(node_cpu_seconds_total{mode != "idle"})
Rename percentage



Transformation

CPU Usage Percentage

sum(node_cpu_seconds_total{mode = "idle"})	sum(node_cpu_seconds_total{mode != "idle"})	percentage
313477	61464	19.6
313477	61464	19.6
314054	61595	19.6
314638	61720	19.6
314638	61720	19.6
314638	61720	19.6
314638	61720	19.6
315920	61869	19.6
315920	61869	19.6
315920	61869	19.6
315920	61869	19.6
316563	61941	19.6



AWS Grafana Cloud vs Grafana Enterprise

Feature	AWS Grafana Cloud	Grafana Enterprise
Hosting	Managed by AWS	Self-hosted (on-prem or cloud)
Integration	Deep AWS integration	Broad 3rd-party + Enterprise plugins
Pricing	Pay-as-you-go via AWS	Enterprise license (annual)
Management	AWS handles upgrades & scaling	You handle infra & upgrades
Security	AWS IAM, SSO	LDAP, SAML, fine-grained RBAC, audit logs
Plugins	Limited Enterprise plugins included	Full Enterprise plugin catalog
Support	AWS Support + Grafana Labs (via AWS)	Direct Grafana Labs enterprise support
Use case	Cloud-native AWS workloads	Hybrid / On-prem / Strict compliance



AWS Grafana Cloud

- **Step 1. Open the Service**
- Go to **AWS Console** → **Amazon Managed Grafana**.
(Search for “*Managed Grafana*”).
- Click **Create workspace**.



AWS Grafana Cloud

◆ Step 2. Create a Workspace

- **Name** → Give your workspace a unique name (e.g. monitoring-team-grafana).
- **Authentication method:**
 - **AWS IAM Identity Center (SSO)** → Recommended, easy for AWS orgs.
 - Or **AWS IAM Roles** → for programmatic access.
- **Permission type:**
 - **Service-managed** → AWS handles permission setup for you.
 - **Customer-managed** → you manually set IAM roles & policies.

Click **Next**.



AWS Grafana Cloud

- ◆ **Step 3. Configure Data Sources**
- Choose which AWS services Grafana can access:
 - CloudWatch**
 - X-Ray**
 - Timestream**
 - Prometheus (AMP)**
 - OpenSearch**
 - Athena / Redshift**
- Select the AWS accounts/regions the workspace can query.
- Grafana will create IAM roles/policies (if service-managed).
- Click **Next**.



AWS Grafana Cloud

- ◆ **Step 4. Add Users**
- If using **AWS IAM Identity Center**:
 - Go to **IAM Identity Center** → **Users & Groups**.
 - Assign users/groups to the Grafana workspace.
 - Choose roles inside Grafana:
 - **Admin** → Full control
 - **Editor** → Can create dashboards
 - **Viewer** → Read-only
- Click **Create workspace**.



AWS Grafana Cloud

- ◆ **Step 5. Launch Grafana**
- After a few minutes, workspace status becomes **Active**.
- Click **Workspace URL** → It opens Grafana in your browser.
- Log in with your assigned **SSO / IAM user**.



AWS Grafana Cloud

- ◆ **Step 6. Add Datasources & Dashboards**
- Inside Grafana:
- Go to **Configuration → Data Sources**.
- Select from available AWS integrations (CloudWatch, X-Ray, AMP, etc.).
- Import prebuilt AWS dashboards (e.g. EC2, RDS, Lambda monitoring).
 - AWS/Grafana Labs provide JSON dashboards.
- (Optional) Add **non-AWS datasources** (Prometheus, Loki, MySQL, etc.) if allowed.



AWS Grafana Cloud

- ◆ **Step 7. Setup Alerts (Optional)**
- Go to **Alerting** → **Alert rules**.
- Example: EC2 instance status metric (`StatusCheckFailed`) from CloudWatch.
- Configure **notification channels** (SNS, Slack, Teams, PagerDuty).



AWS Grafana Cloud

Review

The following policies will be attached to this user. [Learn more](#)

User details

User name
grafanaadmin

Permissions summary (3)

< 1 >

Name	Type	Used as
AWSGrafanaAccountAdministrator	AWS managed	Permissions policy
AWSSSOMemberAccountAdministrator	AWS managed	Permissions policy
AWSSSDirectoryAdministrator	AWS managed	Permissions policy



AWS Grafana Cloud

Workspace details

Workspace name

Give a unique name to your workspace.

Valid special characters include "-", ".", "_", "~". Cannot contain non-ASCII characters or spaces. Max length of 255 characters.

Workspace description - *optional*

Grafana version

Select the Grafana version you want to use for this workspace.

10.4

▼

▼ Tags - optional

A tag is a label that you assign to an AWS resource. Each tag consists a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

Currently not editing fields.

[Add new tag](#)

You can add up to 50 more tags.



AWS Grafana Cloud

[Amazon Grafana](#) > [Workspaces](#) > Create new workspace

Step 1

[Specify workspace details](#)

Step 2

[Configure settings](#)

Step 3

Service managed permission
settings

Step 4

Review and create

Configure settings Info

Authentication access Info

Choose at least one authentication method.

AWS IAM Identity Center (successor to AWS SSO) Enabled

You can enable IAM Identity Center by creating a user. This new user does not automatically have access to the Grafana console. You will still need to assign this user later, once this workspace is created.

Security Assertion Markup Language (SAML)

You will need to complete additional steps to finish SAML configuration once this workspace is created.

Permission type Info

Service managed

We will automatically provision the permissions for you based on the AWS services you choose in the next step.

Customer managed

Manually create your own IAM role based on the suggested policies.



AWS Grafana Cloud

Optional , Don't Select VPC

VPC

Choose a VPC for your workspace access. [Manage VPCs](#)

vpc-0f3b1e500050fa13e (172.31.0.0/16)



Mappings

Choose at least two Availability Zones with one subnet for each zone. All Availability Zones are IPv4 and assigned by AWS. [Manage Subnets](#)

us-east-1c

Subnet

subnet-0dea1e36543400cb5

us-east-1b

us-east-1d

us-east-1f

us-east-1a

Subnet



AWS Grafana Cloud

Workspace configuration options - *optional* New

Enable workspace configurations options. These are the default configuration options, you can turn on more after the workspace has been created.

Turn Grafana alerting on Info

Turn Grafana alerting on to access the new alerting system that centralizes alerting information in a single, searchable view including viewing Prometheus alert rules in your Grafana workspace.

Turn plugin management on Info

New Grafana v9+ workspaces ship with only the core data source plugins, such as Prometheus or Cloudwatch. Turn plugin management on to allow your workspace admins to discover, install, update, and uninstall plugins in the workspace.

Network access control - *optional* Info

Network access control allows you to set which traffic sources will be accepted when it reaches the Amazon Grafana domain.

Open access

The workspace URL will be publicly reachable.

Restricted access

Only configured resources will be allowed to access the workspace.

i The workspace URL is publicly reachable. You have not configured any network access control.



AWS Grafana Cloud

Service managed permission settings Info

IAM permission access settings

Select how you would like to specify account access.

Current account

Use Grafana to monitor resources in your current account.

Organization

Use Grafana to monitor resources in your Organizational Units (OUs).

▼ Data sources and notification channels - optional

Data sources

Selecting an AWS data source below creates an IAM role that enables Amazon Grafana access to those resources in your current account. It does not set up the selected service as a data source. Note that some resources must be tagged `GrafanaDataSource` to be accessible.

Data source name

AWS IoT SiteWise

AWS X-Ray

Amazon CloudWatch

Amazon OpenSearch Service

Amazon Managed Service for Prometheus

Amazon TimeStream

Amazon Redshift

Amazon Athena



AWS Grafana Cloud

Amazon Grafana > Workspaces

Workspaces (1) [Info](#)

Workspace name	Grafana workspace URL	Status	Authentication	Grafana version	Enterprise license	Description	Date created
rpsmanagedgrafana	g-03da581eb6.grafana-workspace.us-east-1.amazonaws.com	Active	IAM Identity Center	10.4	-	-	August 1, 2023

A red curly brace highlights the 'Status' column header and the 'Active' status of the first row.



IAM Identity for Credentials

IAM Identity Center > Users > eswaribala70@gmail.com

eswaribala70@gmail.com

Email not verified
Users must first verify their email address before they can begin to use certain features such as completing email-based two-step verification during sign-in.

General information Disable user access

Profile Groups (1) AWS accounts Applications Active sessions (0)

Profile details

Primary information

Attribute key	Value
Username	eswaribala70@gmail.com
Email	eswaribala70@gmail.com Not verified

Reset password Send email verification link

Edit

Related consoles
CloudTrail Recommended AWS Organizations IAM



AWS Grafana Cloud

Summary Info

Description 🔗

-
Grafana workspace URL
g-fda32bdaa5.grafana-workspace.us-east-1.amazonaws.com 🔗

Status

ⓘ Active

Date created

August 20, 2025 at 18:45 (UTC+5:30)

Authentication access

IAM Identity Center

IAM role 🔗

arn:aws:iam::975050122380:role/service-role/AmazonGrafanaServiceRole-J3X1Z3j9j

Enterprise license

-
[Manage](#)

Grafana version

10.4

Authentication

Data sources

Notification channels

Tags

Network access control

Workspace configuration options - new

Grafana alerting Info

[Edit](#)

Grafana alerting enables you to view Prometheus alert rules in your Grafana workspace.

Grafana alerting

ⓘ On

Plugin management - new Info

[Edit](#)

New Grafana v9+ workspaces ship with only the core data source plugins, such as Prometheus or Cloudwatch. Turn plugin management on to allow your workspace admins to discover, install, update, and uninstall plugins in the workspace.

Plugin management

ⓘ On



AWS Grafana Cloud

Workspace

Current workspace: grafanamanagedws (g-fda32bdaa5)

Enterprise licensing [See pricing](#)

None (current)

Provides access to the Amazon Managed Grafana workspace, but will not receive the benefits of Amazon Managed Grafana Plugins.

Enterprise plugins

Provides access to all Enterprise third-party plugins. You will also have access to Grafana Labs consultation and support services.

Grafana Labs Token

Your Enterprise Plugins upgrade includes support and consulting services from Grafana Labs. To access these services, you must link your Grafana Labs account with your AWS account using the Grafana Labs token and your AWS account ID. You can get the Grafana token when you create a new Grafana Labs account or by logging into an existing one. Click "Get your token" to be taken to the Grafana Labs website.

7b3ccbb9-5733-4ece-8e20-5de5e9e2b072



AWS Grafana Cloud

Screenshot of a web browser showing the AWS Grafana Cloud interface. The address bar displays the URL: g-fda32bdaa5.grafana-workspace.us-east-1.amazonaws.com/?orgId=1. The browser toolbar includes standard icons for back, forward, search, and bookmarks. A sidebar on the left shows navigation links like 'Insert title here', 'Empire', 'New Tab', and 'All Bookmarks'. The main content area features a 'Welcome to Amazon Managed Grafana' message and a 'Need help?' section with links to Documentation, Tutorials, and Community. A 'Basic' panel on the left provides a tutorial for setting up Grafana. Three main panels on the right offer guides for 'DATA SOURCES', 'DASHBOARDS', and 'TUTORIAL' (Data Source and Dashboards). A 'Remove this panel' button is visible in the top right corner of the main content area.

Welcome to Amazon Managed Grafana

Need help? [Documentation](#) [Tutorials](#) [Community](#)

Basic

The steps below will guide you to quickly finish setting up your Grafana installation.

TUTORIAL

DATA SOURCE AND DASHBOARDS

Grafana fundamentals

Set up and understand Grafana if you have no prior experience. This tutorial guides you through the entire process and covers the "Data source" and "Dashboards" steps to the right.

DATA SOURCES

Add your first data source

[Learn how in the docs](#)

DASHBOARDS

Create your first dashboard

[Learn how in the docs](#)

[Remove this panel](#)

Dashboards

Starred dashboards

Recently viewed dashboards



AWS Grafana Cloud

EC2 Instances

Last updated less than a minute ago

Find Instance by attribute or tag (case-sensitive)

All states ▾

Instances (1) Info

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone
Instance1	i-0c885994e65b74260	Pending	t2.large	-	View alarms +	us-east-1b

Select an instance

EC2 Instances

- Dashboard
- EC2 Global View
- Events
- Instances
 - Instances
 - Instance Types
 - Launch Templates
 - Spot Requests
 - Savings Plans
 - Reserved Instances



AWS Grafana Cloud

Quick connect...

3.44.203.147.55 (ubuntu)

Name .. .ssh .cache .Xauthority .profile .bashrc .bash_logout

```
* Documentation: https://help.ubuntu.com
* Management: https://landscape.canonical.com
* Support: https://ubuntu.com/pro

System information as of Wed Aug 20 13:33:30 UTC 2025

System load: 0.19          Processes: 121
Usage of /: 1.8% of 95.82GB Users logged in: 0
Memory usage: 2%           IPv4 address for enX0: 172.31.93.172
Swap usage: 0%

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

/usr/bin/xauth: file /home/ubuntu/.Xauthority does not exist
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-93-172:~$
```

Remote monitoring



AWS Grafana Cloud

- `sudo snap install amazon-ssm-agent --classic`



AWS Grafana Cloud

Screenshot of the AWS EC2 Instances page showing a single instance named Instance1.

Instances (1/1) Info

Find Instance by attribute or tag (case-sensitive)

All states ▾

Name	Instance ID	Instance state	Instance type	Status check
Instance1	i-0c885994e65b74260	Running	t2.large	2/2 checks p

i-0c885994e65b74260 (Instance1)

Details **Status and alarms** **Monitoring** **Security** **Network**

Instance summary Info

Instance ID: i-0c885994e65b74260

Public IPv4 address: 44.203.147.55 | [open address](#)

IPv6 address:

Instance state:

Public DNS: 172.31.93.172

Actions ▾ **Launch instances** ▾

- Instance diagnostics
- Instance settings
- Networking
- Security
- Image and templates
- Monitor and troubleshoot

Get system log
Get instance screenshot
Manage detailed monitoring
Manage CloudWatch alarms
Configure CloudWatch agent
EC2 serial console
Replace root volume
Fleet Manager



AWS Grafana Cloud

≡ Home > Apps > AWS Data Sources > Data sources > Data sources

⌘ Apps

AWS Data Sources

Data sources

Settings

AWS Data Sources

Create data sources for all your AWS resources

AWS services

Data sources

Settings

Service

CloudWatch

Browse and provision data sources

Specify the required configuration parameters to add data sources.

Default region

US East (N. Virginia)

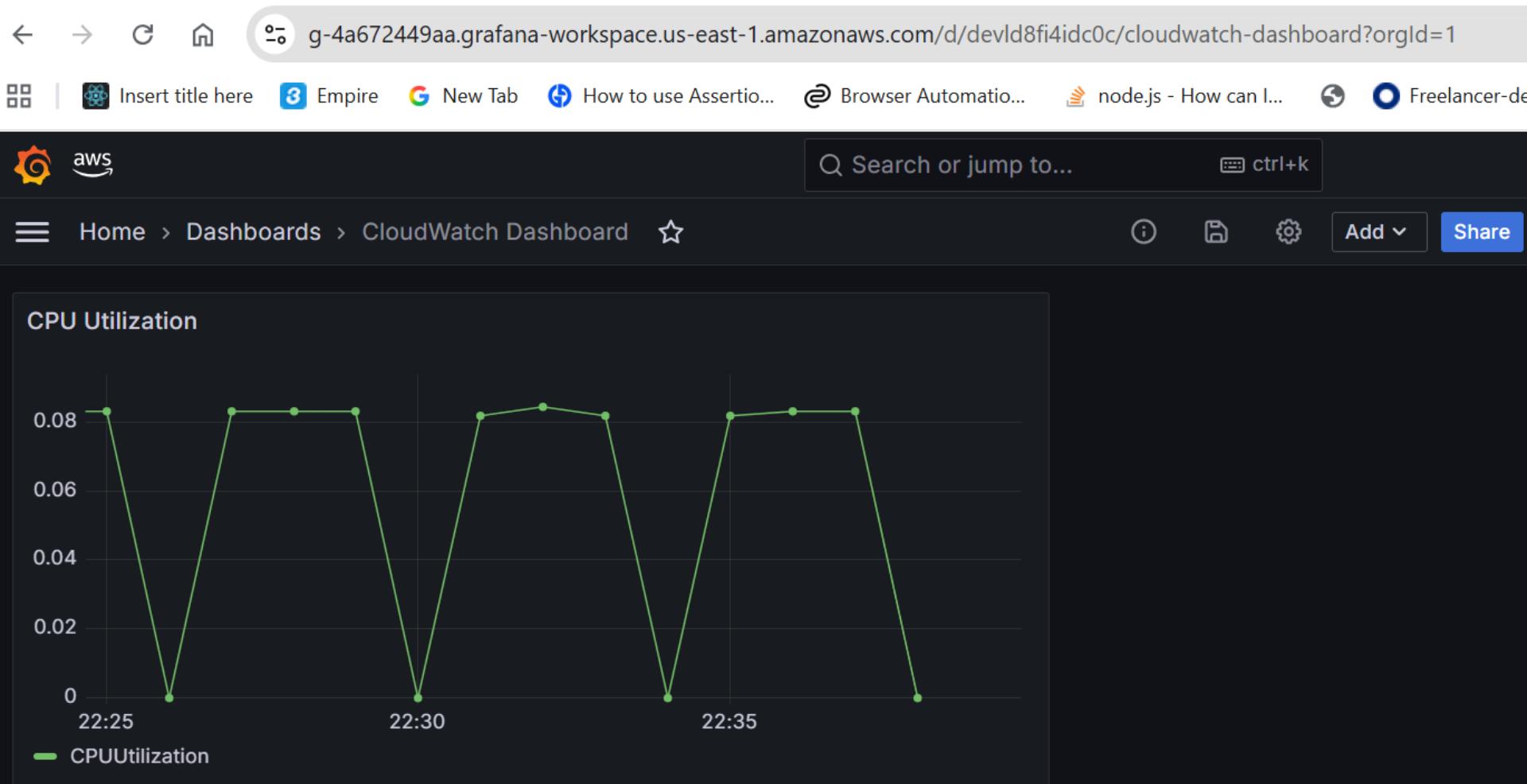
Add data source

Provisioned data sources

Data source name

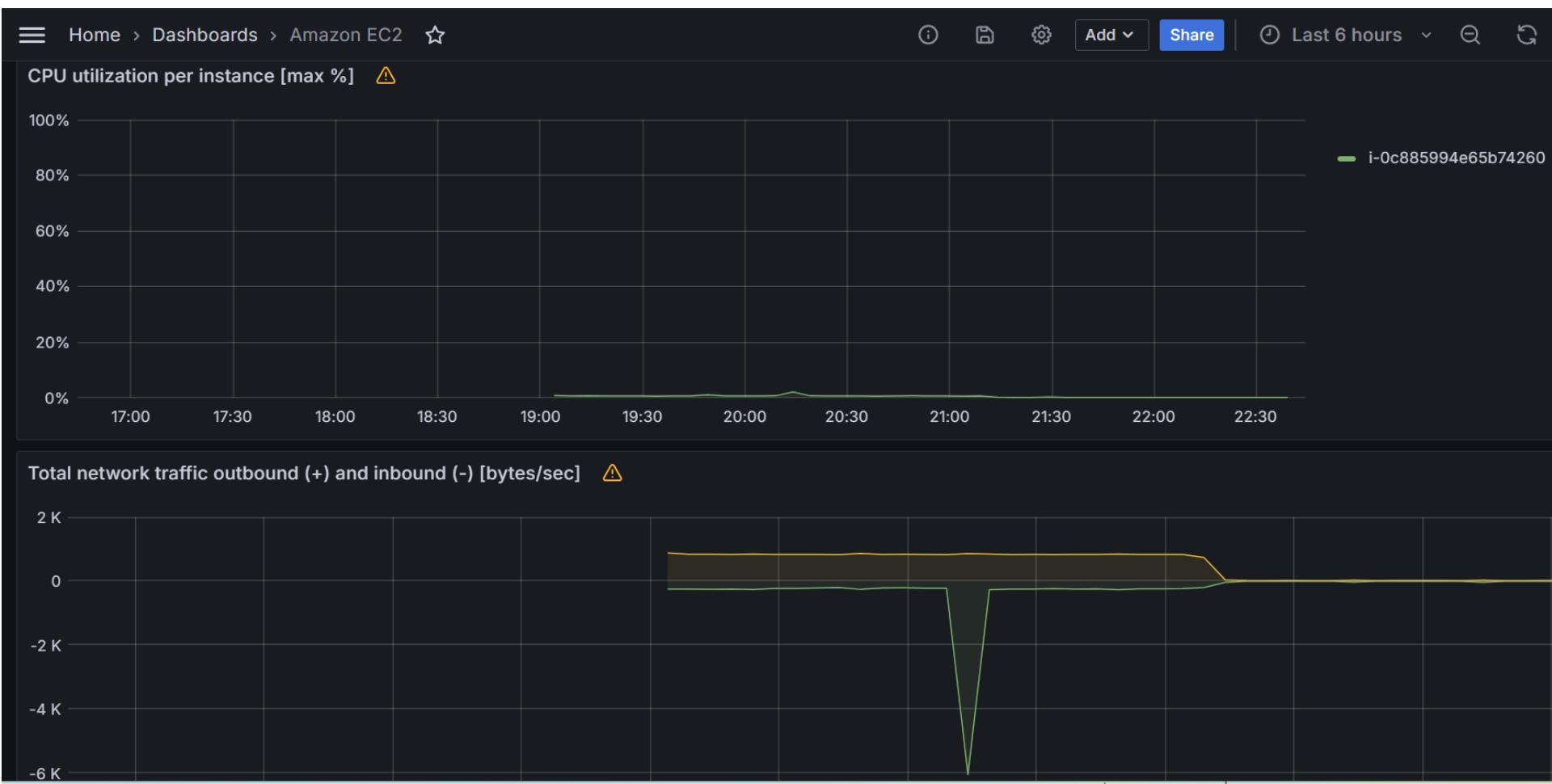


AWS Grafana Cloud



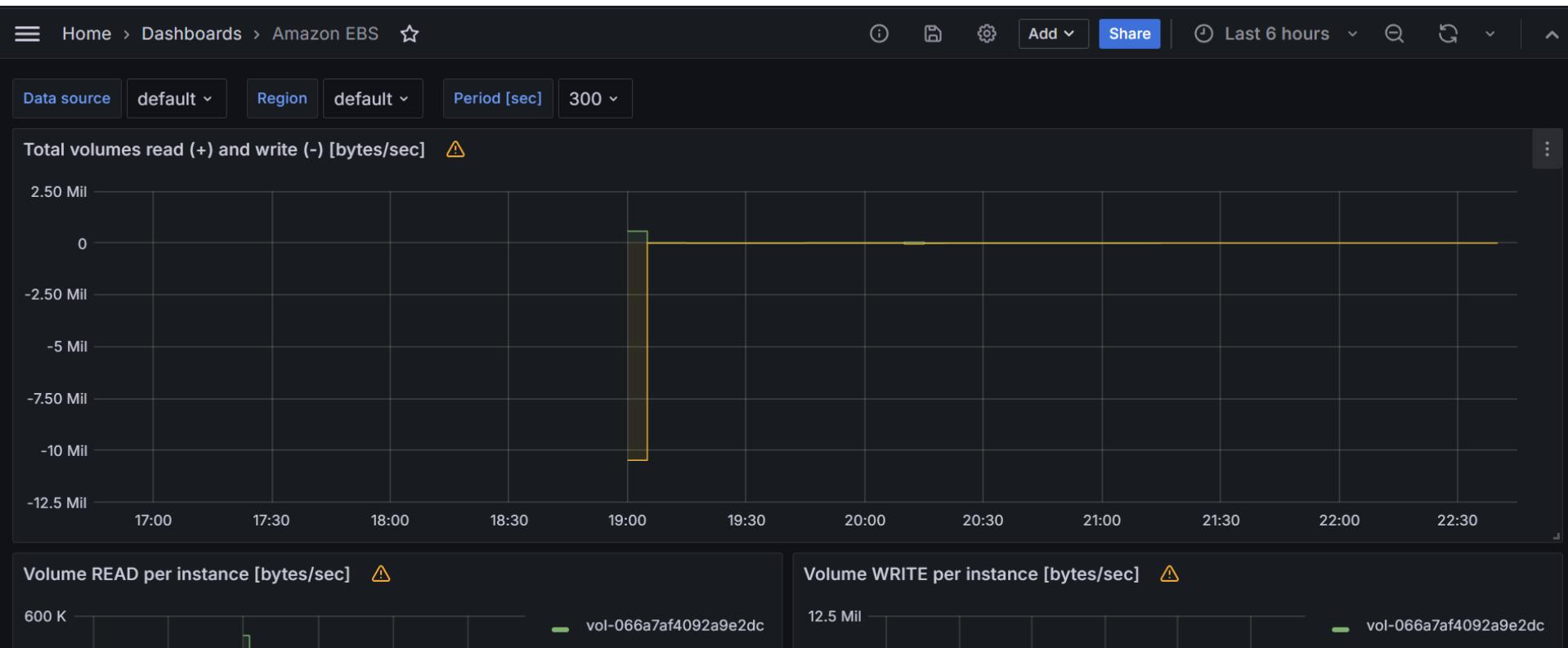


AWS Grafana Cloud





AWS Grafana Cloud





AWS Grafana Cloud



Home > Connections > Data sources > elasticsearch

Settings Permissions Insights

Name elasticsearch Default

Before you can use the Elasticsearch data source, you must configure it below or in the config file. For detailed instructions, [view the documentation](#).

Connection

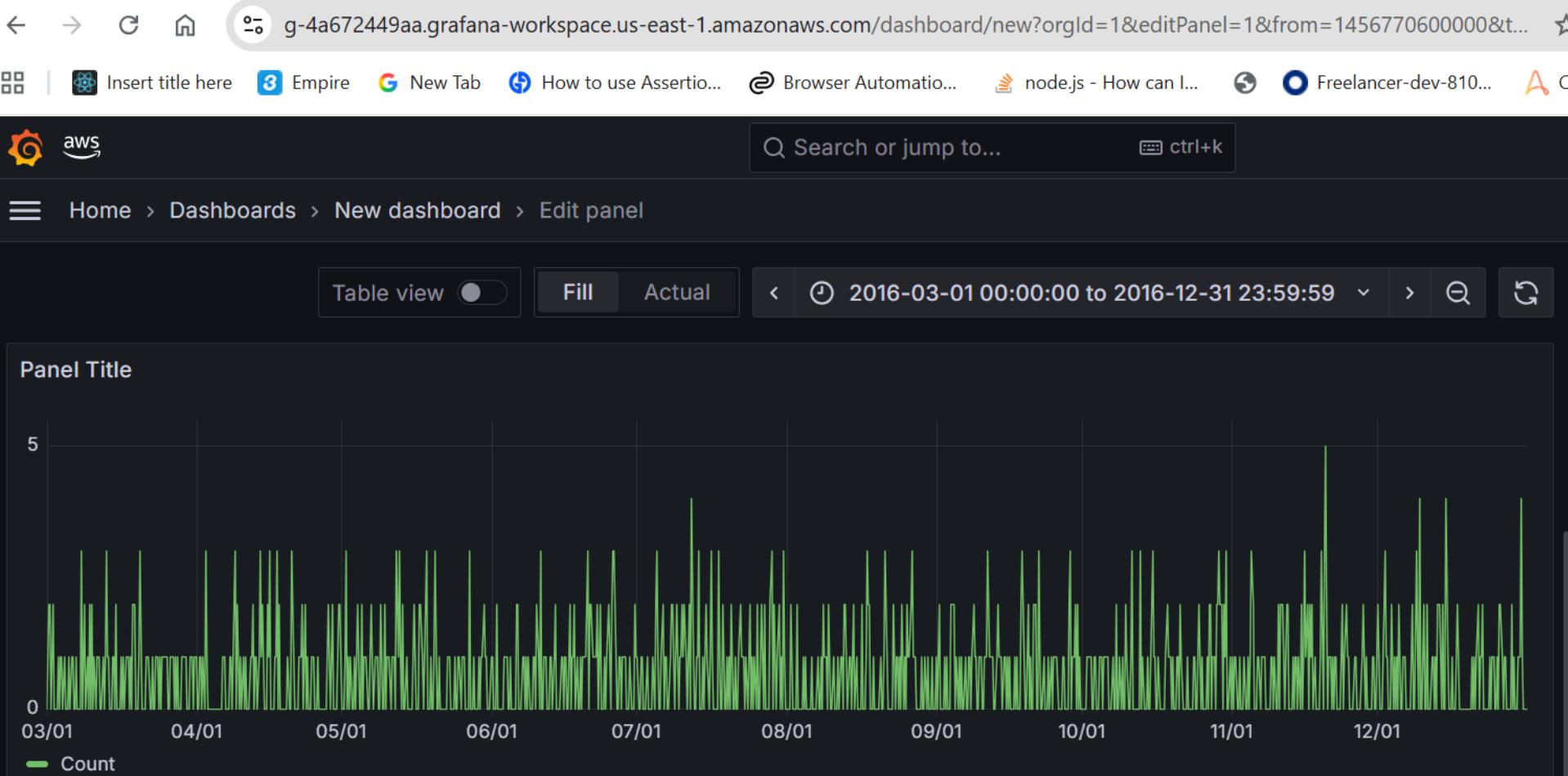
URL * https://grafanaelasticdeployment.es.us-east-2.aws.elasticbeanstalk.com

Authentication

Authentication methods



AWS Grafana Cloud





SNS Publisher

Amazon SNS > Topics > cloudwatchalert

New Feature
Amazon SNS now supports High Throughput FIFO topics. [Learn more](#)

cloudwatchalert

[Edit](#) [Delete](#) [Publish message](#)

Details	
Name	cloudwatchalert
ARN	arn:aws:sns:us-east-1:975050122380:cloudwatchalert
Type	Standard
Display name	-
Topic owner	975050122380

< [Subscriptions](#) [Access policy](#) [Data protection policy](#) [Delivery policy \(HTTP/S\)](#) [Delivery status logging](#) [Encrypt](#) >



SNS Alert



aws

Search or jump to...

ctrl+k

Home > Alerting > Contact points

Update contact point

Name *

grafana-default-sns

Integration

AWS SNS

Test

Topic

arn:aws:sns:us-east-1:975050122380:cloudwatchalert

Auth Provider

Access & secret key

Alert Message format

JSON

Access Key

AKIA6GBMEESGJARHRBLP



SNS Alert



Simple Notification Service

Subscription confirmed!

You have successfully subscribed.

Your subscription's id is:

arn:aws:sns:us-east-1:975050122380:grafanamessage:5b9a3b13-a028-4a5b-ad91-b2b7c34ad328

If it was not your intention to subscribe, [click here to unsubscribe](#).



SNS Alert

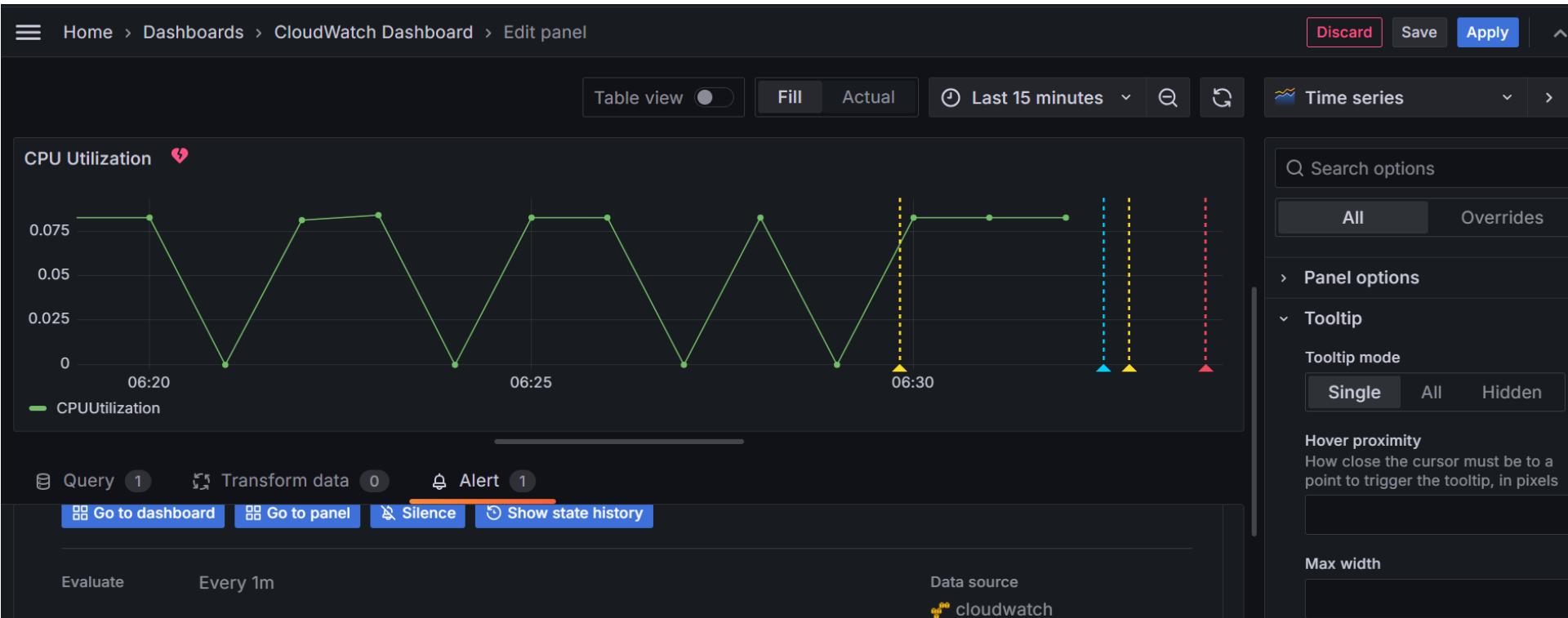
FIRING:1 ➤ Inbox × ✉

AWS Notifications <no-reply@sns.amazonaws.com>
to me ▾ 11:41PM (0 minutes ago) ☆ 😊 ↶

```
{  
  "receiver": "test",  
  "status": "firing",  
  "alerts": [  
    {  
      "status": "firing",  
      "labels": {  
        "alertname": "TestAlert",  
        "instance": "Grafana"  
      },  
      "annotations": {  
        "summary": "Notification test"  
      },  
      "startsAt": "2025-08-20T18:11:48.63074168Z",  
      "endsAt": "0001-01-01T00:00:00Z",  
      "generatorURL": "",  
      "fingerprint": "57c6d9296de2ad39",  
      "silenceURL": "https://g-4a672449aa.grafana-workspace.us-east-1.amazonaws.com/alerting/silence/new?alertmanager=grafana&u0026matcher=alertname%3DTestAlert&u0026matcher=instance%3DGrafana".  
    }  
  ]  
}
```



SNS Alert





SNS Alert

AWS Notifications <no-reply@sns.amazonaws.com>

6:34 AM (0 minutes ago)



to me ▾

{

```
"receiver": "grafana-default-sns",
"status": "firing",
"alerts": [
    {
        "status": "firing",
        "labels": {
            "alertname": "CloudWatch Alert",
            "grafana_folder": "CloudWatchDir"
        },
        "annotations": {},
        "startsAt": "2025-08-21T01:03:50Z",
        "endsAt": "0001-01-01T00:00:00Z",
        "generatorURL": "https://g-4a672449aa.grafana-workspace.us-east-1.amazonaws.com/alerting/grafana/eevmj5l3gv3sa/view?orgId=1",
        "fingerprint": "7bddecaf08bba51b",
        "silenceURL": "https://g-4a672449aa.grafana-workspace.us-east-1.amazonaws.com/alerting/silence/new?alertmanager=grafana\u0026matcher=alertname%3DCloudWatch+Alert\u0026matcher=grafana\_folder%3DCloudWatchDir\u0026orgId=1",
        "dashboardURL": "https://g-4a672449aa.grafana-workspace.us-east-1.amazonaws.com/d/devId8fi4idc0c?orgId=1",
        "panelURL": "https://g-4a672449aa.grafana-workspace.us-east-1.amazonaws.com/d/devId8fi4idc0c?orgId=1&viewPanel=1",
        "values": {
            "Reduce": 0.058474576271185484,
            "Threshold": 4
        }
    }
]
```



Message Template

Variable

`{{ .Status }}`

`{{ .CommonLabels }}`

`{{ .CommonAnnotations }}`

`{{ .Alerts }}`

`{{ .ExternalURL }}`

`{{ .Receiver }}`

`{{ .ValueString }}`

`{{ range .Alerts }}`

Description

Alert status (firing, resolved)

Labels common across alerts (e.g., instance, severity)

Annotations common across alerts (e.g., summary, description)

List of all alerts in the group

Link back to Grafana

Receiver name (Slack, Email, etc.)

Value(s) of the evaluated expression

Loop through alerts



Message Template

▼ Optional AWS SNS settings

Subject

```
[Grafana Alert] {{ .Status | toUpper }} - {{ index .CommonLabels "alertname" }}
```

Text Body

```
⚠ Alert: {{ .Status | toUpper }} Alert name: {{ index .CommonLabels "alertname" }}
```

➤ Notification settings



CloudWatch Alarm vs Grafana Alert

Feature	CloudWatch Alarm	Grafana Alert
Scope	AWS-only metrics (EC2, RDS, ELB, Lambda, etc.)	Any datasource Grafana connects to (AWS + non-AWS)
Actions	SNS, Lambda, Auto Scaling, EC2 stop/start	Send notifications (Slack, Email, PagerDuty, Webhook)
Templates	Basic text, no custom fields	Fully customizable with Go templates
Cross-metric / Cross-source	Limited (only CloudWatch metrics)	Yes (e.g., CPU from CloudWatch + error logs from Loki)
Native AWS automation	Yes	No (needs external script or webhook)
Ease of setup	Very easy in AWS Console/CLI	Easy inside Grafana if already visualizing data
Cost	\$0.10 per alarm metric per month (plus SNS charges)	Grafana OSS = free, Grafana Cloud has per-alert pricing



Loki to Amazon Grafana

Searched: **aws**

Search or jump to... ctrl+k

Home > Dashboards > Dashboard Menu > Edit panel Discard

Table view Fill Actual Last 6 hours Q ↻

Dashboards

- Cloud Watch
- Loki
- JSON API
- Redis
- EBS



Loki to Amazon Grafana

```
ubuntu@ip-172-31-30-195:~$ kubectl -n logging port-forward --address 0.0.0.0 svc/loki-grafana 3000:80
Forwarding from 0.0.0.0:3000 -> 3000
Handling connection for 3000
```



Loki to Amazon Grafana

Not secure 13.218.221.16:3000/d/ba4f0ebd-e1b4-49d2-9135-4b20878570c6/loki-dashboard?orgId=1&from=now-6h&to=now

Insert title here Empire New Tab How to use Assertio... Browser Automation... node.js - How can I... Freelancer-dev-810...

Grafana Home > Dashboards > Loki Dashboard > Edit panel Search... Back to dashboard

Table view Last 6 hours Refresh

New panel

labels	Time	Line	tsNs
{ "app": "grafan..."}	2025-08-21 20:15:00	logger=context userlevel=info ts=1755787500987473	
{ "app": "grafan..."}	2025-08-21 20:14:59	logger=tsdb.loki endpoint=1755787489830246	
{ "app": "grafan..."}	2025-08-21 20:14:59	logger=tsdb.loki endpoint=1755787489823438	
{ "app": "grafan..."}	2025-08-21 20:14:59	logger=tsdb.loki endpoint=1755787488281181	

Queries 1 Transformations 0



Loki to Amazon Grafana

Not secure 34.236.151.89:8889/metrics
Click to go back, hold to see history

Insert title here Empire New Tab How to use Assertio... Browser Automatio... node.js - How can I... Freelancer-dev-810... Courses All Bookmarks

```
# HELP scrape_duration_seconds Duration of the scrape
# TYPE scrape_duration_seconds gauge
scrape_duration_seconds{instance="0.0.0.0:8889",job="opentelemetry-collector",otel_scope_name="github.com/open-telemetry/opentelemetry-collector-contrib/receiver/prometheusreceiver",otel_scope_schema_url="",otel_scope_version="0.132.0"} 2.153081644
scrape_duration_seconds{exported_instance="0.0.0.0:8889",exported_job="opentelemetry-collector",instance="0.0.0.0:8889",job="opentelemetry-collector",otel_scope_name="github.com/open-telemetry/opentelemetry-collector-contrib/receiver/prometheusreceiver",otel_scope_schema_url="",otel_scope_version="0.132.0"} 2.155548795
scrape_duration_seconds{exported_exported_instance="0.0.0.0:8889",exported_exported_job="opentelemetry-collector",exported_instance="0.0.0.0:8889",exported_job="opentelemetry-collector",instance="0.0.0.0:8889",job="opentelemetry-collector",otel_scope_name="github.com/open-telemetry/opentelemetry-collector-contrib/receiver/prometheusreceiver",otel_scope_schema_url="",otel_scope_version="0.132.0"} 2.030561262
scrape_duration_seconds{exported_exported_exported_instance="0.0.0.0:8889",exported_exported_exported_job="opentelemetry-collector",exported_exported_instance="0.0.0.0:8889",exported_exported_job="opentelemetry-collector",instance="0.0.0.0:8889",job="opentelemetry-collector",otel_scope_name="github.com/open-telemetry/opentelemetry-collector-contrib/receiver/prometheusreceiver",otel_scope_schema_url="",otel_scope_version="0.132.0"} 1.7681545650000001
scrape_duration_seconds{exported_exported_exported_exported_instance="0.0.0.0:8889",exported_exported_exported_exported_job="opentelemetry-collector",exported_exported_instance="0.0.0.0:8889",exported_exported_job="opentelemetry-collector",instance="0.0.0.0:8889",job="opentelemetry-collector",otel_scope_name="github.com/open-telemetry/opentelemetry-collector-contrib/receiver/prometheusreceiver",otel_scope_schema_url="",otel_scope_version="0.132.0"} 2.045781173
scrape_duration_seconds{exported_exported_exported_exported_exported_instance="0.0.0.0:8889",exported_exported_exported_exported_exported_job="opentelemetry-collector",exported_exported_instance="0.0.0.0:8889",exported_exported_exported_job="opentelemetry-collector",exported_exported_exported_instance="0.0.0.0:8889",exported_exported_exported_job="opentelemetry-collector",instance="0.0.0.0:8889",job="opentelemetry-collector",otel_scope_name="github.com/open-telemetry/opentelemetry-collector-contrib/receiver/prometheusreceiver",otel_scope_schema_url="",otel_scope_version="0.132.0"} 1.983972975
scrape_duration_seconds{exported_exported_exported_exported_exported_exported_instance="0.0.0.0:8889",exported_exported_exported_exported_exported_exported_job="opentelemetry-collector",exported_exported_exported_exported_instance="0.0.0.0:8889",exported_exported_exported_exported_exported_job="opentelemetry-collector",exported_exported_exported_exported_instance="0.0.0.0:8889",exported_exported_exported_exported_job="opentelemetry-collector",exported_exported_exported_instance="0.0.0.0:8889",exported_exported_exported_job="opentelemetry-collector",instance="0.0.0.0:8889",job="opentelemetry-collector",otel_scope_name="github.com/open-telemetry/opentelemetry-collector-contrib/receiver/prometheusreceiver",otel_scope_schema_url="",otel_scope_version="0.132.0"} 2.009442845
scrape_duration_seconds{exported_exported_exported_exported_exported_exported_instance="0.0.0.0:8889",exported_exported_exported_exported_exported_exported_job="opentelemetry-collector",exported_exported_exported_exported_exported_instance="0.0.0.0:8889",exported_exported_exported_exported_exported_job="opentelemetry-collector",exported_exported_exported_exported_instance="0.0.0.0:8889",exported_exported_exported_exported_job="opentelemetry-collector",instance="0.0.0.0:8889",job="opentelemetry-collector",otel_scope_name="github.com/open-telemetry/opentelemetry-collector-contrib/receiver/prometheusreceiver",otel_scope_schema_url="",otel_scope_version="0.132.0"} 2.009442845
```



AWS Grafana CLI

- `aws iam attach-user-policy --user-name eks-admin --policy-arn arn:aws:iam::aws:policy/AWSGrafanaConsoleReadOnlyAccess`
- `aws grafana list-workspaces --region us-east-1`
- `# get work space id from above command`



AWS Grafana CLI

```
C:\ Administrator: Command Prompt - kubectl exec -it my-grafana-7b8b59fffb-64rzk -n grafana -- /bin/bash
```

```
C:\Windows\System32>kubectl exec -it my-grafana-7b8b59fffb-64rzk -n grafana -- /bin/bash
my-grafana-7b8b59fffb-64rzk:/usr/share/grafana$ grafana -v
grafana version 12.1.0
my-grafana-7b8b59fffb-64rzk:/usr/share/grafana$ grafana cli plugins ls
installed plugins:

grafana-pyroscope-app @ 1.7.0
marcusolsson-json-datasource @ 1.3.24
yesoreyeram-infinity-datasource @ 3.4.1
grafana-exploretraces-app @ 1.1.3
grafana-lokiexplore-app @ 1.0.25
grafana-metricsdrilldown-app @ 1.0.11
my-grafana-7b8b59fffb-64rzk:/usr/share/grafana$
```



AWS Grafana CLI

```
Administrator: Command Prompt - kubectl exec -it my-grafana-7b8b59ffffb-64rzk -n grafana -- /bin/bash

my-grafana-7b8b59ffffb-64rzk:/usr/share/grafana$ grafana cli plugins install grafana-piechart-panel
INFO [08-21|16:52:39] Starting Grafana
INFO [08-21|16:52:39] Config loaded from logger=settings version=12.1.0 commit=ccd7b6ce7ea6184b8c7eb1de044174147dd9a648 branch=HEAD compiled=2025-08-21T16:52:39Z
INFO [08-21|16:52:39] Config overridden from Environment variable logger=settings var="GF_PATHS_DATA=/var/lib/grafana/"
INFO [08-21|16:52:39] Config overridden from Environment variable logger=settings var="GF_PATHS_LOGS=/var/log/grafana"
INFO [08-21|16:52:39] Config overridden from Environment variable logger=settings var="GF_PATHS_PLUGINS=/var/lib/grafana/plugins"
INFO [08-21|16:52:39] Config overridden from Environment variable logger=settings var="GF_PATHS_PROVISIONING=/etc/grafana/provisioning"
INFO [08-21|16:52:39] Config overridden from Environment variable logger=settings var="GF_SECURITY_ADMIN_USER=admin"
INFO [08-21|16:52:39] Config overridden from Environment variable logger=settings var="GF_SECURITY_ADMIN_PASSWORD=*****"
INFO [08-21|16:52:39] Target logger=settings target=[all]
INFO [08-21|16:52:39] Path Home logger=settings path=/usr/share/grafana
INFO [08-21|16:52:39] Path Data logger=settings path=/var/lib/grafana/
INFO [08-21|16:52:39] Path Logs logger=settings path=/var/log/grafana
INFO [08-21|16:52:39] Path Plugins logger=settings path=/var/lib/grafana/plugins
INFO [08-21|16:52:39] Path Provisioning logger=settings path=/etc/grafana/provisioning
INFO [08-21|16:52:39] App mode production logger=settings
✔ Plugin grafana-piechart-panel v1.6.4 already installed.

Please restart Grafana after installing or removing plugins. Refer to Grafana documentation for instructions if necessary.

my-grafana-7b8b59ffffb-64rzk:/usr/share/grafana$ _
```

AWS Grafana CLI





AWS Grafana CLI

```
Administrator: Command Prompt - kubectl exec -it my-grafana-7b8b59ffffb-64rzk -n grafana -- /bin/bash
INFO [08-21|17:08:54] Target                                logger=settings target=[all]
INFO [08-21|17:08:54] Path Home                            logger=settings path=/usr/share/grafana
INFO [08-21|17:08:54] Path Data                            logger=settings path=/var/lib/grafana/
INFO [08-21|17:08:54] Path Logs                            logger=settings path=/var/log/grafana
INFO [08-21|17:08:54] Path Plugins                         logger=settings path=/var/lib/grafana/plugins
INFO [08-21|17:08:54] Path Provisioning                   logger=settings path=/etc/grafana/provisioning
INFO [08-21|17:08:54] App mode production                 logger=settings
✓Downloaded and extracted grafana-oncall-app vv1.9.0 zip successfully to /var/lib/grafana/plugins/grafana-oncall-app

Please restart Grafana after installing or removing plugins. Refer to Grafana documentation for instructions if necessary.

my-grafana-7b8b59ffffb-64rzk:/usr/share/grafana$ kubectl rollout restart deployment my-grafana -n grafana
bash: kubectl: command not found
my-grafana-7b8b59ffffb-64rzk:/usr/share/grafana$ kubectl ^Cllout restart deployment my-grafana -n grafana
my-grafana-7b8b59ffffb-64rzk:/usr/share/grafana$ exit
exit
command terminated with exit code 130

E:\accgrafana2025>kubectl rollout restart deployment my-grafana -n grafana
deployment.apps/my-grafana restarted

E:\accgrafana2025>kubectkkubectl exec -it my-grafana-7b8b59ffffb-64rzk -n grafana -- /bin/bash
'kubectkkubectl' is not recognized as an internal or external command,
operable program or batch file.

E:\accgrafana2025>kubectl exec -it my-grafana-7b8b59ffffb-64rzk -n grafana -- /bin/bash
my-grafana-7b8b59ffffb-64rzk:/usr/share/grafana$ grafana cli plugins ls
installed plugins:

grafana-lokiexplore-app @ 1.0.25
grafana-metricsdrilldown-app @ 1.0.11
grafana-oncall-app @ v1.9.0
grafana-piechart-panel @ 1.6.4
grafana-pyroscope-app @ 1.7.0
marcusolsson-json-datasource @ 1.3.24
yesoreyeram-infinity-datasource @ 3.4.1
grafana-exploretraces-app @ 1.1.3
my-grafana-7b8b59ffffb-64rzk:/usr/share/grafana$
```



AWS Grafana CLI

Home > Dashboards > Calculated Field Dashboard > Settings > Permissions

Search... ctrl+k

Back to dashboard Save dashboard

Settings

General Annotations Variables Links Versions Permissions JSON Model

Role

Role	Permission	Actions
Admin	Admin	ⓘ 🔒
Editor	Edit	ⓘ ✖
Viewer	View	ⓘ ✖

User

User	Permission	Actions
admin	Admin	ⓘ ✖

+ Add a permission



User and Roles – User1

New panel

date	qty	price
2025-08-01 05:30:00	5	10
2025-08-02 05:30:00	3	12

- View v
- Share >
- Inspect i
- More... >





Variable Types

Variable Type	Description	Example Use
Query	Fetches values from datasource	List all hosts, regions
Interval	Predefined time ranges	1m, 5m, 1h for rate queries
Custom	Hardcoded list	dev, test, prod
Constant	One fixed value	Always use us-east-1
Datasource	Switch between data sources	Prometheus A vs Prometheus B
Textbox	Free-text input	Enter custom hostname
Ad hoc	Dynamic key-value filters	Filter by job=api



Grafana Licensing Overview

- **1. Grafana OSS (Open Source Edition)**
- **License:** AGPL v3
- **Cost:** Free
- **Includes:**
 - Core dashboards, panels, and variables
 - Standard data sources (Prometheus, Loki, InfluxDB, MySQL, etc.)
 - User management (basic roles: Admin, Editor, Viewer)
- **Limitations:**
 - No enterprise plugins (Splunk, ServiceNow, Oracle, etc.)
 - No fine-grained RBAC
 - No reporting / audit logs



Grafana Licensing Overview

- **2. Grafana Enterprise**
- **License:** Commercial (from Grafana Labs)
- **Cost:** Paid subscription (per active user or via annual contract)
- **Includes everything in OSS**, plus:
 - **Enterprise data sources:** Splunk, ServiceNow, New Relic, Oracle DB, Dynatrace, etc.
 - **Enterprise plugins:** Teams, reporting, access control, etc.
 - **Fine-grained RBAC** (role-based access control beyond Viewer/Editor/Admin)
 - **Reporting & Auditing** (PDF/CSV reports, audit logs)
 - **Enterprise support** (SLA-based support, dedicated account help)
- **Typical use case:** Large organizations needing governance, integrations, and compliance.



Grafana Licensing Overview

- **3. Grafana Cloud**
- **License:** SaaS subscription (hosted by Grafana Labs)
- **Cost:**
 - **Free** (limited usage)
 - **Pro** (per active user/month + data volume pricing)
 - **Advanced/Enterprise** (custom contracts)
- **Includes:**
 - Hosted Grafana + Managed Loki, Tempo, Mimir
 - Dashboards, alerting, logging, tracing all in one
 - Team collaboration features
 - Automatic upgrades and scaling
- **Best for:** Companies that don't want to manage their own Grafana infrastructure.



Grafana Licensing Overview

Feature	Grafana OSS	Grafana Enterprise	Grafana Cloud
Core dashboards	✓	✓	✓
Open-source data sources	✓	✓	✓
Enterprise data sources	✗	✓	✓
Reporting (PDF/CSV)	✗	✓	✓
Fine-grained RBAC	✗	✓	✓
Audit logs	✗	✓	✓
Managed hosting	✗	✗	✓
Support & SLAs	Community	Enterprise support	Enterprise support



Lambda Function

Lambda > Functions > GenerateRandom

Successfully updated the function **GenerateRandom**.

The test event "TestEventv1" was successfully saved.

GENERATERANDOM

- lambda_function.py

```
lambda_function.py
1 import json
2 from random import randint
3
4 def lambda_handler(event, context):
5     # TODO implement
6     otp = randint(10000, 99999)
7     return {
8         'statusCode': 200,
9         'body': json.dumps(otp)
10    }
11
```

DEPLOY

Deploy (Ctrl+Shift+U)

Test (Ctrl+Shift+I)

TEST EVENTS [SELECTED: TESTEVENTV1]

- + Create new test event
- Private saved events
- TestEvent

Create new test event

Event Name: TestEventv1

Maximum of 25 characters consisting of letters, numbers, dots, hyphens and underscores.

Event sharing settings:

- Private
- Shareable

This event is only available in the Lambda Console and to the event creator. You can configure a total of ten. [Learn more](#)

This event is available to IAM users within the same account who have permissions to access and use shareable events. [Learn more](#)

PROBLEMS OUTPUT CODE REFERENCE LOG TERMINAL

Status: Succeeded

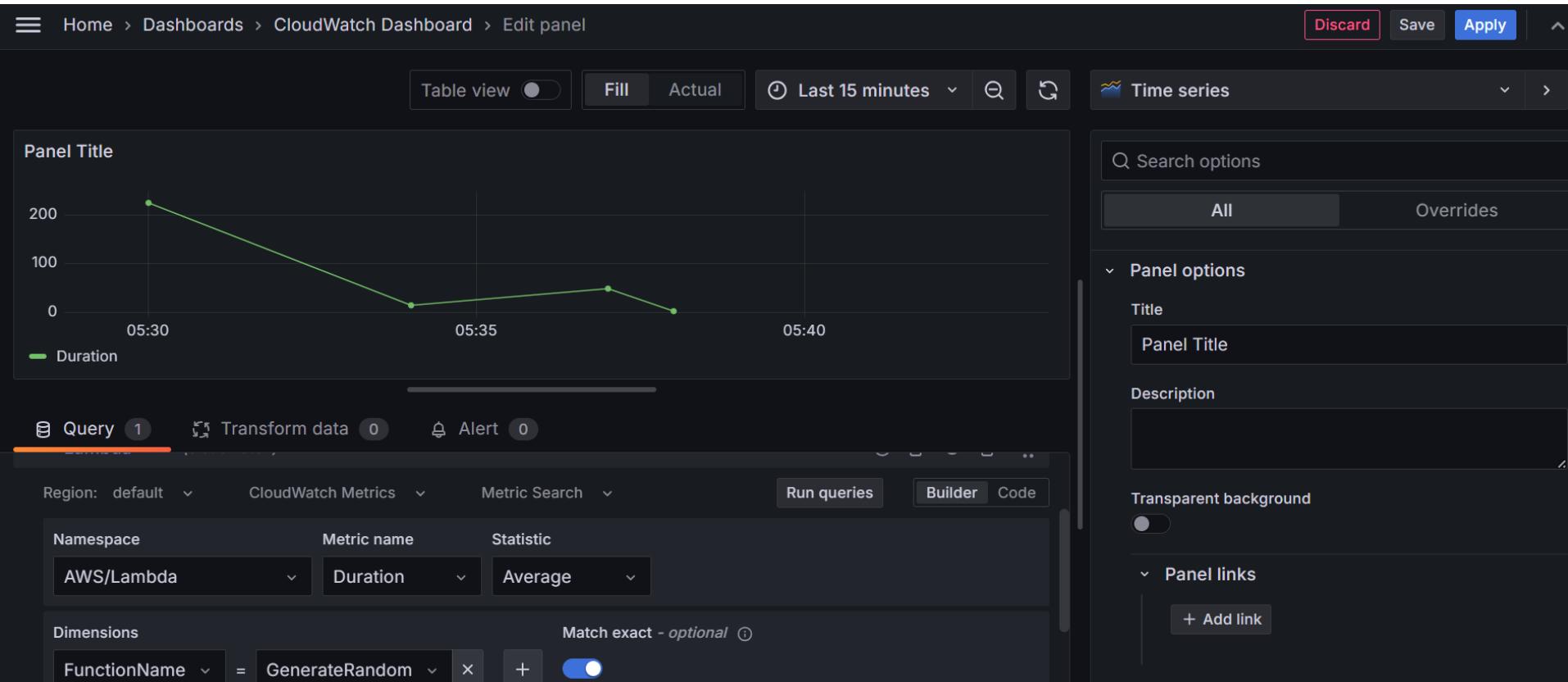
Test Event Name: TestEventv1

Response:

```
{
  "statusCode": 200,
```



Lambda Function





Authentication

A screenshot of a web browser window. The address bar shows a GitHub login URL: `github.com/login?client_id=Ov23liBVO2aEJky2Zk1&return_to=%2Flogin%2Foauth%2Fauthorize%3Fclient_id%3DOv2...`. The browser interface includes standard navigation buttons (back, forward, search), a tab bar with multiple open tabs, and a bookmarks bar at the bottom.

The image shows a GitHub login screen with a large blue circular icon containing a white letter 'H'. Below it, the text reads "Sign in to GitHub to continue to GrafanaCloud".

Username or email address

Password
 Parameswaribala@gmail.com [Forgot password?](#)
 [Manage passwords...](#)

[Sign in](#)

or



Authentication

parameswariettiappan2025.grafana.net/a/grafana-setupguide-app/home

Insert title here Empire New Tab How to use Assertio... Browser Automatio... node.js - How can I... Freelancer-dev-810... Courses New Tab

Grafana Home Search... ctrl+k

Home Bookmarks Starred Dashboards Assistant New! Alerts & IRM AI & machine learning Testing & synthetics Observability Administration

Good morning.

Recent Dashboards 0 Starred 0 Learn

Account Usage

Get insights into your account with dashboards to monitor your billing, cardinality, usage and more.

Sandbox Account

Check out Grafana Play to get inspired and learn what kinds of dashboards you can build.

219



Terraform Grafana Use cases

A) Platform provisioning & lifecycle

1. Install/upgrade Grafana on Kubernetes (idempotent)

- Use helm_release to install the grafana/grafana chart.
- Pin chart/image versions, roll out safely, roll back on failure.

2. Complete observability stack in one apply

- Install Prometheus/Loki/Tempo + Grafana, wire datasources, dashboards, and alerts end-to-end.

3. Blue/green or canary upgrades

- Stand up a parallel Grafana release, validate, flip ingress/Service, then destroy the old.

4. Disaster recovery

- Recreate Grafana (and datasources/dashboards) in a fresh cluster/region with one command.



Terraform Grafana Use cases

B) Configuration as code (avoid drift)

5.Grafana configuration (grafana.ini) as code

- Set root URL, auth settings, feature toggles via Helm values or K8s ConfigMaps.

6.Plugins as code

- Pin plugin versions (plugins: in Helm). Avoid “click to install,” which drifts across envs.

7.Branding & home dashboard

- Mount custom logos, set home dashboard via values or provider resources.



Terraform Grafana Use cases

C) Datasources, dashboards, alerts as code

8.Datasources

- For K8s: provision via sidecar-watched ConfigMaps (Helm sidecar.datasources).
- For any Grafana: use the **Grafana Terraform Provider** grafana_data_source (when supported).

9.Dashboards

- Keep JSON in Git; manage with grafana_dashboard (provider) or sidecar ConfigMaps.
- Promote across **dev** → **stage** → **prod** using the same modules with different vars.

10.Alerting (unified alerting)

- grafana_contact_point, grafana_notification_policy, grafana_rule_group resources.
- Encode SLIs/SLOs and paging paths as code; PR review changes before they affect on-call.



Terraform Grafana Use cases

D) Amazon Managed Grafana (AMG) specifics

11. Workspace creation & SSO

- aws_grafana_workspace + aws_grafana_role_association to wire IAM Identity Center groups (Viewer/Editor/Admin).

12. Service-managed permissions

- Enable permission_type = SERVICE_MANAGED so AMG auto-handles IAM to read CloudWatch/AMP/Timestream/etc.

13. Dashboards/alerts into AMG

- Short-lived aws_grafana_workspace_api_key → configure **Grafana provider** → push dashboards, folders, alerts.



Terraform Grafana Use cases

- **E) Multi-tenant & enterprise needs**
- **Tenant (org/folder) onboarding**
- Create folders, teams, permissions, contact points, and starter dashboards per tenant in a loop.
- **RBAC as code**
- Manage folders, teams, and fine-grained permissions (read/edit/admin) with provider resources.
- **Secrets management**
- Datasource creds and webhooks via Terraform variables + Secret backends (AWS Secrets Manager / Vault) surfaced to Grafana.



Terraform Grafana Use cases

- **F) Automation patterns**
- **Ephemeral preview envs**
- Spin up short-lived Grafana + sample datasets per PR for dashboard review; auto-destroy on merge.
- **SLO/SLI pack rollout**
- Reusable modules that create standard latency/error-rate dashboards and alerts for each new service.
- **Cost & tagging hygiene**
- Enforce labels/annotations on releases and data sources for ownership/cost attribution.



Terraform Grafana Use cases

G) Operational guardrails & best practices

- **Module everything:** one module for K8s Grafana (Helm), one for AMG, one for dashboards/alerts.
- **Pin versions:** Helm chart + plugin versions to avoid surprise UI/API changes.
- **Keep JSON dashboards in files:** use file() with grafana_dashboard for readable diffs.
- **Use workspaces/state per environment:** dev, stage, prod to prevent cross-env accidents.
- **Use helm diff in CI** before apply to show exactly what will change.
- **Rotate AMG API keys** if you use them for provisioning (short TTL, created per-apply).
- **Plan for cache:** after branding/logo changes, inval caches or add cache-buster query params in checks.

Questions





Module Summary

-
- What is Grafana
 - How Grafana Works
 - Grafana Installation
 - DataSources
 - Dashboards

