Efficient Cloud Application Monitoring with Grafana API Integration

22 Aug 2024

Grafana Labs

DEVOPSDAYS HALIFAX

Presenter

Syed Usman Ahmad

Sr. Developer Advocate

About me

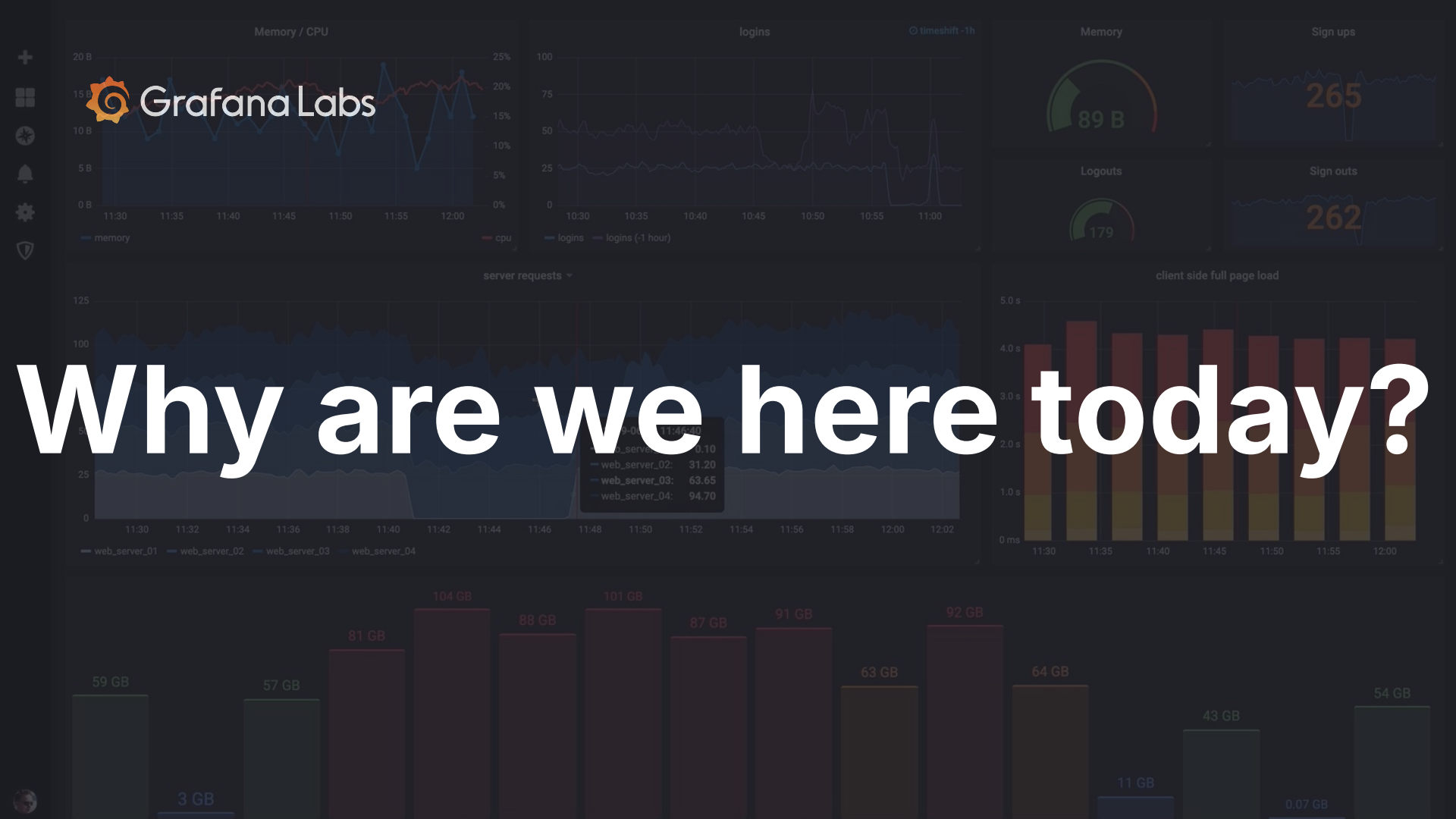
What I do?

My previous roles?

What I do beside work?

↘

github.com/usmangt



Why are we here today?

Lots of users traffic on daily basis

Grafana

The parent category for Grafana. Browse the subcategories

- Installation
- Configuration 1 new
- Authentication
- Alerting 4 new
- Dashboards 1 unread 9 new
- Data Links 1 new
- Live
- Explore
- Bar Gauge Panel
- Bar Chart Panel
- Gauge Panel
- Geomap Panel 1 new
- Graph (Old) Panel
- Pie Chart Panel
- Stat Panel
- Table Panel
- Time Series Panel
- Prometheus 2 new
- InfluxDB 4 new
- Elasticsearch
- Sqlyze (Beta)
- MySQL 1 new
- PostgreSQL
- MSSQL
- Cloudwatch
- Graphite
- Azure Monitor
- Zabbix
- Releases
- Security Announcements
- How To
- Developers & API
- Grafana Agent 2 new

Grafana Loki

Discuss and ask questions on Grafana Loki–the open source horizontally-scalable, multi-tenant log aggregation system inspired by Prometheus.

Grafana Cloud

This is the place to discuss topics related to Grafana Cloud services such as hosted Grafana, Metrics, Logs, and Synthetic Monitoring.

Grafana Tempo

Ask questions and give feedback on Grafana Tempo, the open source and high-scale distributed tracing backend created by Grafana Labs.

Grafana Phlare

Ask questions and give feedback on Grafana Phlare, the open source project for aggregating continuous profiling data.

Grafana Plugin Development

Join other developers to discuss plugin development. Ask questions or share what you're working on.

- Announcements
- Signing & publishing
- Share & showcase

Grafana Labs

How to Monitor the Community Performance?

Discourse Data Explorer Plugin

1. Enables SQL queries against Backend DB
2. Supported by the Discourse API
3. Easy and powerful to get data

Example

- SQL query to get the Top 20 posts

```sql
SELECT
    t.ID, TITLE, REPLY_COUNT, VIEWS, LAST_POSTED_AT, CATEGORY_ID,
    CASE WHEN tcf.name IS NOT NULL THEN 'SOLVED' ELSE 'UNSOLVED' END status

FROM topics t
LEFT JOIN topic_custom_fields tcf ON tcf.topic_id = t.id
            AND tcf.name = 'accepted_answer_post_id'

WHERE
    t.created_at >= '2023-05-01'
    AND t.created_at < '2023-07-31'
    AND CATEGORY_ID NOT IN (41,34,40,68,30,6)

ORDER BY views DESC LIMIT 20
```

Example

- JSON Result:


```
{
 ......
  .......
  "rows": [
    [
      87028,
      "Database is locked",
      1,
      1111,
      "2023-05-13T10:37:16.185Z",
      20,
      "UNSOLVED"
    ],
    [
      88090,
      "How can I get CPU usage for multiple servers within a single panel?",
      7,
      820,
      "2023-06-30T07:46:12.239Z",
      15,
      "UNSOLVED"
    ],
    [
      86940,
      "How do you sum all like-named rows?",
      2,
      652,
      "2023-05-03T15:38:15.557Z",
      50,
      "SOLVED"
    ],
```


```
curl -X POST -d "api key=$api key&api username=$username" https://community.grafana.com/admin/plugins/explorer/querie/$query id/run
```


```
}
```

Grafana Labs
Memory / CPU
memory
cpu
logins
timeshift -1h
logins
logins (-1 hour)
Memory
89 B
Sign ups
265
Logouts
179
Sign outs
262
server requests
web_server_01
web_server_02
web_server_03
web_server_04
web_server_02: 31.20
web_server_03: 63.65
web_server_04: 94.70
client side full page load
59 GB
3 GB
57 GB
81 GB
104 GB
88 GB
101 GB
87 GB
91 GB
63 GB
92 GB
64 GB
11 GB
43 GB
0.07 GB
54 GB

Challenges 😓

Tracking Progress

Time-Consuming

Scaling & Growth

Up to Date?

Stress

If you can fix those user problems
by Monday
That would be GREAT !!

This is how we monitor the Community

Category: Alerting | Start Date: start of 2022q4 | End Date: end of 2023q1 | OLD-Category: alerting

Community Forum Response Rates

Response Rate per Category: from start of 2022q4 to end of...

subcategory	alerting
topics w/ no response	179
response rate for subcategory	61.3%

"Alerting" category: topics with no response: 22Q4

Topic ID	Title
75222	"Count metrics resulting from grafana managed alert and multi series mysql query"
75372	"Alert Test Rule fails with working Teams Channel"
75378	"Listing alerts that are default grouped by importance doesn't work as expected"
75709	"After update to 9.2 could not get metrics from AWS Cloudwatch"
75723	"How to get time information and remove the source url"
75757	"Query alert is in 'alerting' state for ever"
75842	"Grafana Table Visualization in Pop Up (alert) On Selecting a filter"
75952	"Grafana alert (status code with 195,187 and etc.)"

‹ 1 2 3 4 5 6 7 ··· 23 › 1 - 8 of 179 rows

Top 20 Posts in Alerting Category: from start of 2022q4 to end of 2023q1

Topic I	Title	Total Views	Reply Count	Last Posted At	Status
76083	Documentation of Alert Templating in Serious Need of Improvement!	4088	80	2023-JUL	UNSOLVED
75591	Variables Formatting in Grafana Alerts	3830	0	2022-NOV	SOLVED
80988	Working configuration example for alerts templating - Telegram and Slack	3456	0	2023-MAY	SOLVED
85019	How to handle no data alert?	2216	0	2023-APR	UNSOLVED

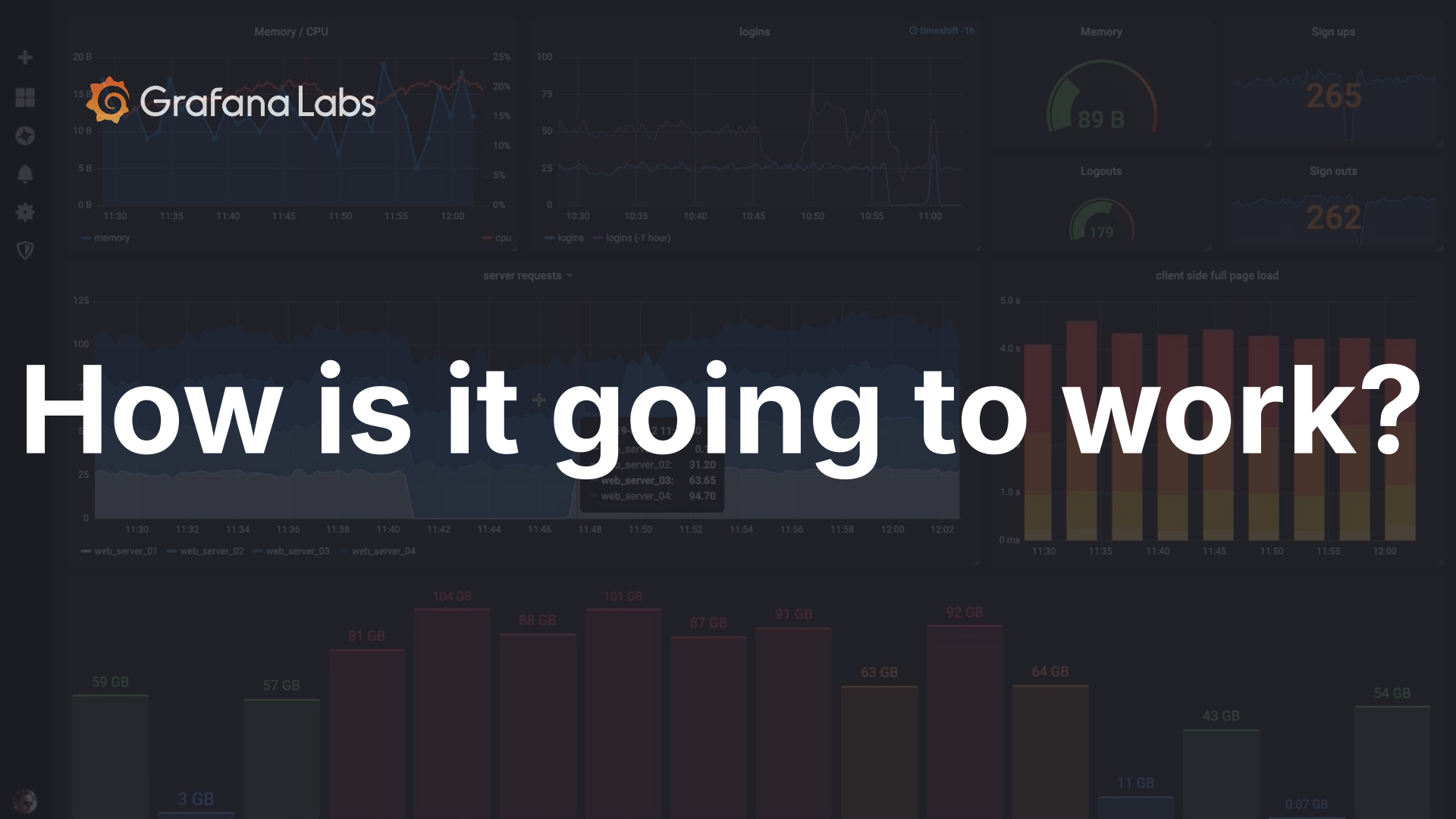
Grafana Labs
Memory / CPU
memory
cpu
logins
timeshift -1h
logins
logins (-1 hour)
Memory
89 B
Sign ups
265
Logouts
179
Sign outs
262
server requests
web_server_01
web_server_02
web_server_03
web_server_04
client side full page load
How Can You Do It?

Using Grafana

1. Available on all Platforms
2. Support various Visualisation formats
3. Only need a Data source

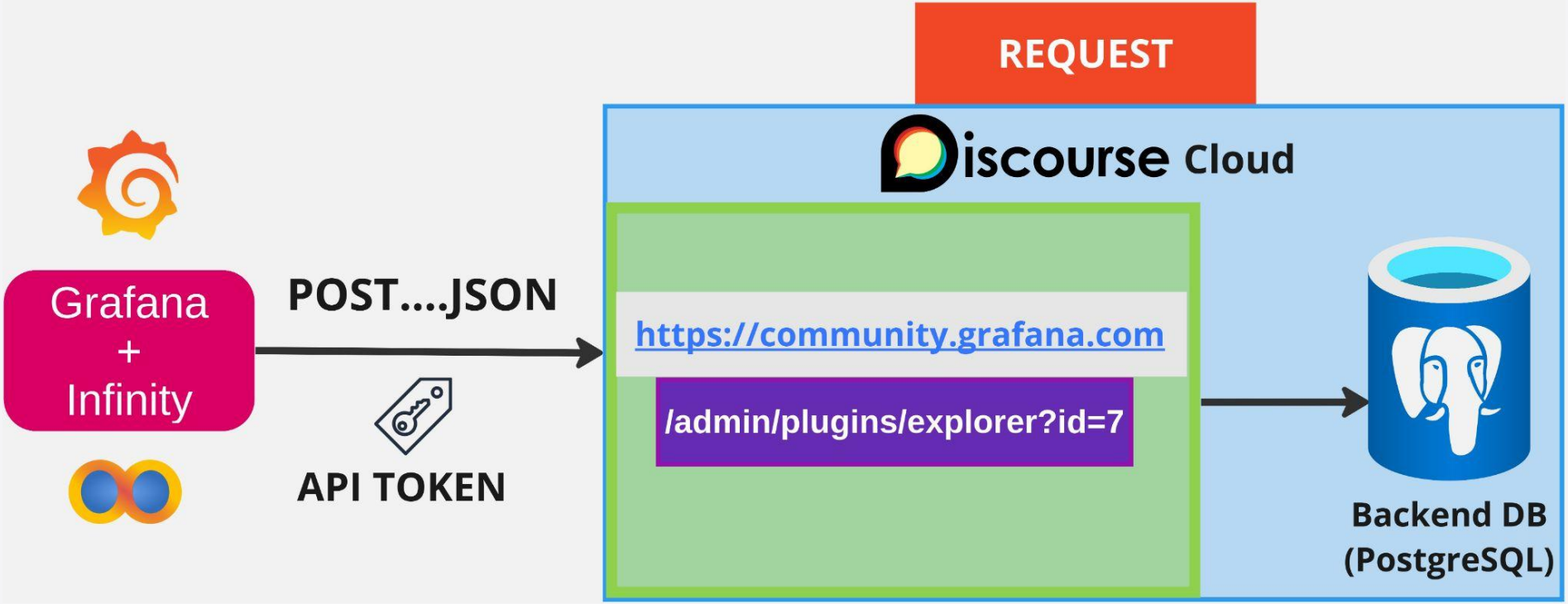
Using Infinity plugin

1. Core Plugin ✓
2. Support various data formats
3. Supports many Grafana features

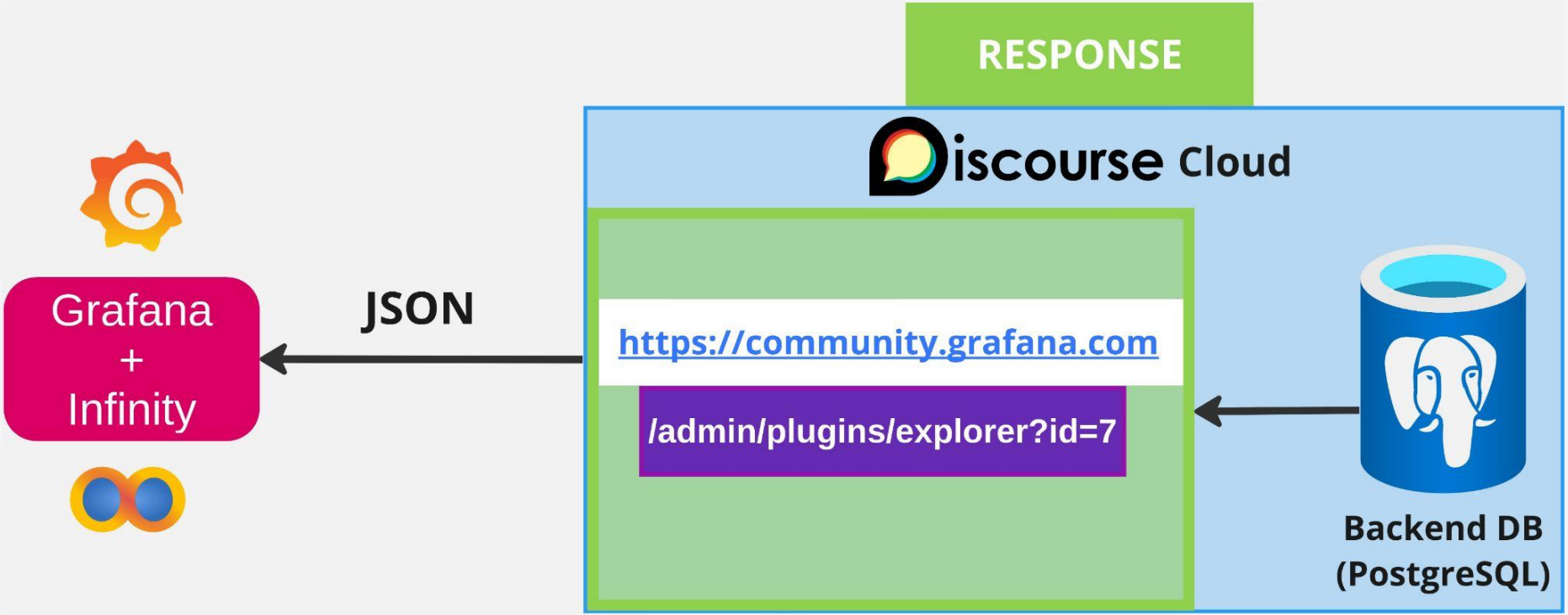


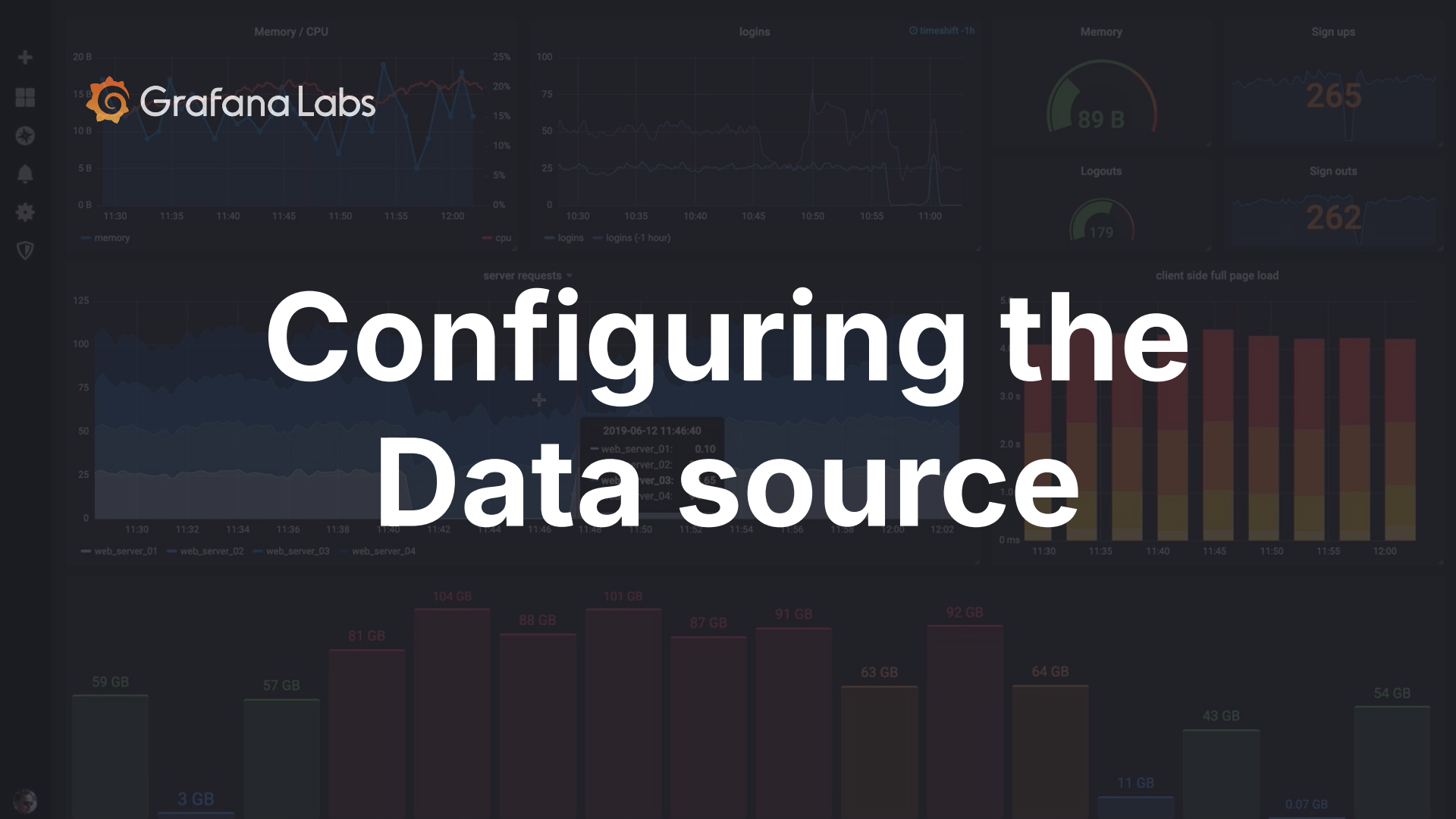
How is it going to work?

Sending Request



Receiving Response





Configuring the Data source

2 Step process

Install ∞ using the plugin catalog

↓

Configure API Key

Search or jump to... ctrl+k

Home

Add

Welcome to Grafana

Need help? Documentation Tutorials Community Public Slack

Remove this panel

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.

COMPLETE

Add your first data source

Learn how in the docs

DASHBOARDS

Create your first dashboard

Learn how in the docs

Dashboards

Starred dashboards

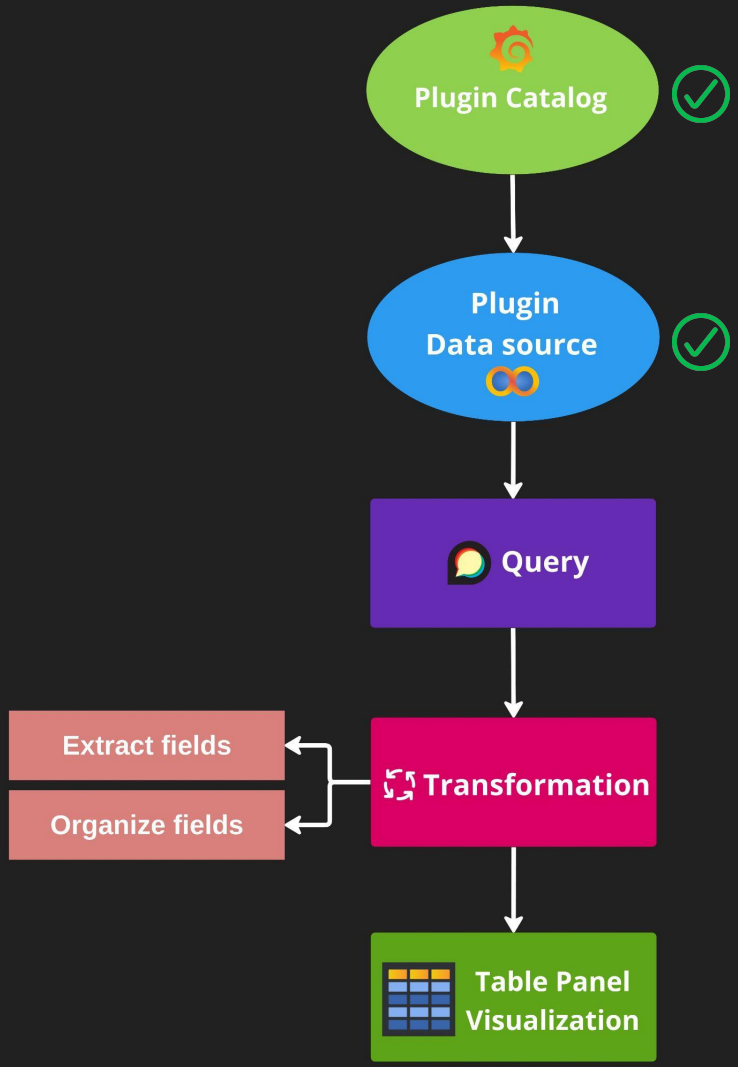
Latest from the blog

Aug 18

Inside Grafana Labs' hiring process for backend engineers

Grafana Labs

Creating a Dashboard Panel


Plugin Catalog
Plugin
Data source
Query
Extract fields
Organize fields
Transformation
Table Panel
Visualization

Setting up a Query panel

Home

Add

Unnamed

Welcome to Grafana

Need help? Documentation Tutorials Community Public Slack

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COMPLETE

Add your first data source

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COMPLETE

Create your first dashboard

Learn how in the docs

Dashboards

Starred dashboards

Recently viewed dashboards

Monitoring Status Dashboard

Latest from the blog

Aug 16

Reduce MTTR with Grafana, Grafana k6, and Prometheus: Inside DHL's observability stack

Each year, more than 296 million packages are shipped around the world via DHL and their premium service, Time Definite International. And at DHL Express Switzerland, a local unit of the international logistics and shipping company, the IT team provides solutions for tracking customs clearance progress, analytics, mobile and optical character recognition (OCR) scanning, and warehouse management on every package that moves through Switzerland. It's a complex operation that requires a multi-layered business and IT framework where every minute and every shipment counts.

Aug 14

How to monitor pool water levels from anywhere with Grafana

I've had a swimming pool at my house in Massachusetts since 2016. One of the problems that pool owners like myself face when we go on vacation or leave for several days is evaporation from the pool and the water level dropping below the skimmers. This can happen due to sunlight and warm temperatures. It can also happen when temperatures drop at night and

359

Defining query in the editor

Home › Dashboards › Monitoring Status Dashboard › Edit panel

1

Table view | Fill | Actual | Last 24 hours

3

Panel Title

A

[87028,"Database is locked",1,1246,"2023-05-13T10:37:16.185Z",20,"UNSOLVED"]

[88090,"How can I get CPU usage for multiple servers within a single panel?",7,921,"2023-06-30T07:46:12.239Z",15,"SOLVED"]

[90396,"Failed to evaluate queries and expressions: input data must be a wide series but got type long (input refid)",2,749,"2023-07-28T11:32:30.758Z",60,"UNSOLVED"]

2

Query 1 | Transform 0

Data source: Infinity | Query options: MD = auto = 1326, Interval = 1m | Query inspector

A (Infinity)

Type: JSON | Parser: Backend | Source: URL | Format: Table | Help | Github

Method: POST

URL: https://community.grafana.com/admin/plugins/explorer/queries/7/run

Headers, Body, Request params

Transformation - Extract fields

Home › Dashboards › New dashboard › Edit panel

Discard | Save | Apply

Table view | Fill | Actual | Last 6 hours | Table

Panel Title

A

[87028,"Database is locked",1,1218,"2023-05-13T10:37:16.185Z",20,"UNSOLVED"]

[88090,"How can I get CPU usage for multiple servers within a single panel?",7,901,"2023-06-30T07:46:12.239Z",15,"SOLVED"]

[90396,"Failed to evaluate queries and expressions: input data must be a wide series but got type long (input refid)",2,724,"2023-07-28T11:32:30.758Z",60,"UNSOLVED"]

[86940,"How do you sum all like-named rows?",2,689,"2023-05-03T15:38:15.557Z",50,"SOLVED"]

[89538,"Influxdb2: Combining last + sum to get weekly values",7,653,"2023-06-21T16:33:38.259Z",11,"SOLVED"]

[88901,"How to change the labels and color of the gauge panel?",19,564,"2023-06-07T12:04:06.496Z",51,"UNSOLVED"]

[87835,"Found duplicate series for match group",0,560,"2023-06-21T10:17:51.155Z",24,"UNSOLVED"]

[86860,"Need to set variable in same dashboard when clicking a cell in a table",6,543,"2023-05-02T20:21:19.966Z",61,"SOLVED"]

Query 1 | Transform 0

Data source: Infinity | Query options MD = auto = 1297 Interval = 15s | Query inspector

A (Infinity)

Type: JSON | Parser: Backend | Source: URL | Format: Table | Help | Github

Method: POST | URL: https://community.grafana.com/admin/plugins/explorer/queries/7/run | Headers, Body, Request params

Parsing options & Result fields Field types, alias and selectors

Pagination beta

Computed columns, Filter, Group by

Search options

All | Overrides

Panel options

Title: Panel Title

Description

Transparent background

Panel links

Repeat options

Table

Table footer

Cell options

Standard options

Data links

Value mappings

Add value mappings

Thresholds 2

+ Add field override

Transformation - Organize fields

Panel Title

Topic-ID	Title	Reply count	Total views	Last viewed	Status
87028	Database is locked	1	1116	2023-05-13T10:37:16.185Z	UNSOLVED
88090	How can I get CPU usage for ...	7	824	2023-06-30T07:46:12.239Z	UNSOLVED
86940	How do you sum all like-name...	2	656	2023-05-03T15:38:15.557Z	SOLVED
90396	Failed to evaluate queries and...	2	597	2023-07-28T11:32:30.758Z	UNSOLVED
89538	Influxdb2: Combining last + s...	7	591	2023-06-21T16:33:38.259Z	SOLVED

Query 1 | Transform 2

Extract fields

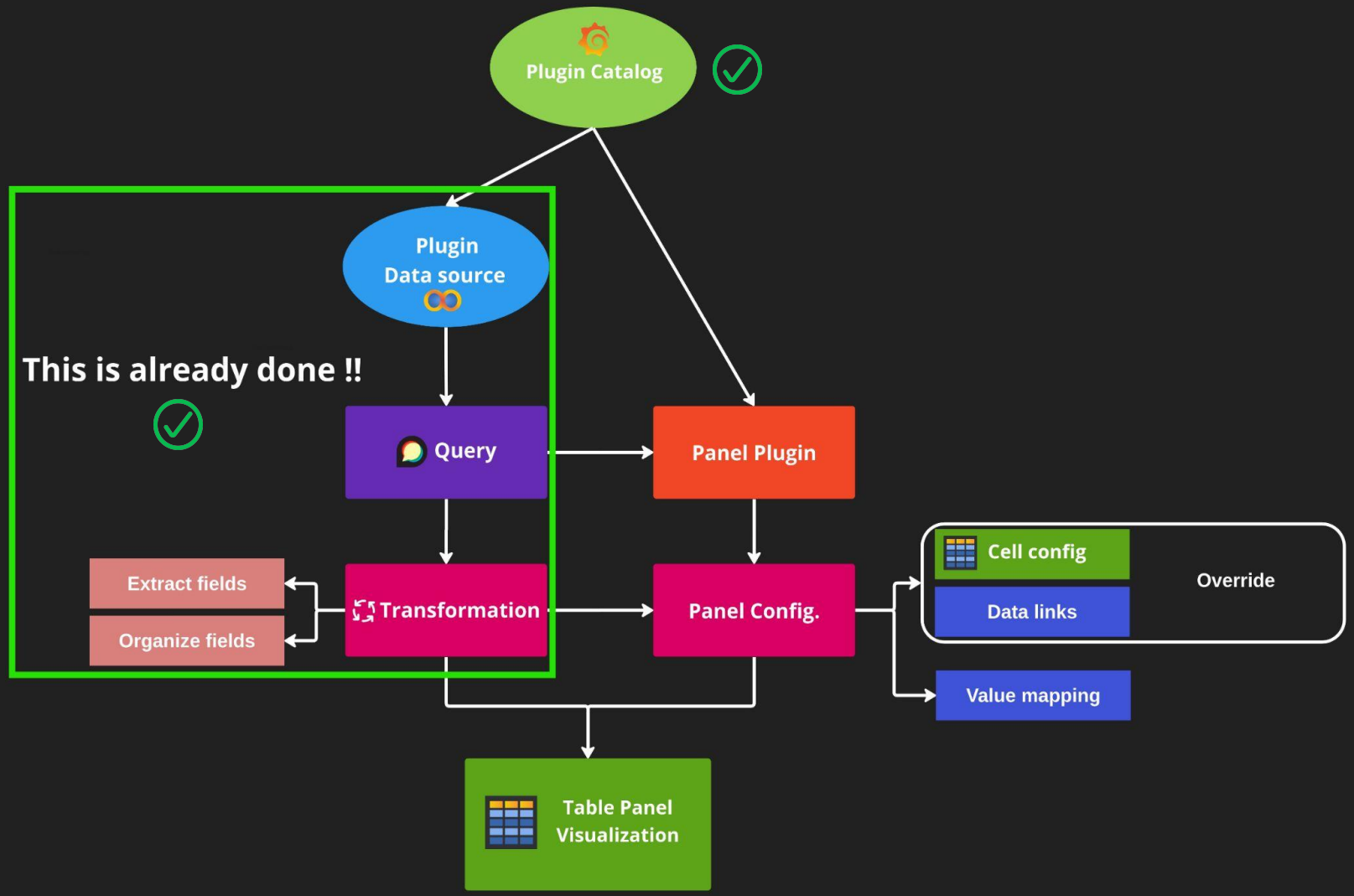
Organize fields

0	Topic-ID
1	Title
2	Reply count
3	Total views
4	Last viewed
5	Category-ID
6	Status

Disabled this specific field

Grafana Labs

Panel configurations


Plugin Catalog
Plugin
Data source
This is already done !!
Query
Panel Plugin
Extract fields
Organize fields
Transformation
Panel Config.
Cell config
Data links
Override
Value mapping
Table Panel
Visualization

Using Override - Cell type

Home › Dashboards › Monitoring Status Dashboard › Edit panel

Discard | Save | Apply

Table view | Fill | Actual | Last 24 hours

Panel Title

Topic-ID	Title	Reply count	Total views	Last viewed	Status
87028	Database is locked	1	1219	2023-05-13T10:37:16.185Z	UNSOLVED
88090	How can I get CPU usage for multiple servers withi...	7	901	2023-06-30T07:46:12.239Z	SOLVED
90396	Failed to evaluate queries and expressions: input d...	2	724	2023-07-28T11:32:30.758Z	UNSOLVED
86940	How do you sum all like-named rows?	2	689	2023-05-03T15:38:15.557Z	SOLVED
89538	Influxdb2: Combining last + sum to get weekly valu...	7	653	2023-06-21T16:33:38.259Z	SOLVED
88901	How to change the labels and color of the gauge p...	19	565	2023-06-07T12:04:06.496Z	UNSOLVED
87835	Found duplicate series for match group	0	560	2023-06-21T10:17:51.155Z	UNSOLVED
86860	Need to set variable in same dashboard when click...	6	543	2023-05-02T20:21:19.966Z	SOLVED

Query 1 | Transform 2

Data source: Infinity | Query options MD = auto = 1326 Interval = 1m | Query inspector

A (infinity)

Type: JSON | Parser: Backend | Source: URL | Format: Table | Help | Github

Method: POST | URL: https://community.grafana.com/admin/plugins/explorer/queries/7/run | Headers, Body, Request params

URL options Method, Body, Additional headers & parameters

Parsing options & Result fields Field types, alias and selectors

Pagination beta

Table

Search options

All | Overrides

Table

Table footer

Cell options

Standard options

Data links

Value mappings

Add value mappings

Thresholds 2

Override 1
5 › Column width

Override 2
4 › Column width

Override 3
3 › Column width

Override 4
2 › Column width

Override 5
0 › Column width

Override 6
Topic-ID › Column width

Override 7
Status › Column width

Override 8
Title › Column width

+ Add field override

Using Override - Data links

Override 7

Fields with name

Topic-ID

Data links

Link to topic

https://community.grafana.com/t/${__data.fields.Topic-ID}

+ Add link

Edit link

Title

Link to topic

URL

https://community.grafana.com/t/${__data.fields.Topic-ID}

Open in new tab

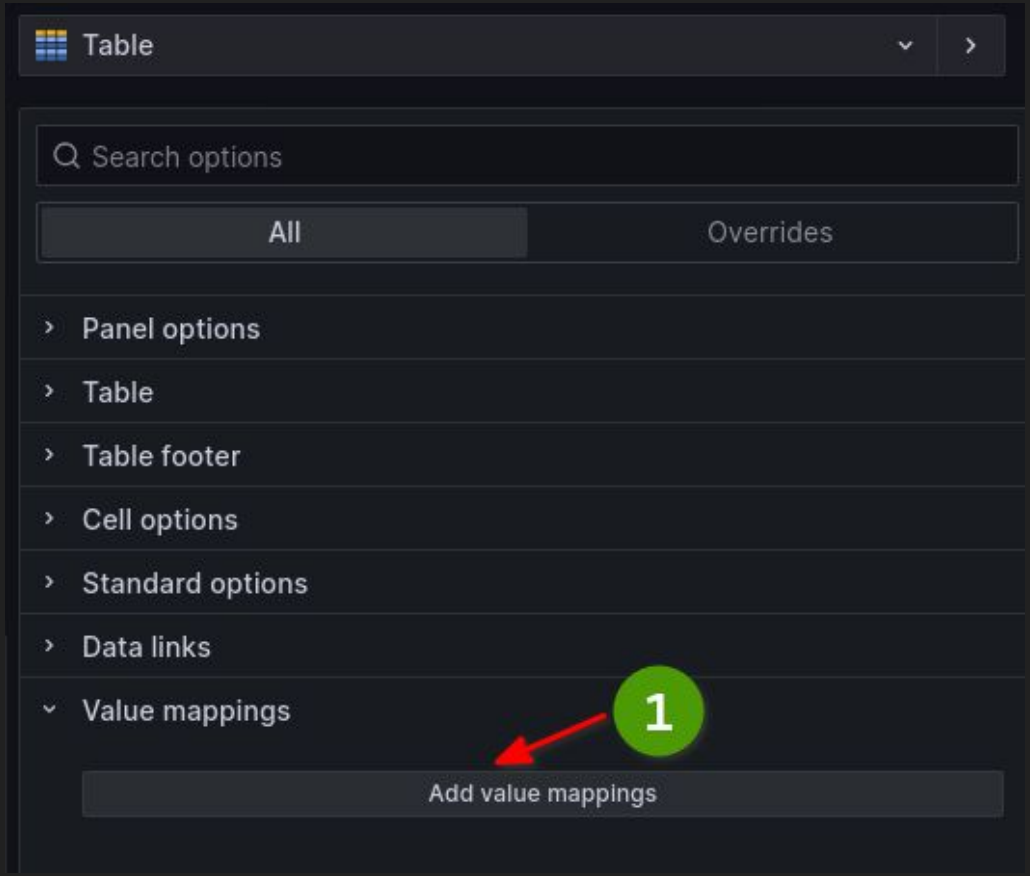
Using Override - Data links

Panel Title

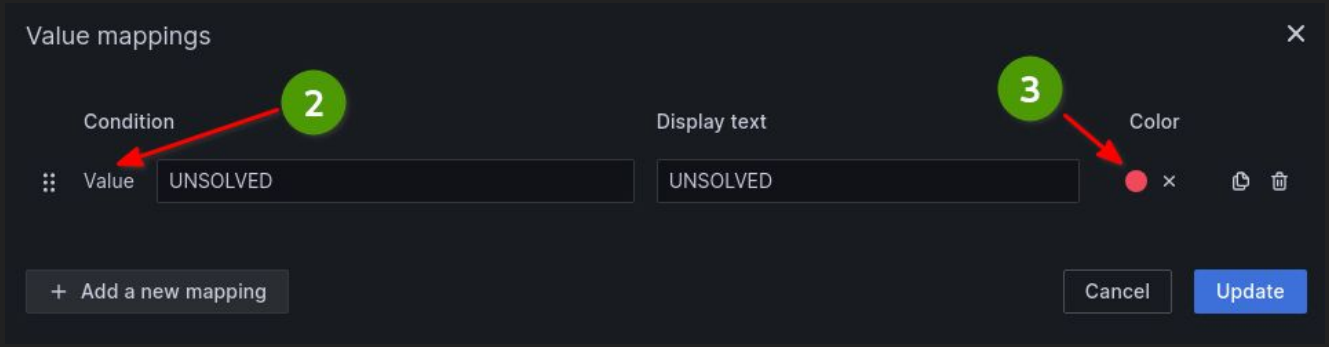
Link to the post

Topic-ID	Title	Reply count	Total views	Last viewed	Status
87028	Database is locked	1	1116	2023-05-13T10:37:16.185Z	UNSOLVED
88090	How can I get CPU usage ...	7	824	2023-06-30T07:46:12.239Z	UNSOLVED
86940	How do you sum all like-n...	2	657	2023-05-03T15:38:15.557Z	SOLVED
90396	Failed to evaluate queries ...	2	598	2023-07-28T11:32:30.758Z	UNSOLVED
89538	Influxdb2: Combining last ...	7	592	2023-06-21T16:33:38.259Z	SOLVED
88901	How to change the labels ...	19	530	2023-06-07T12:04:06.496Z	UNSOLVED

Using Value mapping



Using Value mapping



Topic-ID	Title	Reply count	Total views	Last viewed	Status
87028	Database is locked	1	1120	2023-05-13T10:37:16.185Z	UNSOLVED
88090	How can I get CPU usage for multiple servers withi...	7	826	2023-06-30T07:46:12.239Z	UNSOLVED
86940	How do you sum all like-named rows?	2	658	2023-05-03T15:38:15.557Z	SOLVED
90396	Failed to evaluate queries and expressions: input d...	2	600	2023-07-28T11:32:30.758Z	UNSOLVED
89538	Influxdb2: Combining last + sum to get weekly valu...	7	596	2023-06-21T16:33:38.259Z	SOLVED
88901	How to change the labels and color of the gauge p...	19	534	2023-06-07T12:04:06.496Z	UNSOLVED
87835	Found duplicate series for match group	0	519	2023-06-21T10:17:51.155Z	UNSOLVED
86860	Need to set variable in same dashboard when click...	6	509	2023-05-02T20:21:19.966Z	SOLVED

Grafana Labs

Dynamic Dashboard Variables

Dynamic dashboard variables

Data source

Ad-hoc filters

Global variables

Interval

Query

Constant

Chained variables

Custom

Text Box

Dashboard Variables - Query type

Home › Dashboards › Monitoring Status Dashboard Add Last 24 hours

1 2

Panel Title

Topic-ID	Title	Reply count	Total views	Last viewed	Status
87028	Database is locked	1	1121	2023-05-13T10:37:16.185Z	UNSOLVED
88090	How can I get CPU usage for multiple servers withi...	7	829	2023-06-30T07:46:12.239Z	UNSOLVED
86940	How do you sum all like-named rows?	2	659	2023-05-03T15:38:15.557Z	SOLVED
90396	Failed to evaluate queries and expressions: input d...	2	607	2023-07-28T11:32:30.758Z	UNSOLVED
89538	Influxdb2: Combining last + sum to get weekly valu...	7	598	2023-06-21T16:33:38.259Z	SOLVED
88901	How to change the labels and color of the gauge p...	19	535	2023-06-07T12:04:06.496Z	UNSOLVED
87835	Found duplicate series for match group	0	522	2023-06-21T10:17:51.155Z	UNSOLVED
86860	Need to set variable in same dashboard when click...	6	510	2023-05-02T20:21:19.966Z	SOLVED
87975	When repeating a panel using a Dashboard Variabl...	0	494	2023-05-19T20:45:31.713Z	SOLVED

Dashboard variables - Query type

Settings

General

Annotations

Variables 3

Links

Versions

Permissions

JSON Model

Select variable type

Query 4

General

Name

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

category 5 This is the variable name

Label

Optional display name

Category

Description

Descriptive text

Show on dashboard

Label and value | Value | Nothing

Query options 6

Data source

Grafana Forum Data Explor

Query

Query Type: Infinity

Type: JSON | Parser: Backend | Source: URL

Method: POST | URL: https://community.grafana.com/admin/plugins/explorer/queries/19/run

Dashboard variables - Query type

Home › Dashboards › Monitoring Status Dashboard

category | Enter variable value

- Alerting
- Announcements
- Announcements
- Authentication
- Azure Monitor
- Bar Chart Panel
- Bar Gauge Panel
- Blog Posts
- Cloud Support
- Cloudwatch
- Community Lounge
- Configuration
- Converters & Integrations
- Dashboards
- Data Links

Top 20 Post

Topic-ID	Title	Reply count	Total views	Last viewed	Status
89139	Issue with Role Mapping in Grafana OAuth Configur...	0	385	2023-JUN	SOLVED
87869	Anonymous access works in v8 but doesn't in v9	1	364	2023-MAY	SOLVED
88713	Can't login from firefox anymore	7	304	2023-JUN	UNSOLVED
88595	Is it possible to match organization with `role_attri...	7	255	2023-JUL	UNSOLVED
86916	SSO on multiple organizations	1	242	2023-JUN	UNSOLVED
89635	Can I trust the "X-Grafana-User" header value?	7	206	2023-JUN	UNSOLVED
87526	How to assign Access Role's to specific LDAP groups	0	194	2023-JUL	UNSOLVED
90771	Configure auth.generic_oauth with AWS cognito	1	194	2023-JUL	SOLVED

Creating dynamic Dashboards

Home › Dashboards › Monitoring Status Dashboard

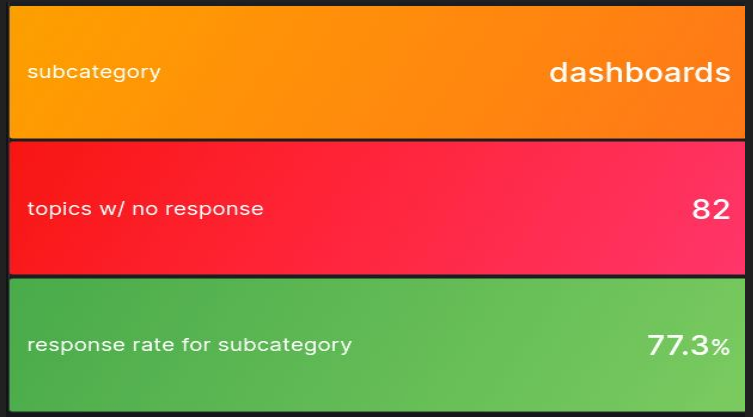
Add | Last 24 hours

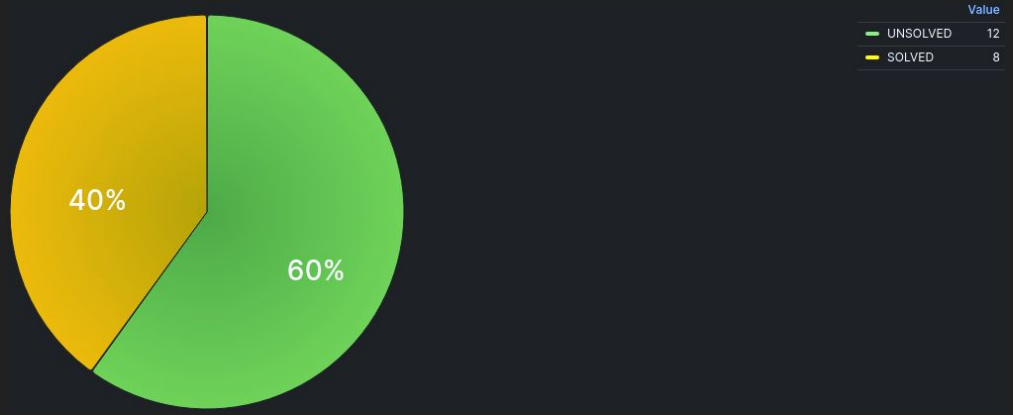
category | Announcements

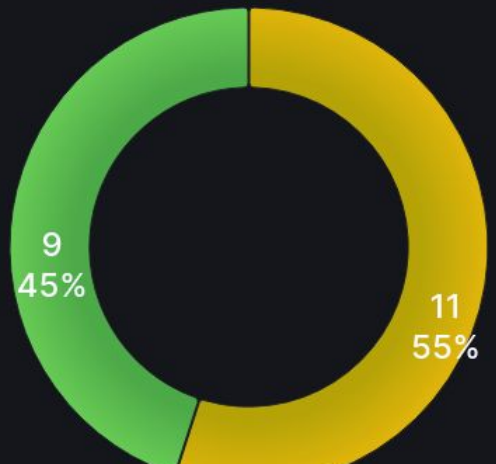
Panel Title

Topic-ID	Title	Reply count	Total views ↓	Last viewed	Status
86860	Need to set variable in same dashboard when click...	6	543	2023-MAY	SOLVED
87658	Issue with Grafana's dashboard not loading properly	1	482	2023-MAY	SOLVED
87151	Dashboard : An unexpected error happened	2	454	2023-MAY	SOLVED
86926	Problems with Data Links in Grafana 9.5.1 - Docker	3	438	2023-MAY	SOLVED
87385	I can't see FlowCharting diagrams	2	425	2023-MAY	SOLVED
90859	How to exclude "no data" panels from repeating pa...	39	423	2023-JUL	UNSOLVED
88546	Sum up only positive values of expression in time s...	11	384	2023-JUN	SOLVED
88738	How to use multi-value custom variable in query ali...	2	356	2023-JUN	UNSOLVED
87948	How to use plotly panel in Grafana?	1	351	2023-JUN	SOLVED

Using different Panel Visualisation







This is what you can design !!

Category: Alerting | Start Date: start of 2022q4 | End Date: end of 2023q1 | OLD-Category: alerting

Community Forum Response Rates

Response Rate per Category: from start of 2022q4 to end of...

subcategory	alerting
topics w/ no response	179
response rate for subcategory	61.3%

"Alerting" category: topics with no response: 22Q4

Topic ID	Title
75222	"Count metrics resulting from grafana managed alert and multi series mysql query"
75372	"Alert Test Rule fails with working Teams Channel"
75378	"Listing alerts that are default grouped by importance doesn't work as expected"
75709	"After update to 9.2 could not get metrics from AWS Cloudwatch"
75723	"How to get time information and remove the source url"
75757	"Query alert is in 'alerting' state for ever"
75842	"Grafana Table Visualization in Pop Up (alert) On Selecting a filter"
75952	"Grafana alert (status code with 195,187 and etc.)"

‹ 1 2 3 4 5 6 7 ··· 23 › 1 - 8 of 179 rows

Top 20 Posts in Alerting Category: from start of 2022q4 to end of 2023q1

Topic I	Title	Total Views ↓	Reply Count	Last Posted At	Status
76083	Documentation of Alert Templating in Serious Need of Improvement!	4088	80	2023-JUL	UNSOLVED
75591	Variables Formatting in Grafana Alerts	3830	0	2022-NOV	SOLVED
80988	Working configuration example for alerts templating - Telegram and Slack	3456	0	2023-MAY	SOLVED
85019	How to handle no data alert?	2216	0	2023-APR	UNSOLVED

Takeaways

1. Extensive API Support
2. User-friendly Features
3. Officially Supported by us

SUCCESS
SOLUTION
PROBLEM

Want to get involved?

1. To report bugs, feature-request:
   - GitHub repo

grafana-infinity-datasource

2. Other useful resources:
   - Slack channel #grafana
   - Community forum

#grafana

community.grafana.com

Grafana Labs

Thanks for participating!

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