SETUP
GRAFANA / INFLUXDB / TELEGRAF

SHALA / HEILING / PUNTIGAM
4AHIT

Setup ***Grafana / InfluxDB / Telegraf***

This documentation provides instructions on how to set up a TIG (Telegraf, InfluxDB, Grafana) stack for monitoring system metrics. It includes steps such as cloning a GitHub repository, running docker containers, accessing InfluxDB and Grafana, setting up data sources and creating a dashboard to display RAM, CPU, and disk usage. The guide also includes instructions on how to customize the graph settings and save the dashboard.

Contents:

Prerequisites*:*

Installations:

- Docker
- VS-Code (or any code editor)

Step-by-Step Guide to Setting up the TIG Stack:

Docker setup:

1) Clone the repository in VS-code: https://github.com/huntabyte/tig-stack
2) Open the .env file.
    - Look for DOCKER_INFLUXDB_INIT_ADMIN_TOKEN=changeme.
        - Replace "changeme" with a 32-byte HEX token.
            - For example: ef70b0af60a65a0cb9bb66bd0bbc12a42825be9f5a28a9813b8e2bb6650c1cb6
3) Save the file.
4) Make sure you are in the tig-stack repository in the terminal.
    - Execute the command: "docker-compose up -d".
    - Run "docker container ps" to check if the containers are running.

Webpage setup:

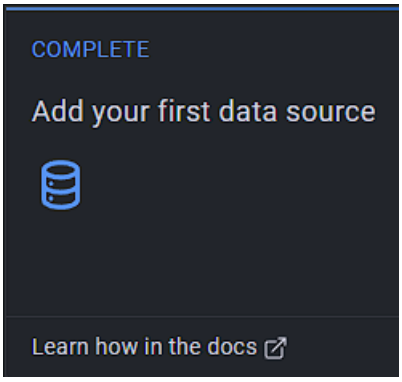
InfluxDB

1. Access the InfluxDB page with "localhost:8086" as the URL.
    - Log in with the following credentials:
        - Username: changeme
        - Password: changeme

Grafana:

1. Access the Grafana page with "localhost:3000" as the URL.
    - Log in with the following credentials:
        - Username: admin
        - Password: admin
        - New password: Kennwort1

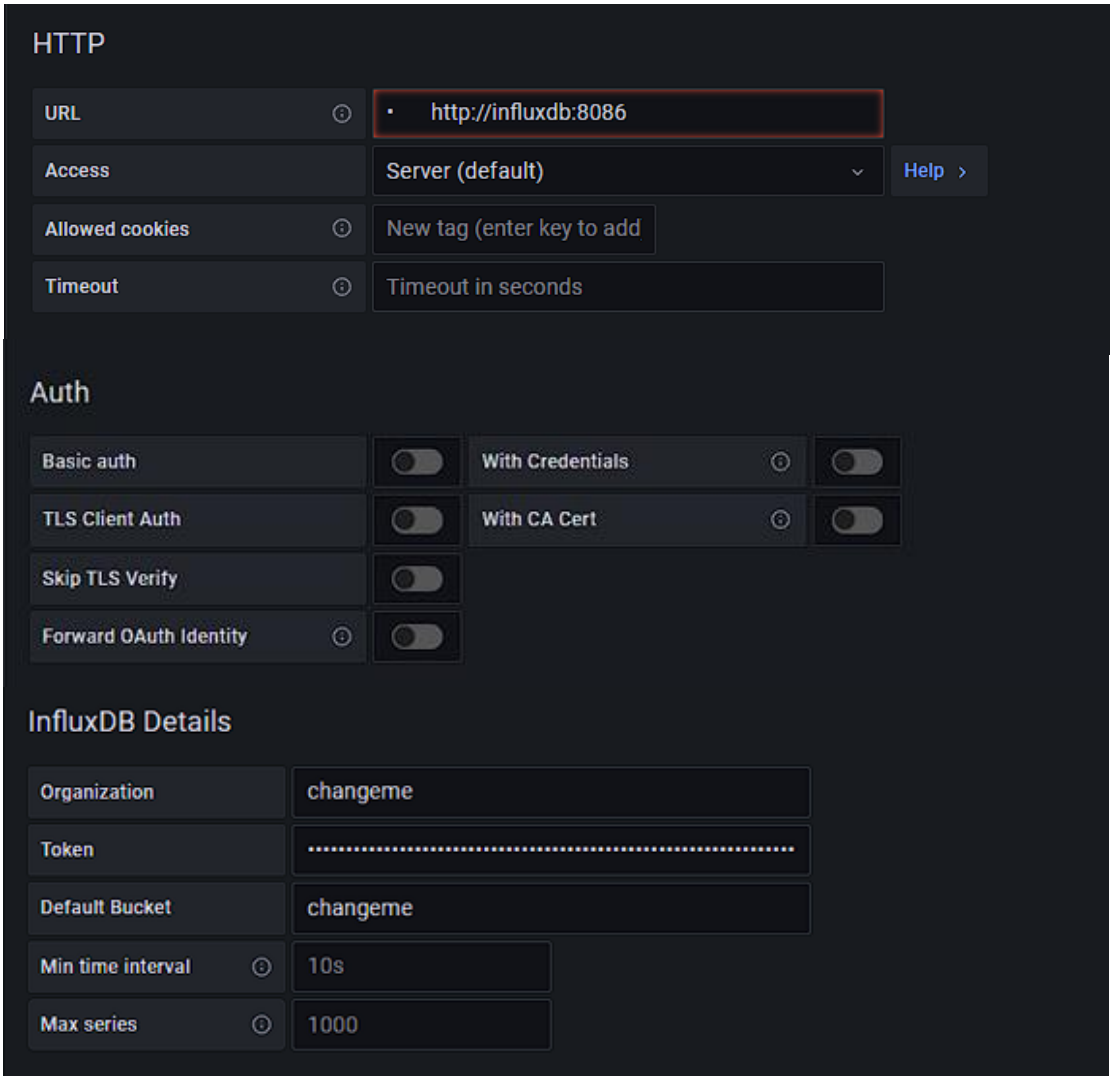
2. On the landing page, click "Add your first data source".



3. Select InfluxDB.
    - Change the Query Language to Flux.
    - Change the URL to "http://influxdb:8086".
    - Disable Basic auth if enabled.

- Fill in the following fields:
    - Organization: changeme
    - Token: The same token used in the .env file.: ef70b0af60a65a0cb9bb66bd0bbc12a42825be9f5a28a9813b8e2bb6650c1cb6
    - Default Bucket: changeme

Should look like this:



- Click "Save and Test".
- If it shows "3 buckets found", everything is correct.

Done with the Setup of a TIG stack (Telegraf, InfluxDB, Grafana)

Step-by-Step Guide to *Monitoring Docker containers with TIG stack*

Modify Docker:

1. Add the configuration from this repository to the telegraf.conf file:
    - https://github.com/influxdata/telegraf/blob/master/plugins/inputs/docker/README.md

2. Add the following line to the volumes section of the docker-compose.yml file:
    - - /var/run/docker.sock:/var/run/docker.sock

3. Grant permissions:
    - Log in with the following credentials:
        - Cd var/run/ • chmod 666 docker.sock

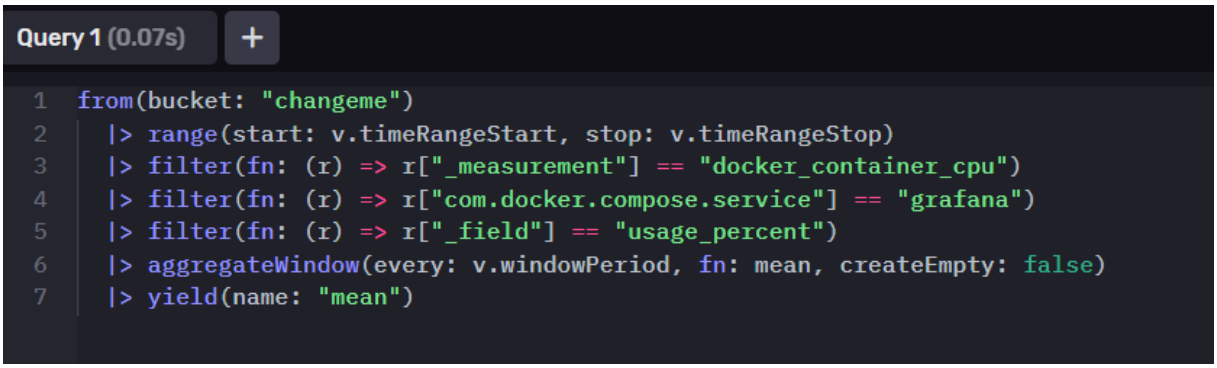
Dashboard setup:

1. Go to inluxDB
    - In the menu bar on the left, click "Explore".
    - At the bottom left of the page, you can see the query builder.
        - If not, on the middle right, you can switch to it
        - Example on Next page →

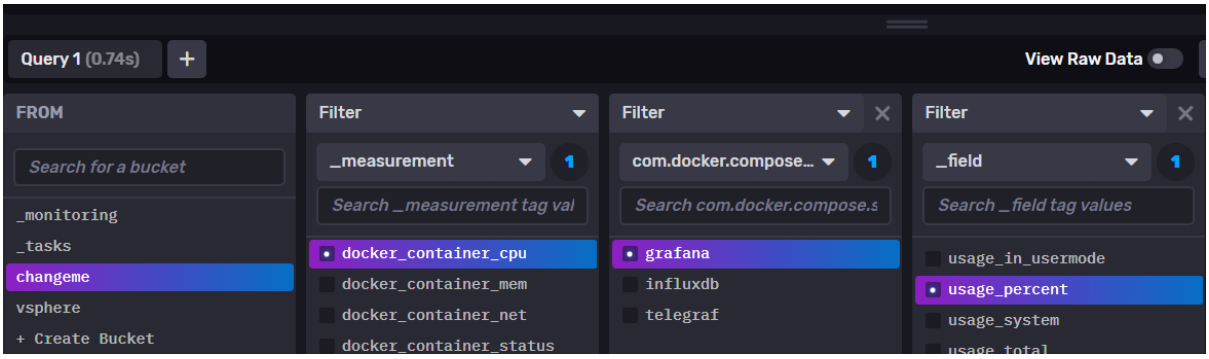
Example:

get Grafana cpu usage in percent:

1. Go to query builder
2. First box “FROM”
    - Check changeme
3. On the second box “filter”
    - Check docker_container_cpu
4. On the third box “filter”
    - click on the dropdown where “_field”
        - select com.docker.compose.service
    - check grafana
5. On the fourth filter
    - Check usage_percent
6. Now click script editor
    - Copy the script

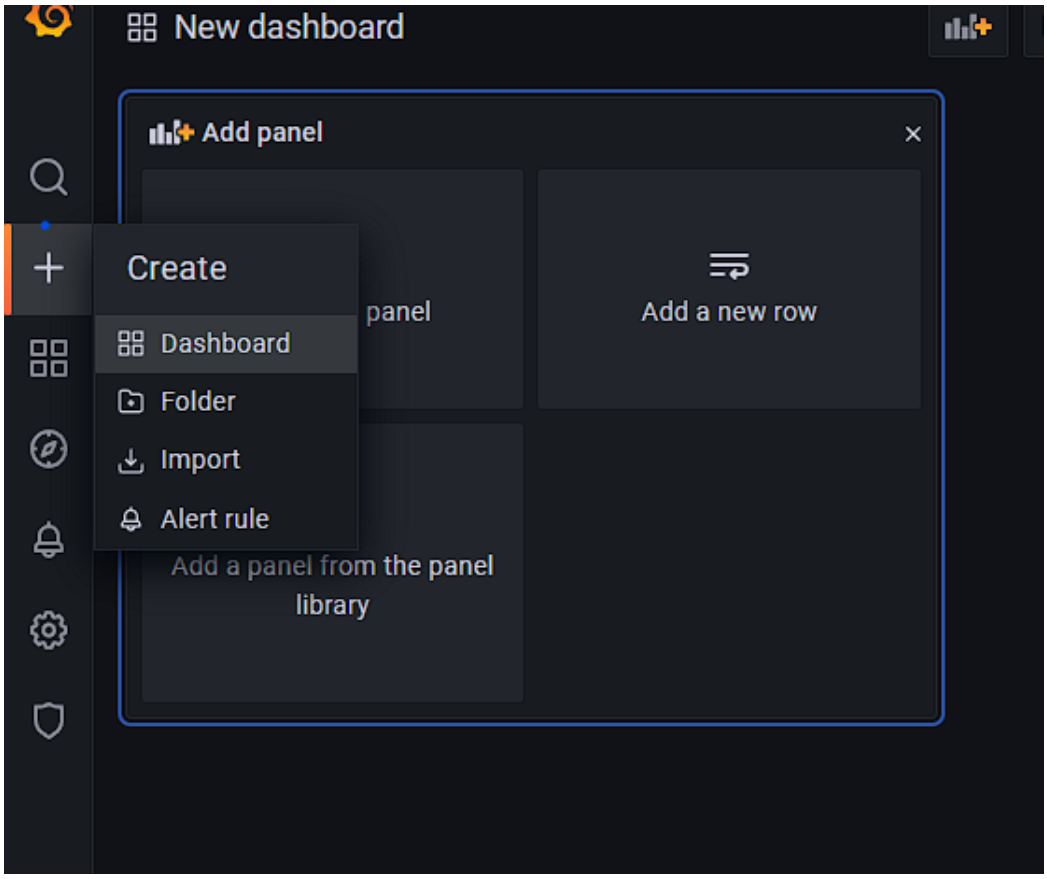


Query builder:

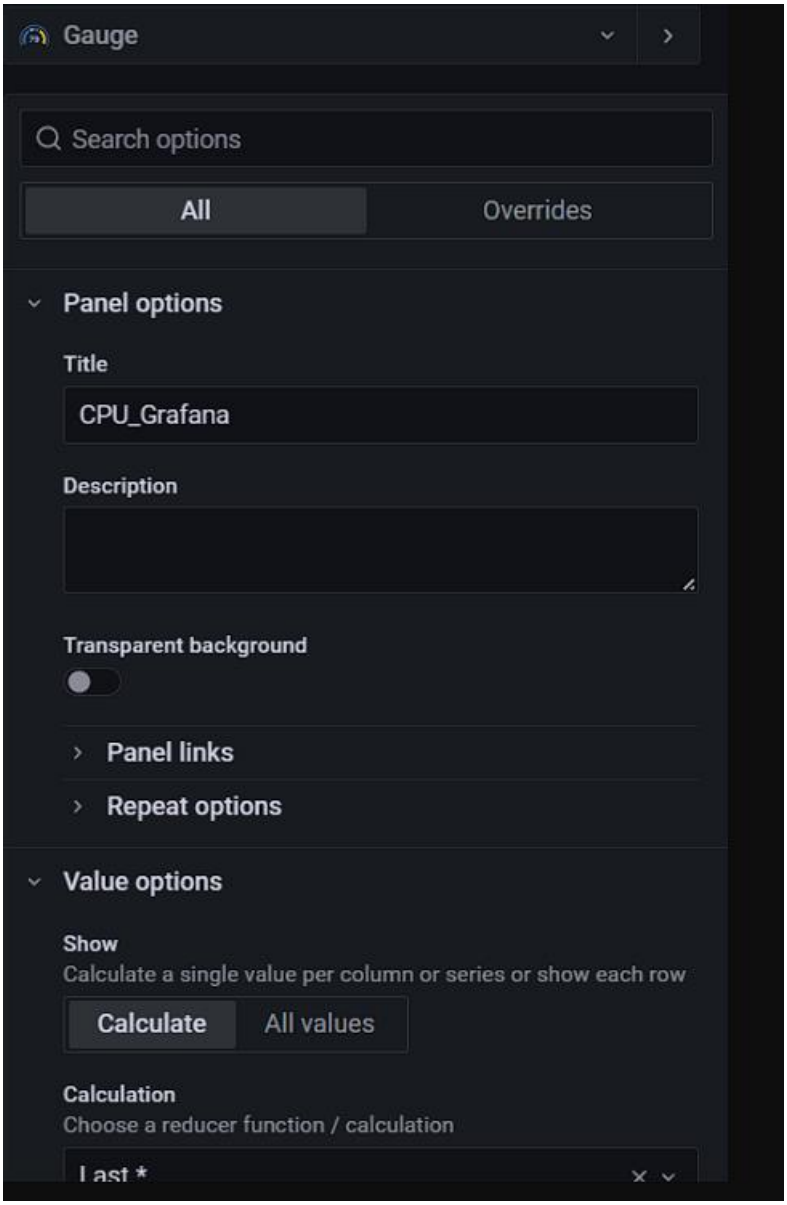


7. Go to Grafana
    - To create a dashboard:
    - Click on the "+" icon on the left.

- Select "New dashboard".
- Add a new panel.



- Paste in the query you got from InfluxDB
- If you want to edit the graph, on the right you can change:
    - title, width, length, unit (e.g. Percent for CPU usage), etc.



- Once the graph looks good, click "Save" in the upper right corner to save the dashboard and apply

Done with the Setup of Monitoring Docker containers with TIG stack

Step-by-Step Guide to *Alerting with slack on TIG stack*

Setup Slack

Create Slack Webhook:

https://www.youtube.com/watch?v=sxtC40gUS2A

- Here you create a slack Webhook

Connect Slack-Webhook with Grafana:

https://www.youtube.com/watch?v=xgOqLCkQiok

- Here you connect the slack Webhook to your Grafana

Add a stress container:

1. Copy the stressLinux_CPU-RAM folder from repository into your repository
    - https://github.com/lukasheiling/TIG.git
2. In CMD go to the folder location run
    - docker-compose up -d
    - and reload your TIG-Stack

This creates a Stress container that helps visualize more CPU & MEM usage.

Setup alerts in Grafana:

1. Hover over “+”
    - Folder
    - Enter Folder name
2. Create Dashboard
3. Add new panel
4. On the bottom where the query editor is
    - add query for Stress container CPU usage
        - Example on the next page

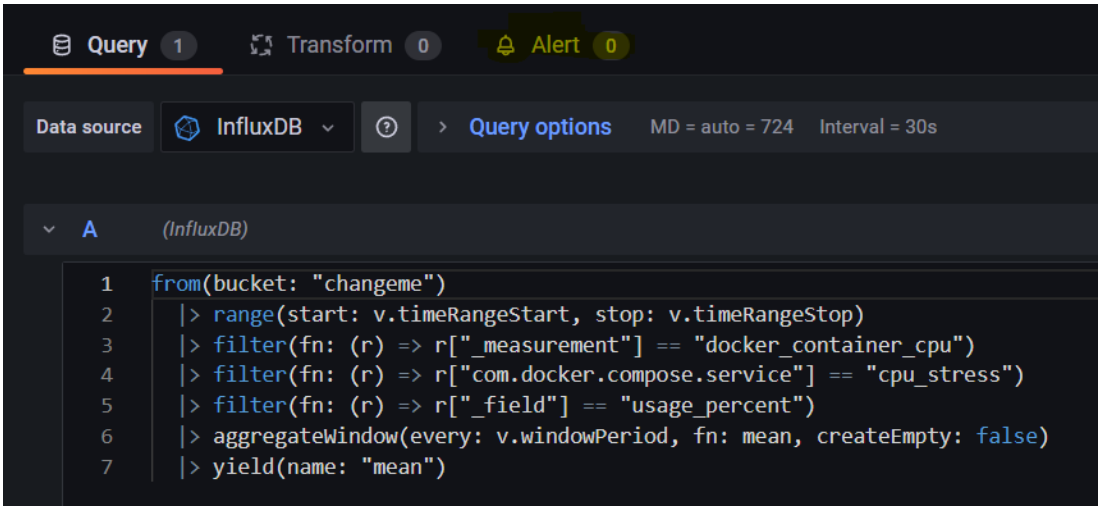
Example query from InfluxDB for CPU usage of Stress container:

```
from(bucket: "changeme")
  |> range(start: v.timeRangeStart, stop: v.timeRangeStop)
  |> filter(fn: (r) => r["_measurement"] == "docker_container_cpu")
  |> filter(fn: (r) => r["com.docker.compose.service"] == "cpu_stress")
  |> filter(fn: (r) => r["_field"] == "usage_percent")
  |> aggregateWindow(every: v.windowPeriod, fn: mean, createEmpty: false)
  |> yield(name: "mean")
```

5. Save & Apply

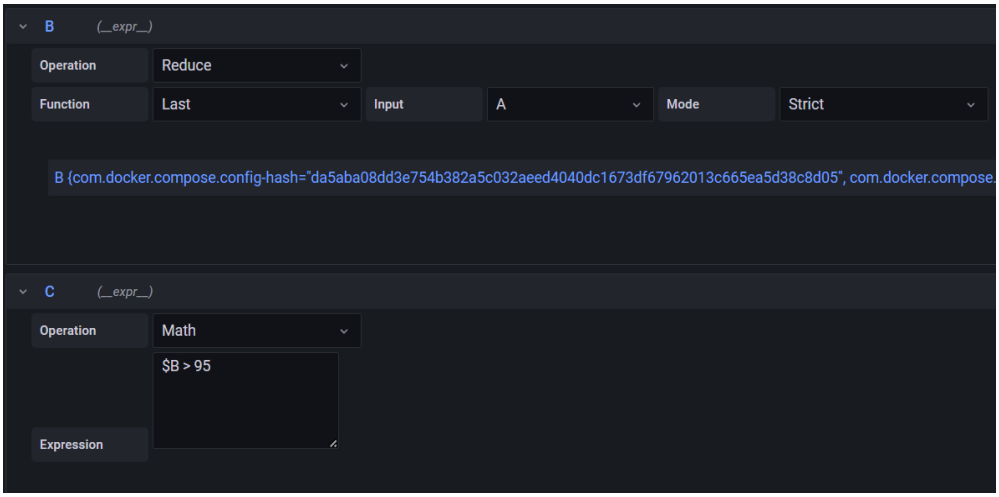
6. Edit panel

7. Press on Alert



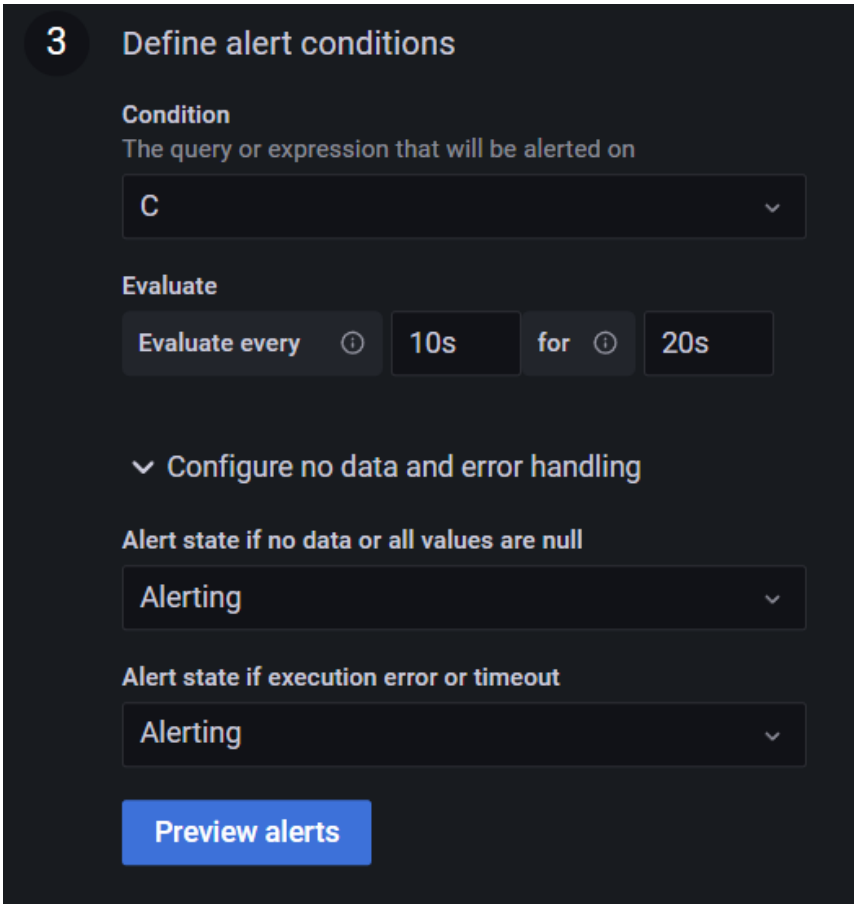
8. Press on Create alert rule from this panel

9. Add two expressions



- Define the $B > “95” to your desired value when you want to be alerted

10. Define alert conditions:



11. When the alert fires you should now receive a slack notification that the alert fired

12. Done with the Guide to Alerting with slack on TIG stack