

GRAFANA SETUP WITH INFLUXDB

1. Task Requirement:

- Grafana
- InfluxDB

2. Environment Details:

- **OS:** Ubuntu 20.04

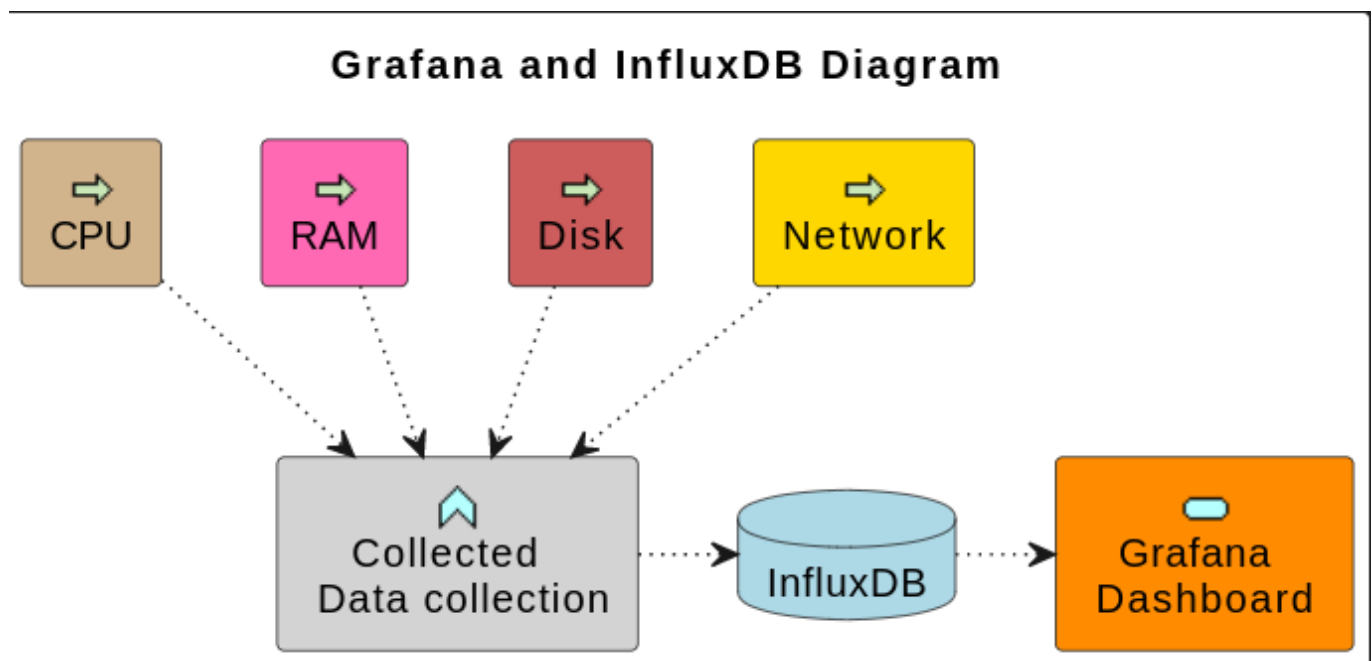
3. Tool and Technologies:

- Grafana
- InfluxDB

4 . Definition of Tool:

- **Grafana:** Grafana is an open-source, web-based platform used for monitoring, visualization, and observability of data from various sources.
- **InfluxDB:** InfluxDB is an open-source, high-performance time-series database designed for efficiently storing, querying, and visualizing time-stamped data.

Architecture Diagram



5 . Command for the Setup or Configuration

Step 1 Update Your System

```
sudo apt update
```

```
maansi@indianrenters-Latitude-5490:~$ sudo apt update
[sudo] password for maansi:
Hit:1 http://archive.ubuntu.com/ubuntu focal InRelease
Hit:2 https://baltscdn.com/helm/stable/debian all InRelease
Hit:3 http://nginx.org/packages/mainline/ubuntu focal InRelease
Hit:4 https://packages.microsoft.com/repos/code stable InRelease
Hit:5 https://packages.cloud.google.com/apt/kubernetes-xenial InRelease
Get:6 https://download.opensuse.org/repositories/devel:/kubic:/libcontainers/stable/xUbuntu_20.04 InRelease [1,642 B]
Fetched 1,642 B in 7s (247 B/s)
Reading package lists... Done
Building dependency tree
Reading state information... Done
3 packages can be upgraded. Run 'apt list --upgradable' to see them.
N: Skipping acquire of configured file 'nginx/binary-1386/Packages' as repository 'http://nginx.org/packages/mainline/ubuntu focal InRelease' doesn't support architecture '1386'
N: Skipping acquire of configured file 'main/binary-1386/Packages' as repository 'https://packages.microsoft.com/repos/code stable InRelease' doesn't support architecture '1386'
```

- **Sudo:** This command is used to superuser (root) privileges.
- **Apt:** This is the package management command-line tool used on Debianbased distributions to handle packages.
- **Update:** The "Update" command is used to refresh or update information, such as software updates, to make sure it is current.

```
sudo apt upgrade
```

```
maansi@indianrenters-Latitude-5490:~$ sudo apt upgrade
Reading package lists... Done
Building dependency tree
Reading state information... Done
Calculating upgrade... Done
Get more security updates through Ubuntu Pro with 'esm-apps' enabled:
  libavformat58 librpm5 libavfilter7 rpm2cpio ffmpeg libswresample3
  librpmbuild8 libzmq5 debugedit libpostproc55 librpmio8 rpm-common rpm
  librpm8 libavcodec58 libavutil56 libavdevice58 libswscale5 libSDL2-2.0-0
  libnysofa1 libavresample4
Learn more about Ubuntu Pro at https://ubuntu.com/pro
#
# You can verify the status of security fixes using the 'pro fix' command.
# E.g., a recent Ruby vulnerability can be checked with: 'pro fix USN-6219-1'
# For more detail see: https://ubuntu.com/security/notices/USN-6219-1
#
The following packages will be upgraded:
  code kubectl nginx
3 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
Need to get 107 MB of archives.
After this operation, 8,192 B of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://nginx.org/packages/mainline/ubuntu focal/nginx amd64 nginx amd64 1.25.2-1-focal [1,002 kB]
Get:2 https://packages.cloud.google.com/apt/kubernetes-xenial/main amd64 kubectl amd64 1.28.2-00 [10.3 MB]
Get:3 https://packages.microsoft.com/repos/code stable/main amd64 code amd64 1.82.2-1694671812 [95.6 MB]
Fetched 107 MB in 3min 13s (555 kB/s)
(Reading database ... 188305 files and directories currently installed.)
Preparing to unpack .../code_1.82.2-1694671812_amd64.deb ...
Unpacking code (1.82.2-1694671812) over (1.82.0-1694039253) ...
Preparing to unpack .../kubectl_1.28.2-00_amd64.deb ...
Unpacking kubectl (1.28.2-00) over (1.28.1-00) ...
Preparing to unpack .../nginx_1.25.2-1-focal_amd64.deb ...
Unpacking nginx (1.25.2-1-focal) over (1.25.1-1-focal) ...
Setting up code (1.82.2-1694671812) ...
Setting up nginx (1.25.2-1-focal) ...
Setting up kubectl (1.28.2-00) ...
Processing triggers for desktop-file-utils (0.24-1ubuntu3) ...
Processing triggers for mime-support (3.64ubuntu1) ...
Processing triggers for gnome-menus (3.36.0-1ubuntu1) ...
Processing triggers for systemd (245.4-4ubuntu3.22) ...
Processing triggers for man-db (2.9.1-1) ...
Processing triggers for shared-mime-info (1.15-1) ...
```

- **Upgrade:** The upgrade command is used to update or improve to a newer or better version.

Step 2: Install InfluxDB

Add the InfluxDB repository and GPG key:

```
sudo curl -sL https://repos.influxdata.com/influxdb.key | sudo apt-key add -
```

```
haansig@indianrenters-Latitude-5490:~$ sudo curl -sL https://repos.influxdata.com/influxdb.key | sudo apt-key add -  
OK
```

- **-s:** stands for "**silent**" or "**quiet**."
- **-L:** stands for "**location**."
- **Curl:** A command-line tool used to transfer data from or to a server.
- **https://repos.influxdata.com/influxdb.key:** This is the URL from which curl will download a file. It's fetching a file named influxdb.key from the repos.influxdata.com website over HTTPS.
- **|:** This is a pipe . It takes the output from the command on the (the curl command) and uses it as input for the command on the right.
- **sudo apt-key add:** This command adds a new GPG key to the APT keyring. The key is taken from the input (in this case, the output of the curl command). The GPG key is used to verify the integrity and origin of packages from the repository

```
echo "deb https://repos.influxdata.com/ubuntu focal stable" | sudo tee  
/etc/apt/sources.list.d/influxdb.list
```

```
haansig@indianrenters-Latitude-5490:~$ echo "deb https://repos.influxdata.com/ubuntu focal stable" | sudo tee /etc/apt/sources.list.d/influxdb.list  
deb https://repos.influxdata.com/ubuntu focal stable  
haansig@indianrenters-Latitude-5490:~$
```

- **echo:** This command simply prints the string inside the quotes.
- **deb:** Indicates that it's a binary repository (for compiled software).
- **https://repos.influxdata.com/ubuntu:** Specifies the web address of the repository server.
- **tee:** The tee command is used to write a standard input to standard output and a file.
- **focal:** Represents the version of Ubuntu for which the repository is intended (e.g., Ubuntu 20.04 is named "Focal Fossa").
- **stable:** Names the repository component, typically referring to stable releases of software.

```
sudo apt update
```

```
naansi@indianrenters-Latitude-5490:~$ sudo apt update
Hit:1 http://archive.ubuntu.com/ubuntu focal InRelease
Hit:3 http://nginx.org/packages/mainline/ubuntu focal InRelease
Hit:4 https://baltocon.com/helm/stable/debian all InRelease
Hit:5 https://packages.microsoft.com/repos/code stable InRelease
Hit:2 https://packages.cloud.google.com/apt/kubernetes-xantia InRelease
Get:6 https://download.opensuse.org/repositories/devel:/kubic:/libcontainers:/stable/xUbuntu_20.04 InRelease [1,047 B]
Fetched 1,047 B in 1s (1,792 B/s)
Reading package lists... Done
Building dependency tree
Reading state information... Done
All packages are up to date.
W: Skipping acquire of configured file 'nginx/binary-i386/Packages' as repository 'http://nginx.org/packages/mainline/ubuntu focal InRelease' doesn't support architecture 'i386'
W: Skipping acquire of configured file 'main/binary-i386/Packages' as repository 'https://packages.microsoft.com/repos/code stable InRelease' doesn't support architecture 'i386'
```

```
sudo apt install influxdb
```

```
naansi@indianrenters-Latitude-5490:~$ sudo apt install influxdb
[sudo] password for naansi:
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed:
  influxdb
0 upgraded, 1 newly installed, 0 to remove and 0 not upgraded.
Need to get 4,090 kB of archives.
After this operation, 16.3 MB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu focal/universe amd64 influxdb amd64 1.6.4-1build1 [4,090 kB]
Fetched 4,090 kB in 2s (2,053 kB/s)
Selecting previously unselected package influxdb.
(Reading database ... 188385 files and directories currently installed.)
Preparing to unpack .../influxdb_1.6.4-1build1_amd64.deb ...
Unpacking influxdb (1.6.4-1build1) ...
Setting up influxdb (1.6.4-1build1) ...
Adding system user `influxdb' (UID 129) ...
Adding new user `influxdb' (UID 129) with group `nogroup' ...
Not creating home directory `/var/lib/influxdb'.
Adding group `influxdb' (GID 138) ...
Done.
Adding user `influxdb' to group `influxdb' ...
Adding user influxdb to group influxdb
Done.
Created symlink /etc/systemd/system/influxd.service → /lib/systemd/system/influxdb.service.
Created symlink /etc/systemd/system/multi-user.target.wants/influxdb.service → /lib/systemd/system/influxdb.service.
Processing triggers for systemd (245.4-4ubuntu3.22) ...
Processing triggers for man-db (2.9.1-1) ...
naansi@indianrenters-Latitude-5490:~$
```

- **install:** This tells the package manager to install the InfluxDB package.
- **influxdb:** This is the name of the InfluxDB package.

Step 3. Start and enable InfluxDB

```
sudo systemctl start influxdb
```

- **systemctl:** This is the name of the systemd service manager.
- **start:** This tells the systemd service manager to start the InfluxDB service.
- **influxdb:** This is the name of the InfluxDB service.

```
sudo systemctl enable influxdb
```

```
naansi@indianrenters-Latitude-5490:~$ sudo systemctl enable influxdb
Synchronizing state of influxdb.service with SysV service script with /lib/systemd/systemd-sysv-install.
Executing: /lib/systemd/systemd-sysv-install enable influxdb
naansi@indianrenters-Latitude-5490:~$
```

- **enable:** This tells systemctl to enable the InfluxDB service.

```
sudo apt install influxdb-client
```

```
maansi@indianrenters-Latitude-5490:~$ sudo apt install influxdb-client
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed:
  influxdb-client
0 upgraded, 1 newly installed, 0 to remove and 0 not upgraded.
Need to get 1,575 kB of archives.
After this operation, 5,425 kB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu focal/universe amd64 influxdb-client amd64 1.6.4-1build1 [1,575 kB]
Fetched 1,575 kB in 2s (652 kB/s)
Selecting previously unselected package influxdb-client.
(Reading database ... 188318 files and directories currently installed.)
Preparing to unpack .../influxdb-client_1.6.4-1build1_amd64.deb ...
Unpacking influxdb-client (1.6.4-1build1) ...
Setting up influxdb-client (1.6.4-1build1) ...
Processing triggers for man-db (2.9.1-1) ...
maansi@indianrenters-Latitude-5490:~$
```

- **Influxdb-client:** This is the name of the influxdb client package.

Step 4: Configure InfluxDB

```
influx
```

Inside the InfluxDB CLI, run the following commands to create a database and user. Replace your username and yourpassword with your desired username and password:

```
CREATE DATABASE "mydb"
```

```
USE mydb
```

```
CREATE USER "maansi" WITH PASSWORD '1234' WITH ALL PRIVILEGES
Exit the InfluxDB CLI:
```

```
exit
```

```
maansi@indianrenters-Latitude-5490:~$ influx
Connected to http://localhost:8086 version 1.6.4
InfluxDB shell version: 1.6.4
> CREATE DATABASE "mydb"
>
> USE mydb
Using database mydb
> CREATE USER "maansi" WITH PASSWORD '1234' WITH ALL PRIVILEGES
> exit
maansi@indianrenters-Latitude-5490:~$
```

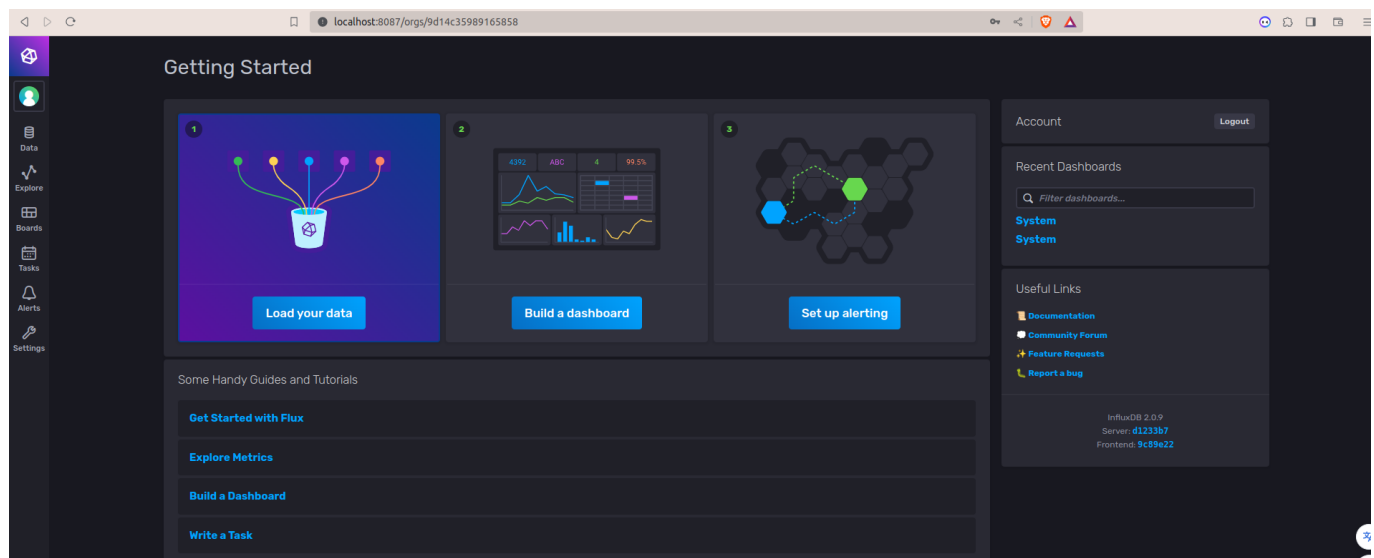
Save and exit the configuration file, then restart InfluxDB

```
sudo systemctl restart influxdb
```

```
maansi@indianrenters-Latitude-5490:~$ sudo systemctl restart influxdb
maansi@indianrenters-Latitude-5490:~$
```

Step 5: Access InfluxDB Web Interface

By default, InfluxDB runs on port 8086. Open your web browser and navigate to



Step 6: Install Grafana

```
sudo add-apt-repository "deb https://packages.grafana.com/oss/deb stable
main"
```

```
maans@indianrenters-Latitude-5490:~$ sudo add-apt-repository "deb https://packages.grafana.com/oss/deb stable main"
Get:1 https://packages.grafana.com/oss/deb stable InRelease [5,984 B]
Err:1 https://packages.grafana.com/oss/deb stable InRelease
  The following signatures couldn't be verified because the public key is not available: NO_PUBKEY 963FA27710458545
Hit:3 https://baltoedn.com/helm/stable/debian all InRelease
Hit:4 http://archive.ubuntu.com/ubuntu focal InRelease
Hit:5 http://nginx.org/packages/mainline/ubuntu focal InRelease
Get:6 https://download.opensuse.org/repositories/devel:/kubic:/libcontainers:/stable/xUbuntu_20.04 InRelease [1,642 B]
Hit:7 https://packages.microsoft.com/repos/code stable InRelease
Hit:8 https://packages.cloud.google.com/apt kubernetes-xenial InRelease
Reading package lists... Done
W: GPG error: https://packages.grafana.com/oss/deb stable InRelease: The following signatures couldn't be verified because the public key is not available: NO_PUBKEY 963FA27710458545
E: The repository 'https://packages.grafana.com/oss/deb stable InRelease' is not signed.
N: Updating from such a repository can't be done securely, and is therefore disabled by default.
N: See apt-secure(8) manpage for repository creation and user configuration details.
N: Skipping acquire of configured file 'nginx/binary-i386/Packages' as repository 'http://nginx.org/packages/mainline/ubuntu focal InRelease' doesn't support architecture 'i386'
N: Skipping acquire of configured file 'helm/binary-i386/Packages' as repository 'https://packages.microsoft.com/repos/code stable InRelease' doesn't support architecture 'i386'
```

```
sudo apt-key adv --keyserver keyserver.ubuntu.com --recv-keys
963FA27710458545
```

```
maans@indianrenters-Latitude-5490:~$ sudo apt-key adv --keyserver keyserver.ubuntu.com --recv-keys 963FA27710458545
Executing: /tmp/apt-key-gpghome.MPr5dLdun2/gpg.1.sh --keyserver keyserver.ubuntu.com --recv-keys 963FA27710458545
gpg: key 963FA27710458545: "Grafana Labs <engineering@grafana.com>" not changed
gpg: Total number processed: 1
gpg:      unchanged: 1
```

```
wget -q -O - https://packages.grafana.com/gpg.key | sudo apt-key add -
```

```
sudo apt update
```

```
maans@indianrenters-Latitude-5490:~$ sudo apt update
Hit:1 https://packages.grafana.com/oss/deb stable InRelease
Hit:2 http://archive.ubuntu.com/ubuntu focal InRelease
Hit:4 http://nginx.org/packages/mainline/ubuntu focal InRelease
Hit:5 https://baltoedn.com/helm/stable/debian all InRelease
Hit:3 https://packages.cloud.google.com/apt kubernetes-xenial InRelease
Hit:6 https://packages.microsoft.com/repos/code stable InRelease
Get:7 https://download.opensuse.org/repositories/devel:/kubic:/libcontainers:/stable/xUbuntu_20.04 InRelease [1,642 B]
Fetched 1,642 B in 1s (1,797 B/s)
Reading package lists... Done
Building dependency tree
Reading state information... Done
All packages are up to date.
N: Skipping acquire of configured file 'main/binary-i386/Packages' as repository 'https://packages.grafana.com/oss/deb stable InRelease' doesn't support architecture 'i386'
N: Skipping acquire of configured file 'nginx/binary-i386/Packages' as repository 'http://nginx.org/packages/mainline/ubuntu focal InRelease' doesn't support architecture 'i386'
N: Skipping acquire of configured file 'main/binary-i386/Packages' as repository 'https://packages.microsoft.com/repos/code stable InRelease' doesn't support architecture 'i386'
```

```
sudo apt install grafana
```



```
neensi@indianrenters-Latitude-5490:~$ sudo apt install grafana
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  musl
The following NEW packages will be installed:
  grafana musl
0 upgraded, 2 newly installed, 0 to remove and 0 not upgraded.
Need to get 102 MB of archives.
After this operation, 375 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 https://packages.grafana.com/oss/deb stable/main amd64 grafana amd64 10.1.1 [102 MB]
Get:2 http://archive.ubuntu.com/ubuntu focal/universe amd64 musl amd64 1.1.24-1 [377 kB]
Fetched 102 MB in 16s (6,228 kB/s)
Selecting previously unselected package musl:amd64.
(Reading database ... 188325 files and directories currently installed.)
Preparing to unpack .../musl_1.1.24-1_amd64.deb ...
Unpacking musl:amd64 (1.1.24-1) ...
Selecting previously unselected package grafana.
Preparing to unpack .../grafana_10.1.1_amd64.deb ...
Unpacking grafana (10.1.1) ...
Setting up musl:amd64 (1.1.24-1) ...
Setting up grafana (10.1.1) ...
Adding system user 'grafana' (UID 138) ...
Adding new user 'grafana' (UID 138) with group 'grafana' ...
Not creating home directory '/usr/share/grafana'.
### NOT starting on installation, please execute the following statements to configure grafana to start automatically using systemd
  sudo /bin/systemctl daemon-reload
  sudo /bin/systemctl enable grafana-server
### You can start grafana-server by executing
  sudo /bin/systemctl start grafana-server
Processing triggers for man-db (2.9.1-1) ...
Processing triggers for systemd (245.4-4ubuntu1.22) ...
```

Step 6. Start and enable Grafana

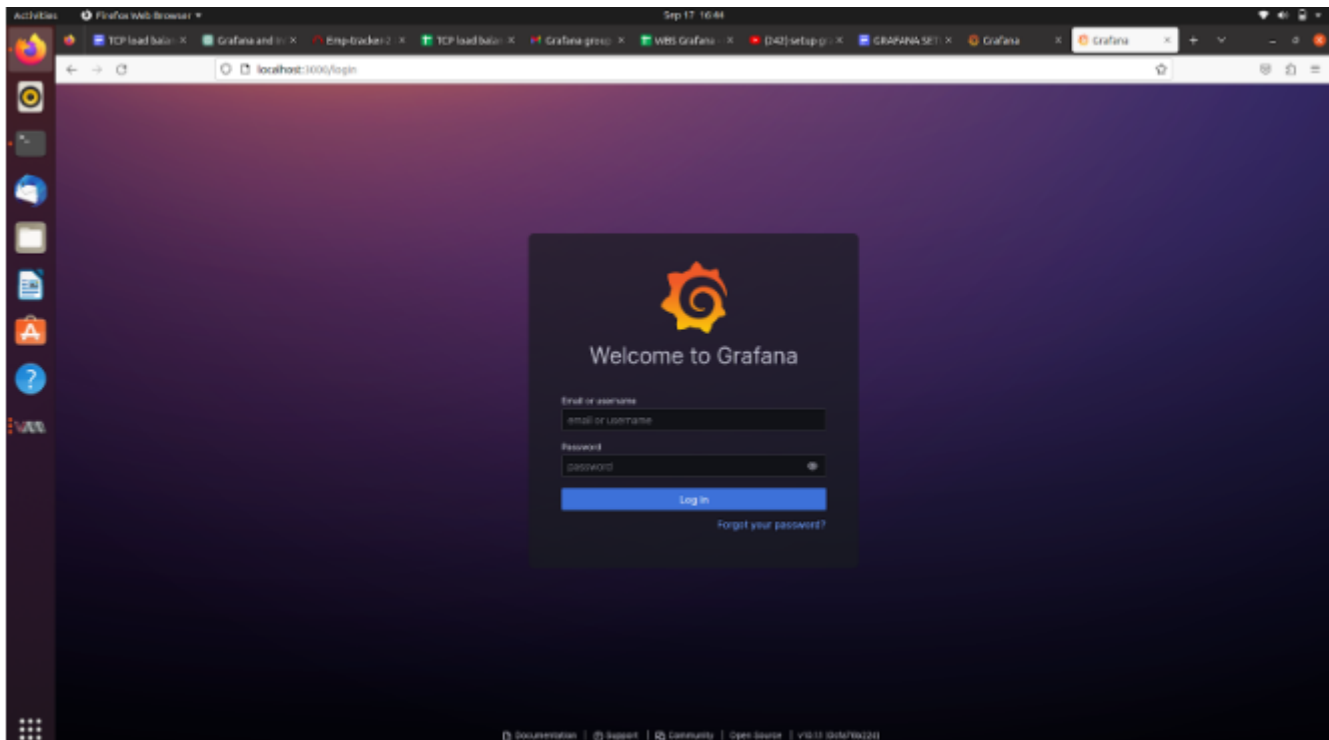
```
sudo systemctl start grafana-server
```

```
sudo systemctl enable grafana-server
```

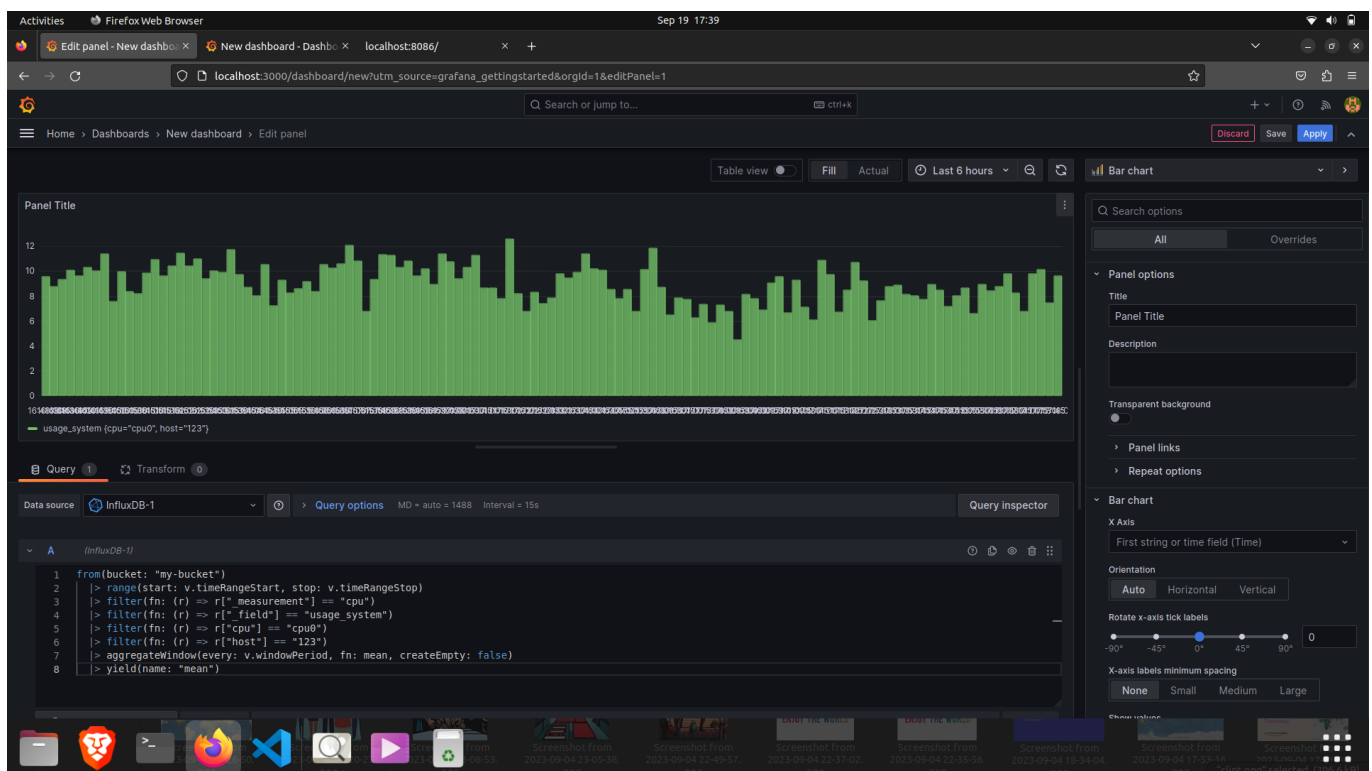
```
neensi@indianrenters-Latitude-5490:~$ sudo systemctl start grafana-server
neensi@indianrenters-Latitude-5490:~$ sudo systemctl enable grafana-server
Synchronizing state of grafana-server.service with SysV service script with /lib/systemd/systemd-sysv-install.
Executing: /lib/systemd/systemd-sysv-install enable grafana-server
Created symlink /etc/systemd/system/multi-user.target.wants/grafana-server.service → /lib/systemd/system/grafana-server.service.
```

Step 7: Access Grafana Web Interface

By default, Grafana runs on port 3000. Open your web browser and navigate to <http://localhost:3000>



Step 8: Grafana Dashboard



6. Reference Link

- https://www.youtube.com/watch?v=siyIExDV0fw&ab_channel=VamsiA