

PROJECT -3

Integrate Grafana with Linux Server for high cpu utilization and create a graph in Grafana



What is Grafana? — Overview

Today, almost every application stack usually consists of a number of different applications, each performing a specific role and working together towards a common goal. This is the case whether it be that of a Fortune 500 company or a computer science student trying to complete a tech project.

As such, the stability and reliability of your infrastructure would greatly depend on the performance of each application within that infrastructure.

Understanding the state of these applications is vital to keeping your systems in the best shape possible. This is done by monitoring our applications, in other words, collecting data (usually in the form of time series data) about these applications that would inform you of their current state at all times.

The larger your stack, the more applications you need to monitor to ensure your infrastructure is healthy. This would lead to collecting large amounts of performance data on your application. You would then require a massive amount of effort to parse through and make sense of this data, which is not a pretty task without the right tool.

Grafana was made exactly for this purpose!

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1 Introduction

Introduction

Grafana is an open-source analytics and interactive visualization web application used for monitoring application performance. It allows users to ingest data from a wide range of sources, query and display it in customizable charts, set alerts for abnormal behavior, and visualize data on dashboards. Its open-source nature, however, requires users to manually maintain their Grafana instance, a task that is handled by MetricFire's Hosted Grafana offering, which provides all the functionality with none of the management overhead.



1.1 KEY TAKEAWAYS

1. Grafana is an open-source analytics and interactive visualization web application that allows users to ingest data from various sources, query this data, and display it on customizable charts for easy analysis.
2. Grafana comes with a variety of visualization options to help users view and understand their data, which are split into “panels” that are then used to build the Grafana dashboard.
3. The platform has built-in support for a wide range of notification channels, including email, Slack, PagerDuty, and more, and allows users to set alerts to be notified of abnormal behavior.

Alerts

If you're using Grafana Alerting, then you can have alerts sent through a number of different alert notifiers, including PagerDuty, SMS, email, VictorOps, OpsGenie, or Slack.

Alert hooks allow you to create different notifiers with a bit of code if you prefer some other channels of communication. Visually define [alert rules](#) for your most important metrics.

What features does Grafana have?

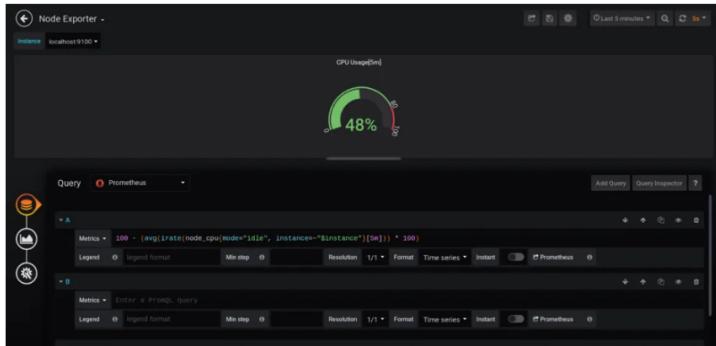
Grafana comes with a plethora of features that provide value straight out of the box. These features are the reason [Grafana](#) is arguably one of the most popular visualization software available for metric monitoring, simply because of their ease of use:

1. Visualization

Grafana possesses a huge variety of visualization options to help you view and understand your data easily. These options are split into "panels" which are then used to build the [Grafana dashboard](#).

A panel is the most granular visualization building block in Grafana and is used to display data that has been queried from the data source attributed to that panel. For easier understanding, think of a panel as a space on the dashboard that houses a specific type of visual portrait of information.

This information is being pulled from the [data source](#) attributed to that panel and can be a type of graph (gauge, histogram, bar chart, etc.), or logs and alerts. For example, one could create a gauge panel with its data source set to [Prometheus](#), and then query CPU usage data stored in [Prometheus](#) to be displayed on this panel. Such a panel would look like this:



You could stack up panels like this to make up a dashboard, with each panel displaying its own piece of information in the manner that best suits you.

Worthy of note is the fact that although Grafana ships with some pretty cool panels, you could design and add your own panels using plugins — the power of Open Source.

Check out these [MetricFire](#) articles ([Grafana plugins](#) and [Grafana explained](#)) on how to set up Grafana plugins. For a more in-depth look into Grafana dashboards, look no further than this [MetricFire article](#).

2. Alerting

When monitoring applications, it is essential to be made aware the second something goes wrong or is abnormal. This is vital to keeping your systems healthy and reducing downtime. Grafana has built-in support for a huge number of [notification channels](#), be it email, [Slack](#), [PagerDuty](#), etc., whichever best suits you.

In order to create an alert, you'd have to create and configure an alert rule. This rule serves as a trigger for your alert, such that whenever said rule is broken, an alert notification is sent via the alert notification channel you had configured into the rule. For a more detailed look into Grafana alerts, look no further than this [MetricFire article — Grafana alerting](#).

3. Annotations

Grafana allows you to annotate, or in simple terms, leave notes directly on graphs. This simple but powerful feature provides a way to seamlessly mark important points on your graph. This serves as a reminder for further action in the future, to provide context to an onboarding team member, or to simply mark a special event on your graph.

Think of it as writing a sticky note and placing it directly on your graph, but this time, you don't need any sticky note papers. Further information on annotations can be found in our [Grafana annotations tutorial](#) article (yes, we have articles for everything Grafana!).

4. Open Source

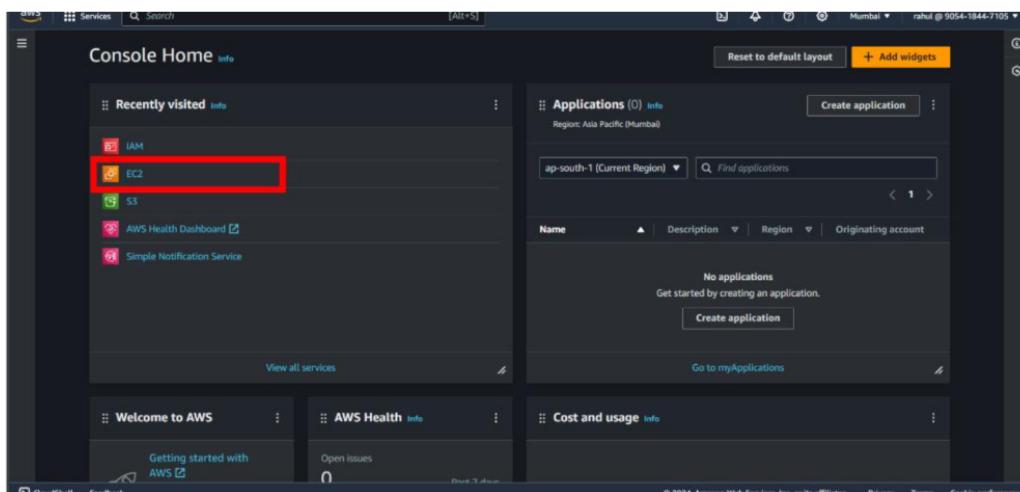
Grafana is completely open source and backed by an active vibrant community. This presents some huge benefits to its users such as the flexibility to develop and publish their own plugins or use plugins developed by other people. These plugins are usually easy to install by pretty much downloading the source code and running it manually.

However, its open-source nature does pave the way for some drawbacks. For example, you would have to manually maintain your Grafana instance yourself, manually perform updates, and so on. These drawbacks are completely handled by [MetricFire's Hosted Grafana](#) offering, which provides all the functionality Grafana has to offer, with none of the management overhead.

Integrate Grafana with a linux server for high cpu utilization and create a graph of Grafana

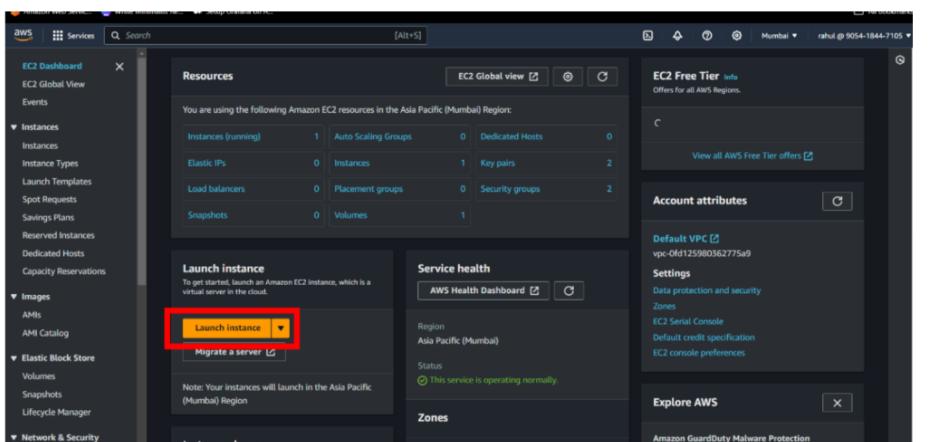
❖ Sign in to AWS Management Console:

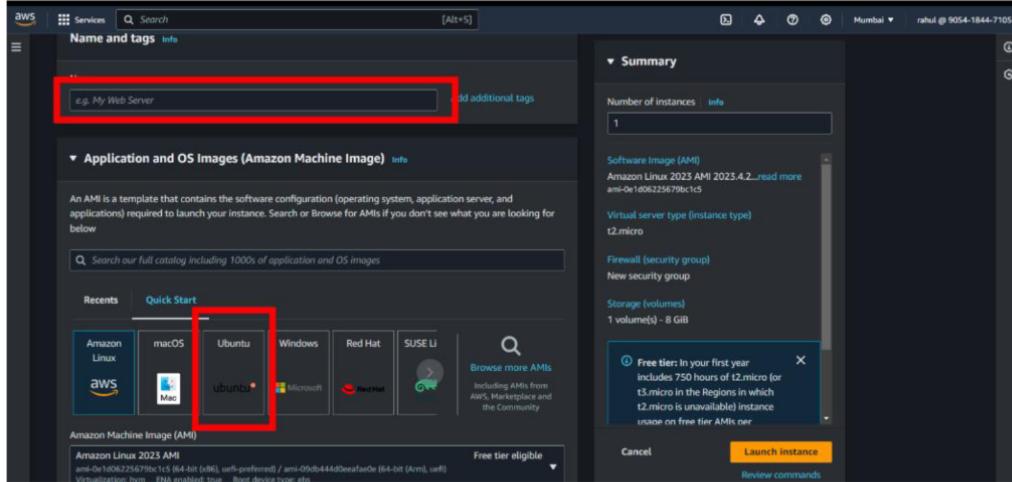
1. Click on the Open Console button, and you will get redirected to AWS Console in a new browser tab.
- On the AWS sign-in page, Leave the Account ID as default. Never edit/remove the 12-digit Account ID present in the AWS Console. otherwise, you cannot proceed with the lab.
- Now copy your User Name and Password in the Lab Console to the IAM Username and Password in AWS Console and click on the Sign in button.
2. Once Signed in to the AWS Management Console, Make the default AWS Region as US East (N. Virginia) us-east-1.



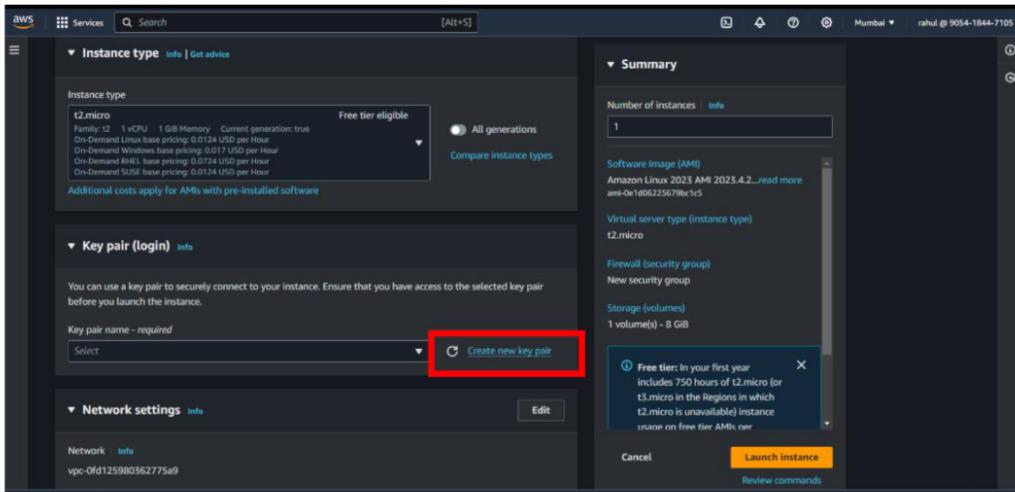
❖ Create an EC2 Instance(ubuntu):

- For creating an EC2 instance follow the following steps as shown in snapshots.

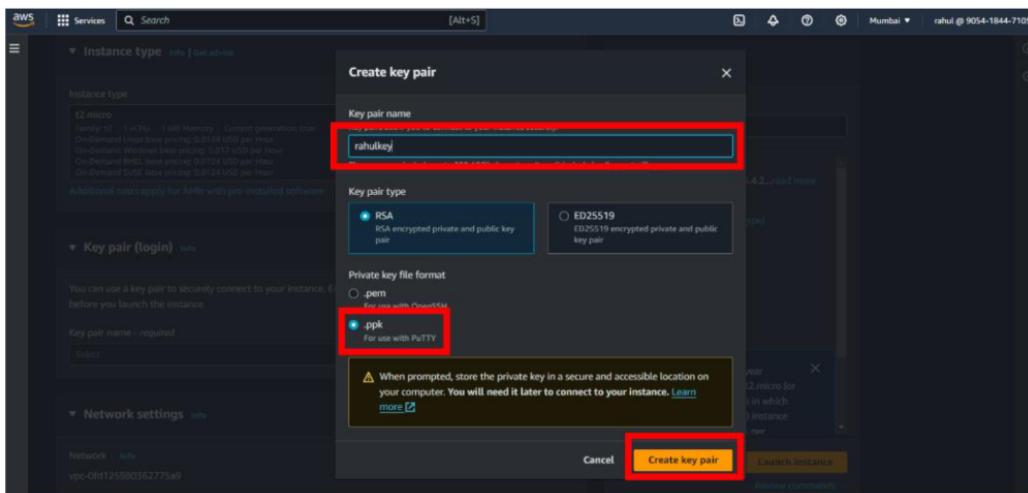




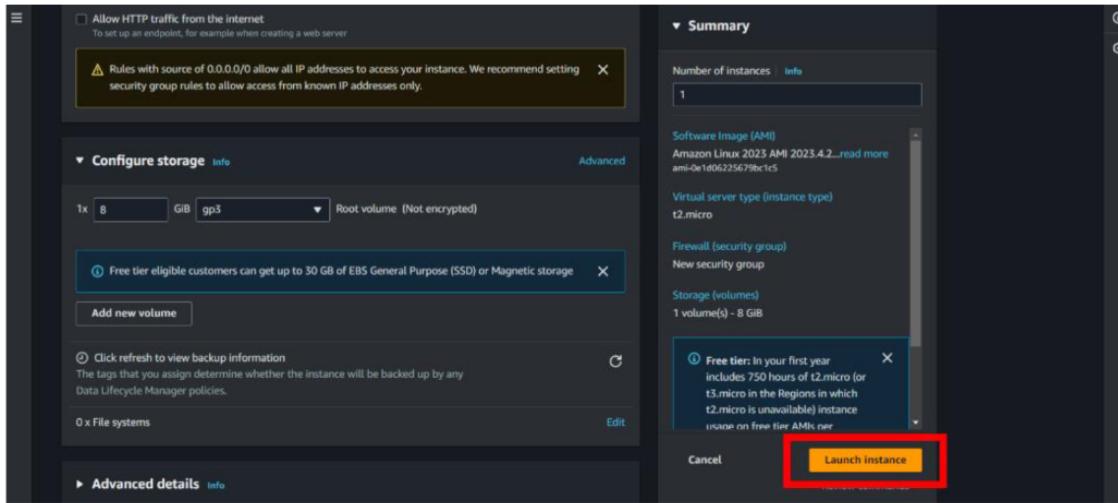
- Provide the EC2 name of your choice and select "Ubuntu" as an OS Image.



- Create a new key pair.



- Scroll down and click on "LAUNCH INSTANCE".



- Then open your instance and connect that instance by putty or on web browser.
- After connecting the instance follow the given command or read Grafana documentation for help.

❖ Installation of GRAFANA into instance:

```

aws Services Search [Alt+S]
Welcome to Ubuntu 24.04 LTS (GNU/Linux 6.8.0-1008-aws x86_64)

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

System information disabled due to load higher than 1.0
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.

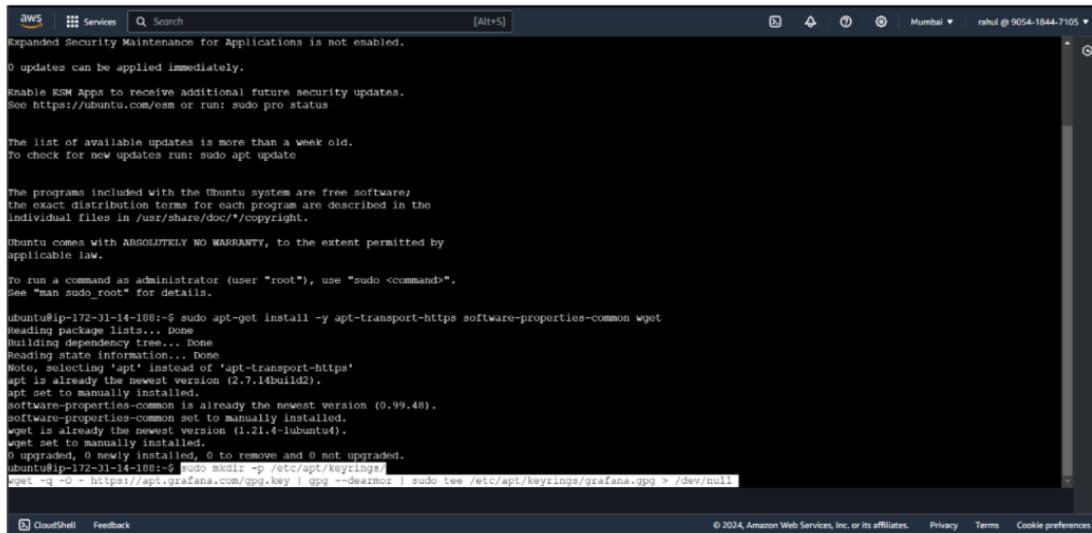
Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-14-100:~$ sudo apt-get install -y apt-transport-https software-properties-common wget

```

sudo apt-get install -y apt-transport-https software-properties-common wget



```
aws Services Q Search [Alt+S] Mumbai rahul @ 9054-1844-7105
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

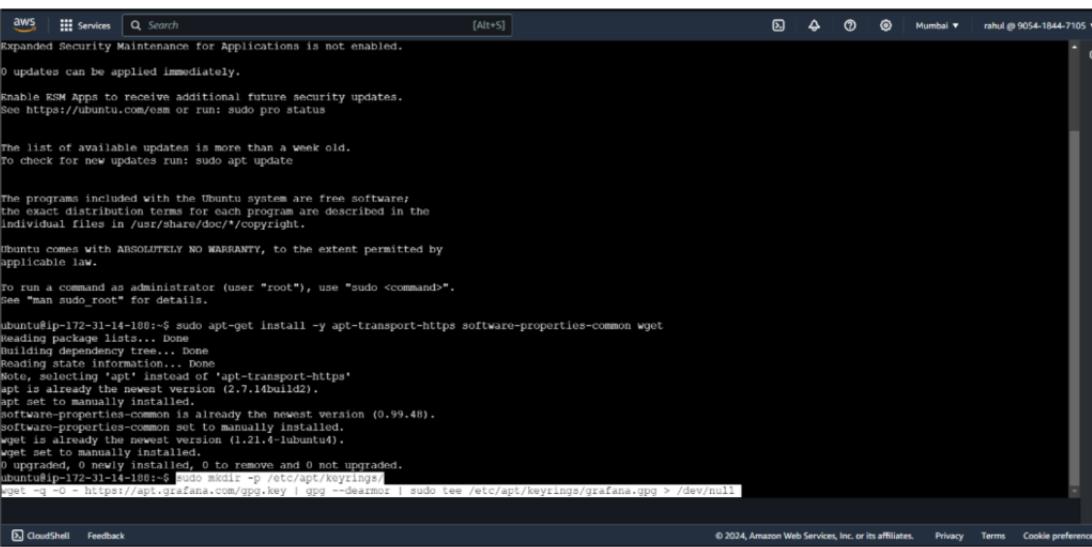
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applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-14-188:~$ sudo apt-get install -y apt-transport-https software-properties-common wget
Reading package lists... done
Building dependency tree... done
Reading state information... done
Note, selecting 'apt' instead of 'apt-transport-https'
apt is already the newest version (2.7.14build2).
apt set to manually installed.
software-properties-common is already the newest version (0.99.40).
software-properties-common set to manually installed.
wget is already the newest version (1.21.4-lubuntu4).
wget set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
ubuntu@ip-172-31-14-188:~$ sudo mkdir -p /etc/apt/keyrings/
wget -q -O - https://apt.grafana.com/gpg.key | gpg --dearmor | sudo tee /etc/apt/keyrings/grafana.gpg > /dev/null
```

sudo mkdir -p /etc/apt/keyrings/wget -q -O - https://apt.grafana.com/gpg.key | gpg --dearmor | sudo tee /etc/apt/keyrings/grafana.gpg > /dev/null



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

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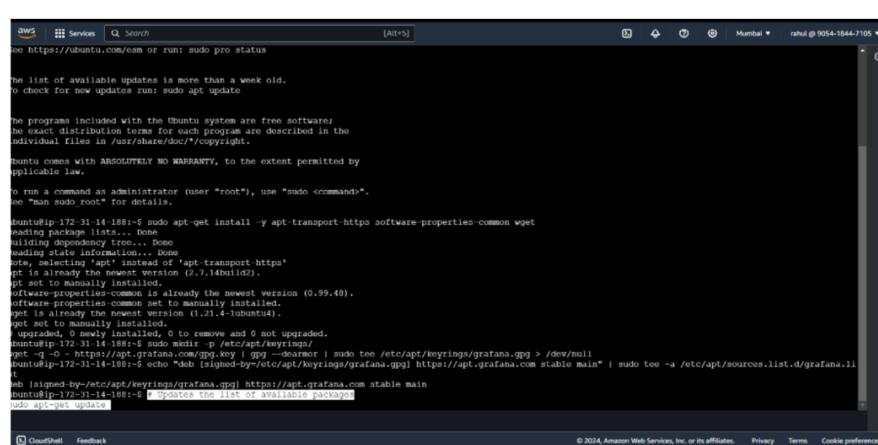
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ubuntu@ip-172-31-14-188:~$ sudo apt-get install -y apt-transport-https software-properties-common wget
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Building dependency tree... done
Reading state information... done
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apt is already the newest version (2.7.14build2).
apt set to manually installed.
software-properties-common is already the newest version (0.99.40).
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wget is already the newest version (1.21.4-lubuntu4).
wget set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
ubuntu@ip-172-31-14-188:~$ sudo mkdir -p /etc/apt/keyrings/
wget -q -O - https://apt.grafana.com/gpg.key | gpg --dearmor | sudo tee /etc/apt/keyrings/grafana.gpg > /dev/null
```

sudo mkdir -p /etc/apt/keyrings/wget -q -O - https://apt.grafana.com/gpg.key | gpg --dearmor | sudo tee /etc/apt/keyrings/grafana.gpg > /dev/null



```
aws Services Q Search [Alt+S] Mumbai rahul @ 9054-1844-7105
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

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To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-14-188:~$ sudo apt-get install -y apt-transport-https software-properties-common wget
Reading package lists... done
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Note, selecting 'apt' instead of 'apt-transport-https'
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wget is already the newest version (1.21.4-lubuntu4).
wget set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
ubuntu@ip-172-31-14-188:~$ sudo apt-get update
apt: signed-by= /etc/apt/keyrings/grafana.gpg https://apt.grafana.com stable main
ubuntu@ip-172-31-14-188:~$ Updates the list of available packages
sudo apt-get update
```

To updates the list of available packages
sudo apt-get update

```

Get:22 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe Translation-en (25.1 kB)
Get:23 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Components [45.0 kB]
Get:24 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 c-n-f Metadata [112 B]
Get:25 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe restricted amd64 Packages [90.0 kB]
Get:26 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe restricted Translation-en [14.3 kB]
Get:27 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Components [212 B]
Get:28 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Packages [2968 B]
Get:29 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse Translation-en [968 B]
Get:30 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Components [212 B]
Get:31 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 c-n-f Metadata [116 B]
Get:32 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-backports/main amd64 Components [208 B]
Get:33 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-backports/main amd64 c-n-f Metadata [112 B]
Get:34 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-backports/universe amd64 Packages [6840 B]
Get:35 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-backports/universe Translation-en [962 B]
Get:36 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-backports/universe amd64 Components [17.6 kB]
Get:37 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-backports/restricted amd64 Components [216 B]
Get:38 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-backports/restricted amd64 c-n-f Metadata [116 B]
Get:39 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-backports/restricted amd64 c-n-f Metadata [116 B]
Get:40 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-backports/restricted amd64 c-n-f Metadata [116 B]
Get:41 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-backports/multiverse amd64 c-n-f Metadata [116 B]
Get:42 http://security.ubuntu.com/ubuntu noble-security/main amd64 Packages [158 kB]
Get:43 http://security.ubuntu.com/ubuntu noble-security/main Translation-en [41.5 kB]
Get:44 http://security.ubuntu.com/ubuntu noble-security/main amd64 Components [6876 B]
Get:45 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Packages [44.4 kB]
Get:46 http://security.ubuntu.com/ubuntu noble-security/universe Translation-en [17.0 kB]
Get:47 https://apt.grafana.com/stable/main amd64 Packages [250 kB]
Get:48 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Components [6632 B]
Get:49 http://security.ubuntu.com/ubuntu noble-security/universe amd64 c-n-f Metadata [112 B]
Get:50 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Packages [70.1 kB]
Get:51 http://security.ubuntu.com/ubuntu noble-security/restricted Translation-en [14.3 kB]
Get:52 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Components [212 B]
Get:53 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Components [206 B]
Get:54 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 c-n-f Metadata [116 B]
Fetched 29.4 MB in 6s (4962 kB/s)
Reading package lists... Done
ubuntu@ip-172-31-14-188:~$ sudo apt-get install grafana-enterprise

```

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To installs the latest Enterprise release:
sudo apt-get install grafana-enterprise

```

Get:1 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 musl amd64 1.2.4-2 [416 kB]
Get:2 https://apt.grafana.com/stable/main amd64 grafana-enterprise amd64 11.0.0 [120 kB]
Fetched 123 MB in 1s (10.5 MB/s)
Selecting previously unselected package musl:amd64.
(Reading database ... 109 packages selected, 000 packages installed.)
Preparing to unpack .../grafana-enterprise_11.0.0_amd64.deb ...
Unpacking musl:amd64 (1.2.4-2) ...
Selecting previously unselected package grafana-enterprise.
Preparing to unpack .../grafana-enterprise_11.0.0_amd64.deb ...
Unpacking grafana-enterprise (11.0.0) ...
Setting up grafana-enterprise (11.0.0) ...
Info: Selecting UID from range 100 to 999 ...

Info: Adding system user 'grafana' (UID 111) ...
Info: Adding new user 'grafana' (UID 111) with group 'grafana' ...
Info: New user 'grafana' created.
*** NOV 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
  #!/bin/sh
  trap 'grafana-server &' < /var/run/grafana.pid
  exec /usr/bin/grafana-server > /dev/null 2>&1
  
```

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- *sudo systemctl start grafana-server*
- *sudo systemctl enable grafana-server.service*

```

Jun 18 15:11:30 ip-172-31-14-188 grafana[2028]: logger-provisioning.dashboard t=2024-06-18T15:11:30.331125009s level=info msg="starting to provision dashboards"
Jun 18 15:11:30 ip-172-31-14-188 grafana[2028]: logger-provisioning.dashboard t=2024-06-18T15:11:30.331155154s level=info msg="finished to provision dashboards"
Jun 18 15:11:30 ip-172-31-14-188 grafana[2028]: logger-sqldatabase.transactions t=2024-06-18T15:11:30.45302724s level=info msg="Database connection established"
Jun 18 15:11:30 ip-172-31-14-188 grafana[2028]: logger-sqldatabase.transactions t=2024-06-18T15:11:30.45302724s level=info msg="Database locked, sleeping then retry"
Jun 18 15:11:30 ip-172-31-14-188 grafana[2028]: logger-sqldatabase.transactions t=2024-06-18T15:11:30.516065191s level=info msg="Database locked, sleeping then retry"
Jun 18 15:11:30 ip-172-31-14-188 grafana[2028]: logger-plugins.update_checker t=2024-06-18T15:11:30.85393226s level=info msg="Update check succeeded" duration=55s
Jun 18 15:11:30 ip-172-31-14-188 grafana[2028]: logger-plugin.angulardirectiveprovider.dynamic t=2024-06-18T15:11:30.85393226s level=info msg="Dynamic directive registered"
Jun 18 15:11:30 ip-172-31-14-188 grafana[2028]: logger-plugin.angulardirectiveprovider.dynamic t=2024-06-18T15:11:30.85393226s level=info msg="Buttons update file"
Jun 18 15:11:30 ip-172-31-14-188 grafana[2028]: logger-grafana-apiserver t=2024-06-18T15:11:30.3839803422 level=info msg="Adding GroupVersion playlist.grafana.app"
Jun 18 15:11:30 ip-172-31-14-188 grafana[2028]: logger-grafana-apiserver t=2024-06-18T15:11:30.3846446464 level=info msg="Adding GroupVersion featureToggle.grafana.app"

ubuntu@ip-172-31-14-188:~$ sudo systemctl enable grafana-server.service
Synchronizing state of grafana-server.service with SysV service script with /usr/lib/systemd/systemctl-sysv-install.
Systemctl-sysv-install is currently not available, run 'systemctl --no-p渡
reated symlink /etc/systemd/system/multi-user.target.wants/grafana-server.service → /usr/lib/systemd/system/grafana-server.service.

ubuntu@ip-172-31-14-188:~$ sudo systemctl status grafana-server

```

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sudo systemctl status grafana-server.service

```

Jun 18 15:11:30 ip-172-31-14-188 grafana[2028]: logger-provisioning.dashboard t=2024-06-18T15:11:30.331125009s level=info msg="starting to provision dashboards"
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ubuntu@ip-172-31-14-188:~$ sudo systemctl status grafana-server
grafana-server.service - Grafana instance
   Loaded: active (running) since Thu 2024-06-18 15:11:29 UTC 21s ago
     Docs: man:systemctl(1)
   Main PID: 2028 (grafana)
      Tasks: 16 (limit: 1130)
        Memory: 88.9M (peak: 89.3M)
       CPU: 3.208s

```

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❖ Creating policy:

The screenshot shows the AWS IAM Policies page. On the left, there's a sidebar with 'Access management' and 'Policies' selected. The main area shows a list of existing policies. At the top right, there's a 'Create policy' button, which is highlighted with a red box.

- Then search IAM role and go to policies and click on **Create policies**.

The screenshot shows the 'Specify permissions' step of the 'Create policy' wizard. It has two tabs: 'Visual' (selected) and 'JSON'. Below the tabs, there's a 'Policy editor' section with a 'Select a service' dropdown and a 'Service' dropdown. A 'Next' button is at the bottom right.

- Then go to **JSON** type.

The screenshot shows the JSON editor with some sample policy code. On the right, there's a 'Statement' editor with an 'Edit statement' button and a 'Remove' button. Below it is a 'Add actions' section with a dropdown menu. The search bar in the dropdown is filled with 'cloudwatch', and 'CloudWatch' is listed in the suggestions. Other services like CloudWatch Application Insights, CloudWatch Evidently, CloudWatch Logs, CloudWatch RUM, and CloudWatch Synthetics are also listed.

- Click on add action and search for “**Cloudwatch**”.

```
1 {  
2     "Version": "2012-10-17",  
3     "Statement": [  
4         {  
5             "Sid": "Statement1",  
6             "Effect": "Allow",  
7             "Action": [  
8                 "cloudwatch:"*  
9             ],  
10            "Resource": []  
11        }  
12    ]  
13 }
```

JSON Ln 7, Col 14

Edit statement Statement1 Remove

Add actions All services > CloudWatch Filter actions

All actions (cloudwatch:*)

Access level - list

- ListDashboards Info
- ListMetrics Info
- ListMetricStreams Info
- ListServiceLevelObjectives Info
- ListServices Info
- ListTagsForResource Info

Access level - read

- BatchGetServiceLevelIndicatorReport

Add a resource Add

Add a condition (optional) Add

6028 of 6144 characters remaining

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- After selecting cloudwatch select “All actions ”.

Step 1 Specify permissions Info

Add permissions by selecting services, actions, resources, and conditions. Build permission statements using the JSON editor.

Step 2 Review and create

Policy editor

Visual JSON Actions ▾

```
1 {  
2     "Version": "2012-10-17",  
3     "Statement": [  
4         {  
5             "Sid": "Statement1",  
6             "Effect": "Allow",  
7             "Action": [  
8                 "cloudwatch:"*  
9             ],  
10            "Resource": "*"  
11        }  
12    ]  
13 }
```

Edit statement

Select a statement

Select an existing statement in the policy or add a new statement.

+ Add new statement

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- Then put “Resource “ : “*”

Permissions defined in this policy Info

Permissions defined in this policy document specify which actions are allowed or denied. To define permissions for an IAM identity (user, user group, or role), attach a policy to it.

Q Search Show remaining 416 services

Allow (1 of 417 services)

Service	Access level	Resource	Request condition
CloudWatch	Full access	All resources	None

Add tags - optional Info

Tags are key-value pairs that you can add to AWS resources to help identify, organize, or search for resources.

No tags associated with the resource.

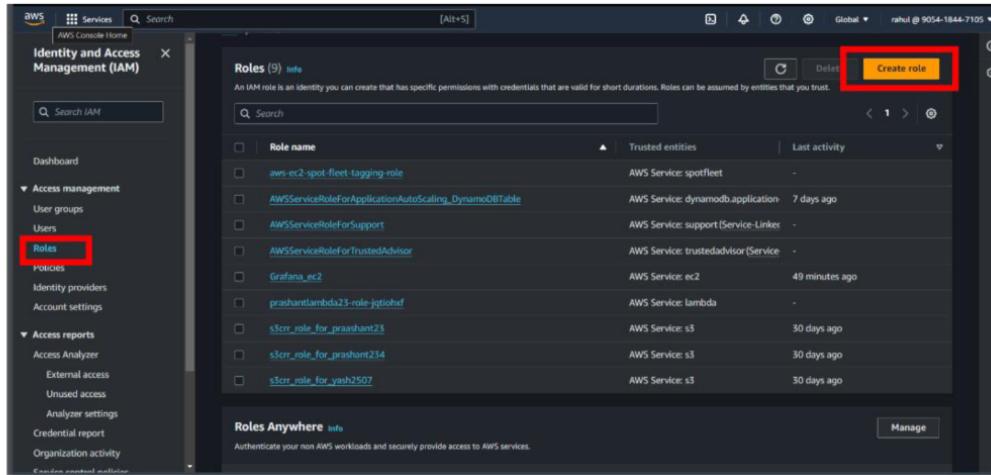
Add new tag You can add up to 50 more tags.

Cancel Previous Create policy

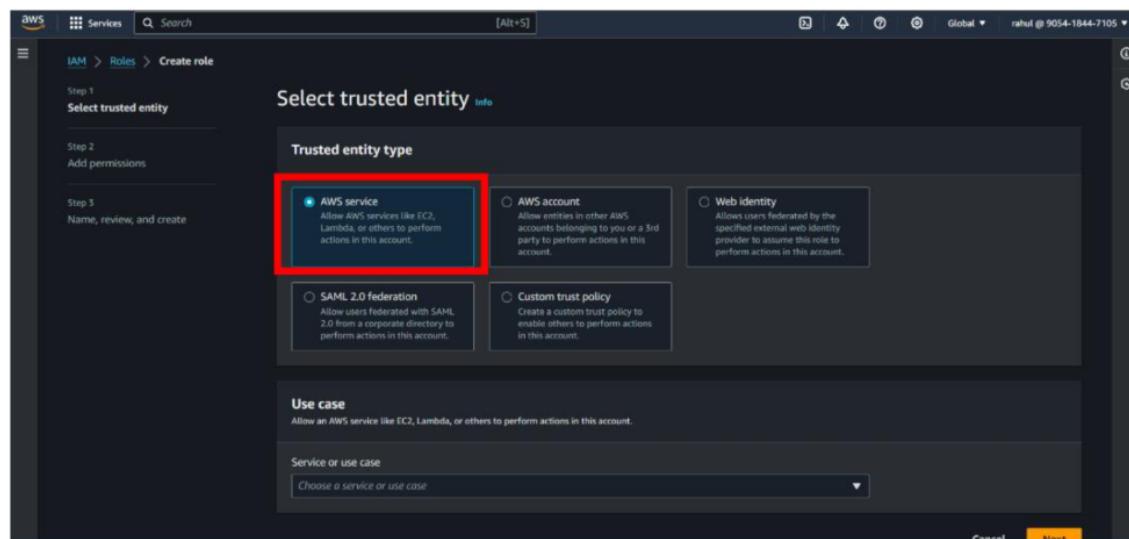
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- Scroll down and click on **Create policy**.

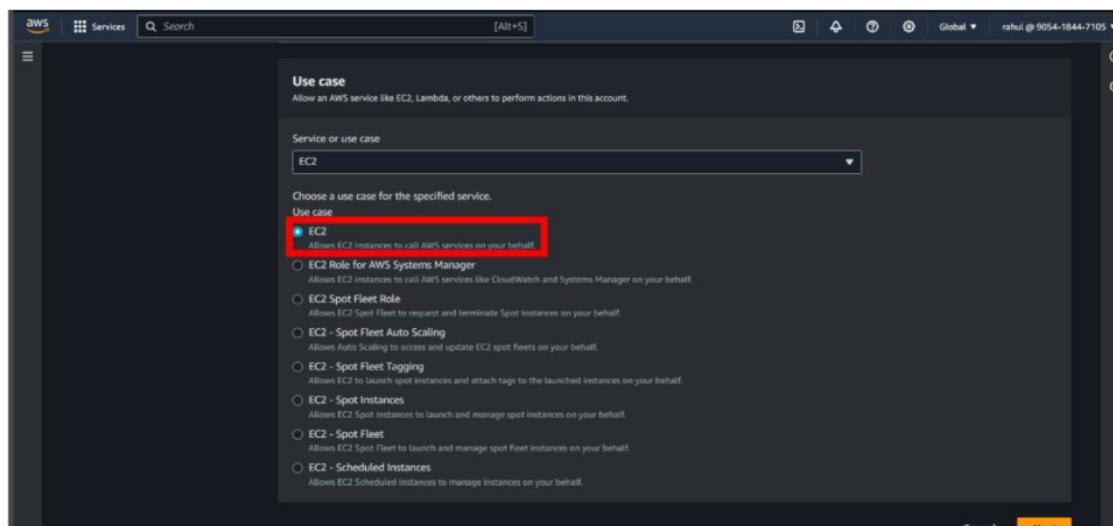
❖ Creating role :



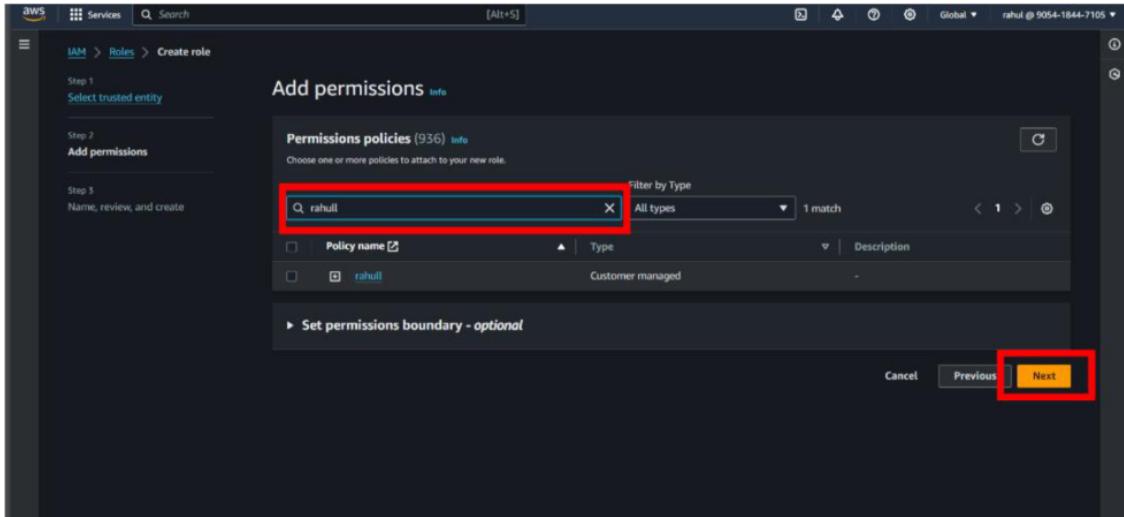
- Then go to roles and click on **Create roles**.



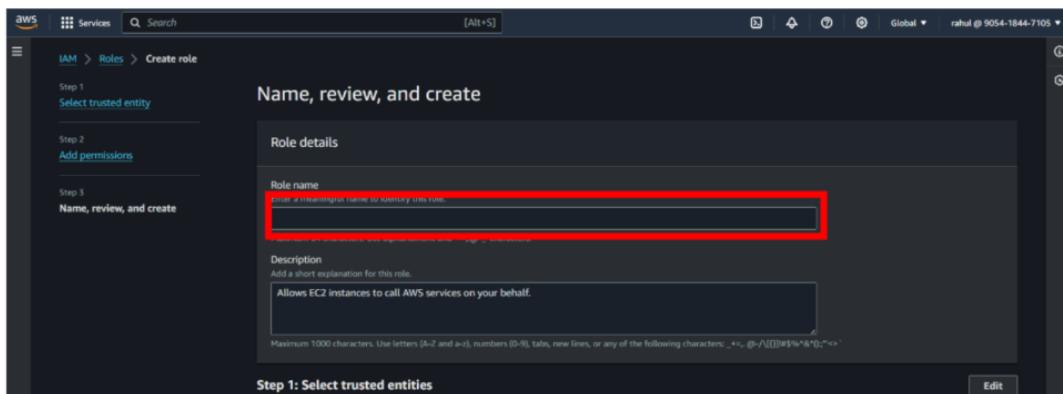
- Then select entity type is **AWS services** .



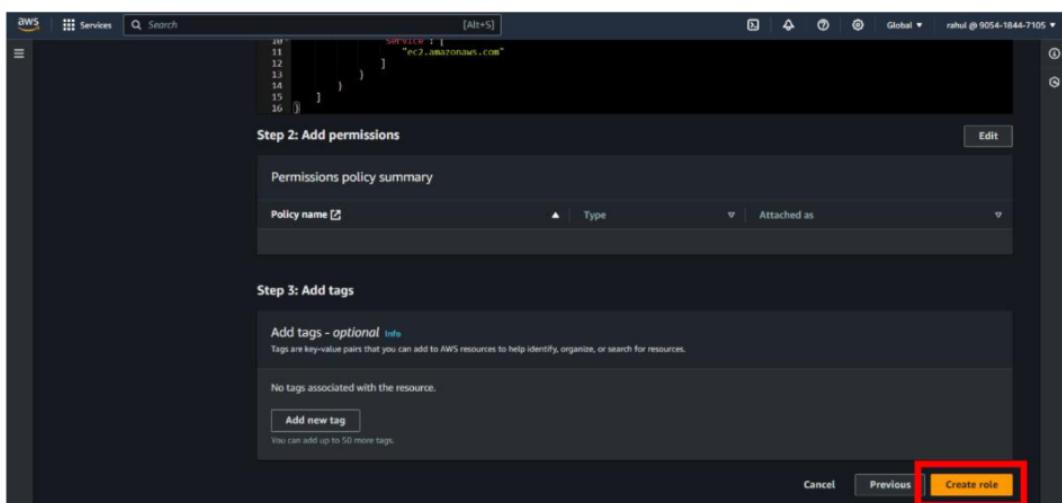
Now , select use case as **EC2** .



- Select your policy here which you have created previously , then click on **Next**.



- Then give a name of your choise to the role .



- Then scroll down and click on the **Create role** .

The screenshot shows the AWS EC2 Instances page. On the left, there's a navigation sidebar with options like EC2 Dashboard, EC2 Global View, Events, Instances, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations, Images, AMIs, AMI Catalog, Elastic Block Store, Volumes, Snapshots, Lifecycle Manager, and Network & Security. The main area displays a table with one row for the instance 'rahul ec2'. The instance ID 'i-09d95209bf4dde048' is highlighted with a red box. The table columns include Name, Instance state (Running), Instance type (t2.micro), Status check (2/2 checks passed), Alarm status, Availability Zone (ap-south-1a), and Public IPv4 DNS (ec2-52-66-157-56). Below the table, a modal window titled 'Select an instance' is open, showing the same instance details.

- After creating your role and policy go to instance and open your instance , which you have already created.

❖ Modifying security rules:

The screenshot shows the 'Security' tab for the instance 'rahul ec2'. The tab is highlighted with a red box. It displays the IAM Role 'Grafana_ec2' and the Owner ID '905418447105'. The 'Security details' section shows the launch time as 'Sun Jun 16 2024 11:30:49 GMT+0530 (India Standard Time)'. The 'Inbound rules' section lists a single rule: 'sgr-067cb184ec8a5e82' with 'All' port range, 'All' protocol, and '0.0.0.0/0' source. The 'Outbound rules' section is empty.

- Scroll down and go to **Security** option.

The screenshot shows the 'sg-0185d20be381de3ea - default' security group page. The 'Edit inbound rules' button is highlighted with a red box. The 'Inbound rules' table lists a single rule: 'sgr-067cb184ec8a5e82' with 'IPv4' IP version, 'All traffic' Type, 'All' Protocol, and 'All' Port range.

- Then click on **Edit inbound rule** .

Inbound rules control the incoming traffic that's allowed to reach the instance.

Inbound rules

Security group rule ID	Type	Protocol	Port range	Source	Description - optional
sgr-067cb184eec8a5e82	All traffic	All	All	Custom	0.0.0.0/0

Add rule

⚠ Rules with source of 0.0.0.0/0 or ::/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

Cancel Preview changes Save rules

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- Then modify your rule **select type = All traffic and source =0.0.0.0/0**

Instance summary for i-09d952098f4dde048 (rahul ec2)

Instance ID	52.66.157.56 open address
IPv6 address	-
Hostname type	IP name: ip-172-31-43-167.ap-south-1.compute.internal
Answer private resource DNS name	IPV4 (A)
Auto-assigned IP address	52.66.157.56 [Public IP]
IAM Role	Grafana_ec2
IMDSv2	Required
Public IPv4 address	52.66.157.56
Private IP address	172.31.43.167
Private IP DNS name (IPv4 only)	ip-172-31-43-167.ap-south-1.compute.internal
Instance type	t2.micro
VPC ID	vpc-0fd125980362775a9
Subnet ID	subnet-049d80f66c0e59d7e
Instance ARN	arn:aws:ec2:ap-south-1:905418447105:instance/i-09d952098f4dde048
Elastic IP addresses	-
AWS Compute Optimizer finding	Opt-in to AWS Compute Optimizer for recommendations.
Auto Scaling Group name	-

- Then copy your **public IPv4 address** of your instance .

❖ Starting GRAFANA:

52.66.157.56:3000

Grafana 52.66.157.56:3000

52.66.157.56:3000 - Google Search

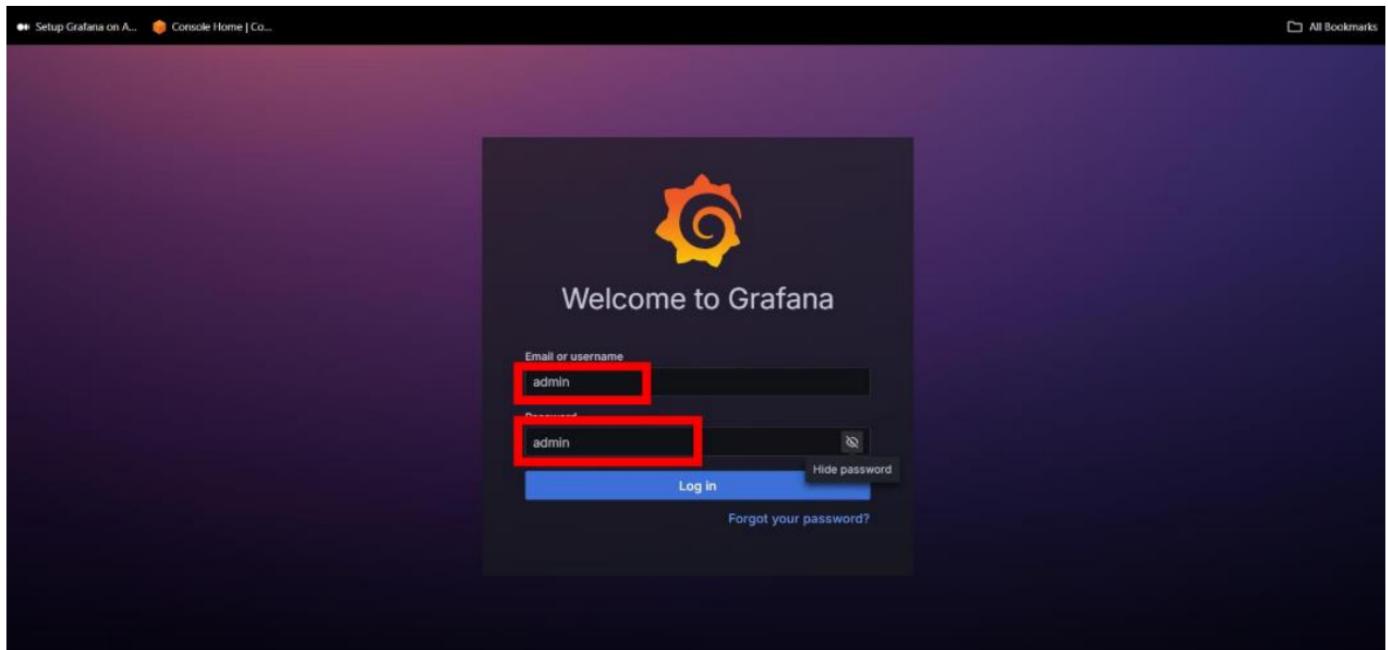
Amazon EC2 - Dashboards - Grafana - 52.66.157.56:3000/d/tms0t5z2k/amazon-ec2?orgId=1

Switch to this tab

Dashboards - Grafana - 52.66.157.56:3000/d/tms0t5z2k/amazon-ec2

Dashboards - Grafana - 52.66.157.56:3000/dashboards

- Then paste your copied ip address and type “**:3000**” after ip address and search it .



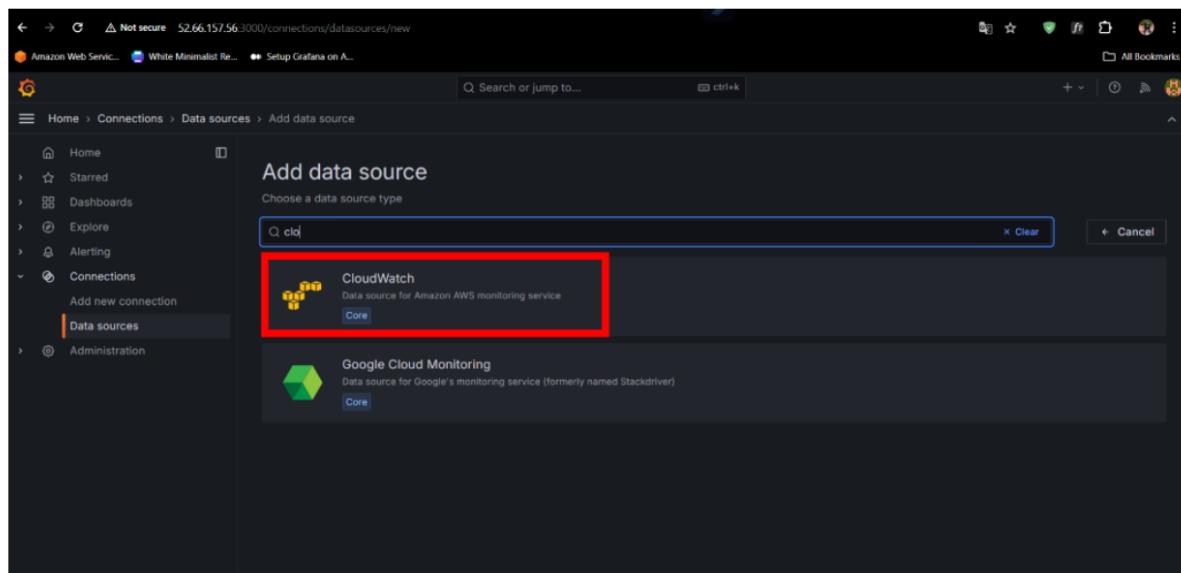
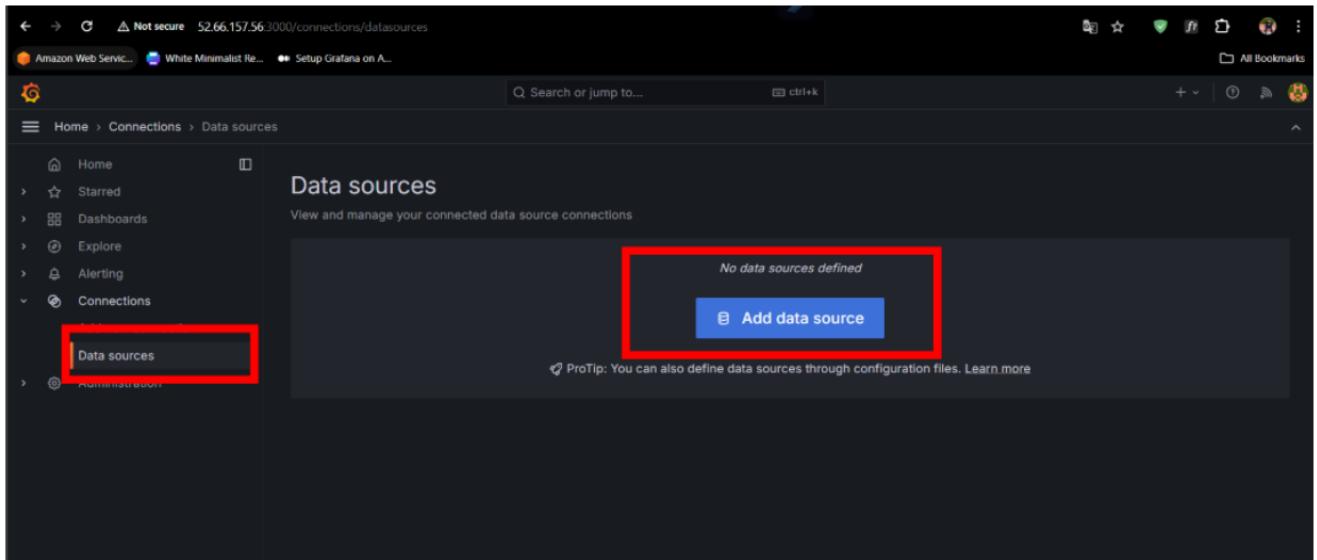
- Then login in Grafana by the help of credentials shown in above snapshot.

A screenshot of the Grafana dashboard. The left sidebar shows navigation links: Home, Starred, Dashboards, Explore, Alerting, Connections (with "Add new connection" and "Data sources" sub-options), and Administration. The main area features a "Welcome to Grafana" header and several introductory panels:

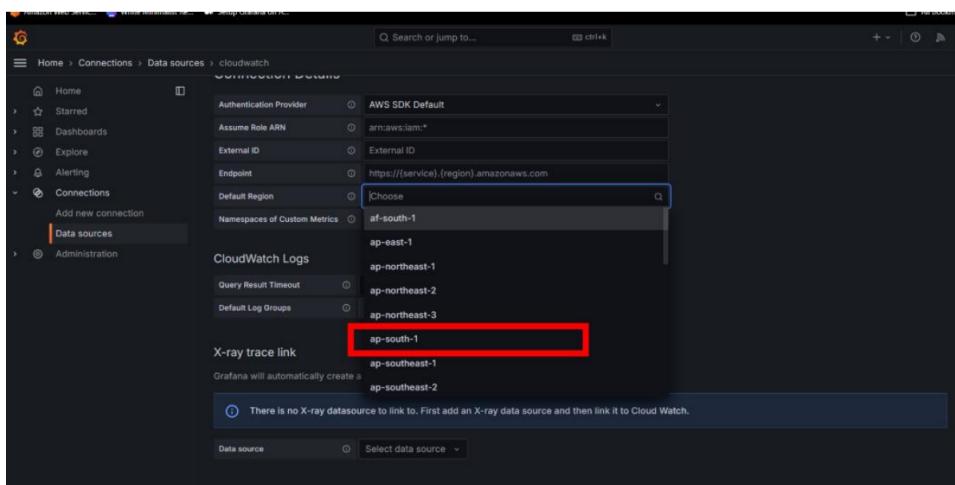
- Basic**: A panel with text about setting up Grafana.
- TUTORIAL DATA SOURCE AND DASHBOARDS**: A panel titled "Grafana fundamentals" with text about the tutorial.
- DATA SOURCES**: A panel with the text "Add your first data source".
- COMPLETE**: A panel with the text "Create your first dashboard".

Below these panels are sections for "Dashboards" (Starred dashboards, Recently viewed dashboards) and "Latest from the blog" (a small chart visualization).

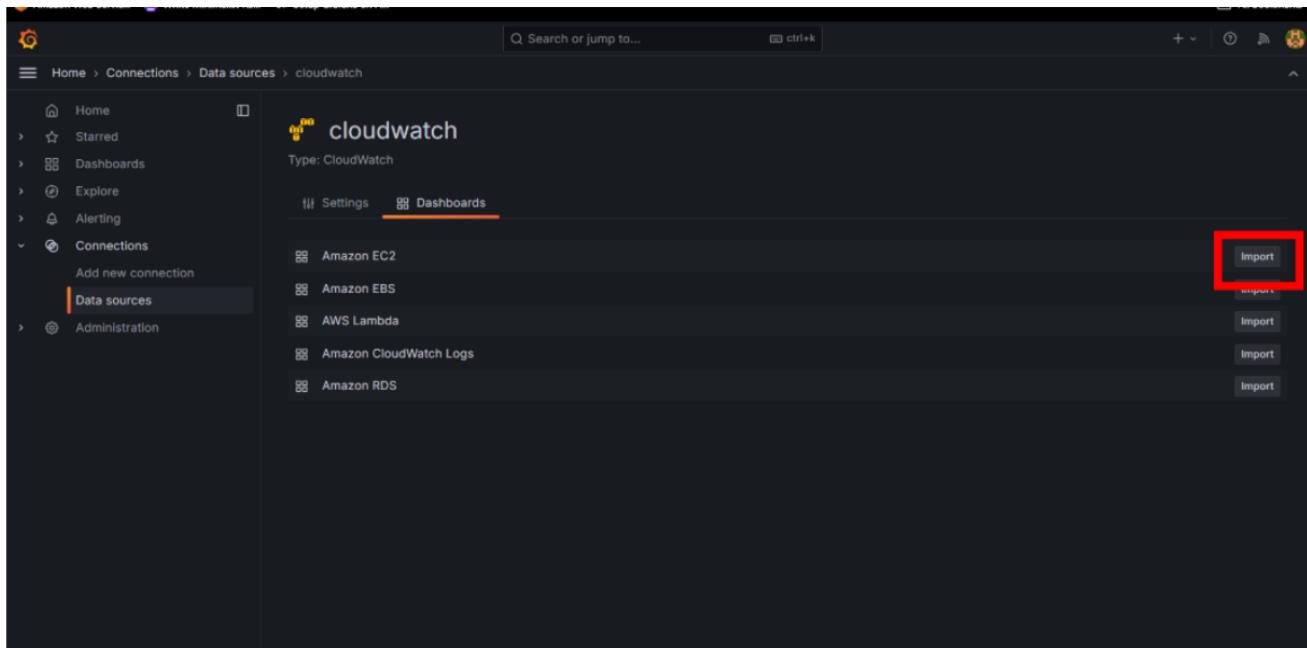
❖ Adding data source to grafana :



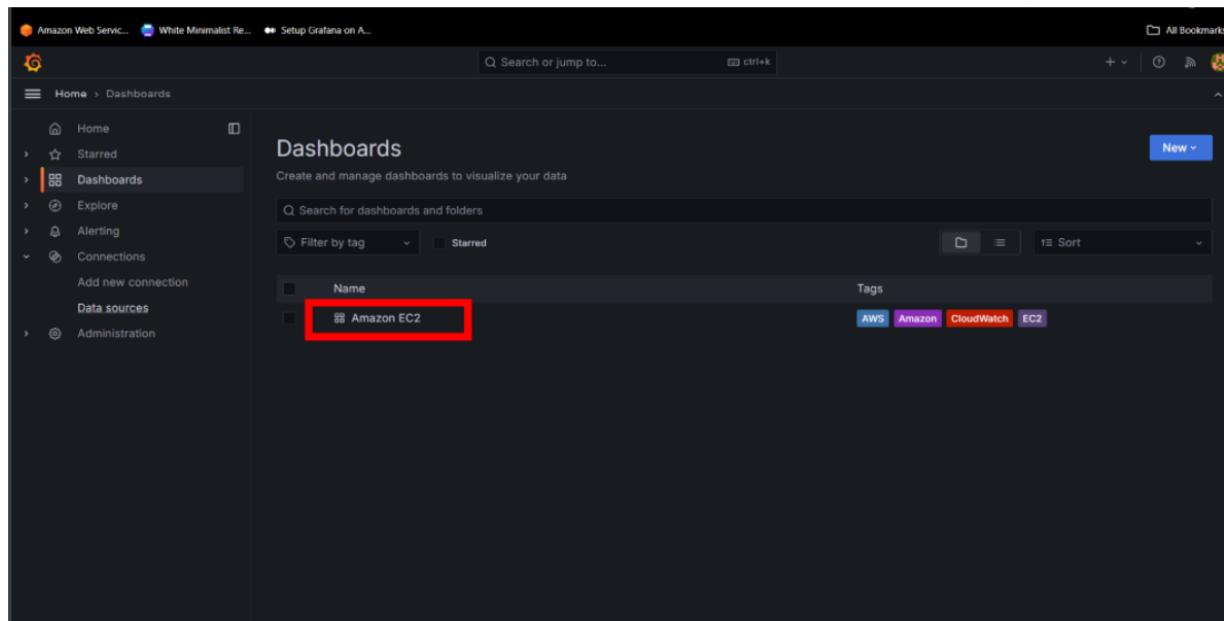
- Now , select “**Cloudwatch**” as an data source .



- Then after selecting cloudwatch select your region .



- Then inside your cloudwatch go to dashboard and **Import EC2**.



- Then go to dashboard and open your **Amazon EC2**.

