

Project

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

Note:

- Ø Grafana is an Open Source tool.
- Ø You have to create pictorial representation of your project.
- Ø You have to create presentation for your project as guided.
- Ø Please make sure that you have created sprint and working accordingly.

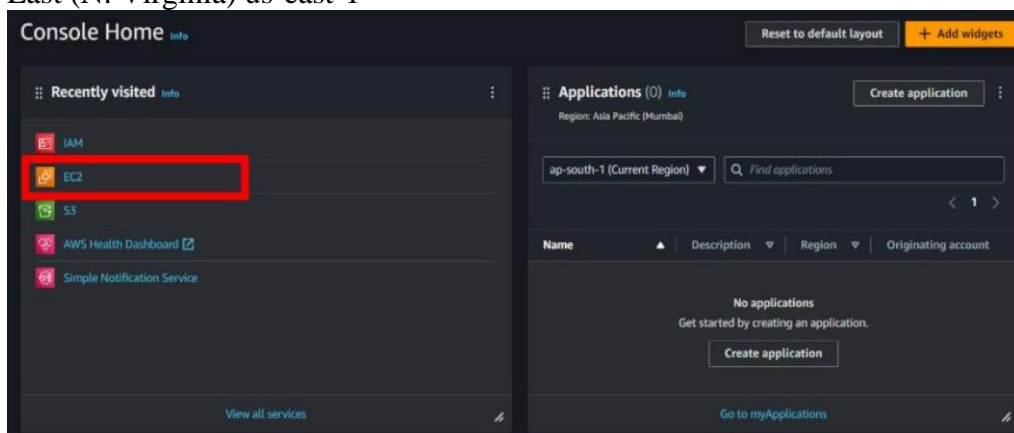
Sign in to AWS Management Console

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

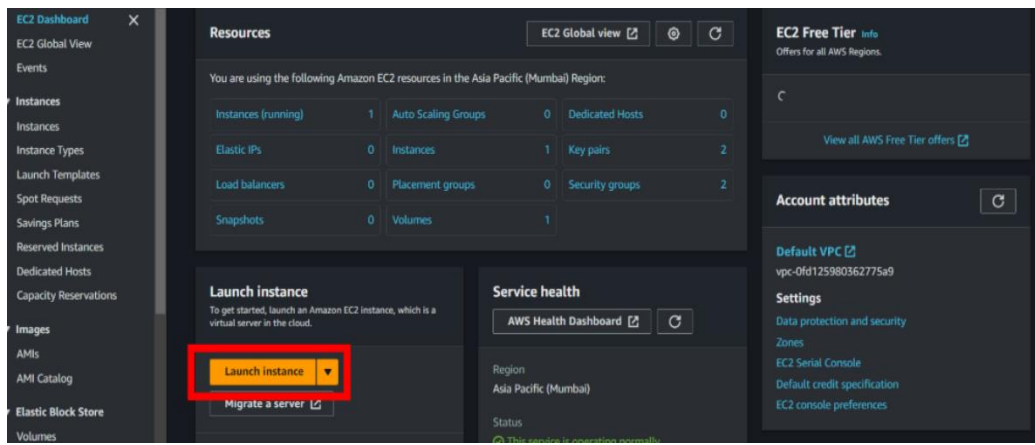
- Now copy your User Name and Password in the Lab Console to the IAM Username and Password in AWS Console and click on the Sign in button

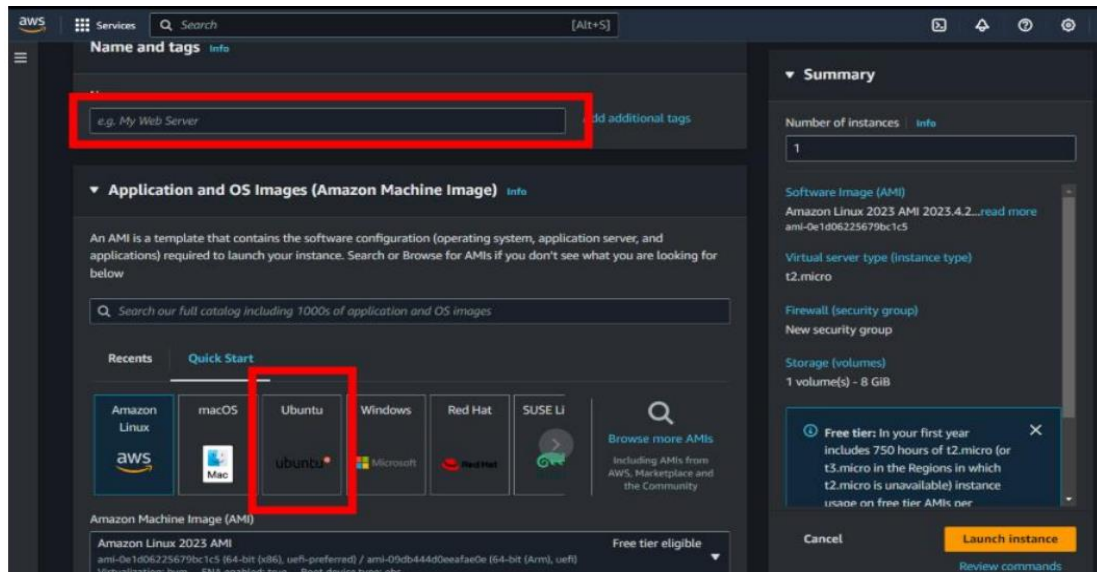
2. Once Signed in to the AWS Management Console, Make the default AWS Region as US East (N. Virginia) us-east-1



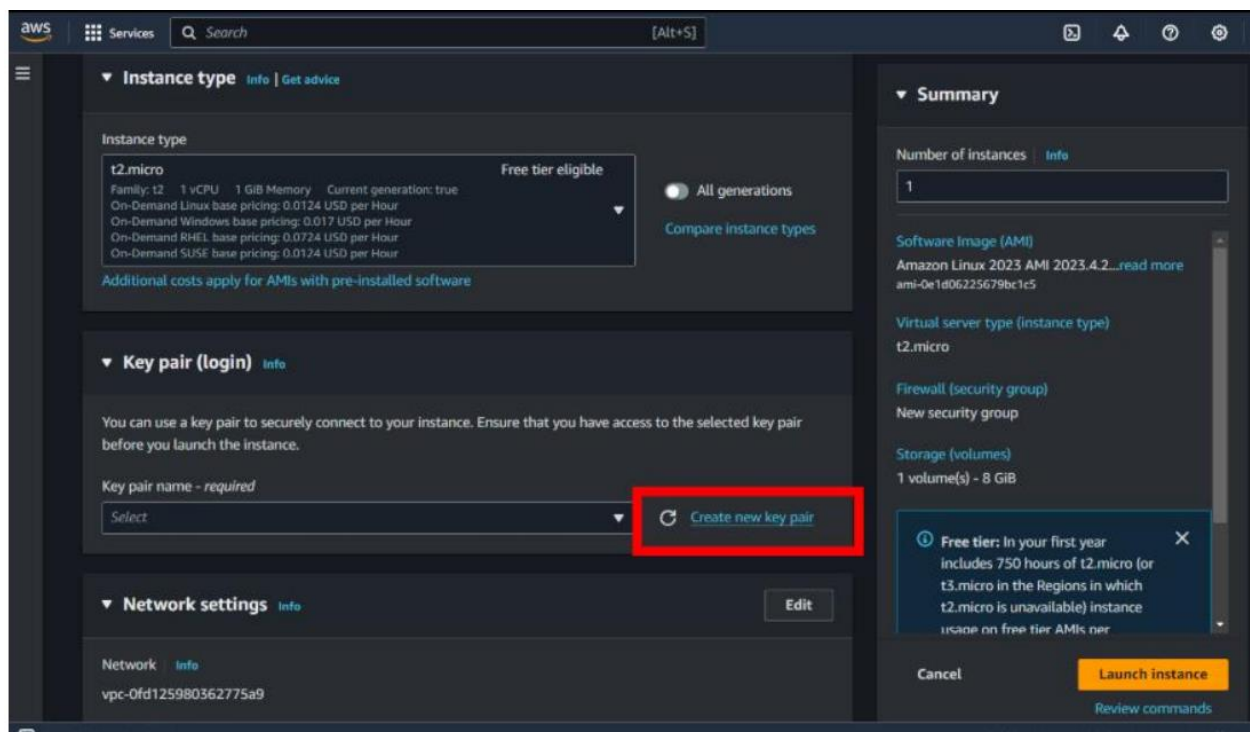
Create an EC2 Instance(ubuntu):

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

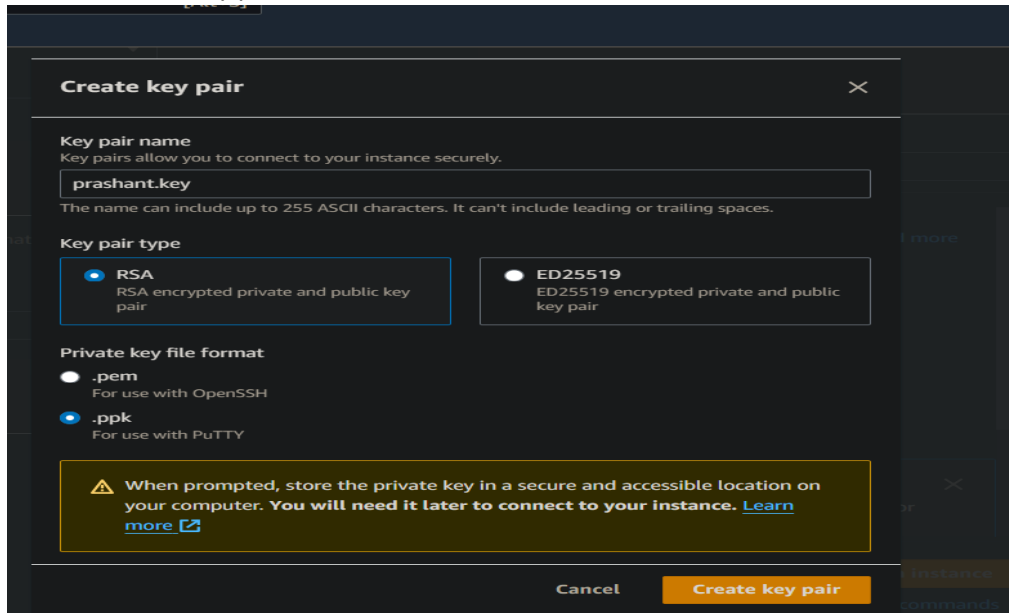




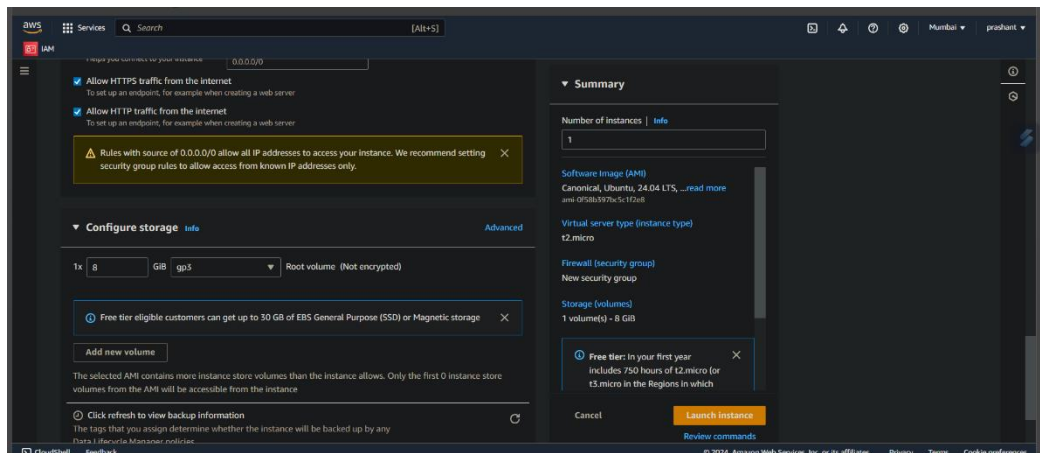
- Provide the EC2 name of your choice and select "Ubuntu" as an OS Image.



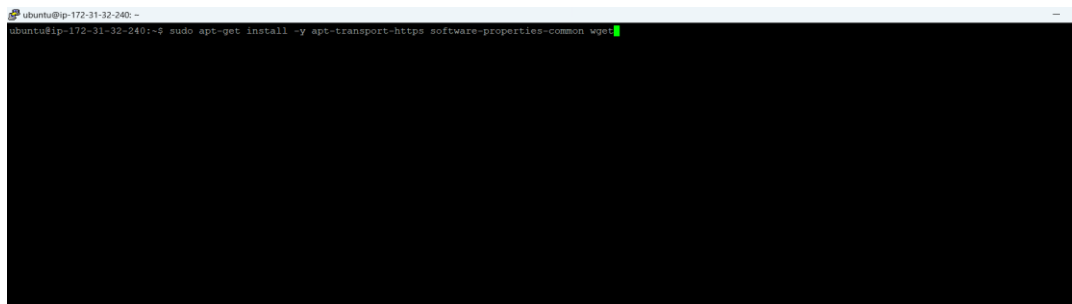
- Create a new key pair.



- 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.



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

```
ubuntu@ip-172-31-32-240: ~  
ubuntu@ip-172-31-32-240:~$ 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).  
software-properties-common is already the newest version (0.99.48).  
wget is already the newest version (1.21.4-lubuntu4).  
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.  
ubuntu@ip-172-31-32-240:~$ sudo mkdir -p /etc/apt/keyrings/  
ubuntu@ip-172-31-32-240:~$ wget -q -O - https://apt.grafana.com/gpg.key | gpg --dearmor | sudo tee /etc/apt/keyrings/grafana.gpg > /dev/null  
ubuntu@ip-172-31-32-240:~$
```

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

```
ubuntu@ip-172-31-32-240: ~  
ubuntu@ip-172-31-32-240:~$ 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).  
software-properties-common is already the newest version (0.99.48).  
wget is already the newest version (1.21.4-lubuntu4).  
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.  
ubuntu@ip-172-31-32-240:~$ sudo mkdir -p /etc/apt/keyrings/  
ubuntu@ip-172-31-32-240:~$ wget -q -O - https://apt.grafana.com/gpg.key | gpg --dearmor | sudo tee /etc/apt/keyrings/grafana.gpg > /dev/null  
ubuntu@ip-172-31-32-240:~$ echo "deb [signed-by=/etc/apt/keyrings/grafana.gpg] https://apt.grafana.com stable main" | sudo tee /etc/apt/sources.list.d/grafana.list
```

```
echo "deb [signed-by=/etc/apt/keyrings/grafana.gpg] https://apt.grafana.com stable main" | sudo tee -a /etc/apt/sources.list.d/grafana.list
```

```
ubuntu@ip-172-31-32-240:~$  
ubuntu@ip-172-31-32-240:~$ 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).  
software-properties-common is already the newest version (0.99.48).  
wget is already the newest version (1.21.4-ubuntu4).  
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.  
ubuntu@ip-172-31-32-240:~$ sudo mkdir -p /etc/apt/keyrings/  
ubuntu@ip-172-31-32-240:~$ wget -q -O - https://apt.grafana.com/gpg.key | gpg --dearmor | sudo tee /etc/apt/keyrings/grafana.gpg > /dev/null  
ubuntu@ip-172-31-32-240:~$ echo "deb [signed-by=/etc/apt/keyrings/grafana.gpg] https://apt.grafana.com stable main" | sudo tee /etc/apt/sources.list.d/grafana.list  
deb [signed-by=/etc/apt/keyrings/grafana.gpg] https://apt.grafana.com stable main  
ubuntu@ip-172-31-32-240:~$ sudo apt-get update  
Get:1 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble InRelease [256 kB]  
Get:2 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]  
Get:3 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]  
Get:4 https://apt.grafana.com stable InRelease [7661 B]  
Get:5 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 Packages [1401 kB]  
Get:6 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]  
Get:7 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/main Translation-en [513 kB]  
Get:8 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 Packages [15.0 MB]  
Get:9 https://apt.grafana.com stable/main amd64 Packages [251 kB]  
Get:10 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/universe Translation-en [5982 kB]  
Get:11 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 Components [3871 kB]  
Get:12 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 c-n-f Metadata [301 kB]  
Get:13 http://security.ubuntu.com/ubuntu noble-security/main amd64 Packages [163 kB]  
Get:14 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/restricted amd64 Packages [93.9 kB]  
Get:15 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/restricted Translation-en [18.7 kB]  
Get:16 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse amd64 Packages [269 kB]
```

To updates the list of available packages

```
sudo apt-get update
```

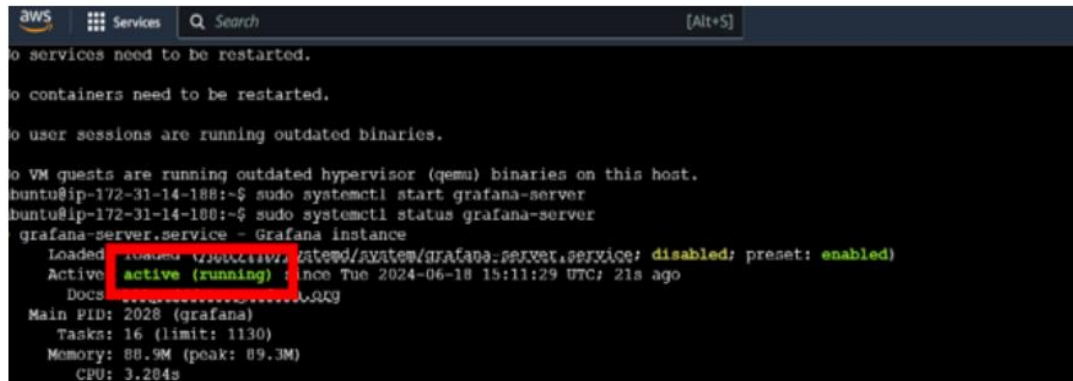
```
ubuntu@ip-172-31-32-240:~$  
Get:48 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Components [8632 B]  
Get:49 http://security.ubuntu.com/ubuntu noble-security/universe amd64 c-n-f Metadata [112 B]  
Get:50 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Packages [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 [208 B]  
Get:54 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 c-n-f Metadata [116 B]  
Fetched 24.5 MB in 4s (6128 kB/s)  
Reading package lists... Done  
ubuntu@ip-172-31-32-240:~$  
* login as ubuntu  
* Authenticating with public key "prashant.key"  
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 as of Thu Jun 20 16:39:20 UTC 2024  
  
System load:  0.0          Processes:    110  
Usage of /:   26.1% of 6.71GB Users logged in:    1  
Memory usage: 21%         IPv4 address for enx0: 172.31.32.240  
Swap usage:   0%  
  
Expanded Security Maintenance for Applications is not enabled.  
  
83 updates can be applied immediately.  
48 of these updates are standard security updates.  
To see these additional updates run: apt list --upgradable  
  
Enable ESM Apps to receive additional future security updates.  
See https://ubuntu.com/esm or run: sudo pro status  
  
Last login: Thu Jun 20 16:15:14 2024 from 152.58.152.89  
ubuntu@ip-172-31-32-240:~$ sudo apt-get install grafana-enterprise  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
The following additional packages will be installed:  
  musl  
The following NEW packages will be installed:  
  grafana-enterprise musl  
0 upgraded, 2 newly installed, 0 to remove and 77 not upgraded.  
Need to get 121 MB of archives.  
After this operation, 446 MB of additional disk space will be used.  
Do you want to continue? [Y/n]
```

To installs the latest Enterprise release:

```
sudo apt-get install grafana-enterprise
```

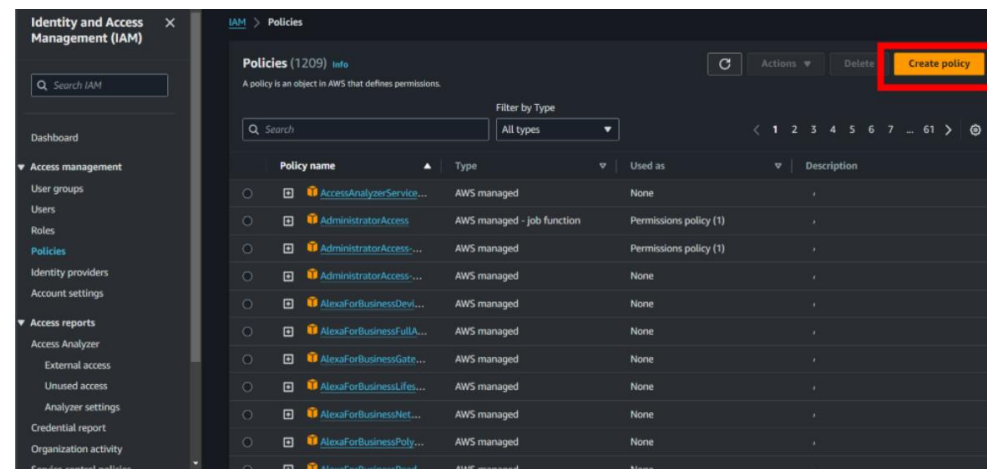
```
info: Adding system user 'grafana' (UID 111) ...  
info: Adding new user 'grafana' (UID 111) with group 'grafana' ...  
info: Not creating home directory '/usr/share/grafana'.  
### NOT starting on installation, please execute the following statements to configure grafana to start automatically using 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 (2.12.0-4build2) ...  
Scanning processes...  
Scanning linux images...  
  
Running kernel seems to be up-to-date.  
  
No services need to be restarted.  
  
No containers need to be restarted.  
  
No user sessions are running outdated binaries.  
  
No VM guests are running outdated hypervisor (qemu) binaries on this host.  
ubuntu@ip-172-31-32-240:~$ sudo systemctl start grafana-server
```

sudo systemctl status grafana-server.service

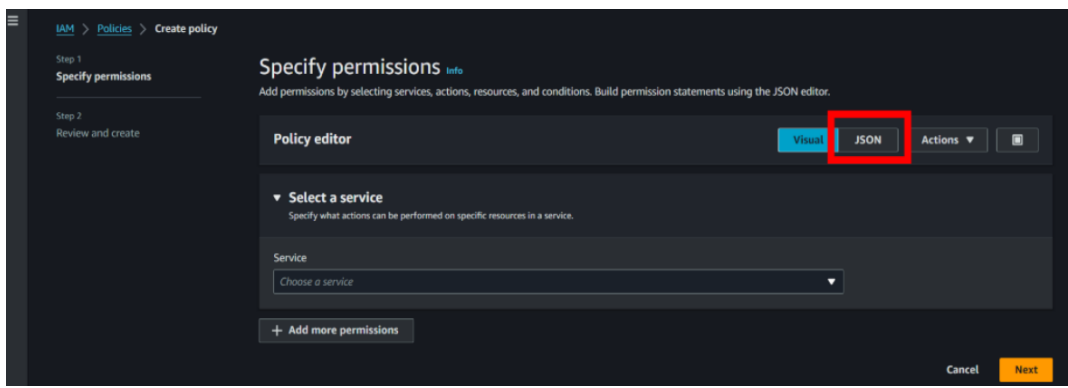


```
o services need to be restarted.
o containers need to be restarted.
o user sessions are running outdated binaries.
o VM guests are running outdated hypervisor (qemu) binaries on this host.
buntu@ip-172-31-14-188:~$ sudo systemctl start grafana-server
buntu@ip-172-31-14-188:~$ sudo systemctl status grafana-server
grafana-server.service - Grafana instance
Loaded: loaded (/usr/lib/systemd/system/grafana-server.service; disabled; preset: enabled)
Active: active (running) since Tue 2024-06-18 15:11:29 UTC; 21s ago
Docs: https://grafana.com/docs/grafana/latest/
Main PID: 2028 (grafana)
Tasks: 16 (limit: 1130)
Memory: 88.9M (peak: 89.3M)
CPU: 3.284s
```

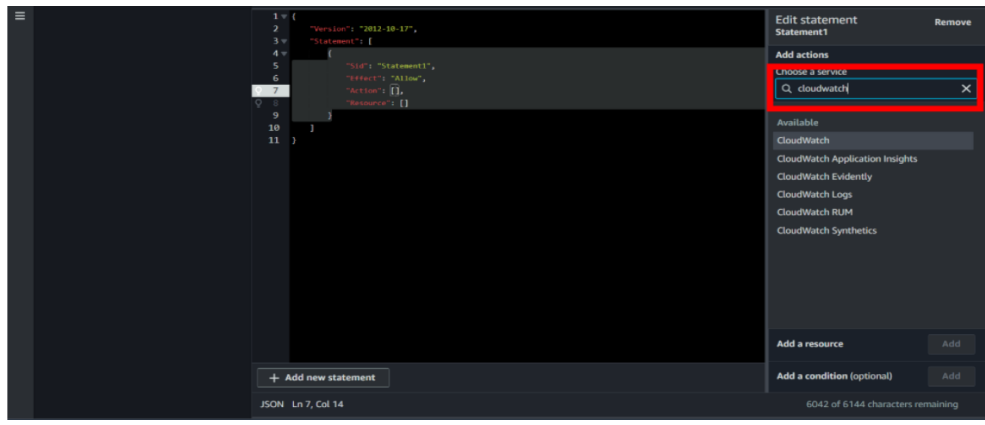
- Then search IAM role and go to policies and click on Create policies.



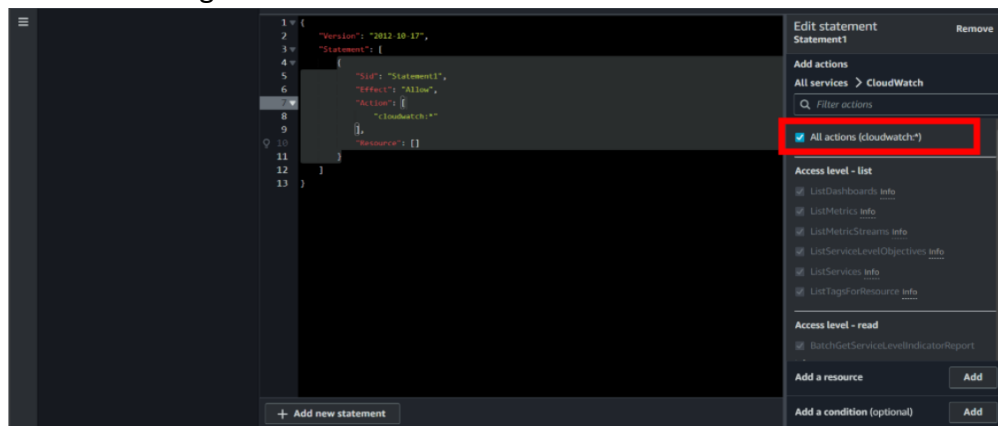
- Then go to JSON type



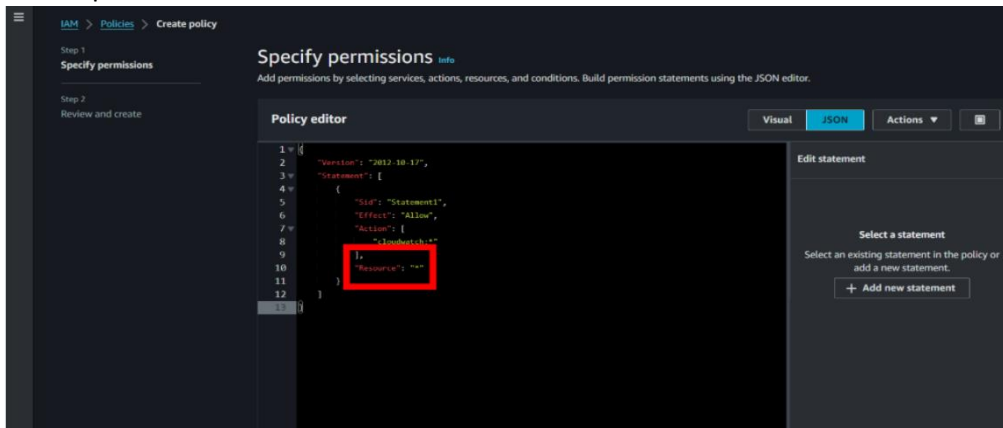
- Click on add action and search for “Cloudwatch”.



- After selecting cloudwatch select “All actions “.



- Then put “Resource “ : ”*”



- Scroll down and click on Create policy.

Maximum 1,000 characters. Use alphanumeric and "+,=,_,@,." characters.

Permissions defined in this policy [info](#) [Edit](#)

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.

Allow (1 of 417 services) [Show remaining 416 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](#)

- Then go to roles and click on Create roles.

Identity and Access Management (IAM) [X](#)

Dashboard

▼ Access management

- User groups
- Users
- Roles**
- Policies
- Identity providers
- Account settings

▼ Access reports

- Access Analyzer
- External access
- Unused access

Roles (9) [info](#) [Refresh](#) [Delete](#) [Create role](#)

An IAM role is an identity you can create that has specific permissions with credentials that are valid for short durations. Roles can be assumed by entities that you trust.

<input type="checkbox"/>	Role name	Trusted entities	Last activity
<input type="checkbox"/>	aws-ec2-spot-fleet-tagging-role	AWS Service: spotfleet	-
<input type="checkbox"/>	AWSServiceRoleForApplicationAutoScaling_DynamoDBTable	AWS Service: dynamodb.application	7 days ago
<input type="checkbox"/>	AWSServiceRoleForSupport	AWS Service: support (Service-Linker)	-
<input type="checkbox"/>	AWSServiceRoleForTrustedAdvisor	AWS Service: trustedadvisor (Service-Linker)	-
<input type="checkbox"/>	Grafana_ec2	AWS Service: ec2	49 minutes ago
<input type="checkbox"/>	prashantLambda23-role-jqtiohdf	AWS Service: lambda	-
<input type="checkbox"/>	s3scr_role_for_prashant23	AWS Service: s3	30 days ago
<input type="checkbox"/>	s3scr_role_for_prashant234	AWS Service: s3	30 days ago
<input type="checkbox"/>	s3scr_role_for_yash2507	AWS Service: s3	30 days ago

- Then select entity type is AWS services

IAM > Roles > Create role

Step 1
Select trusted entity

Step 2
Add permissions

Step 3
Name, review, and create

Select trusted entity [info](#)

Trusted entity type

☒ **AWS service**
Allow AWS services like EC2, Lambda, or others to perform actions in this account.

☐ **AWS account**
Allow entities in other AWS accounts belonging to you or a 3rd party to perform actions in this account.

☐ **Web identity**
Allows users federated by the specified external web identity provider to assume this role to perform actions in this account.

☐ **SAML 2.0 federation**
Allow users federated with SAML 2.0 from a corporate directory to perform actions in this account.

☐ **Custom trust policy**
Create a custom trust policy to enable others to perform actions in this account.

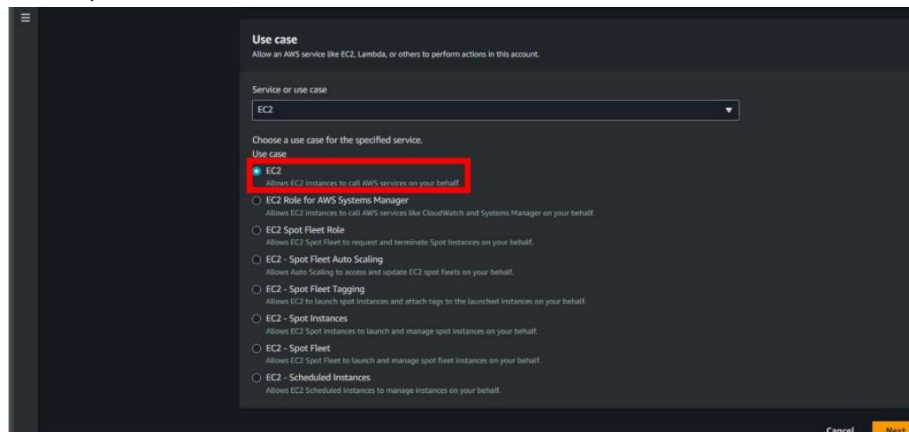
Use case

Allow an AWS service like EC2, Lambda, or others to perform actions in this account.

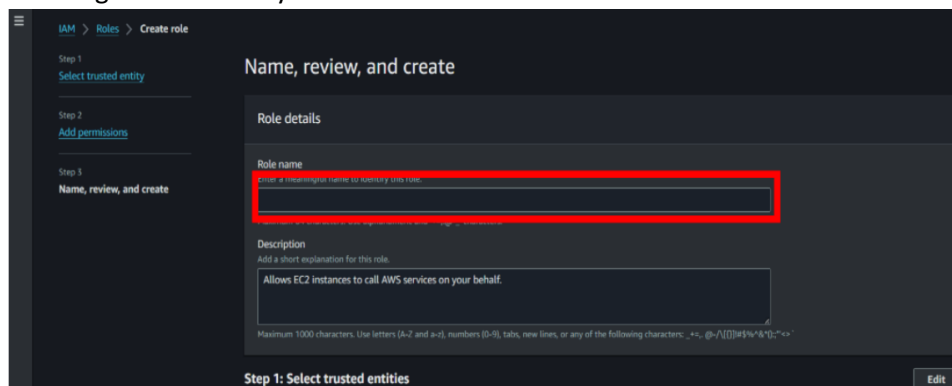
Service or use case

[Cancel](#) [Next](#)

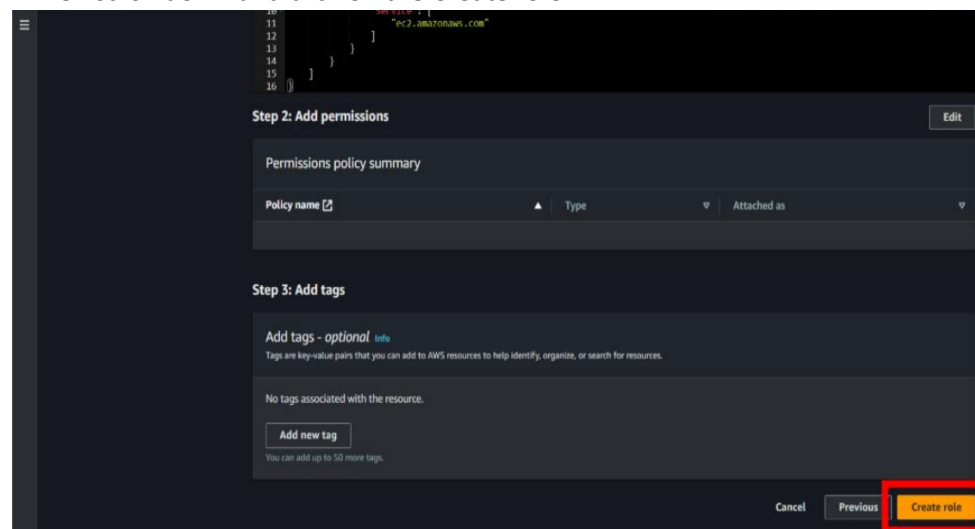
- Now , select use case as EC2 .



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

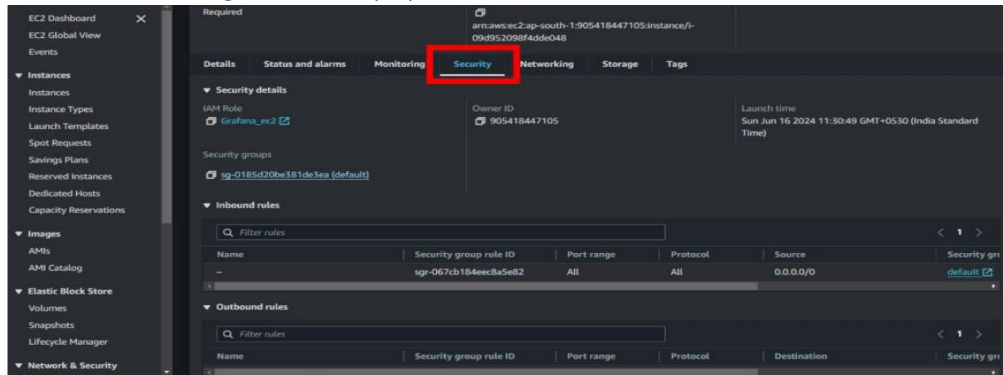


- Then scroll down and click on the Create role .

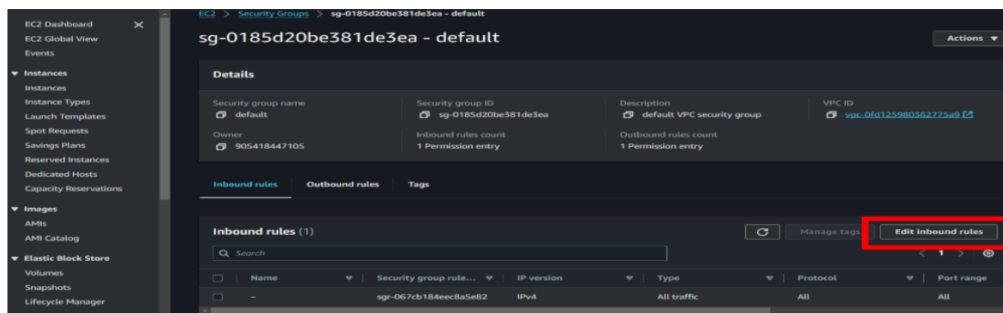


- After creating your role and policy go to instance and open your instance , which you have already created.

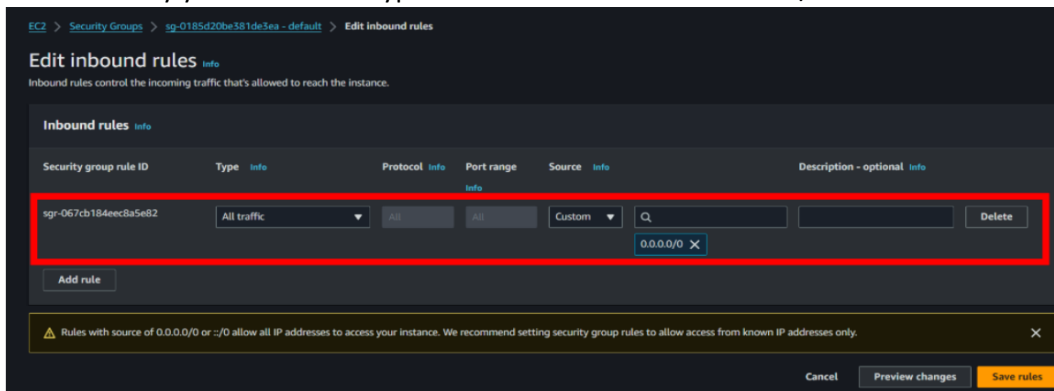
- Scroll down and go to Security option



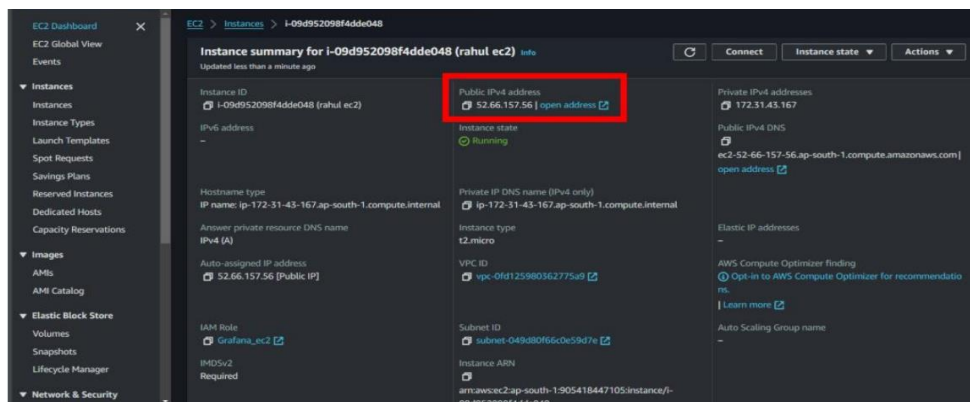
- Then click on Edit inbound rule .



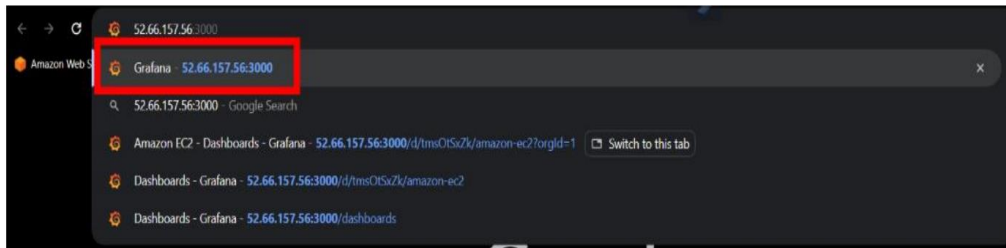
- Then modify your rule select type = All traffic and source =0.0.0.0/0



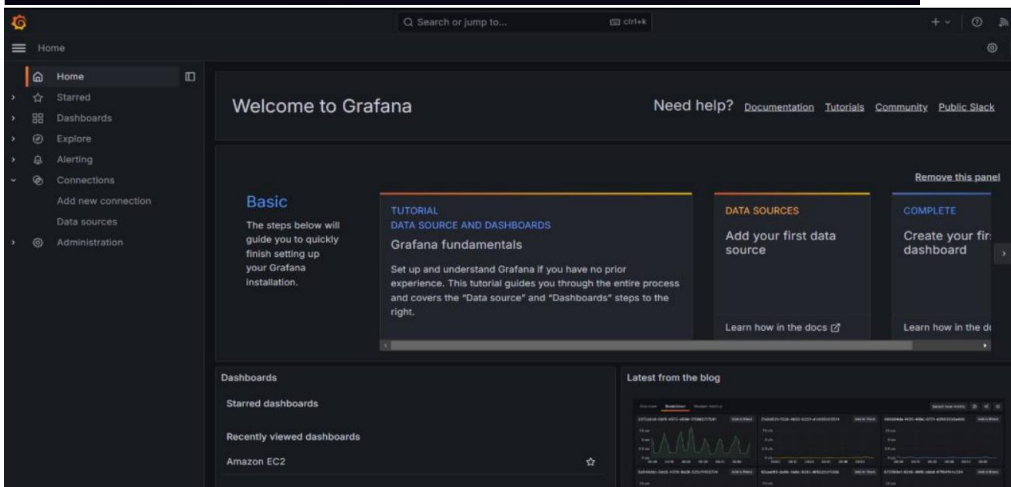
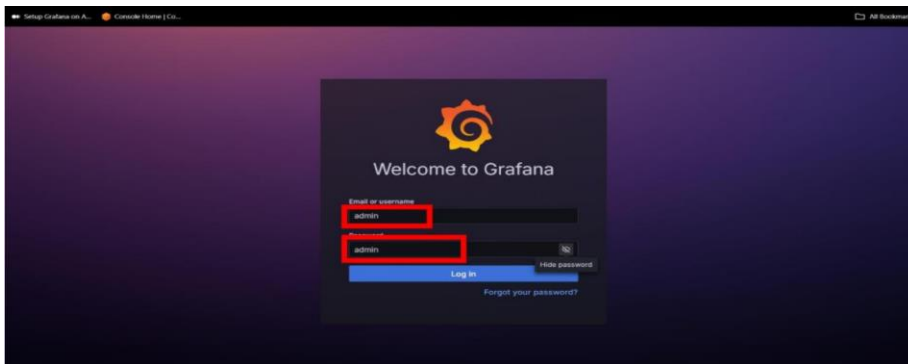
- Then copy your public IPv4 address of your instance .



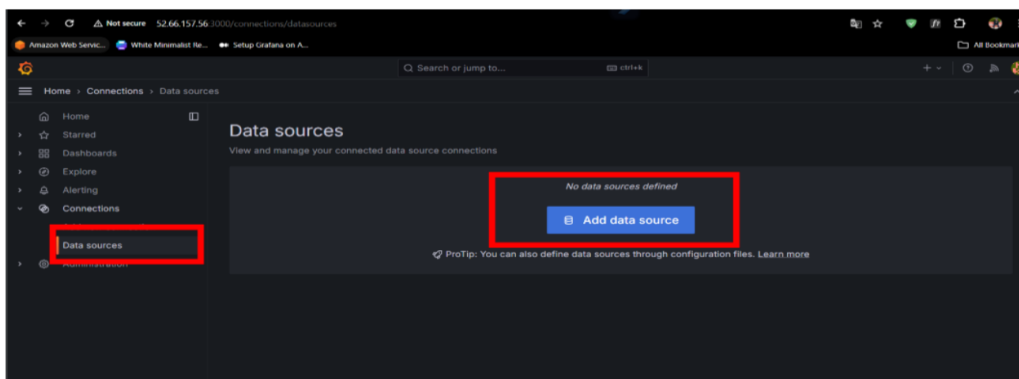
- Then paste your copied ip address and type “:3000” after ip address and search it.



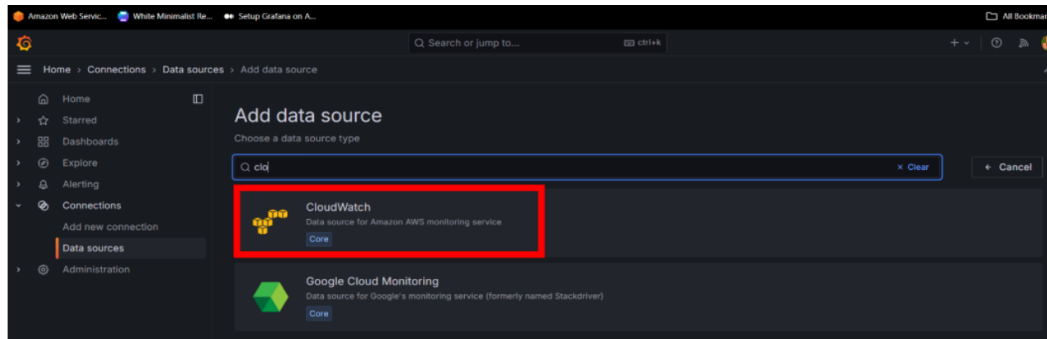
- Then login in Grafana by the help of credentials shown in above snapshot.



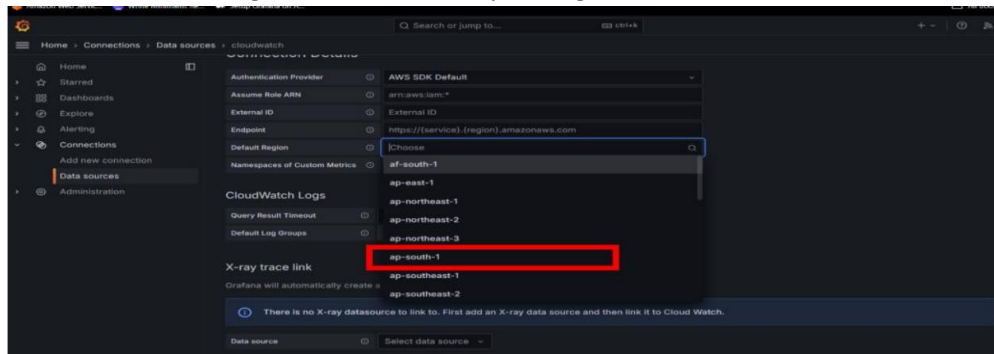
- Then go to Dashboard and click on Add data source



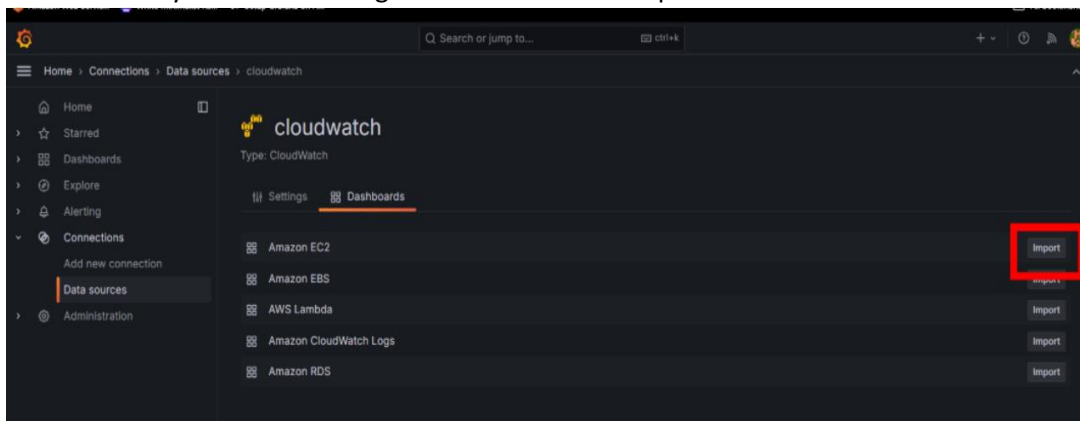
- Now , select “Cloudwatch” as an data source .



- 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

