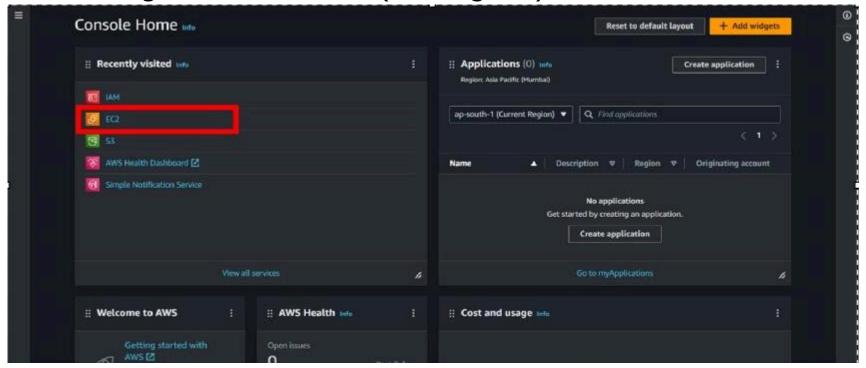
## Project 3

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

#### Sign in to AWS Management Console

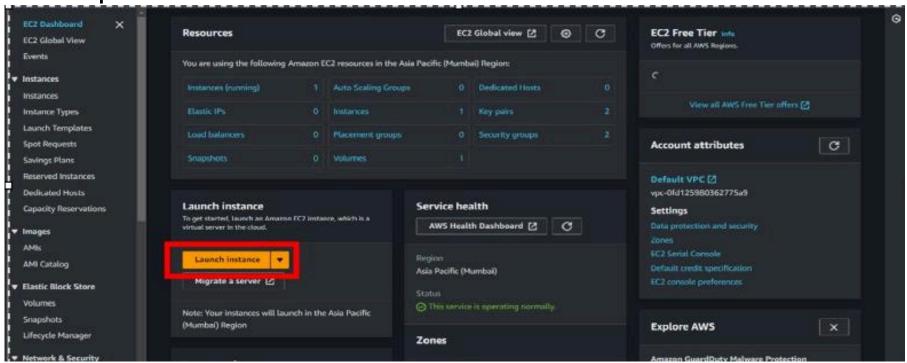
- 1. Click on the Open Console button, and you will get redirected to AWS Console in a new browser tab.
- On the AWS sign-in page, Leave the Account ID as default. Never edit/remove the 12-digit Account ID present in the AWS Console. otherwise, you cannot proceed with the lab.

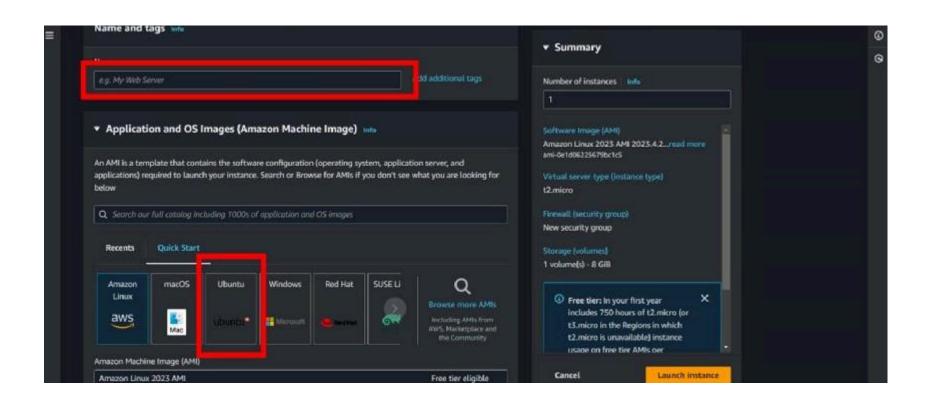
- Now copy your User Name and Password in the Lab Console to the IAM Username and Password in AWS Console and click on the Sign in button.
  - 2. Once Signed in to the AWS Management Console, Make the default AWS Region as US East (N. Virginia) us-east-1.



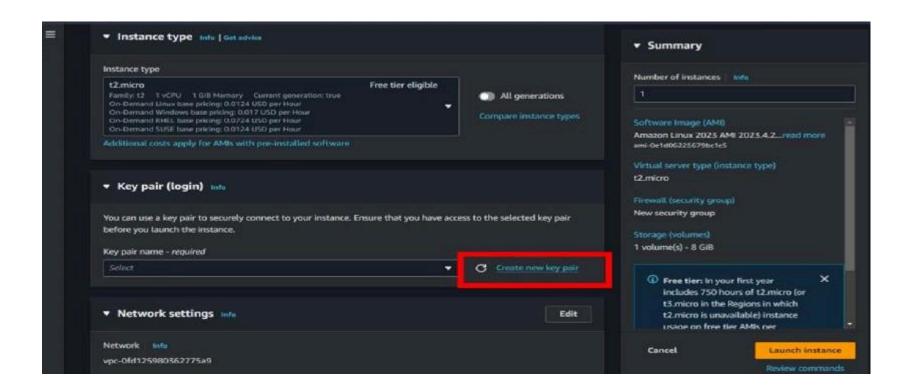
Create an EC2 Instance(ubuntu):

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

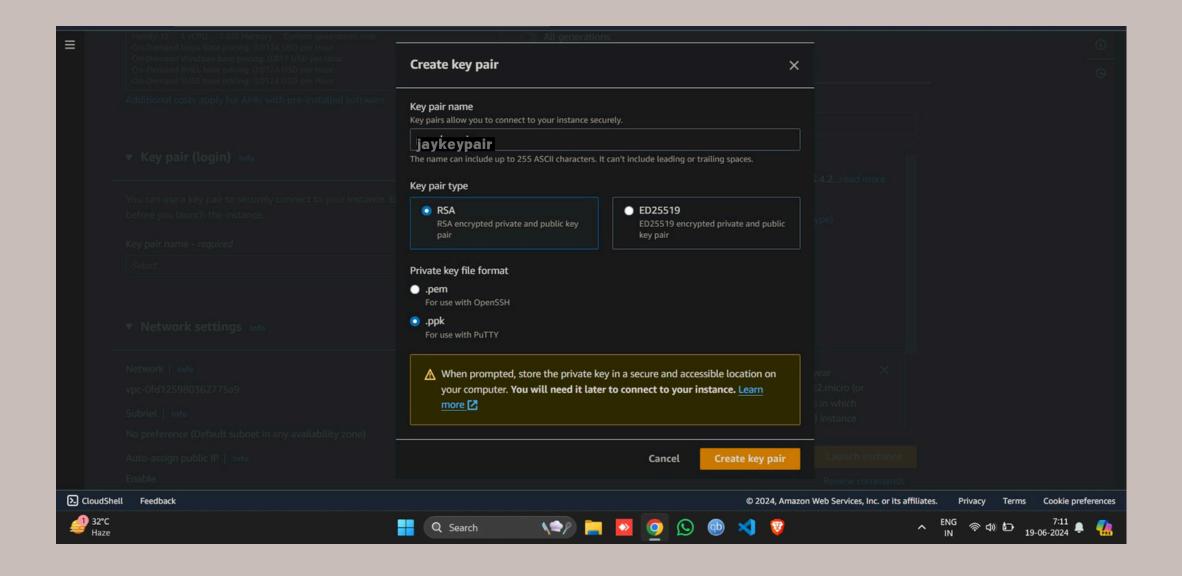




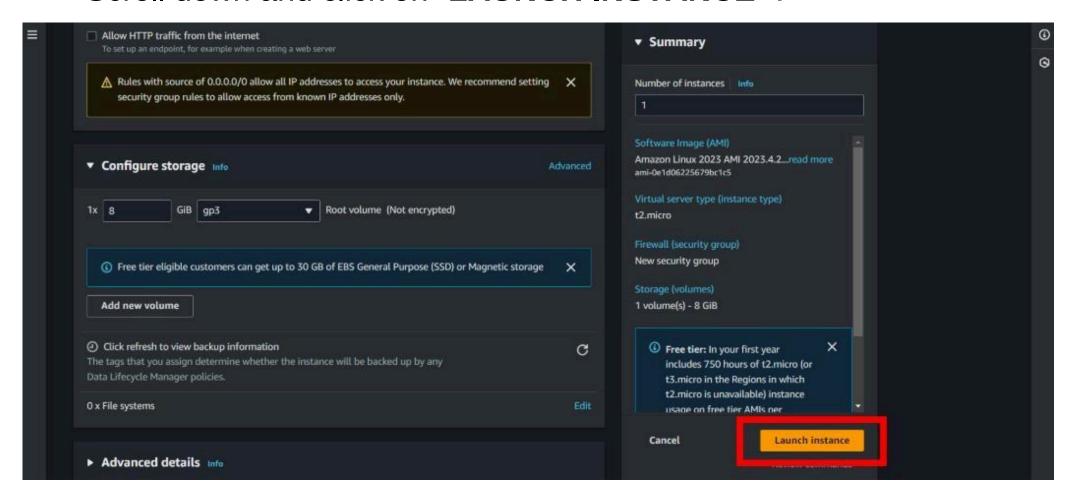
Provide the EC2 name of your choise and select" Ubuntu as an OS Image.



· 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.

```
lcome to Whonto 24,04 LTS (CMU/Linux 6.8,0-1008-aws x86 64)
 Documentation: https://help.ubuntu.com
 Management: https://landscape.canonical.com
                https://ubuntu.com/pro
System information disabled due to load higher than 1.0
Expanded Security Maintenance for Applications is not enabled.
 updates can be applied immediately.
mable ESM Apps to receive additional future security updates.
ee https://ubuntu.com/esm or run: sudo pro status
the list of available updates is more than a week old.
 check for new updates run: sudo apt update
he programs included with the Hhuntu system are free software;
 he exact distribution terms for each program are described in the
ndividual files in /usr/share/doc/*/copyright.
Sountu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
ipplicable law.
o run a command as administrator (uner "root"), use "sudo (command)".
ee "man sudo root" for details.
```

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

```
spanded Security Maintenance for Applications is not enabled.
 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.
Obuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
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 (0.99.48).
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=172-31-14-180:~$ sudo mkdir -p /etc/apt/keyrings/
eget -q -C - https://apt.grafana.com/gpg.key | gpg --dearmor | sudo tee /etc/apt/keyrings/grafana.gpg > /dev/null
```

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

```
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-172-31-14-188:-$ 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 (0.99.48).
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
                                                                                       apt.grafana.com stable main" | sudo tee -a /etc/apt/sources.list.d/grafana.
```

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

```
ee https://ubuntu.com/esm or run: sudo pro status
he list of available updates is more than a week old.
 o check for new updates run; sudo apt update
 he programs included with the Ubuntu system are free software;
 he exact distribution terms for each program are described in the
ndividual files in /usr/share/doc/*/copyright.
Buntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
 run a command as administrator (user "root"), use "sudo <command>".
 ee "man sudo root" for details.
 buntu8ip-172-31-14-188:-$ sudo apt-get install -y apt-transport-https software-properties-common wget
 eading package lists... Done
uilding dependency tree... Done
teading state information... Done
Note, selecting 'apt' instead of 'apt-transport-https'
opt is already the newest version (2.7.14build2).
apt set to manually installed.
oftware-properties-common is already the newest version (0.99.48).
oftware-properties-common set to manually installed.
aget is already the newest version (1.21.4-lubuntu4).
vget set to manually installed.
 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
buntu@ip-172-31-14-188:~$ sudo mkdir -p /etc/apt/keyrings/
yet -q -0 - https://apt.grafana.com/gpg.key | gpg --dearmor | sudo tee /etc/apt/keyrings/grafana.gpg > /dev/null
mbuntu@ip-172-31-14-188:-$ echo "deb [signed-by=/etc/apt/keyrings/grafana.gpg] https://apt.grafana.com stable main" | sudo tee -a /etc/apt/sources.list.d/grafana.li
leb (signed-by-/etc/apt/keyrings/grafana.gpg) https://apt.grafana.com stable main
hountuBip-172-31-14-188:-$ * Updates the list of available packages
rudo apt-get update
```

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

```
et:22 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe Translation-en [25.1 kB]
Set:23 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe and64 Components [45.0 kB]
Set:24 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe and64 c-n-f Metadata [112 B]
Set:25 http://ap-south-l.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Packages [70.1 kh]
Set:26 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted Translation-en [14.3 kB]
Set:27 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Components [212 B]
Set:28 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Packages [2968 B]
Set:29 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse Translation-en [968 B]
Set:30 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Components [212 B]
Set:31 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 c-n-f Metadata [116 B]
2et:32 http://ap-south-l.ec2.archive.ubuntu.com/ubuntu noble-backports/main amd64 Components [208 B]
Set:33 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-backports/main amd64 c-n-f Metadata [112 B]
Set:34 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-backports/universe amd64 Packages [6849 B]
Det:35 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-backports/universe franslation-en [9652 B]
Set:36 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-backports/universe amd64 Components [17.6 kB]
Set:37 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-backports/universe amd64 c-n-f Metadata [116 B]
Set:38 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-backports/restricted amd64 Components [216 B]
Set:39 http://ap-south-l.ec2.archive.ubuntu.com/ubuntu noble-backports/restricted amd64 c-n-f Metadata [116 B]
Det:40 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-backports/multiverse and64 Components [212 B]
Pet:41 http://ap-south-l.ec2.archive.ubuntu.com/ubuntu noble-backports/multiverse amd64 c-n-f Metadata [116 B]
[Set:42 http://security.ubuntu.com/ubuntu noble-security/main amd64 Packages [158 kB]
Set: 43 http://security.ubuntu.com/ubuntu noble-security/main Translation-en [41.5 kB]
Det:44 http://security.ubuntu.com/ubuntu noble-security/main amd64 Components [6876 B]
Set:45 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Packages [44.4 kB]
Set:46 http://security.ubuntu.com/ubuntu noble-security/universe Translation en [17.0 kB]
Set:47 https://apt.grafana.com stable/main amd64 Packages [250 kB]
Set:48 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Components [8632 B]
Set:49 http://security.ubuntu.com/ubuntu noble-security/universe amd64 c-n-f Metadata [112 B]
Set:50 http://security.ubuntu.com/ubuntu noble-security/restricted and64 Packages [70.1 km]
Set:51 http://security.ubuntu.com/ubuntu noble-security/restricted Translation-en [14.3 kB]
Set:52 http://security.ubuntu.com/ubuntu noble-security/restricted and64 Components [212 B]
Set:53 http://security.ubuntu.com/ubuntu noble-security/multiverse and64 Components (208 B)
Set:54 http://security.ubuntu.com/ubuntu noble-security/multiverse and64 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
```

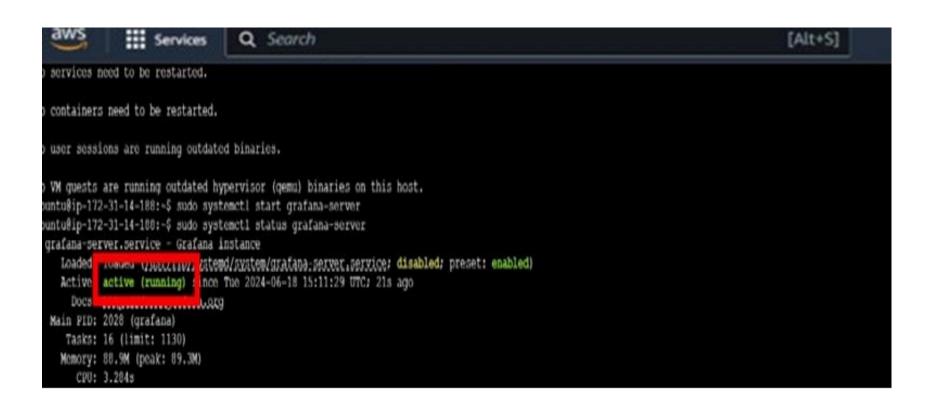
## # To installs the latest Enterprise release: sudo apt-get install grafana-enterprise

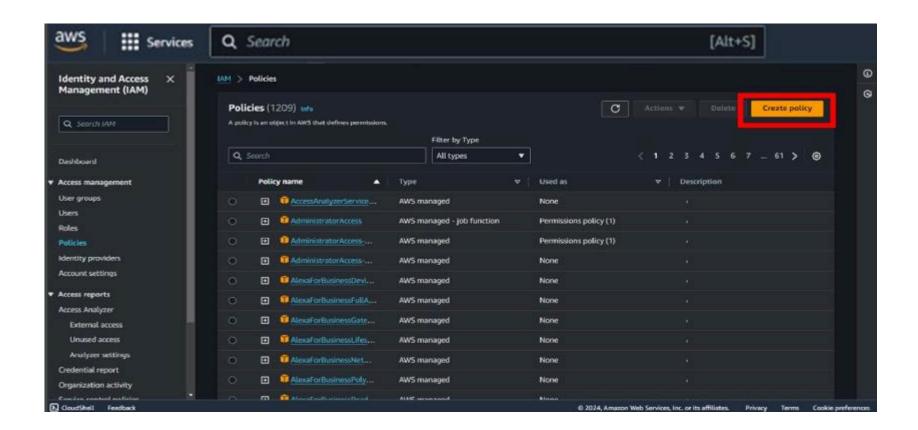
```
Get:1 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 musl amd64 1.2.4-2 (416 kB)
Get:2 https://apt.grafana.com stable/main amd64 grafana-enterprise amd64 11.0.0 [120 MB]
Fetched 121 MB in 11s (10.5 MB/s)
Selecting previously unselected package musl:amd64.
(Reading database ... 71839 files and directories currently installed.)
Preparing to unpack .../musl_1.2.4-2 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 ...
 Impacking grafana-enterprise (11.0.0) ...
 Setting up musl:amd64 (1.2.4-2) ...
 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: Not creating home directory '/usr/share/grafana'.
*** NOT starting on installation, please execute the following statements to configure grafana to start automatically using systems
 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) ...
 canning 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-172-31-14-188:-$ sudo systematl start grafana-server
```

- sudosystemctl start grafana-server
- sudosystemctl enable grafana-server.service

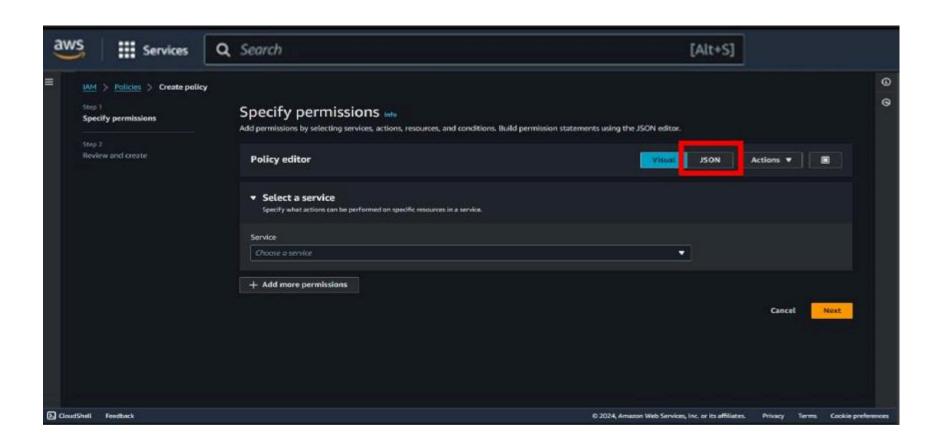
```
un 18 15:11:38 ip-172-31-14-188 grafana[2028]: logger=provisioning.dashboard t=2024-06-18T15:11:38.3311250892 level=info msg="starting to provision dashboards"
Oun 18 15:11:38 ip 172-31-14-188 grafana[2028]: logger=provisioning.dashboard t=2024-06-18T15:11:38.331155154Z level=info msg="finished to provision dashboards"
Nun 18 15:11:38 ip-172-31-14-188 grafana[2028]: logger-http.server t-2024-06-18T15:11:38.380358573Z level-info msg-"HTTP Server Listen" address-[::]:3000 protocol-
Our 18 15:11:38 ip-172-31-14-188 grafana[2028]: logger=sglstore.transactions t=2024-06-18T15:11:38.493822724Z level=info msg="Database locked, sleeping then retryi
fun 18 15:11:38 ip-172-31-14-188 grafana[2028]: logger=sqlstore.transactions t=2024-06-18T15:11:38.516065191Z level=info msg="Database locked, sleeping then retrying to the company of th
Our 18 15:11:38 ip-172-31-14-188 grafana[2028]: logger=plugins.update.checker t=2024-06-18T15:11:38.853932226Z level=info msg="Update check succeeded" duration=554
Tun 18 15:11:38 ip-172-31-14-188 grafana[2028]: logger-grafana.update.checker t-2024-06-18T15:11:38.874267515Z level-info msg-"Update check succeeded" duration-580
Fun 18 15:11:39 ip-172-31-14-188 grafana[2028]: logger=plugin.angulardetectorsprovider.dynamic t=2024-06-18T15:11:39.0079630382 level=info msg="Patterns update fin
fun 18 15:11:39 ip-172-31-14-188 grafana[2028]: logger=grafana-apiserver t=2024-06-18T15:11:39.383980342% level=info msg="Adding GroupVersion playlist.grafana.app
Nun 18 15:11:39 ip-172-31-14-188 grafana[2028]: logger=grafana-apiserver t=2024-06-18T15:11:39.384644464Z level=info msg="Adding GroupVersion featuretoggle.grafana"
buntu@ip-172-31-14-188:-$ sudo systemct1 enable grafana-server.service
Synchronizing state of grafana-server.service with SysV service script with /usr/lib/systemd/systemd-sysV-install.
executing: /usr/lib/systemd/systemd-sysv-install enable grafana-server
reated symlink /etc/systemd/system/multi-user.target.wants/grafana-server.service - /usr/lib/systemd/system/grafana-server.service.
buntu@ip-172-31-14-180:-$ sudo systemctl status grafana-server
2. CloudShell Feedback
                                                                                                                                                                                                              © 2024, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences
```

sudosystemctl status grafana-server.service

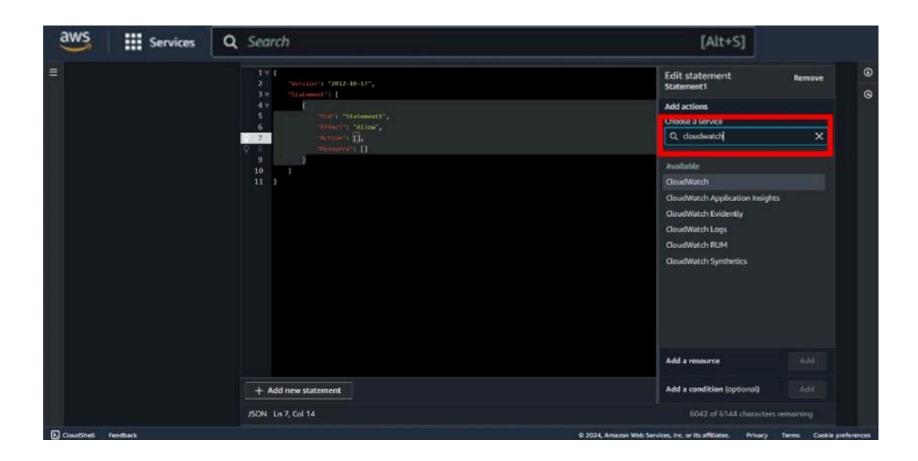




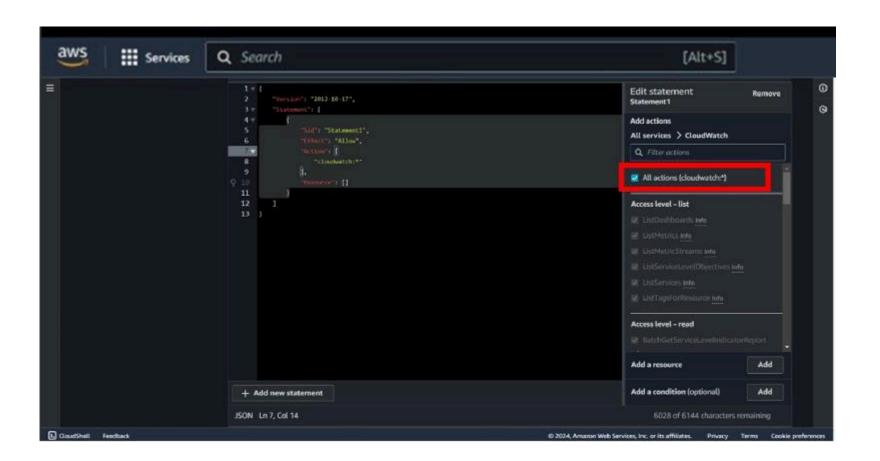
• Then search IAM role and go to policies and click on Create policies.



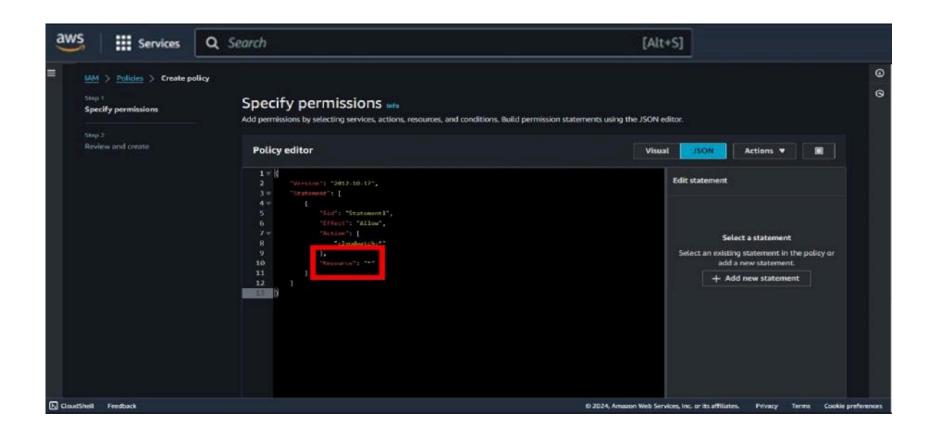
Then go to JSON type.



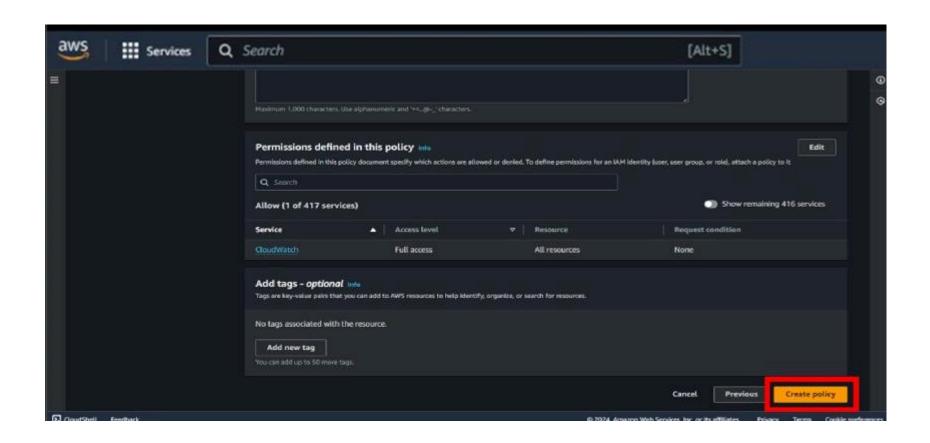
• Click on add action and search for "Cloudwatch".



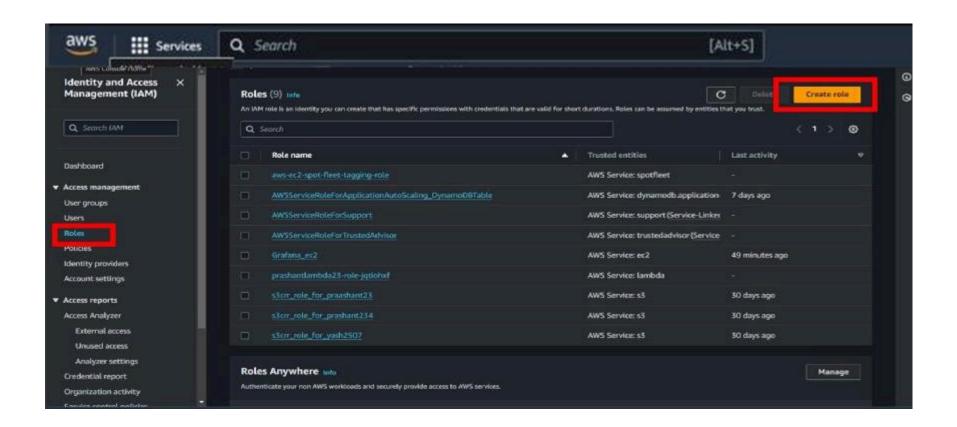
After selecting cloudwatch select "All actions ".



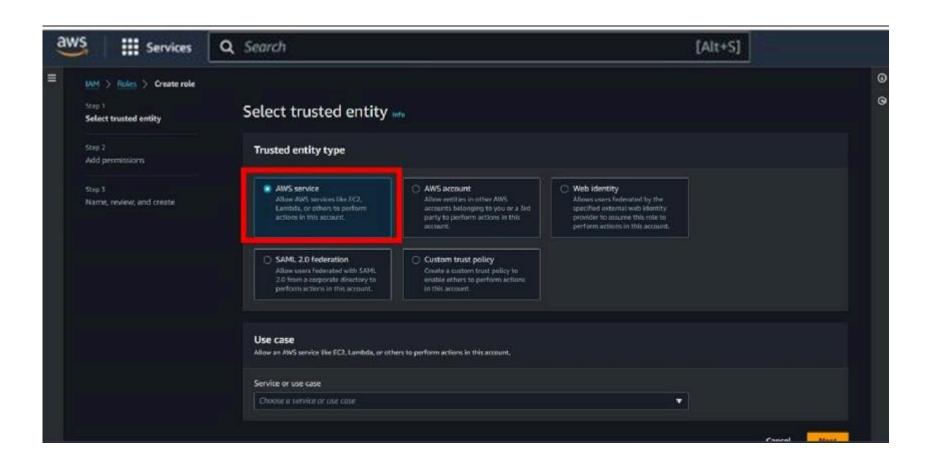
Then put "Resource ": "\*"



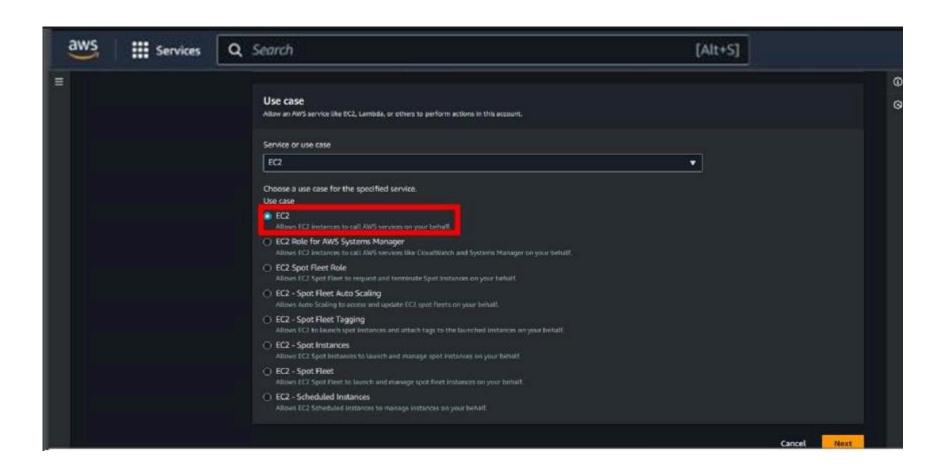
Scroll down and click on Create policy.



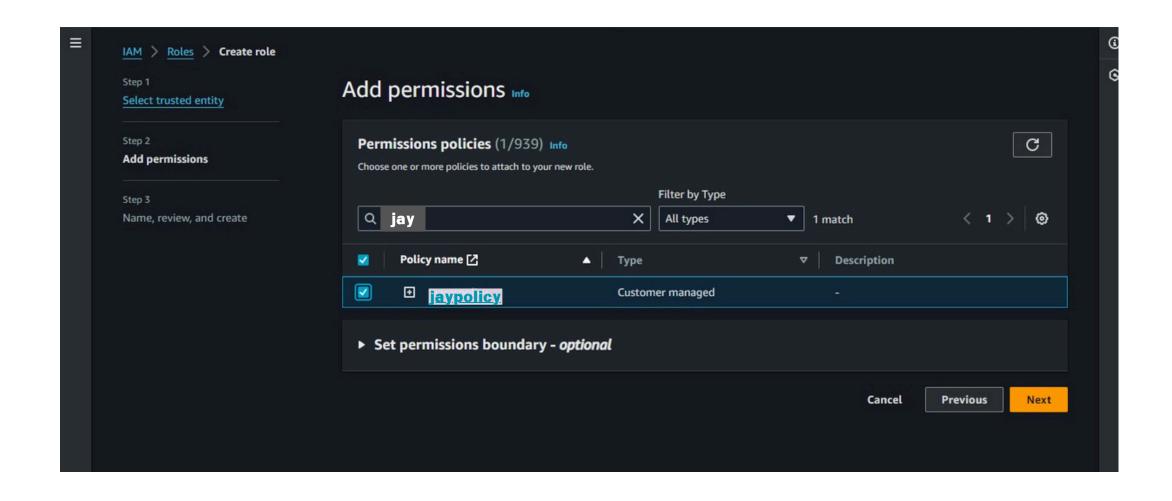
• Then go to roles and click on **Create roles.** 



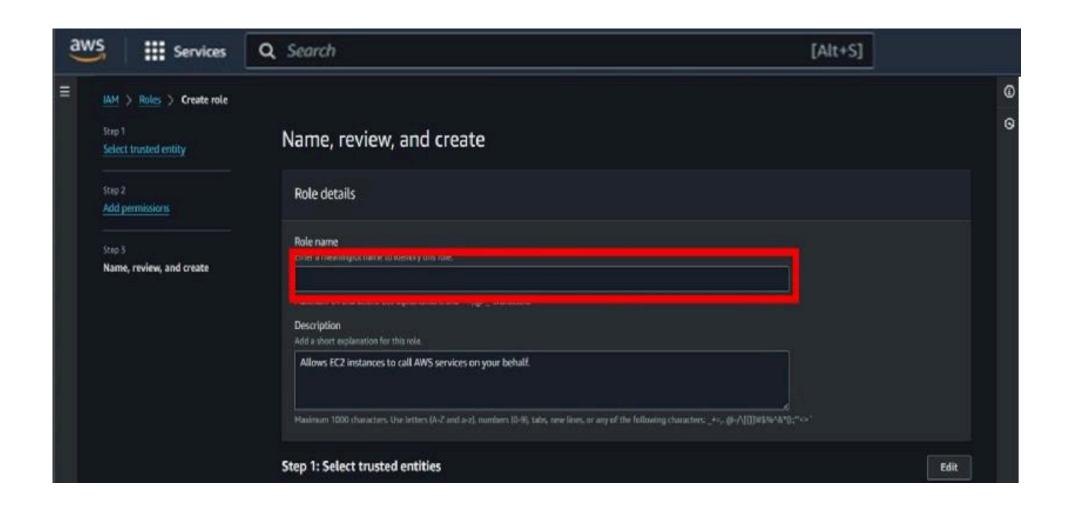
Then select entity type is AWS services.



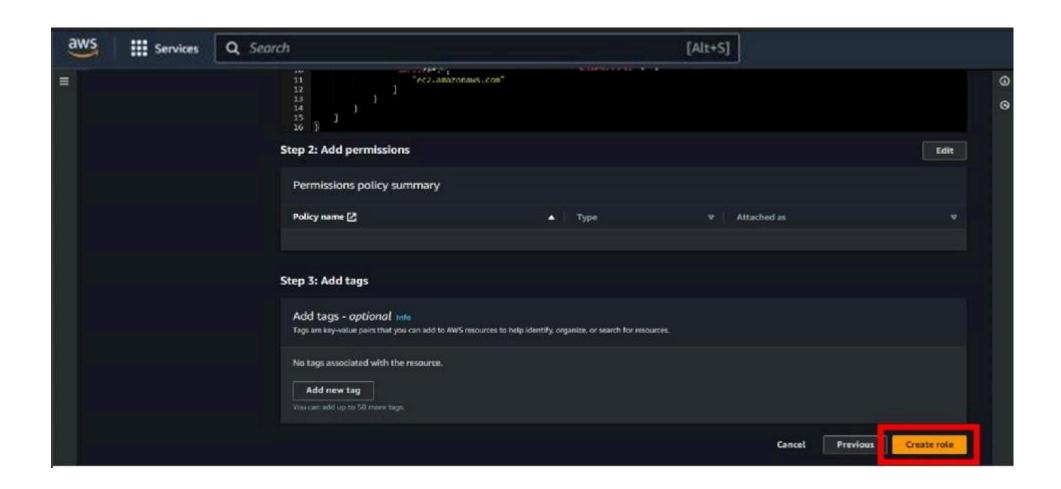
Now, select use case as EC2.



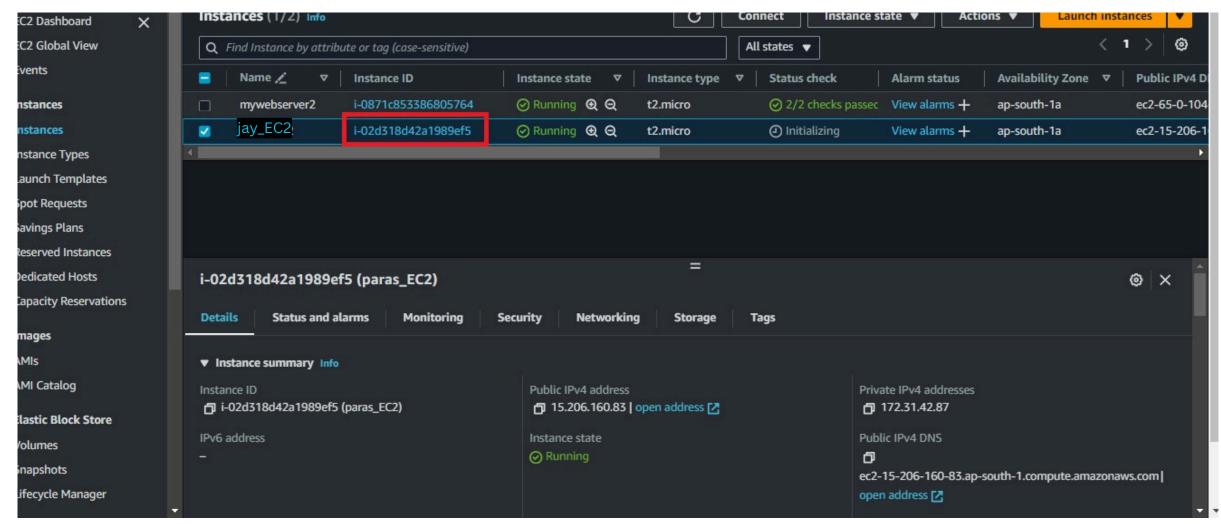
 Select your policy here which you have created previously, then click on Next.



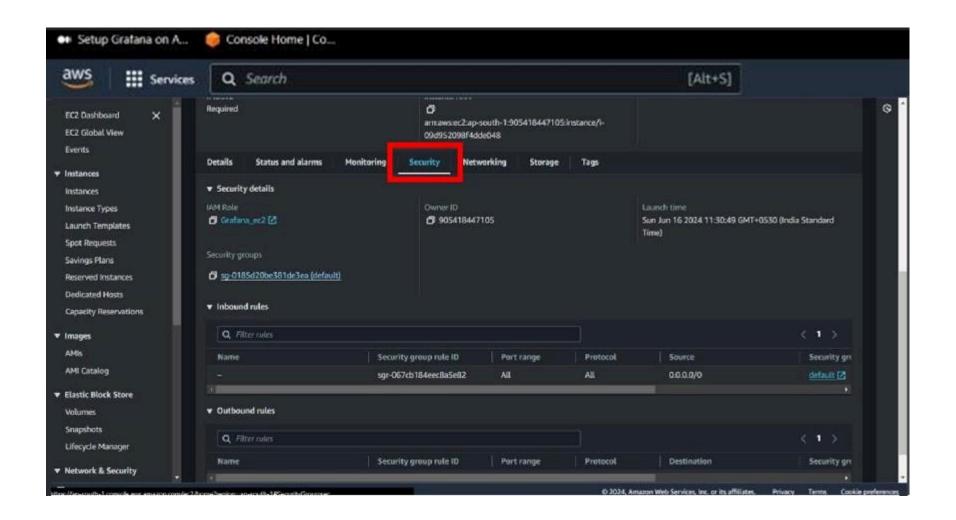
• Then give a name of your choise to the role.



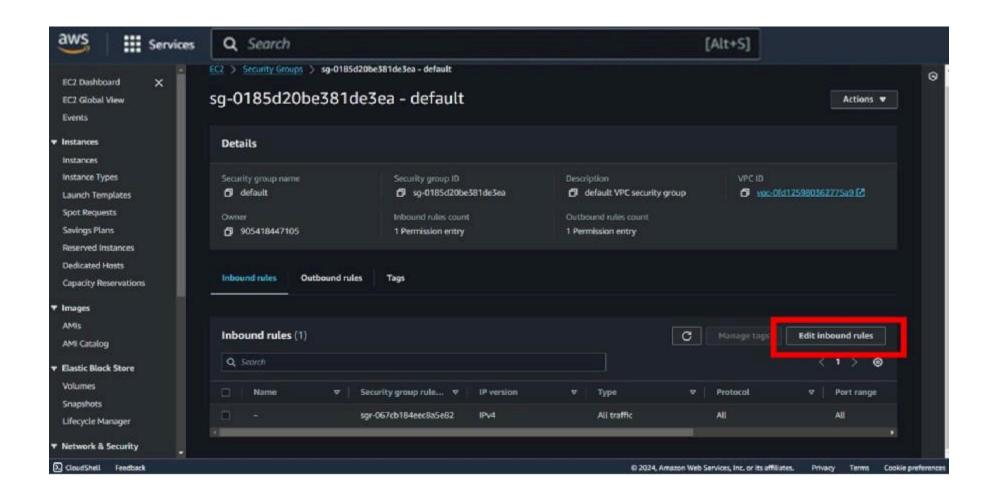
Then scroll down and click on the Create role.



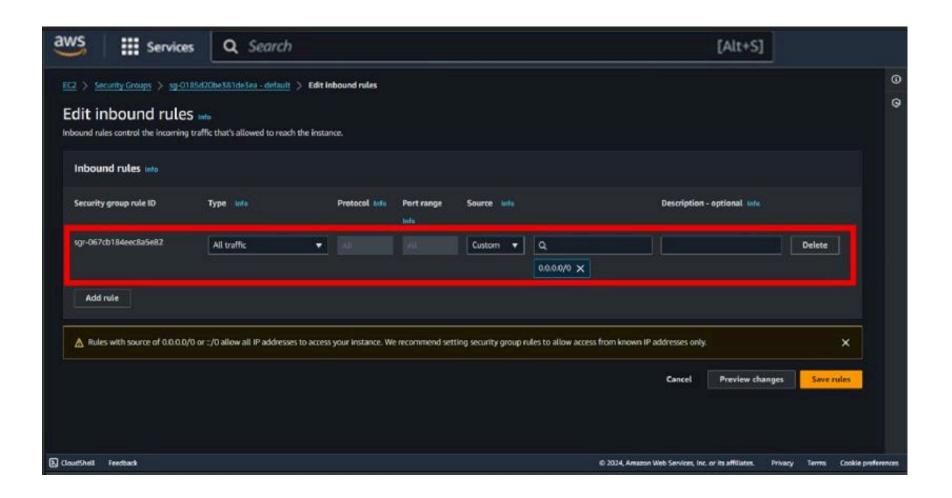
 After creating your role and policy go to instance and open your instance, which you have already created.



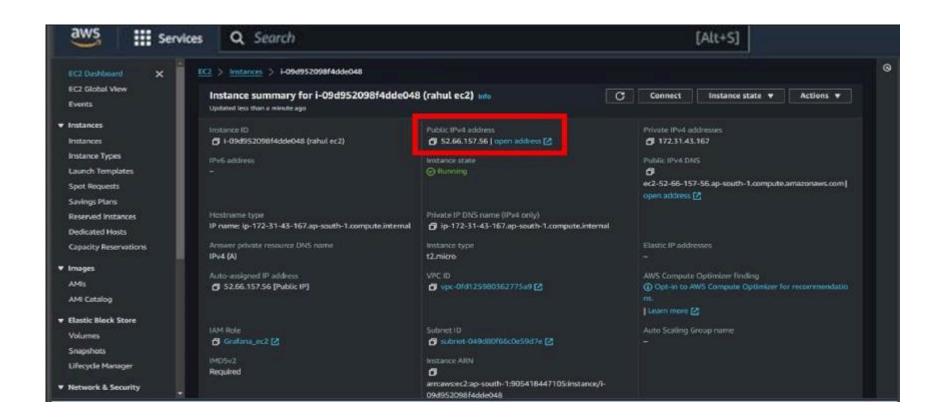
Scroll down and go to Security option.



Then click on Edit inbound rule.



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



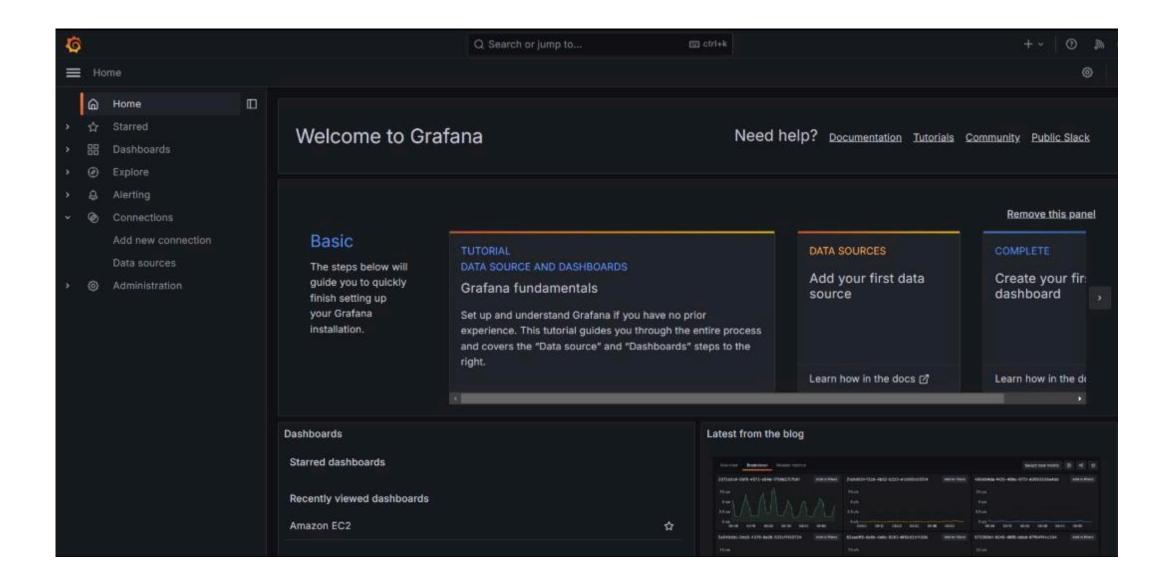
• Then copy your **public IPv4 address** of your instance.

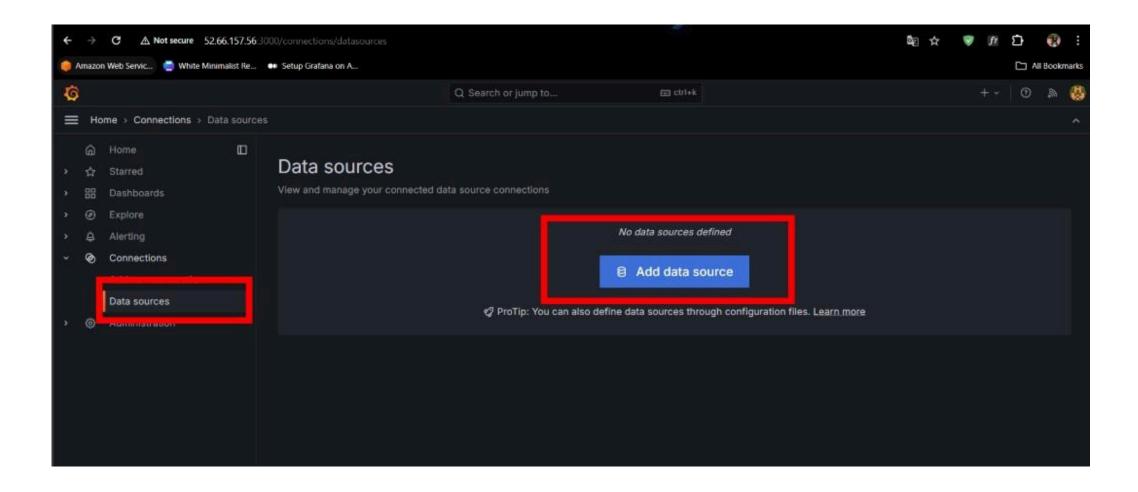


• Then paste your copied ip address and type ":3000" after ip address and search it .

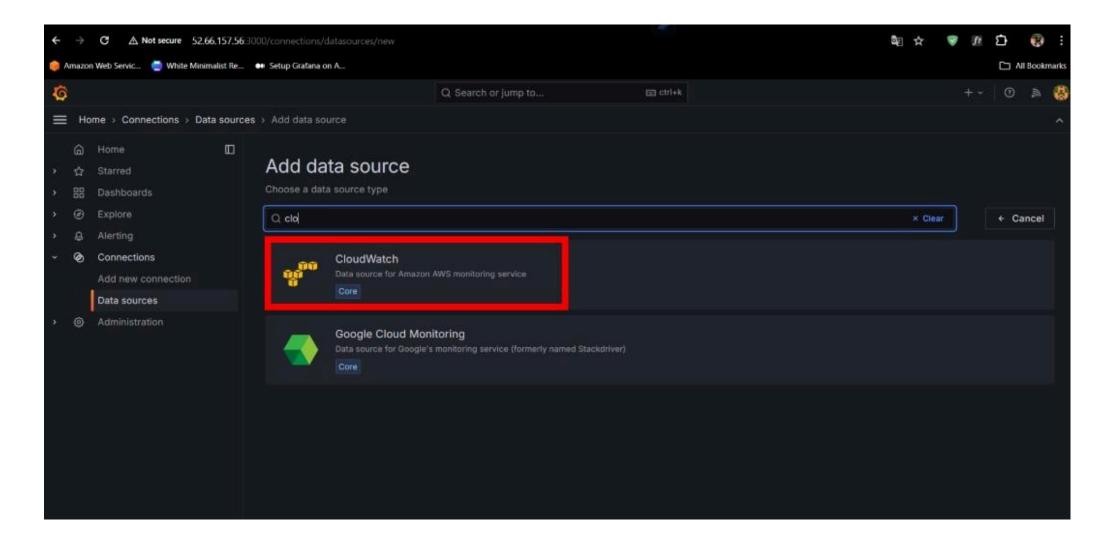


Then login in Grafana by the help of credientials shown in above snapshot.

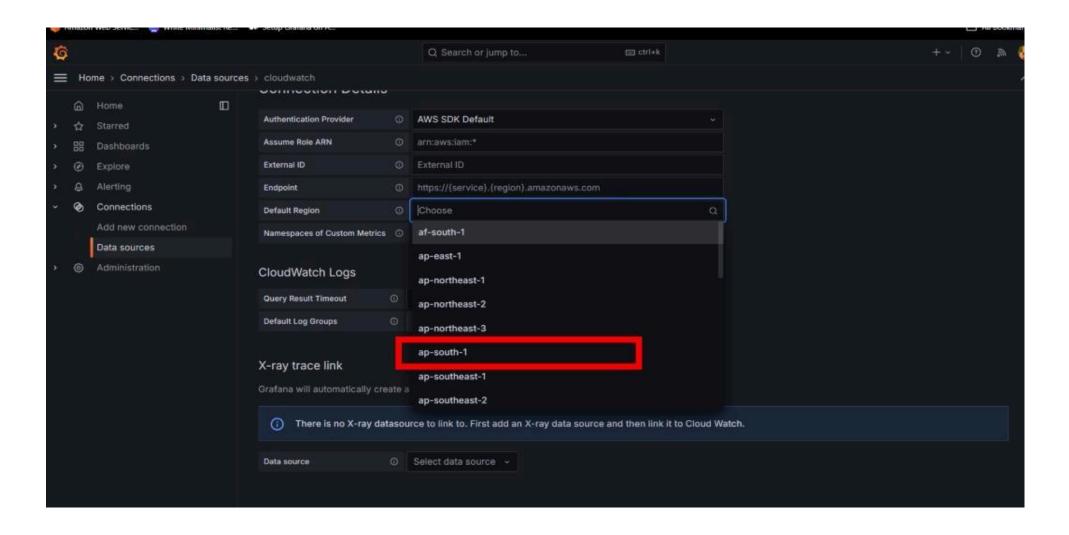




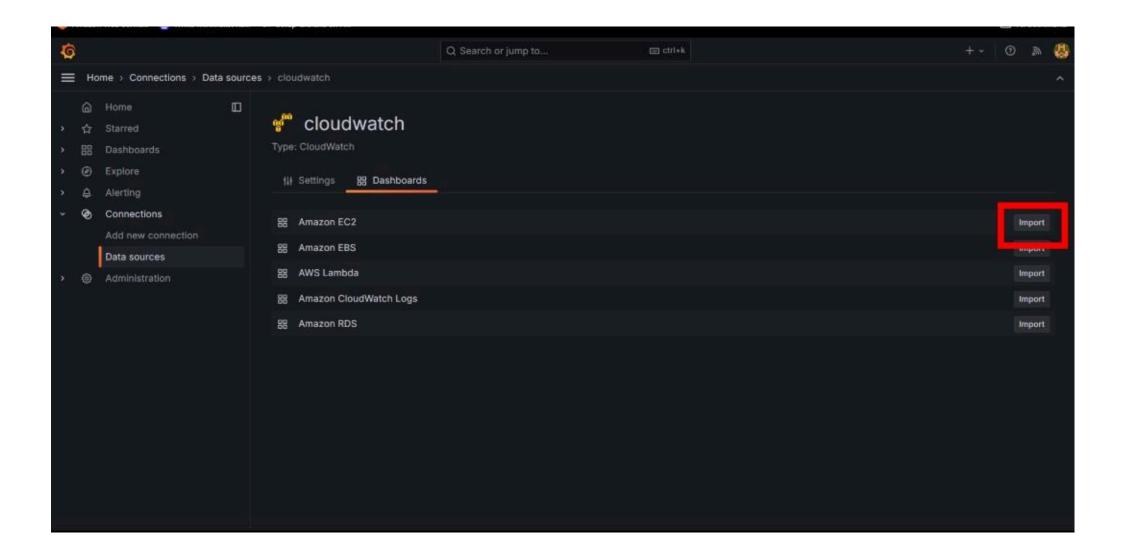
• Then go to **Dashboard** and click on **Adddata source**.



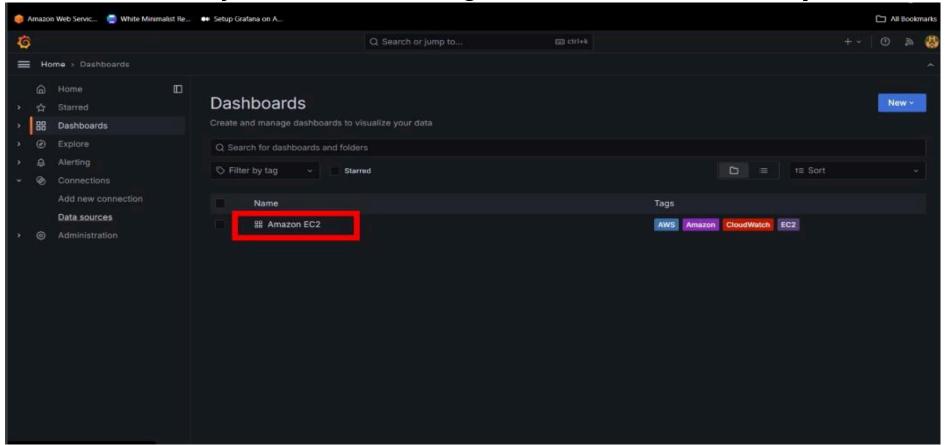
• Now, select "Cloudwatch" as an data source.



• 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.

