

# Assignment–10

## **Module-13: Prometheus and Grafana**

Submitted by : Shaik Junaid Adil

Date of Submission: 13-07-2024

Submitted to: Vikul

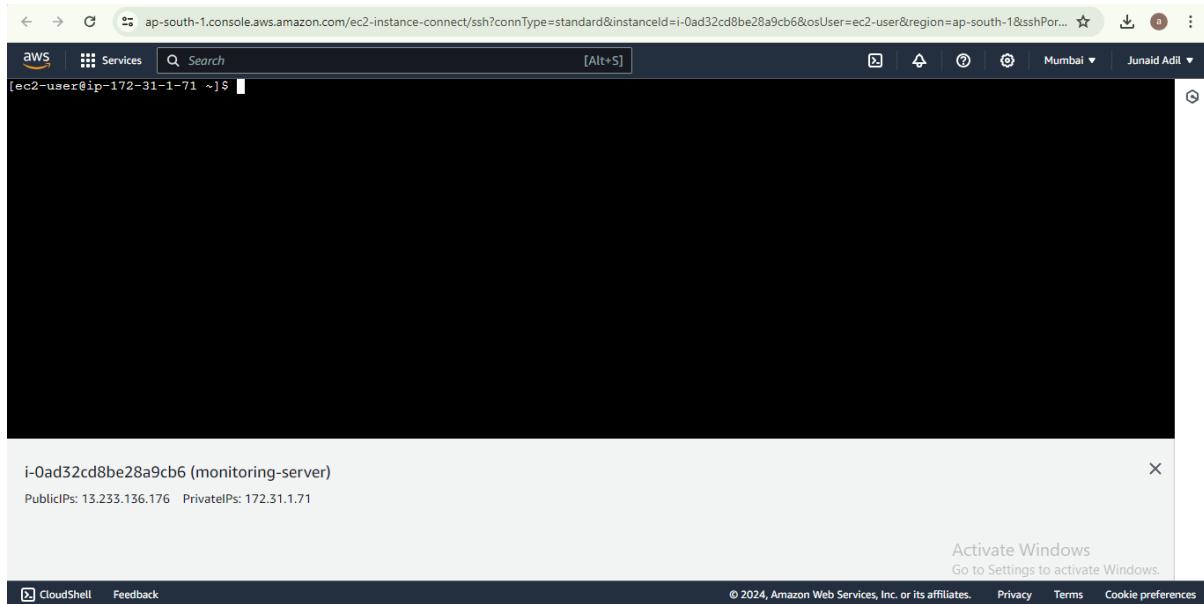
## L1 - Create Grafana Dashboard to Monitor CPU and Memory Utilization of Jenkins Build Server using Prometheus Data source

**Step 1:** Create 2 instances. One for Monitoring and one as Target instance.

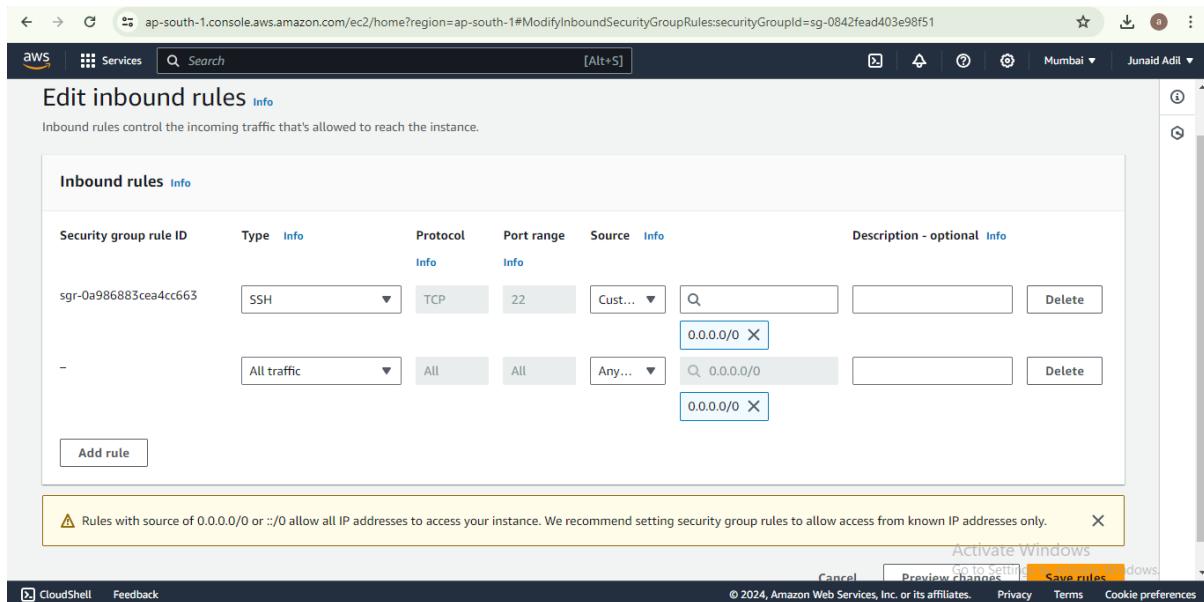
The screenshot shows the AWS EC2 'Launch Instances' page. In the 'Name' field, 'target' is entered. Under 'Application and OS Images (Amazon Machine Image)', 'Amazon Linux' is selected. The 'Number of instances' is set to 2. The 'Software Image (AMI)' is 'Amazon Linux 2023 AMI 2023.5.2...'. The 'Virtual server type (instance type)' is 't2.micro'. The 'Launch Instance' button is highlighted in orange at the bottom right.

The screenshot shows the AWS EC2 'Instances' page. It lists two instances: 'monitoring-server' (Instance ID: i-0ad32cd8be28a9cb6) and 'target-server' (Instance ID: i-06c73391760b34aa9), both of which are 'Running'. The left sidebar shows navigation links for EC2 Dashboard, EC2 Global View, Events, Instances, Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations, Images, AMIs, AMI Catalog, and Elastic Block Store.

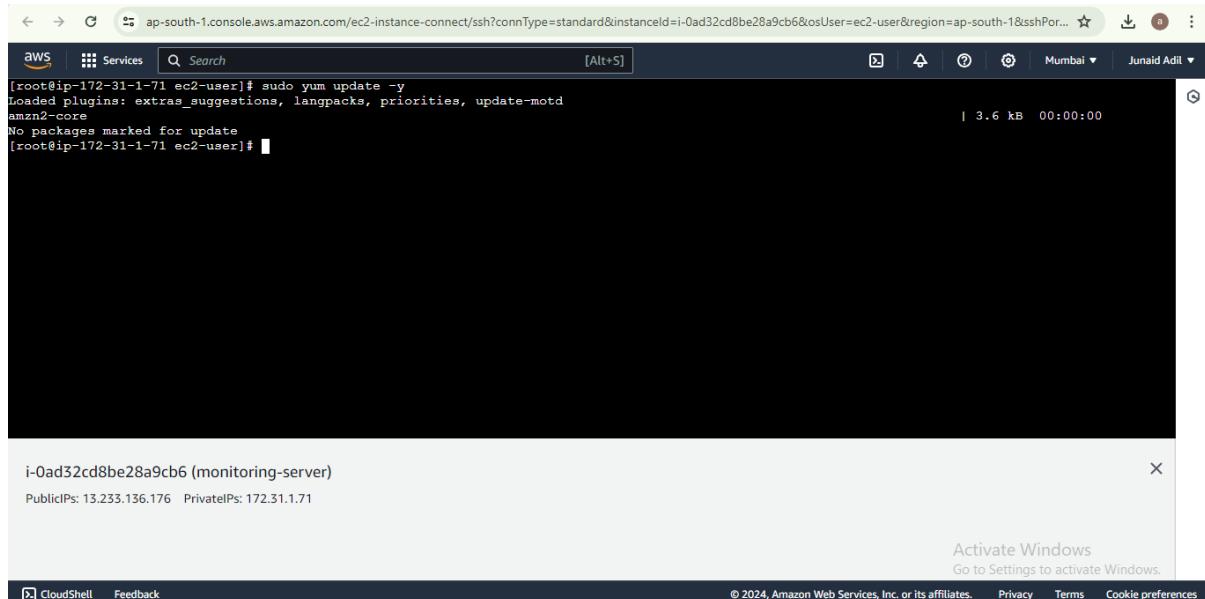
## Step 2: Connect to the Monitoring-server



**Step 3:** Add Inbound rules in both the servers as Prometheus runs on port number: 9090, Grafana runs on port number: 3000, node exporter runs on port number: 9100. Or we can just add “All traffic” as it is for demo.



#### Step 4: Become root user and update the packages using command: “sudo yum update -y”



```
[root@ip-172-31-1-71 ec2-user]# sudo yum update -y
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
amzn2-core
No packages marked for update
[root@ip-172-31-1-71 ec2-user]#
```

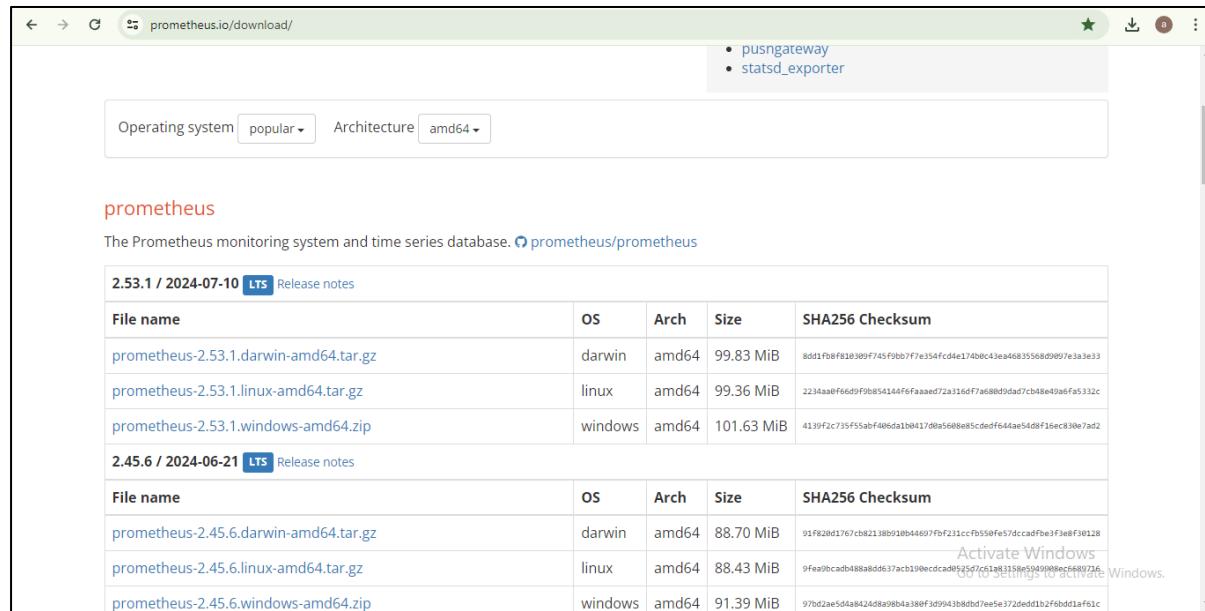
i-Oad32cd8be28a9cb6 (monitoring-server)  
PublicIPs: 13.233.136.176 PrivateIPs: 172.31.1.71

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Go to Settings to activate Windows.

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#### Step 5: Install Prometheus in Monitoring server.

Link to download Prometheus: [Prometheus.io/download/](https://prometheus.io/download/)

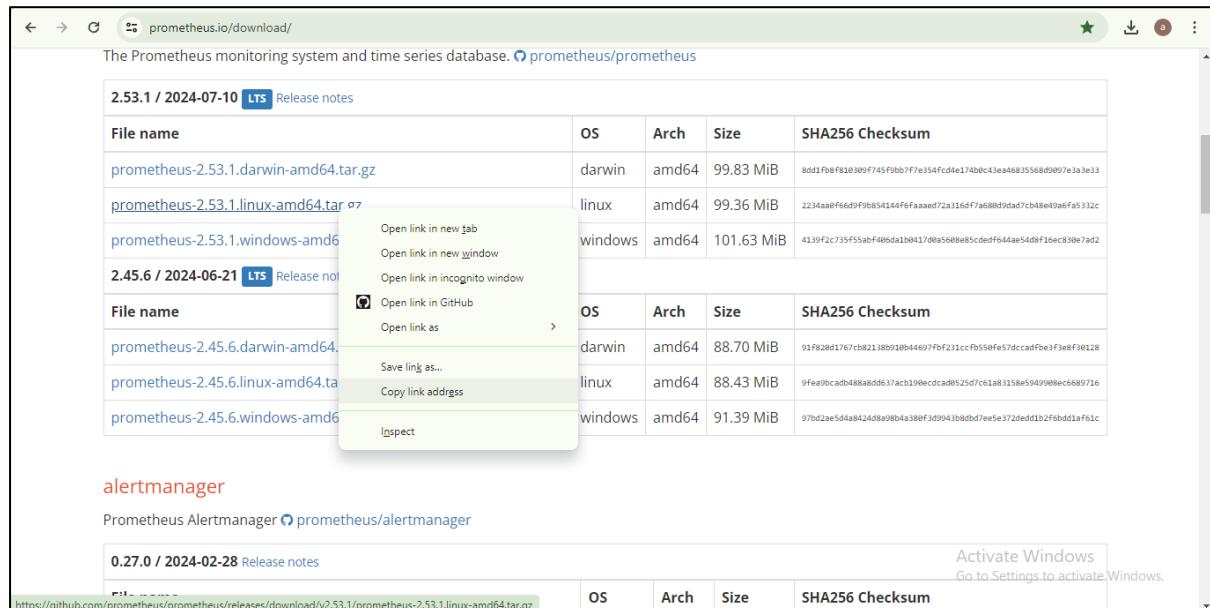


The Prometheus monitoring system and time series database. [prometheus/prometheus](#)

2.53.1 / 2024-07-10 <a href="#">LTS</a> Release notes				
File name	OS	Arch	Size	SHA256 Checksum
prometheus-2.53.1.darwin-amd64.tar.gz	darwin	amd64	99.83 MiB	8dd1fb8f810309f745f9b07f7e354fc4d4174b0c43ea46835568d997e3a3e33
prometheus-2.53.1.linux-amd64.tar.gz	linux	amd64	99.36 MiB	2234aa0ff66d9f9b854144fe6faaead72a116df7a688d9dad7cb44fe49a6fa5332c
prometheus-2.53.1.windows-amd64.zip	windows	amd64	101.63 MiB	4139f2c735f55abf406da1b0417d0a5688e85cdeff644ae54d8f15ec830e7ad2

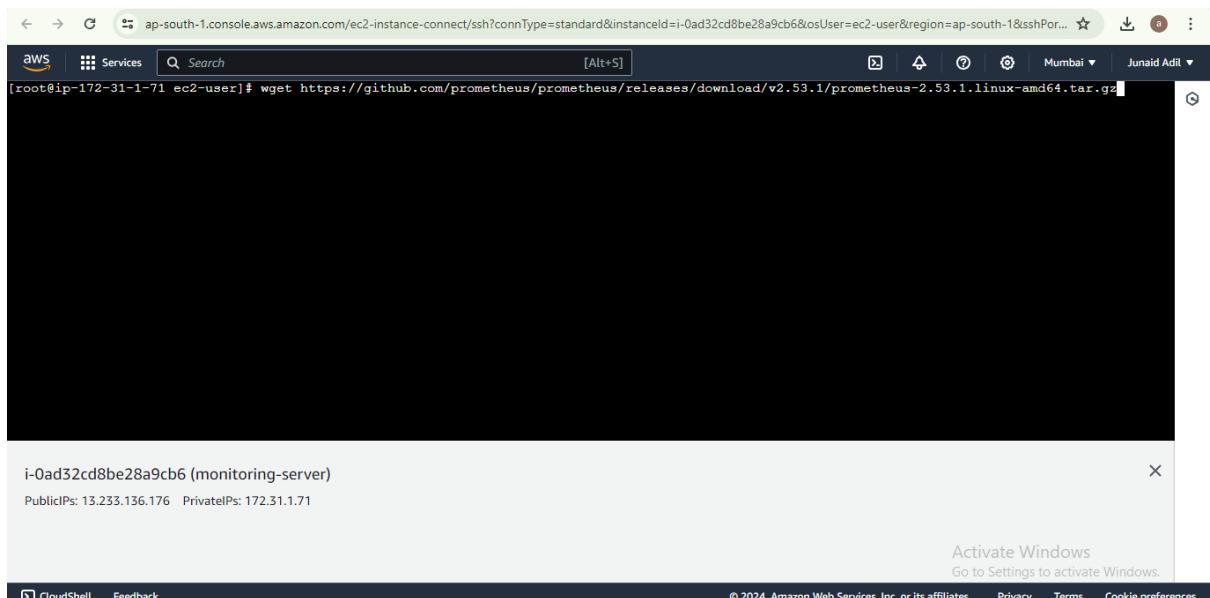
2.45.6 / 2024-06-21 <a href="#">LTS</a> Release notes				
File name	OS	Arch	Size	SHA256 Checksum
prometheus-2.45.6.darwin-amd64.tar.gz	darwin	amd64	88.70 MiB	91f920d1767c821380918b44697fbff21cccfb59fe57dcacafbe3f3e8f10128
prometheus-2.45.6.linux-amd64.tar.gz	linux	amd64	88.43 MiB	9fca9bcadbf488a8dd637acb190eecdad0f21477c1a18318e59d0088e7680771a
prometheus-2.45.6.windows-amd64.zip	windows	amd64	91.39 MiB	97bd2ae5d6a8624d8a08b4a380f1d9d43b8d7de5e537dedfd12f5bd1af61c

## Step 6: Right click on linux.tar.gz file and select copy link address



The screenshot shows a web browser displaying the Prometheus download page at [prometheus.io/download/](https://prometheus.io/download/). The page lists two major releases: 2.53.1 (LTS) from 2024-07-10 and 2.45.6 (LTS) from 2024-06-21. In the 2.45.6 section, there are three files for Linux AMD64: prometheus-2.45.6.darwin-amd64.tar.gz, prometheus-2.45.6.linux-amd64.tar.gz, and prometheus-2.45.6.windows-amd64.tar.gz. A context menu is open over the middle file, showing options like 'Open link in new tab', 'Open link in new window', 'Open link in incognito window', 'Open link in GitHub', 'Save link as...', 'Copy link address', and 'Inspect'. The 'Copy link address' option is highlighted with a green border.

## Step 7: Paste the link in the monitoring server using command: "wget <link>"



The screenshot shows an AWS CloudShell terminal window with the URL [ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-0ad32cd8be28a9cb6&osUser=ec2-user&region=ap-south-1&sshPort=22](https://ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-0ad32cd8be28a9cb6&osUser=ec2-user&region=ap-south-1&sshPort=22). The terminal prompt shows the command `[root@ip-172-31-1-71 ec2-user]# wget https://github.com/prometheus/prometheus/releases/download/v2.53.1/prometheus-2.53.1.linux-amd64.tar.gz` being entered. The terminal output shows the file being downloaded.

```
HTTP request sent, awaiting response... 302 Found
Location: https://objects.githubusercontent.com/github-production-release-asset-2e65be/6838921/a3bb21a2-dbd7-4ab5-b939-884e332bd7bf?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=releaseassetproduction%2F20240712%2Fus-east-1%2F%32Faws4_request&X-Amz-Date=20240712T122415Z&X-Amz-Expires=300&X-Amz-Signature=fab95eb0147a57223f8c1bf99bdefaf8e61d626ff500d4e5b50e21cb2df373a4X-Amz-SignedHeaders=host&actor_id=0&key_id=0&repo_id=6838921&response-content-disposition=attachment%3B%20filename%3Dprometheus-2.53.1.linux-amd64.tar.gz&response-content-type=application%2Foctet-stream
--2024-07-12 12:24:16-- https://objects.githubusercontent.com/github-production-release-asset-2e65be/6838921/a3bb21a2-dbd7-4ab5-b939-884e332bd7bf?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=releaseassetproduction%2F20240712%2Fus-east-1%2F%32Faws4_request&X-Amz-Date=20240712T122415Z&X-Amz-Expires=4152&X-Amz-Signature=fab95eb0147a57223f8c1bf99bdefaf8e61d626ff500d4e5b50e21cb2df373a4X-Amz-SignedHeaders=host&actor_id=0&key_id=0&repo_id=6838921&response-content-disposition=attachment%3B%20filename%3Dprometheus-2.53.1.linux-amd64.tar.gz&response-content-type=application%2Foctet-stream
Resolving objects.githubusercontent.com (objects.githubusercontent.com)... 185.199.108.133, 185.199.109.133, 185.199.110.133, ...
Connecting to objects.githubusercontent.com (objects.githubusercontent.com) |185.199.108.133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 104191695 (99M) [application/octet-stream]
Saving to: 'prometheus-2.53.1.linux-amd64.tar.gz'

100%[=====] 104,191,695 131MB/s in 0.8s

2024-07-12 12:24:18 (131 MB/s) - 'prometheus-2.53.1.linux-amd64.tar.gz' saved [104191695/104191695]

[root@ip-172-31-1-71 ec2-user]# ls
prometheus-2.53.1.linux-amd64.tar.gz
[root@ip-172-31-1-71 ec2-user]# 
```

i-0ad32cd8be28a9cb6 (monitoring-server)

PublicIPs: 13.233.136.176 PrivateIPs: 172.31.1.71

Activate Windows  
Go to Settings to activate Windows.

## Step 8: Now extract the zip file using command: “tar -zxvf <zip file name>”

```
HTTP request sent, awaiting response... 302 Found
Location: https://objects.githubusercontent.com/github-production-release-asset-2e65be/6838921/a3bb21a2-dbd7-4ab5-b939-884e332bd7bf?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=releaseassetproduction%2F20240712%2Fus-east-1%2F%32Faws4_request&X-Amz-Date=20240712T122415Z&X-Amz-Expires=300&X-Amz-Signature=fab95eb0147a57223f8c1bf99bdefaf8e61d626ff500d4e5b50e21cb2df373a4X-Amz-SignedHeaders=host&actor_id=0&key_id=0&repo_id=6838921&response-content-disposition=attachment%3B%20filename%3Dprometheus-2.53.1.linux-amd64.tar.gz&response-content-type=application%2Foctet-stream
--2024-07-12 12:24:16-- https://objects.githubusercontent.com/github-production-release-asset-2e65be/6838921/a3bb21a2-dbd7-4ab5-b939-884e332bd7bf?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=releaseassetproduction%2F20240712%2Fus-east-1%2F%32Faws4_request&X-Amz-Date=20240712T122415Z&X-Amz-Expires=4152&X-Amz-Signature=fab95eb0147a57223f8c1bf99bdefaf8e61d626ff500d4e5b50e21cb2df373a4X-Amz-SignedHeaders=host&actor_id=0&key_id=0&repo_id=6838921&response-content-disposition=attachment%3B%20filename%3Dprometheus-2.53.1.linux-amd64.tar.gz&response-content-type=application%2Foctet-stream
Resolving objects.githubusercontent.com (objects.githubusercontent.com)... 185.199.108.133, 185.199.109.133, 185.199.110.133, ...
Connecting to objects.githubusercontent.com (objects.githubusercontent.com) |185.199.108.133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 104191695 (99M) [application/octet-stream]
Saving to: 'prometheus-2.53.1.linux-amd64.tar.gz'

100%[=====] 104,191,695 131MB/s in 0.8s

2024-07-12 12:24:18 (131 MB/s) - 'prometheus-2.53.1.linux-amd64.tar.gz' saved [104191695/104191695]

[root@ip-172-31-1-71 ec2-user]# ls
prometheus-2.53.1.linux-amd64.tar.gz
[root@ip-172-31-1-71 ec2-user]# tar -zxvf prometheus-2.53.1.linux-amd64.tar.gz 
```

i-0ad32cd8be28a9cb6 (monitoring-server)

PublicIPs: 13.233.136.176 PrivateIPs: 172.31.1.71

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```
[root@ip-172-31-1-71 ec2-user]# ls
prometheus-2.53.1.linux-amd64.tar.gz
[root@ip-172-31-1-71 ec2-user]# tar -zxvf prometheus-2.53.1.linux-amd64.tar.gz
prometheus-2.53.1.linux-amd64/
prometheus-2.53.1.linux-amd64/prometheus
prometheus-2.53.1.linux-amd64/consoles/
prometheus-2.53.1.linux-amd64/consoles/node-disk.html
prometheus-2.53.1.linux-amd64/consoles/node-overview.html
prometheus-2.53.1.linux-amd64/consoles/node-cpu.html
prometheus-2.53.1.linux-amd64/consoles/node.html
prometheus-2.53.1.linux-amd64/consoles/prometheus-overview.html
prometheus-2.53.1.linux-amd64/consoles/index.html.example
prometheus-2.53.1.linux-amd64/consoles/prometheus.html
prometheus-2.53.1.linux-amd64/LICENSE
prometheus-2.53.1.linux-amd64/promtool
prometheus-2.53.1.linux-amd64/console_libraries/
prometheus-2.53.1.linux-amd64/console_libraries/menu.lib
prometheus-2.53.1.linux-amd64/console_libraries/prom.lib
prometheus-2.53.1.linux-amd64/NOTICE
[root@ip-172-31-1-71 ec2-user]# ls
prometheus-2.53.1.linux-amd64_prometheus-2.53.1.linux-amd64.tar.gz
[root@ip-172-31-1-71 ec2-user]#
```

i-0ad32cd8be28a9cb6 (monitoring-server)

PublicIPs: 13.233.136.176 PrivateIPs: 172.31.1.71

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We can see separate file has been created with extracted data

**Step 9:** Now create a Prometheus service file in the path  
/etc/system/system/Prometheus.service

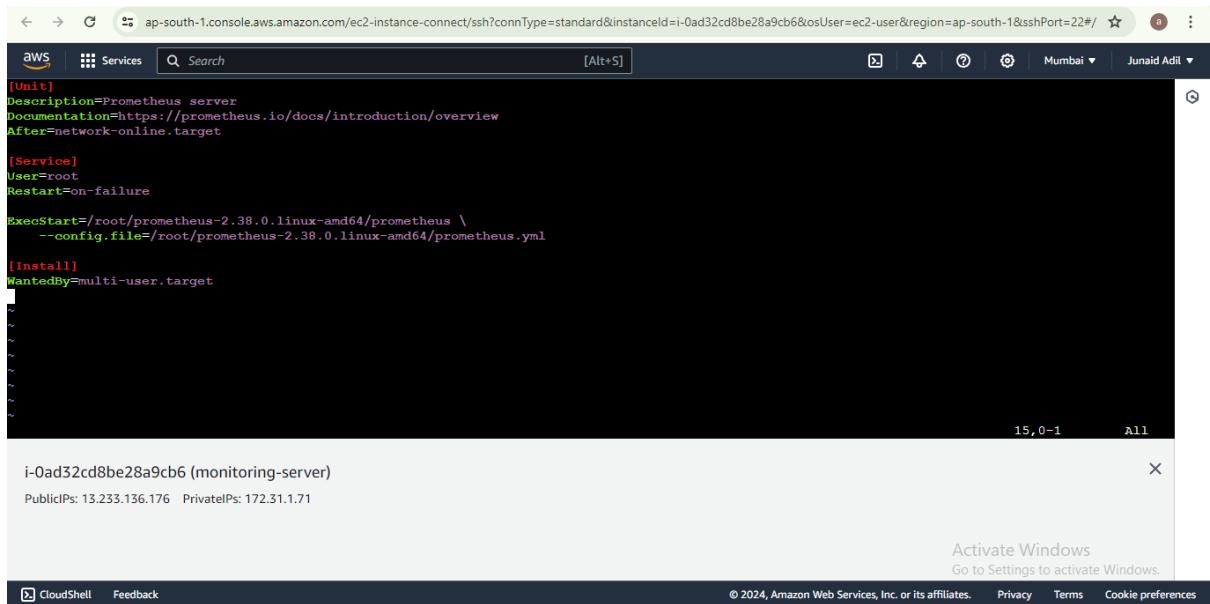
```
[ec2-user@ip-172-31-1-71 ~]$ ls
prometheus-2.53.1.linux-amd64_prometheus-2.53.1.linux-amd64.tar.gz
[ec2-user@ip-172-31-1-71 ~]$ cd /etc/systemd/system/
[ec2-user@ip-172-31-1-71 system]$ ls
basic.target.wants  default.target  getty.target.wants  multi-user.target.wants  sockets.target.wants  system-update.target.wants
cloud-init.target.wants  default.target.wants  local-fs.target.wants  remote-fs.target.wants  sysinit.target.wants
[ec2-user@ip-172-31-1-71 system]$ vi prometheus.service
```

i-0ad32cd8be28a9cb6 (monitoring-server)

PublicIPs: 13.233.136.176 PrivateIPs: 172.31.1.71

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```
[Unit]
Description=Prometheus server
Documentation=https://prometheus.io/docs/introduction/overview
After=network-online.target

[Service]
User=root
Restart=on-failure

ExecStart=/root/prometheus-2.38.0.linux-amd64/prometheus \
--config.file=/root/prometheus-2.38.0.linux-amd64/prometheus.yml

[Install]
WantedBy=multi-user.target
```

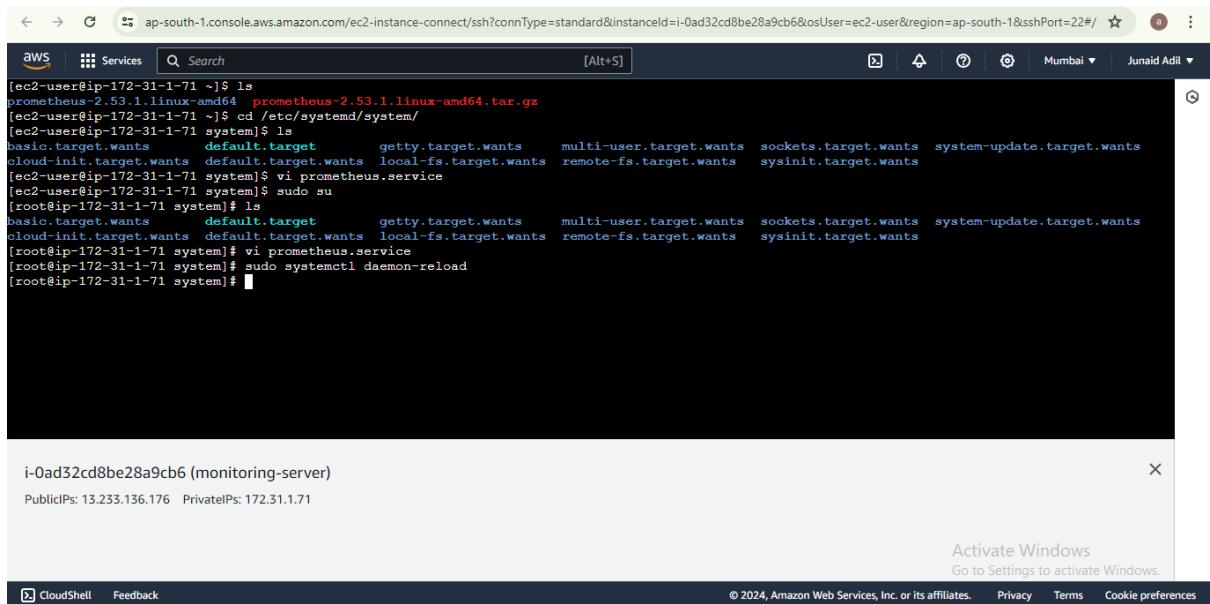
i-0ad32cd8be28a9cb6 (monitoring-server) X

PublicIPs: 13.233.136.176 PrivateIPs: 172.31.1.71

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**Step 10:** Restart the Daemon as we have created a new service using command “`sudo systemctl daemon-reload`”



```
[ec2-user@ip-172-31-1-71 ~]$ ls
prometheus-2.53.1.linux-amd64  prometheus-2.53.1.linux-amd64.tar.gz
[ec2-user@ip-172-31-1-71 ~]$ cd /etc/systemd/system/
[ec2-user@ip-172-31-1-71 system]$ ls
basic.target.wants  default.target      getty.target.wants    multi-user.target.wants  sockets.target.wants   system-update.target.wants
cloud-init.target.wants  default.target.wants  local-fs.target.wants  remote-fs.target.wants  sysinit.target.wants
[ec2-user@ip-172-31-1-71 system]$ vi prometheus.service
[ec2-user@ip-172-31-1-71 system]$ sudo su
[root@ip-172-31-1-71 system]# ls
basic.target.wants  default.target      getty.target.wants    multi-user.target.wants  sockets.target.wants   system-update.target.wants
cloud-init.target.wants  default.target.wants  local-fs.target.wants  remote-fs.target.wants  sysinit.target.wants
[root@ip-172-31-1-71 system]# vi prometheus.service
[root@ip-172-31-1-71 system]# sudo systemctl daemon-reload
[root@ip-172-31-1-71 system]#
```

i-0ad32cd8be28a9cb6 (monitoring-server) X

PublicIPs: 13.233.136.176 PrivateIPs: 172.31.1.71

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## Step 11: Start the Prometheus service

The screenshot shows a terminal session in AWS CloudShell. The user is root on an EC2 instance. They run several commands to start the Prometheus service: `ls` (listing files), `vi prometheus.service` (editing the service file), `sudo systemctl daemon-reload` (reloading the systemd daemon), `sudo systemctl start prometheus` (starting the service), and `sudo systemctl enable prometheus` (enabling it to start at boot). A message indicates a symlink was created from `/etc/systemd/system/multi-user.target.wants/prometheus.service` to `/etc/systemd/system/prometheus.service`. The terminal window has a dark background and white text. At the bottom, there's a status bar with the instance ID (i-0ad32cd8be28a9cb6), public and private IP addresses, and other system information.

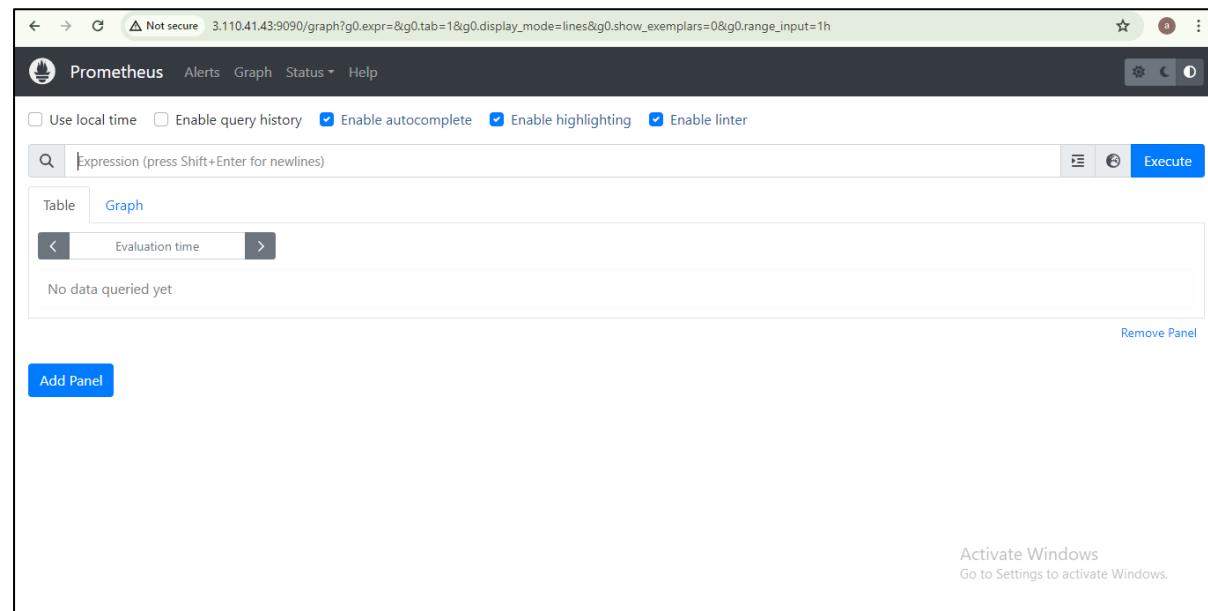
## Step 12: To check the status of Prometheus run command “`sudo systemctl status Prometheus`”

The screenshot shows a terminal session in AWS CloudShell. The user runs the command `sudo systemctl status prometheus`. The output shows the service is active (running) since July 13, 2024, at 08:35:52 UTC. It provides detailed logs for each log entry, including timestamp, log level, and caller information. The logs show Prometheus loading its configuration and starting up. The terminal window has a dark background and white text. At the bottom, there's a status bar with the instance ID (i-0ad32cd8be28a9cb6), public and private IP addresses, and other system information.

We can see Prometheus is upon running

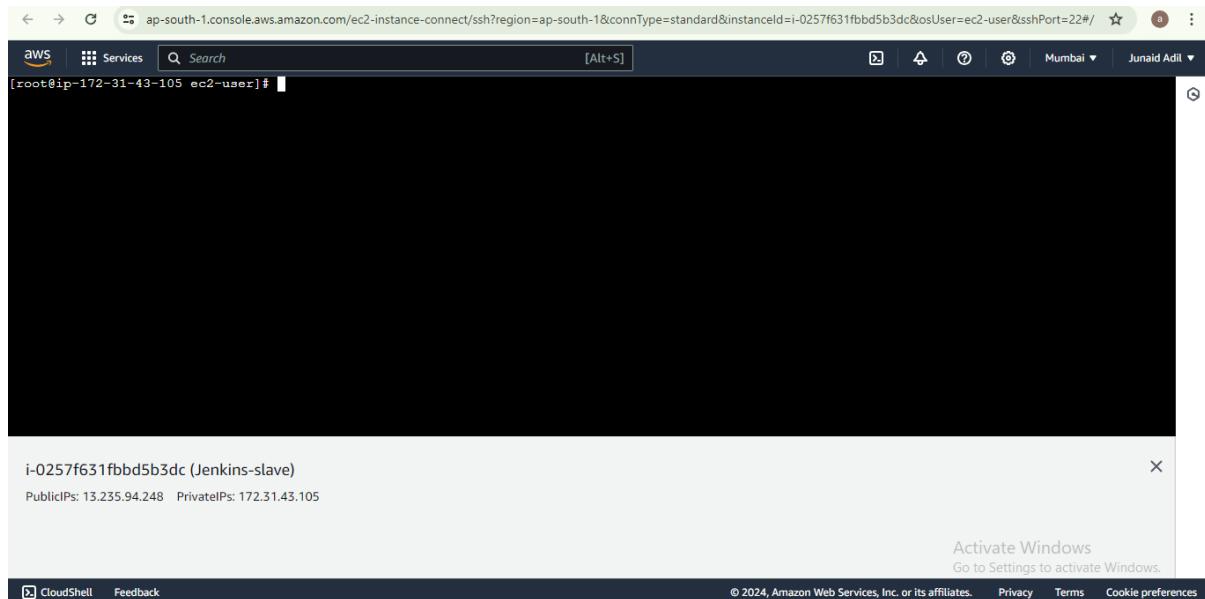
## Step 13: Copy public IP of master-server along with port number:9090. Execute in browser

The screenshot shows the AWS CloudShell interface. The terminal window displays the command history for starting the Prometheus service, including the command `sudo systemctl start prometheus` and its successful execution. The browser window shows the URL <https://ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?region=ap-south-1&connType=standard&instanceId=i-0ad32cd8be28a9cb6&osUser=ec2-user&sshPort=22#/>. Below the browser, a message indicates "PublicIPs: 3.110.41.43 PrivateIPs: 172.31.1.71".

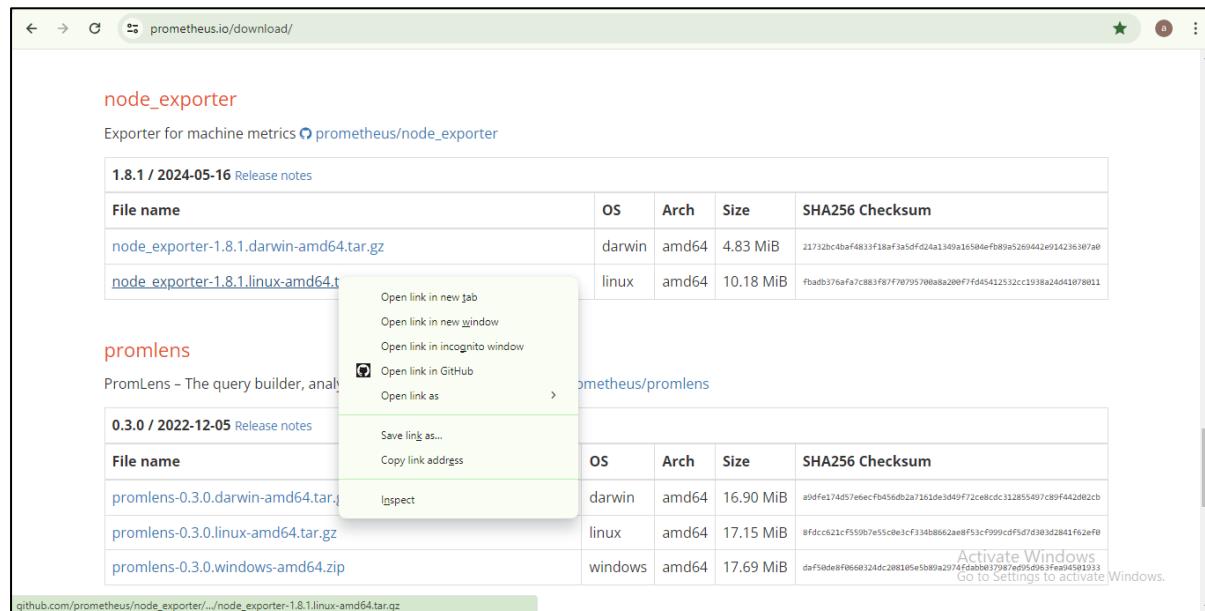


We can see the Prometheus dashboard.

## **Step 14:** Connect to target server i.e, Jenkins slave node which is a build server

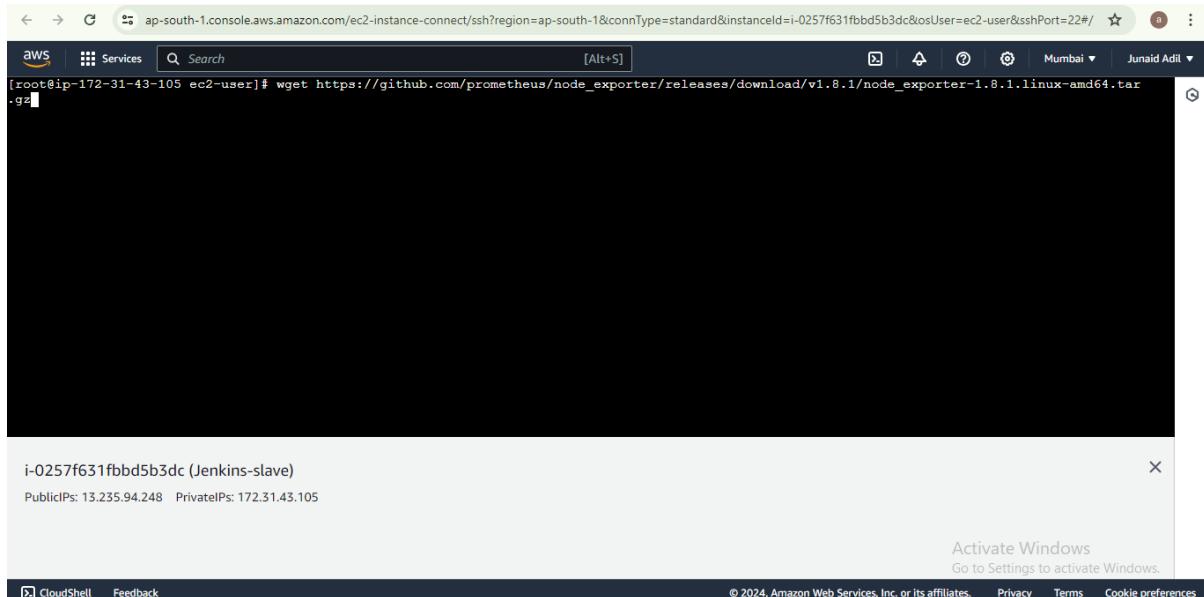


## **Step 15:** Install node-exporter in the Jenkins Build server. Using download link from website: <https://prometheus.io/download/>



Right-click on the tar file and select copy link address

## **Step 16:** Go to Jenkins build server and paste the link using command “wget <link>

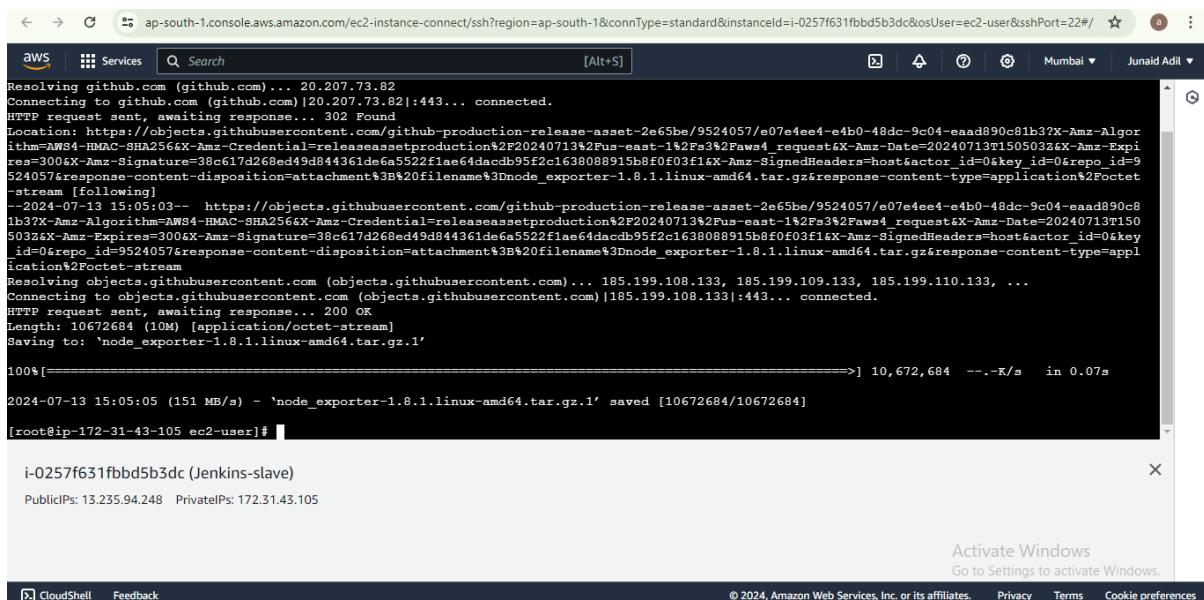


```
[root@ip-172-31-43-105 ec2-user]# wget https://github.com/prometheus/node_exporter/releases/download/v1.8.1/node_exporter-1.8.1.linux-amd64.tar.gz
```

i-0257f631fbdb5b3dc (Jenkins-slave)  
PublicIPs: 13.235.94.248 PrivateIPs: 172.31.43.105

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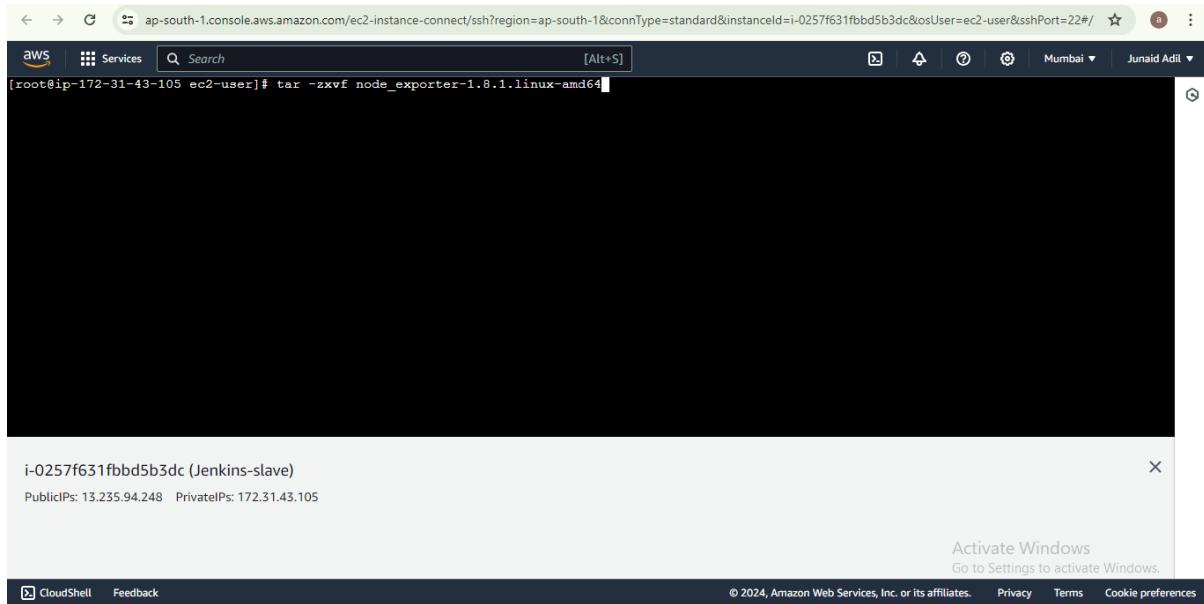
```
Connecting to github.com (github.com) ... 20.207.73.82  
HTTP request sent, awaiting response... 302 Found  
Location: https://objects.githubusercontent.com/github-production-release-asset-2e65be/9524057/e07e4ee4-e4b0-48dc-9c04-eaad890c81b3?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=releaseassetproduction%2F20240713%2Fus-east-1%2F3%2Faws4_request&X-Amz-Date=20240713T150503Z&X-Amz-Expires=3006X-Amz-Signature=38c617d269ed49d844361de6a5522fiae64dacdb95f2c163808915b8f0f03f16X-Amz-SignedHeaders=host&actor_id=0&key_id=0&repo_id=9524057&response-content-disposition=attachment%3B%20filename%3Dnode_exporter-1.8.1.linux-amd64.tar.gz&response-content-type=application%2Foctet-stream  
--2024-07-13 15:05:03-- https://objects.githubusercontent.com/github-production-release-asset-2e65be/9524057/e07e4ee4-e4b0-48dc-9c04-eaad890c81b3?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=releaseassetproduction%2F20240713%2Fus-east-1%2F3%2Faws4_request&X-Amz-Date=20240713T150503Z&X-Amz-Expires=3006X-Amz-Signature=38c617d268ed49d844361de6a5522fiae64dacdb95f2c163808915b8f0f03f16X-Amz-SignedHeaders=host&actor_id=0&key_id=0&repo_id=9524057&response-content-disposition=attachment%3B%20filename%3Dnode_exporter-1.8.1.linux-amd64.tar.gz&response-content-type=application%2Foctet-stream  
Resolving objects.githubusercontent.com (objects.githubusercontent.com)... 185.199.108.133, 185.199.109.133, 185.199.110.133, ...  
Connecting to objects.githubusercontent.com (objects.githubusercontent.com)|185.199.108.133|:443... connected.  
HTTP request sent, awaiting response... 200 OK  
Length: 10672684 (10M) [application/octet-stream]  
Saving to: 'node_exporter-1.8.1.linux-amd64.tar.gz'  
  
100%[=====] 10,672,684 --.-K/s in 0.07s  
2024-07-13 15:05:05 (151 MB/s) - 'node_exporter-1.8.1.linux-amd64.tar.gz' saved [10672684/10672684]  
[root@ip-172-31-43-105 ec2-user]#
```

i-0257f631fbdb5b3dc (Jenkins-slave)  
PublicIPs: 13.235.94.248 PrivateIPs: 172.31.43.105

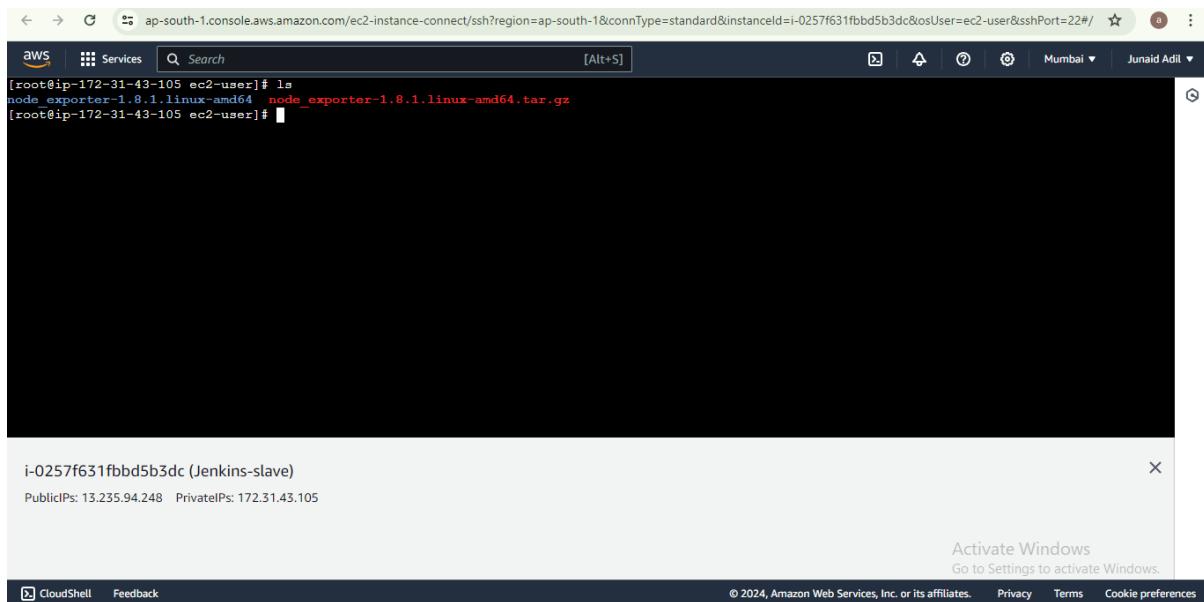
Activate Windows  
Go to Settings to activate Windows.

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## Step 17: Extract the tar.gz file using command “tar -zxvf <file name>”



A screenshot of the AWS CloudShell interface. The terminal window shows the command `[root@ip-172-31-43-105 ec2-user]# tar -zxvf node_exporter-1.8.1.linux-amd64.tar.gz` being run. Below the terminal, a message box displays the instance ID `i-0257f631fbcd5b3dc` (Jenkins-slave) and its public and private IP addresses. A watermark for "Activate Windows" is visible in the background.



A screenshot of the AWS CloudShell interface. The terminal window shows the command `[root@ip-172-31-43-105 ec2-user]# ls` being run, which lists the extracted directory `node_exporter-1.8.1.linux-amd64`. Below the terminal, a message box displays the instance ID `i-0257f631fbcd5b3dc` (Jenkins-slave) and its public and private IP addresses. A watermark for "Activate Windows" is visible in the background.

**Step 18:** Create a service file using command “`sudo vi /etc/systemd/system/node_exporter.service`”

The screenshot shows a terminal window in the AWS CloudShell interface. The user has run the command `sudo vi /etc/systemd/system/node_exporter.service`. The file contains the following configuration:

```
[Unit]
Description=Prometheus Server
Documentation=https://prometheus.io/docs/introduction/overview/
After=network-online.target

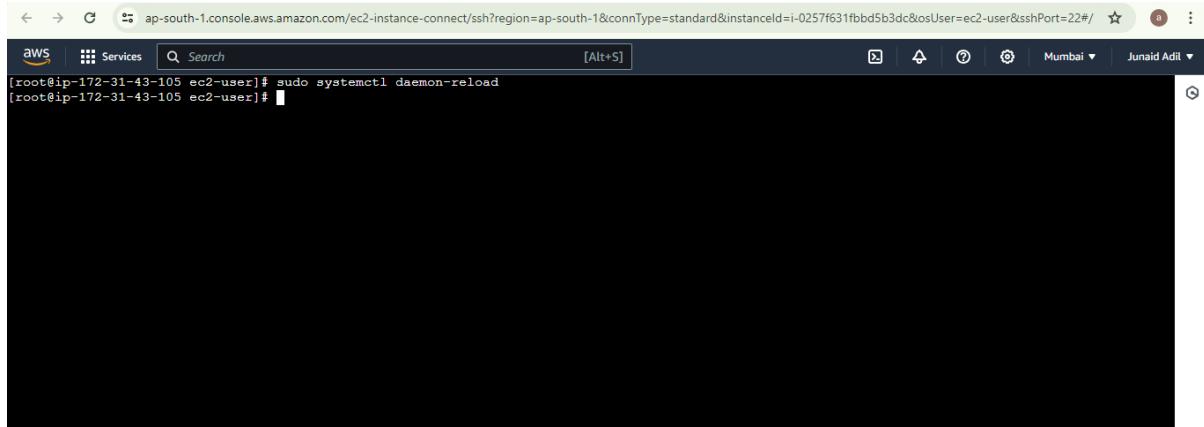
[Service]
User=root
Restart=on-failure
ExecStart=/home/ec2-user/node_exporter-1.8.1.linux-amd64/node_exporter

[Install]
WantedBy=multi-user.target
```

At the bottom of the screen, there is a status bar with the instance ID (i-0257f631fbdb5b3dc), its role (Jenkins-slave), and its public and private IP addresses (13.235.94.248 and 172.31.43.105). There is also a message about activating Windows.

The screenshot shows the same terminal window after the user has saved and exited the file. The status bar now indicates the file size (13L, 279B) and the current line number (11, 0-1). The file content remains the same as shown in the previous screenshot.

**Step 19:** Reload the daemon as we have created a new service using command “`sudo systemctl daemon-reload`”



```
[root@ip-172-31-43-105 ec2-user]# sudo systemctl daemon-reload
[root@ip-172-31-43-105 ec2-user]#
```

i-0257f631fbdb5b3dc (Jenkins-slave)  
PublicIPs: 13.235.94.248 PrivateIPs: 172.31.43.105

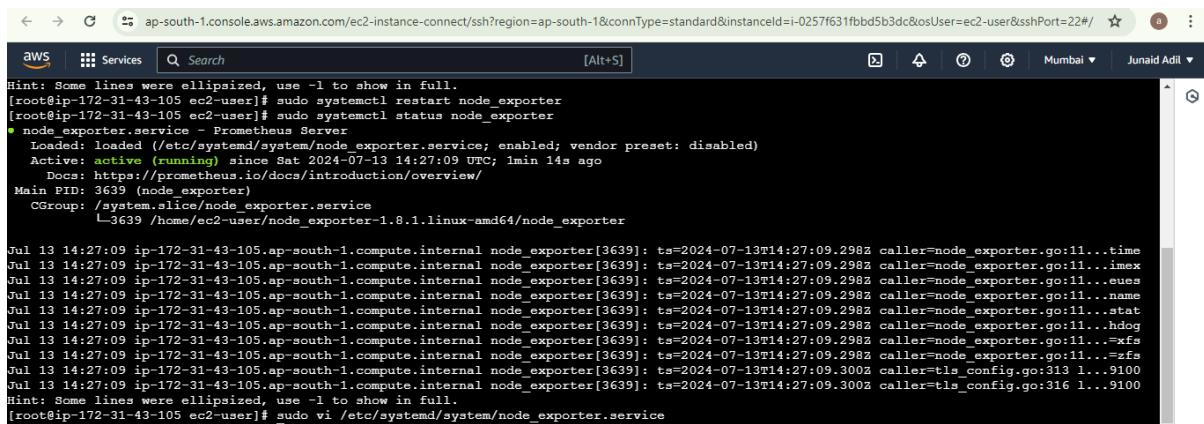
Activate Windows  
Go to Settings to activate Windows.

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**Step 20:** Start Node exporter and check the status using command:

“`sudo systemctl start node_exporter`”

“`sudo systemctl status node_exporter`”



```
Hint: Some lines were ellipsized, use -l to show in full.
[root@ip-172-31-43-105 ec2-user]# sudo systemctl restart node_exporter
[root@ip-172-31-43-105 ec2-user]# sudo systemctl status node_exporter
● node_exporter.service - Prometheus Server
  Loaded: loaded (/etc/systemd/system/node_exporter.service; enabled; vendor preset: disabled)
  Active: active (running) since Sat 2024-07-13 14:27:09 UTC; 1min 14s ago
    Docs: https://prometheus.io/docs/introduction/overview/
Main PID: 3639 (node_exporter)
  Group: /system.slice/node_exporter.service
         └─3639 /home/ec2-user/node_exporter-1.8.1.linux-amd64/node_exporter

Jul 13 14:27:09 ip-172-31-43-105.ap-south-1.compute.internal node_exporter[3639]: ts=2024-07-13T14:27:09.298Z caller=node_exporter.go:11...time
Jul 13 14:27:09 ip-172-31-43-105.ap-south-1.compute.internal node_exporter[3639]: ts=2024-07-13T14:27:09.298Z caller=node_exporter.go:11...imex
Jul 13 14:27:09 ip-172-31-43-105.ap-south-1.compute.internal node_exporter[3639]: ts=2024-07-13T14:27:09.298Z caller=node_exporter.go:11...eues
Jul 13 14:27:09 ip-172-31-43-105.ap-south-1.compute.internal node_exporter[3639]: ts=2024-07-13T14:27:09.298Z caller=node_exporter.go:11...name
Jul 13 14:27:09 ip-172-31-43-105.ap-south-1.compute.internal node_exporter[3639]: ts=2024-07-13T14:27:09.298Z caller=node_exporter.go:11...stat
Jul 13 14:27:09 ip-172-31-43-105.ap-south-1.compute.internal node_exporter[3639]: ts=2024-07-13T14:27:09.298Z caller=node_exporter.go:11...hdog
Jul 13 14:27:09 ip-172-31-43-105.ap-south-1.compute.internal node_exporter[3639]: ts=2024-07-13T14:27:09.298Z caller=node_exporter.go:11...xfs
Jul 13 14:27:09 ip-172-31-43-105.ap-south-1.compute.internal node_exporter[3639]: ts=2024-07-13T14:27:09.298Z caller=node_exporter.go:11...zfs
Jul 13 14:27:09 ip-172-31-43-105.ap-south-1.compute.internal node_exporter[3639]: ts=2024-07-13T14:27:09.300Z caller=tls_config.go:313 l...9100
Jul 13 14:27:09 ip-172-31-43-105.ap-south-1.compute.internal node_exporter[3639]: ts=2024-07-13T14:27:09.300Z caller=tls_config.go:316 l...9100
Hint: Some lines were ellipsized, use -l to show in full.
[root@ip-172-31-43-105 ec2-user]# sudo vi /etc/systemd/system/node_exporter.service
[root@ip-172-31-43-105 ec2-user]#
```

i-0257f631fbdb5b3dc (Jenkins-slave)  
PublicIPs: 13.235.94.248 PrivateIPs: 172.31.43.105

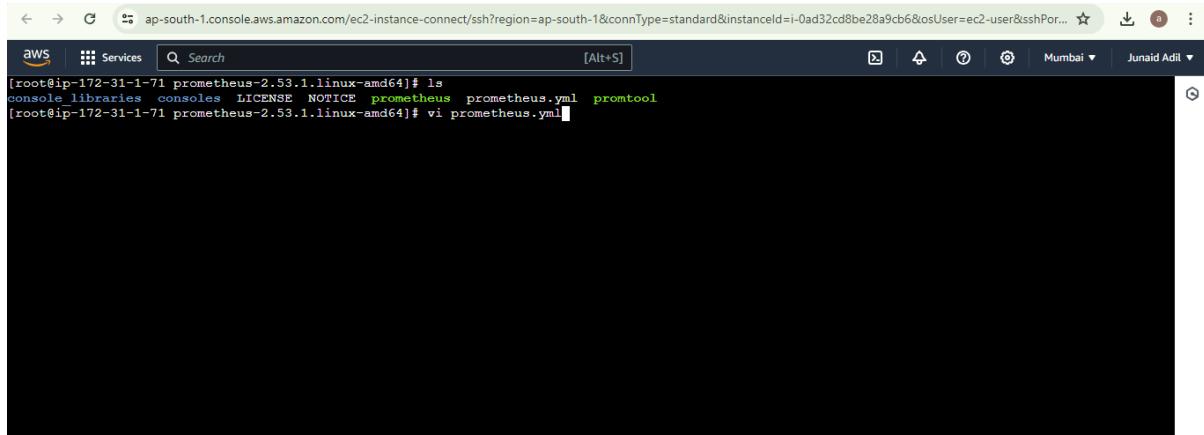
Activate Windows  
Go to Settings to activate Windows.

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We can see node\_exporter is upon running on port number:9100

**Step 21:** Now to attach the target server to monitoring server we have to add the server details in monitoring server – Prometheus.yml file

Go to monitoring server and open Prometheus.yml file and enter the target server details as



```
[root@ip-172-31-1-71 prometheus-2.53.1.linux-amd64]# ls
console_libraries  consoles LICENSE NOTICE prometheus  prometheus.yml  promtool
[root@ip-172-31-1-71 prometheus-2.53.1.linux-amd64]# vi prometheus.yml
```

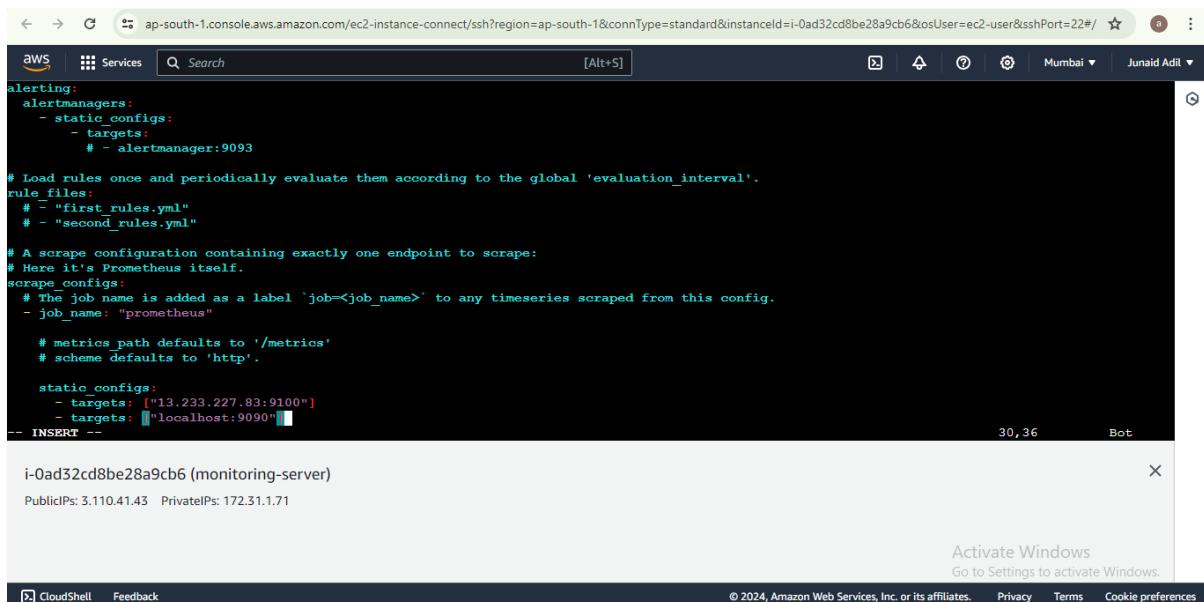
i-0ad32cd8be28a9cb6 (monitoring-server)  
PublicIPs: 3.110.41.43 PrivateIPs: 172.31.1.71

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**Step 22:** In static configs field add target server name as

" -targets: [<public IP of target server>:9100] "



```
alerting:
  alertmanagers:
    - static_configs:
      - targets:
        # - alertmanager:9093

# Load rules once and periodically evaluate them according to the global 'evaluation_interval'.
rule_files:
  # - "first_rules.yml"
  # - "second_rules.yml"

# A scrape configuration containing exactly one endpoint to scrape:
# Here it's Prometheus itself.
scrape_configs:
  # The job name is added as a label 'job=<job_name>' to any timeseries scraped from this config.
  - job_name: "prometheus"

    # metrics_path defaults to '/metrics'
    # scheme defaults to 'http'.

    static_configs:
      - targets: ["13.233.227.83:9100"]
      - targets: [{"localhost:9090"}]
```

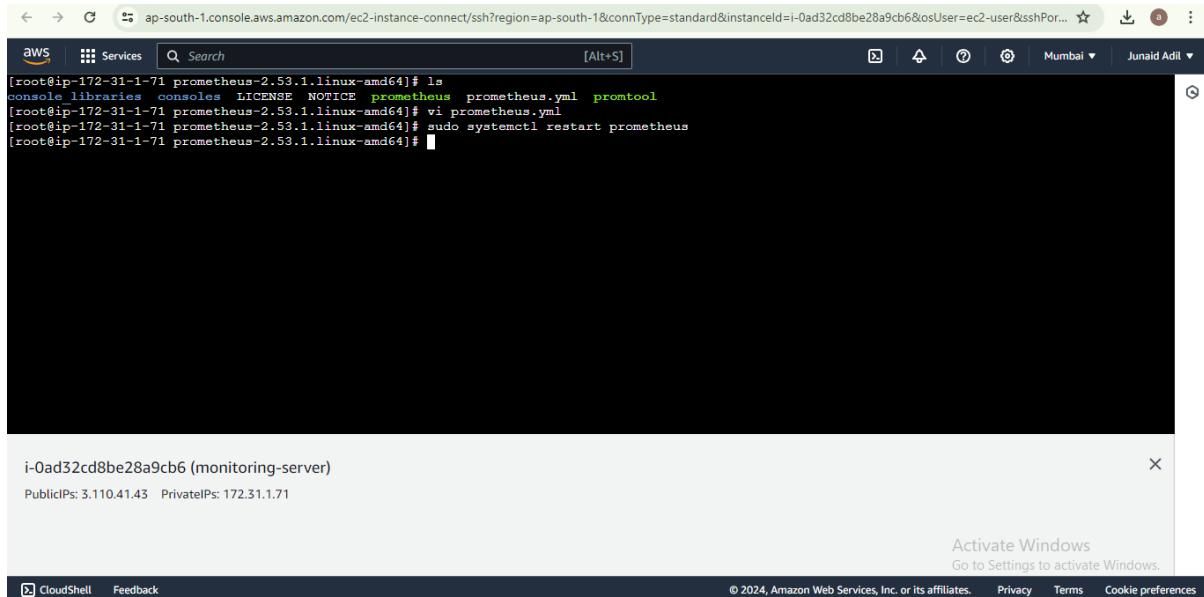
-- INSERT --

i-0ad32cd8be28a9cb6 (monitoring-server)  
PublicIPs: 3.110.41.43 PrivateIPs: 172.31.1.71

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## Step 23: Now restart the Prometheus and check the status

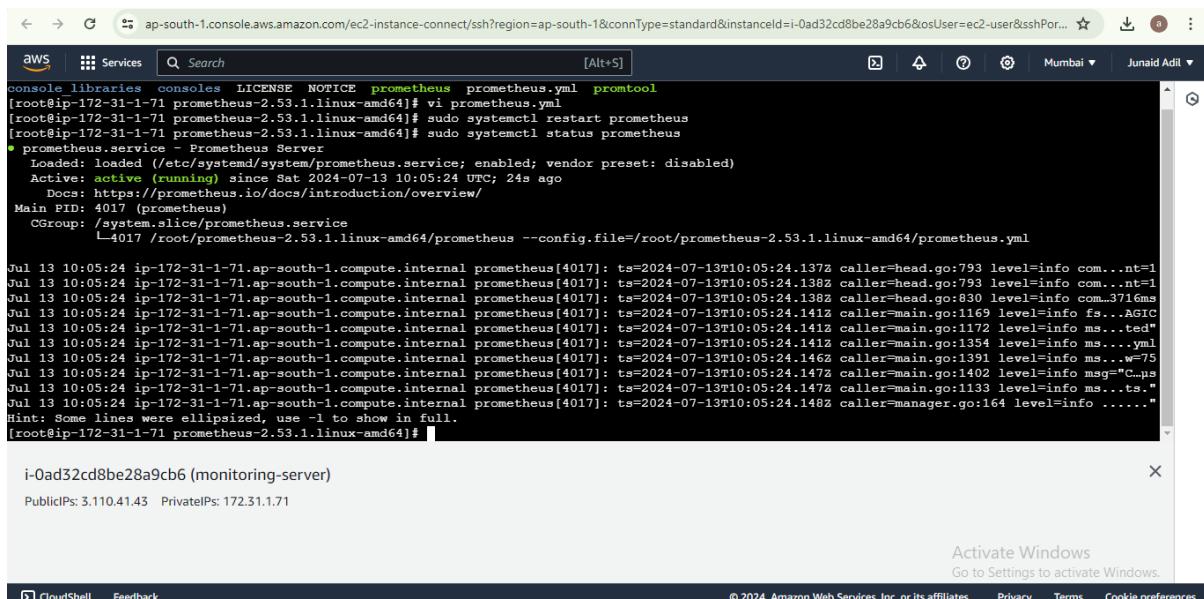


```
[root@ip-172-31-1-71 prometheus-2.53.1.linux-amd64]# ls
console libraries  consoles LICENSE NOTICE prometheus prometheus.yml promtool
[root@ip-172-31-1-71 prometheus-2.53.1.linux-amd64]# vi prometheus.yml
[root@ip-172-31-1-71 prometheus-2.53.1.linux-amd64]# sudo systemctl restart prometheus
[root@ip-172-31-1-71 prometheus-2.53.1.linux-amd64]#
```

i-0ad32cd8be28a9cb6 (monitoring-server)  
PublicIPs: 3.110.41.43 PrivateIPs: 172.31.1.71

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```
[root@ip-172-31-1-71 prometheus-2.53.1.linux-amd64]# ls
console libraries  consoles LICENSE NOTICE prometheus prometheus.yml promtool
[root@ip-172-31-1-71 prometheus-2.53.1.linux-amd64]# vi prometheus.yml
[root@ip-172-31-1-71 prometheus-2.53.1.linux-amd64]# sudo systemctl restart prometheus
[root@ip-172-31-1-71 prometheus-2.53.1.linux-amd64]# sudo systemctl status prometheus
● prometheus.service - Prometheus Server
   Loaded: loaded (/etc/systemd/system/prometheus.service; enabled; vendor preset: disabled)
     Active: active (running) since Sat 2024-07-13 10:05:24 UTC; 24s ago
       Docs: https://prometheus.io/docs/introduction/overview/
     Main PID: 4017 (prometheus)
        CPU: 0.000 CPU(s) @ 2.60GHz
       CGroup: /system.slice/prometheus.service
               └─ 4017 /root/prometheus-2.53.1.linux-amd64/prometheus --config.file=/root/prometheus-2.53.1.linux-amd64/prometheus.yml

Jul 13 10:05:24 ip-172-31-1-71.ap-south-1.compute.internal prometheus[4017]: ts=2024-07-13T10:05:24.137Z caller=head.go:793 level=info com...nt=1
Jul 13 10:05:24 ip-172-31-1-71.ap-south-1.compute.internal prometheus[4017]: ts=2024-07-13T10:05:24.138Z caller=head.go:793 level=info com...nt=1
Jul 13 10:05:24 ip-172-31-1-71.ap-south-1.compute.internal prometheus[4017]: ts=2024-07-13T10:05:24.138Z caller=head.go:830 level=info com...371ms
Jul 13 10:05:24 ip-172-31-1-71.ap-south-1.compute.internal prometheus[4017]: ts=2024-07-13T10:05:24.141Z caller=main.go:1169 level=info fs...AGIC
Jul 13 10:05:24 ip-172-31-1-71.ap-south-1.compute.internal prometheus[4017]: ts=2024-07-13T10:05:24.141Z caller=main.go:1172 level=info ms...ted
Jul 13 10:05:24 ip-172-31-1-71.ap-south-1.compute.internal prometheus[4017]: ts=2024-07-13T10:05:24.141Z caller=main.go:1354 level=info ms...yml
Jul 13 10:05:24 ip-172-31-1-71.ap-south-1.compute.internal prometheus[4017]: ts=2024-07-13T10:05:24.146Z caller=main.go:1391 level=info ms...w=75
Jul 13 10:05:24 ip-172-31-1-71.ap-south-1.compute.internal prometheus[4017]: ts=2024-07-13T10:05:24.147Z caller=main.go:1402 level=info msg="C_ps
Jul 13 10:05:24 ip-172-31-1-71.ap-south-1.compute.internal prometheus[4017]: ts=2024-07-13T10:05:24.147Z caller=main.go:1133 level=info ms...ts.
Jul 13 10:05:24 ip-172-31-1-71.ap-south-1.compute.internal prometheus[4017]: ts=2024-07-13T10:05:24.148Z caller=manager.go:164 level=info .....
Hint: Some lines were ellipsized, use -l to show in full.
[root@ip-172-31-1-71 prometheus-2.53.1.linux-amd64]#
```

i-0ad32cd8be28a9cb6 (monitoring-server)  
PublicIPs: 3.110.41.43 PrivateIPs: 172.31.1.71

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**Step 24:** Now go to Prometheus server and run “up” command in query field to see the list of servers up for monitoring

The screenshot shows the Prometheus web interface at the URL `3.110.41.43:9090/graph?g0.expr=&g0.tab=1&g0.display_mode=lines&g0.show_exemplars=0&g0.range_input=1h`. The search bar at the top contains the query `up`. On the left, there is a sidebar with a tree view of metrics under the `up` group, including `go_memstats_lookups_total`, `prometheus_sd_updates_total`, and various `prometheus_sd_*_lookups_total` and `prometheus_sd_*_updates_total` metrics. The main panel displays a table of results with three rows:

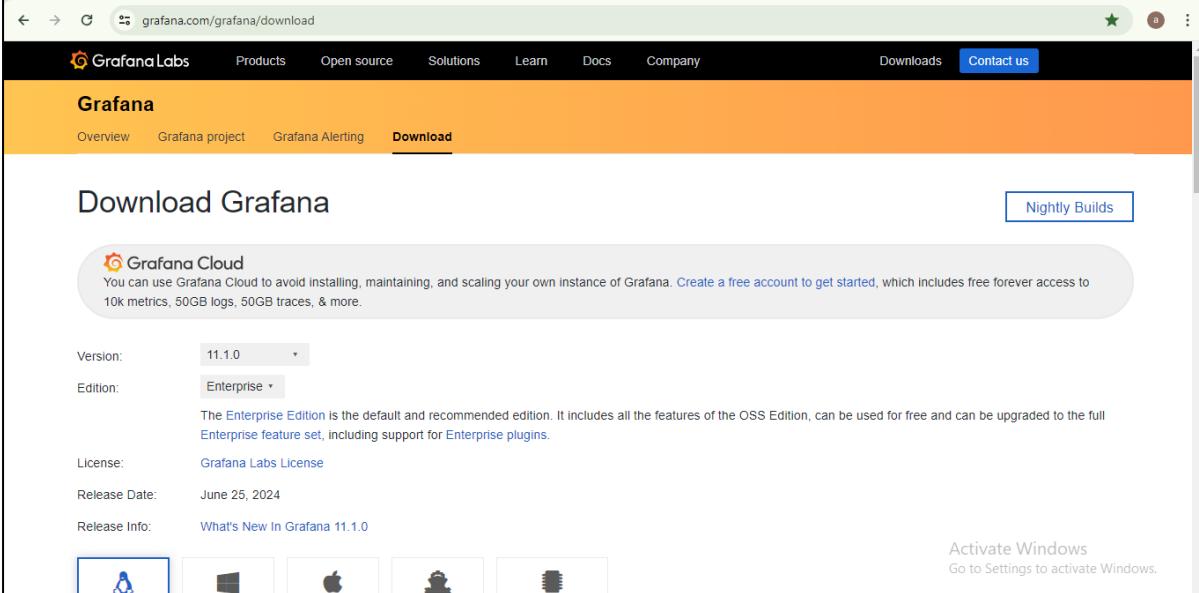
Metric	Type
<code>up{instance="13.233.227.83:9100", job="node_exporter"}</code>	0
<code>up{instance="13.235.94.248:9100", job="node_exporter"}</code>	1
<code>up{instance="localhost:9090", job="prometheus"}</code>	1

At the bottom right of the main panel, there is a message: "Activate Windows Go to Settings to activate Windows."

The screenshot shows the Prometheus web interface at the URL `52.66.252.181:9090/graph?g0.expr=up&g0.tab=1&g0.stacked=0&g0.show_exemplars=0&g0.range_input=1h`. The search bar at the top contains the query `up`. The main panel is in "Graph" mode, indicated by the tab at the top. It shows a single line graph representing the `up` metric over time. The graph has three data points corresponding to the rows in the table above. At the bottom right of the main panel, there is a message: "Activate Windows Go to Settings to activate Windows."

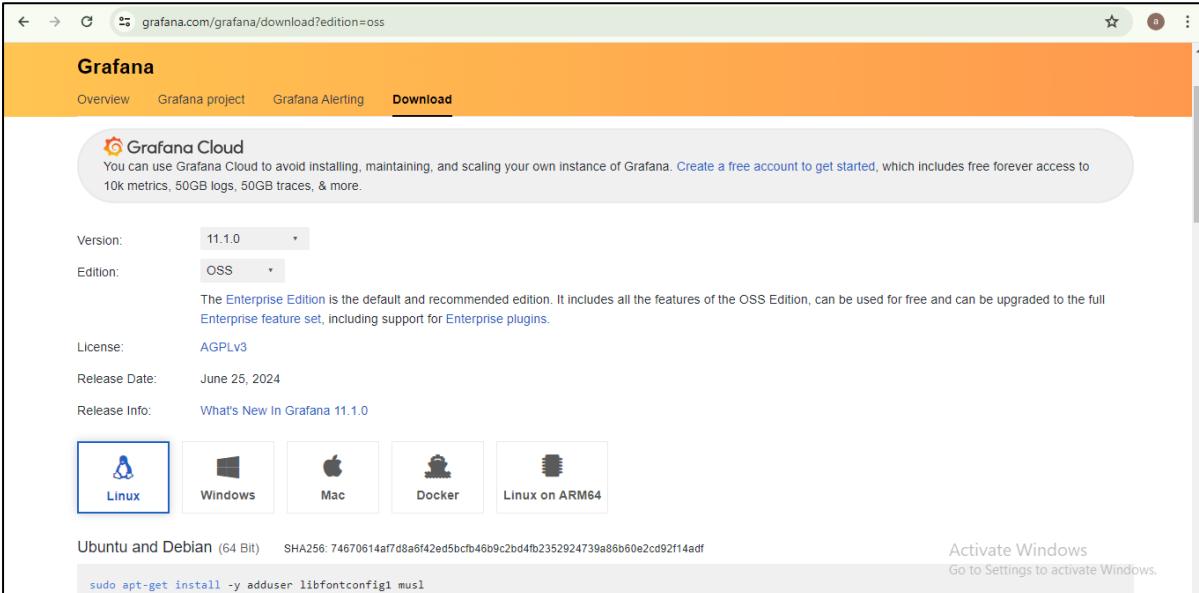
The Jenkins build server is attached to the monitoring server.

**Step 25:** To download grafana go to the link: <https://grafana.com/grafana/download>



The screenshot shows the Grafana Download page. At the top, there's a navigation bar with links for Products, Open source, Solutions, Learn, Docs, Company, Downloads, and Contact us. Below the navigation is a yellow header bar with the Grafana logo and a 'Download' button. Underneath is a main content area with a title 'Download Grafana'. A 'Grafana Cloud' callout box is present, encouraging users to use Grafana Cloud for managing instances. On the right side of the main content area, there's a 'Nightly Builds' button. Below the main content, there are dropdown menus for 'Version' (set to 11.1.0) and 'Edition' (set to Enterprise). The 'Enterprise Edition' is described as the default and recommended edition, including all OSS features and support for enterprise plugins. Other details shown include License (Grafana Labs License), Release Date (June 25, 2024), and Release Info (What's New In Grafana 11.1.0). At the bottom, there are download links for various platforms: Linux (selected), Windows, Mac, Docker, and Linux on ARM64. On the far right, there's an 'Activate Windows' section.

**Step 26:** Select Edition:OSS



This screenshot shows the same Grafana Download page as above, but with the 'Edition' dropdown set to 'OSS'. The 'Enterprise Edition' description is still visible but is no longer the active selection. The other details (Version, License, Release Date, Release Info) remain the same. The download links at the bottom now include 'Ubuntu and Debian (64 Bit)' and 'Windows' (which was previously selected). The 'Activate Windows' section is also present on the right.

**Step 27:** We can use command : “ sudo yum install -y https://dl.grafana.com/oss/release/grafana-11.1.0-1.x86\_64.rpm ” to install grafana

The screenshot shows the Grafana download page. It features a navigation bar with 'Overview', 'Grafana project', 'Grafana Alerting', and 'Download' tabs. The 'Download' tab is selected. Below the tabs, there are four sections for different operating systems:

- Ubuntu and Debian (64 Bit)**: SHA256: 74670614af7d8a6f42ed5bcfb46b9c2bd4fb2352924739a86b60e2cd92f14adf  
Code: 

```
sudo apt-get install -y adduser libfontconfig1 musl
wget https://dl.grafana.com/oss/release/grafana_11.1.0_amd64.deb
sudo dpkg -i grafana_11.1.0_amd64.deb
```
- Standalone Linux Binaries (64 Bit)**: SHA256: 33822a0b275ea4f216c9a3bdda531d1ba668e3e9873dc52104bc565bcb8d856  
Code: 

```
wget https://dl.grafana.com/oss/release/grafana-11.1.0.linux-amd64.tar.gz
tar -zxf grafana-11.1.0.linux-amd64.tar.gz
```
- Red Hat, CentOS, RHEL, and Fedora (64 Bit)**: SHA256: 6231b43d2e3c5c3800b903960170e6a1f8efba2e674c99a8a32da4f412fd96d  
Code: 

```
sudo yum install -y https://dl.grafana.com/oss/release/grafana-11.1.0-1.x86_64.rpm
```
- OpenSUSE and SUSE (64 Bit)**: SHA256: 6231b43d2e3c5c3800b903960170e6a1f8efba2e674c99a8a32da4f412fd96d  
Code: 

```
wget https://dl.grafana.com/oss/release/grafana-11.1.0-1.x86_64.rpm
sudo rpm -Uvh grafana-11.1.0-1.x86_64.rpm
```

At the bottom right, there is an 'Activate Windows' button.

**Step 28:** Go to monitoring server and install grafana

The screenshot shows an AWS CloudShell terminal window. The URL in the address bar is ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?region=ap-south-1&connType=standard&instanceId=i-0ad32cd8be28a9cb6&osUser=ec2-user&sshPort=22#. The terminal prompt is [root@ip-172-31-1-71 ~]# and the command entered is sudo yum install -y https://dl.grafana.com/oss/release/grafana-11.1.0-1.x86\_64.rpm. The output of the command is visible below the prompt.

i-0ad32cd8be28a9cb6 (monitoring-server)  
PublicIPs: 3.110.41.43 PrivateIPs: 172.31.1.71

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```

< → G ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?region=ap-south-1&connType=standard&instanceId=i-0ad32cd8be28a9cb6&osUser=ec2-user&sshPort=22#/
aws Services Search [Alt+S] Mumbai Junaid Adil
Installing : dejavu-sans-fonts-2.33-6.amzn2.noarch 3/5
Installing : fontconfig-2.13.0-4.3.amzn2.x86_64 4/5
Installing : grafana-11.1.0-1.x86_64 5/5
## 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.service
## You can start grafana-server by executing
sudo /bin/systemctl start grafana-server.service
POSTTRANS: Running script
Verifying : fontconfig-2.13.0-4.3.amzn2.x86_64 1/5
Verifying : dejavu-fonts-common-2.33-6.amzn2.noarch 2/5
Verifying : fontpackages-filesystem-1.44-8.amzn2.noarch 3/5
Verifying : dejavu-sans-fonts-2.33-6.amzn2.noarch 4/5
Verifying : grafana-11.1.0-1.x86_64 5/5

Installed:
grafana.x86_64 0:11.1.0-1

Dependency Installed:
dejavu-fonts-common.noarch 0:2.33-6.amzn2      dejavu-sans-fonts.noarch 0:2.33-6.amzn2      fontconfig.x86_64 0:2.13.0-4.3.amzn2

Complete!
[root@ip-172-31-1-71 ~]#

```

i-0ad32cd8be28a9cb6 (monitoring-server)  
PublicIPs: 3.110.41.43 PrivateIPs: 172.31.1.71

Activate Windows  
Go to Settings to activate Windows.

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**Step 29:** To enable, start and check the status of grafana execute the commands:

“`sudo /bin/systemctl enable grafana-server.service`”

“`sudo /bin/systemctl start grafana-server.service`”

“`sudo /bin/systemctl status grafana-server.service`”

Enabled grafana:

```

< → G ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?region=ap-south-1&connType=standard&instanceId=i-0ad32cd8be28a9cb6&osUser=ec2-user&sshPort=22#/
aws Services Search [Alt+S] Mumbai Junaid Adil
Installing : grafana-11.1.0-1.x86_64 5/5
## 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.service
## You can start grafana-server by executing
sudo /bin/systemctl start grafana-server.service
POSTTRANS: Running script
Verifying : fontconfig-2.13.0-4.3.amzn2.x86_64 1/5
Verifying : dejavu-fonts-common-2.33-6.amzn2.noarch 2/5
Verifying : fontpackages-filesystem-1.44-8.amzn2.noarch 3/5
Verifying : dejavu-sans-fonts-2.33-6.amzn2.noarch 4/5
Verifying : grafana-11.1.0-1.x86_64 5/5

Installed:
grafana.x86_64 0:11.1.0-1

Dependency Installed:
dejavu-fonts-common.noarch 0:2.33-6.amzn2      dejavu-sans-fonts.noarch 0:2.33-6.amzn2      fontconfig.x86_64 0:2.13.0-4.3.amzn2

Complete!
[root@ip-172-31-1-71 ~]# sudo /bin/systemctl enable grafana-server.service
Created symlink from /etc/systemd/system/multi-user.target.wants/grafana-server.service to /usr/lib/systemd/system/grafana-server.service.
[root@ip-172-31-1-71 ~]#

```

i-0ad32cd8be28a9cb6 (monitoring-server)  
PublicIPs: 3.110.41.43 PrivateIPs: 172.31.1.71

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Go to Settings to activate Windows.

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## Started grafana:

```
aws Services Search [Alt+S]
## NOT starting on installation, please execute the following statements to configure grafana to start automatically using systemctl
sudo /bin/systemctl daemon-reload
sudo /bin/systemctl enable grafana-server.service
## You can start grafana-server by executing
sudo /bin/systemctl start grafana-server.service
POSTTRANS: Running script
Verifying : fontconfig=2.13.0-4.3.amzn2.x86_64
Verifying : dejavu-fants-common=2.33-6.amzn2.noarch
Verifying : fontpackages-filesystem=1.44-6.amzn2.noarch
Verifying : dejavu-sans-fants=2.33-6.amzn2.noarch
Verifying : grafana=11.1.0-1.x86_64
1/5
2/5
3/5
4/5
5/5

Installed:
grafana.x86_64 0:11.1.0-1

Dependency Installed:
dejavu-fants-common.noarch 0:2.33-6.amzn2      dejavu-sans-fants.noarch 0:2.33-6.amzn2      fontconfig.x86_64 0:2.13.0-4.3.amzn2

Complete!
[root@ip-172-31-1-71 ~]# sudo /bin/systemctl enable grafana-server.service
Created symlink from /etc/systemd/system/multi-user.target.wants/grafana-server.service to /usr/lib/systemd/system/grafana-server.service.
[root@ip-172-31-1-71 ~]# sudo /bin/systemctl start grafana-server.service
[root@ip-172-31-1-71 ~]#
```

i-0ad32cd8be28a9cb6 (monitoring-server)  
PublicIPs: 3.110.41.43 PrivateIPs: 172.31.1.71

Activate Windows  
Go to Settings to activate Windows.

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## Check status:

```
aws Services Search [Alt+S]
[root@ip-172-31-1-71 ~]# sudo /bin/systemctl enable grafana-server.service
Created symlink from /etc/systemd/system/multi-user.target.wants/grafana-server.service to /usr/lib/systemd/system/grafana-server.service.
[root@ip-172-31-1-71 ~]# sudo /bin/systemctl start grafana-server.service
[root@ip-172-31-1-71 ~]# sudo /bin/systemctl status grafana-server.service
● grafana-server.service - Grafana instance
  Loaded: loaded ('/usr/lib/systemd/system/grafana-server.service; enabled; vendor preset: disabled')
  Active: active (running) since Sat 2024-07-13 10:16:30 UTC; 16s ago
    Docs: http://docs.grafana.org
  Main PID: 4248 (grafana)
  CGroup: /system.slice/grafana-server.service
          └─4248 /usr/share/grafana/bin/grafana server --config=/etc/grafana/grafana.ini --pidfile=/var/run/grafana/grafana-server.pid --pack...

Jul 13 10:16:30 ip-172-31-1-71.ap-south-1.compute.internal grafana[4248]: logger=provisioning.dashboard t=2024-07-13T10:16:30.226171399Z ...ards"
Jul 13 10:16:30 ip-172-31-1-71.ap-south-1.compute.internal grafana[4248]: logger=grafanaStorageLogger t=2024-07-13T10:16:30.229594846Z le...ting"
Jul 13 10:16:30 ip-172-31-1-71.ap-south-1.compute.internal grafana[4248]: logger=ngalert_multiorg.alertmanager t=2024-07-13T10:16:30.2591...ager"
Jul 13 10:16:30 ip-172-31-1-71.ap-south-1.compute.internal grafana[4248]: logger=ngalert_scheduler t=2024-07-13T10:16:30.25957832Z level=...pts"
Jul 13 10:16:30 ip-172-31-1-71.ap-south-1.compute.internal grafana[4248]: logger=ticker_t=2024-07-13T10:16:30.259619144Z level=info msg="...6:40s"
Jul 13 10:16:30 ip-172-31-1-71.ap-south-1.compute.internal grafana[4248]: logger=grafana_apiserver t=2024-07-13T10:16:30.775853582Z level...ager"
Jul 13 10:16:30 ip-172-31-1-71.ap-south-1.compute.internal grafana[4248]: logger=grafana_apiserver t=2024-07-13T10:16:30.777007848Z level...ager"
Jul 13 10:16:30 ip-172-31-1-71.ap-south-1.compute.internal grafana[4248]: logger=grafana_update_checker t=2024-07-13T10:16:30.791120435Z ...395ms
Jul 13 10:16:30 ip-172-31-1-71.ap-south-1.compute.internal grafana[4248]: logger=plugin_angulardetectorsprovider_dynamic t=2024-07-13T10:16:30.946ms
Jul 13 10:16:30 ip-172-31-1-71.ap-south-1.compute.internal grafana[4248]: logger=plugins_update_checker t=2024-07-13T10:16:30.837355581Z ...345ms
Hint: Some lines were ellipsized, use -l to show in full.
[root@ip-172-31-1-71 ~]#
```

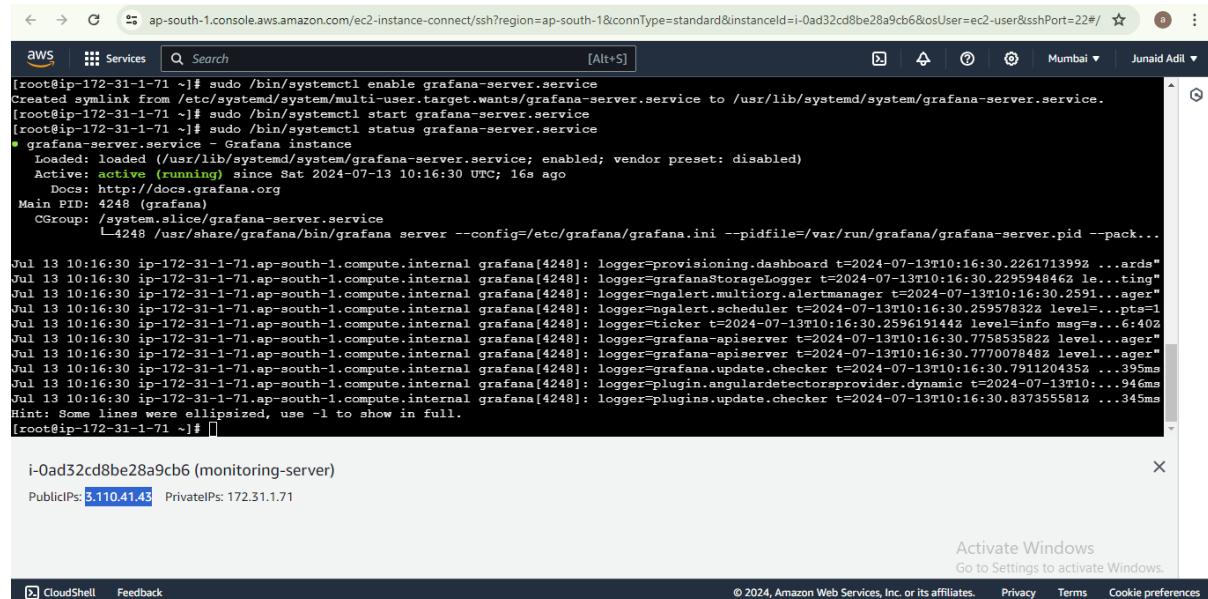
i-0ad32cd8be28a9cb6 (monitoring-server)  
PublicIPs: 3.110.41.43 PrivateIPs: 172.31.1.71

Activate Windows  
Go to Settings to activate Windows.

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We can see grafana started running on port number: 3000

## Step 30: We can access grafana using : <public IP of monitoring server:3000>



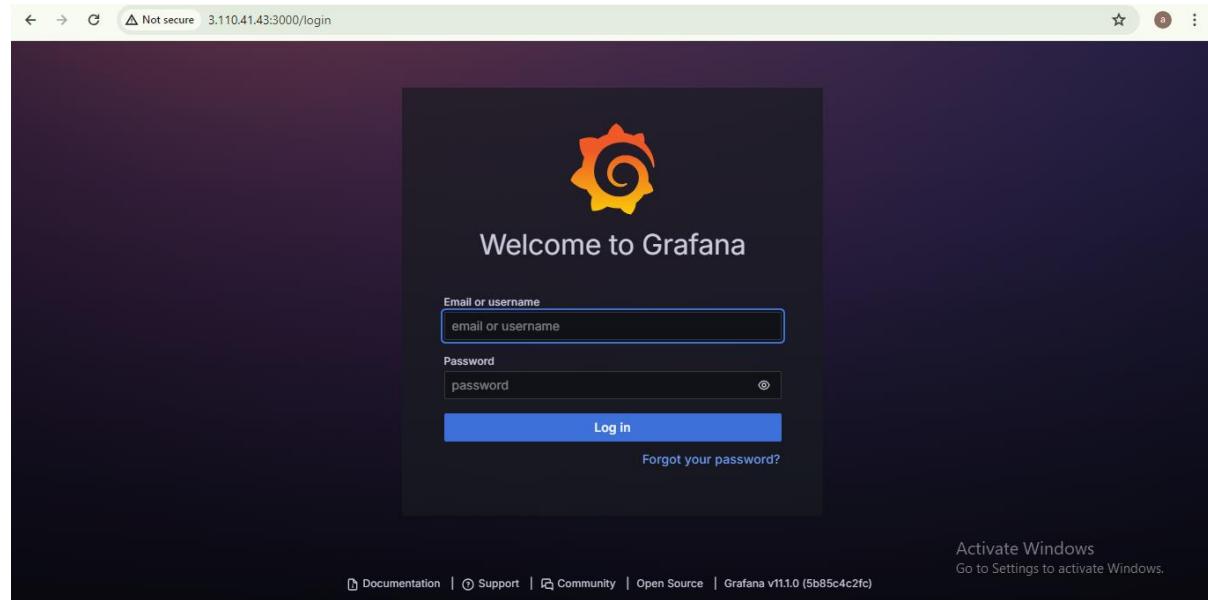
```
[root@ip-172-31-1-71 ~]# sudo /bin/systemctl enable grafana-server.service
Created symlink from /etc/systemd/system/multi-user.target.wants/grafana-server.service to /usr/lib/systemd/system/grafana-server.service.
[root@ip-172-31-1-71 ~]# sudo /bin/systemctl start grafana-server.service
[root@ip-172-31-1-71 ~]# sudo /bin/systemctl status grafana-server.service
● grafana-server.service - Grafana instance
   Loaded: loaded (/usr/lib/systemd/system/grafana-server.service; enabled; vendor preset: disabled)
     Docs: http://docs.grafana.org
   Main PID: 4248 (grafana)
    CGroup: /system.slice/grafana-server.service
           └─4248 /usr/share/grafana/bin/grafana server --config=/etc/grafana/grafana.ini --pidfile=/var/run/grafana/grafana-server.pid --pack...
Jul 13 10:16:30 ip-172-31-1-71.ap-south-1.compute.internal grafana[4248]: logger=provisioning.dashboard t=2024-07-13T10:16:30.226171399Z ...ards*
Jul 13 10:16:30 ip-172-31-1-71.ap-south-1.compute.internal grafana[4248]: logger=grafanaStorageLogger t=2024-07-13T10:16:30.229594846Z le...ting*
Jul 13 10:16:30 ip-172-31-1-71.ap-south-1.compute.internal grafana[4248]: logger=ngalert_multiorg_alertmanager t=2024-07-13T10:16:30.2591...ager*
Jul 13 10:16:30 ip-172-31-1-71.ap-south-1.compute.internal grafana[4248]: logger=ngalert_scheduler t=2024-07-13T10:16:30.25957832Z level=info msg=s...6:40z
Jul 13 10:16:30 ip-172-31-1-71.ap-south-1.compute.internal grafana[4248]: logger=ticker t=2024-07-13T10:16:30.259619144Z level=info msg=s...6:40z
Jul 13 10:16:30 ip-172-31-1-71.ap-south-1.compute.internal grafana[4248]: logger=grafana_apiserver t=2024-07-13T10:16:30.775853582Z level...ager*
Jul 13 10:16:30 ip-172-31-1-71.ap-south-1.compute.internal grafana[4248]: logger=grafana_update_checker t=2024-07-13T10:16:30.791120435Z ...395ms
Jul 13 10:16:30 ip-172-31-1-71.ap-south-1.compute.internal grafana[4248]: logger=plugin_angulardetectorsprovider_dynamic t=2024-07-13T10:16:30.791120435Z ...946ms
Jul 13 10:16:30 ip-172-31-1-71.ap-south-1.compute.internal grafana[4248]: logger=plugins_update_checker t=2024-07-13T10:16:30.837355581Z ...345ms
Hint: Some lines were ellipsized, use -l to show in full.
[root@ip-172-31-1-71 ~]#
```

i-0ad32cd8be28a9cb6 (monitoring-server)

PublicIPs: 3.110.41.43 PrivateIPs: 172.31.1.71

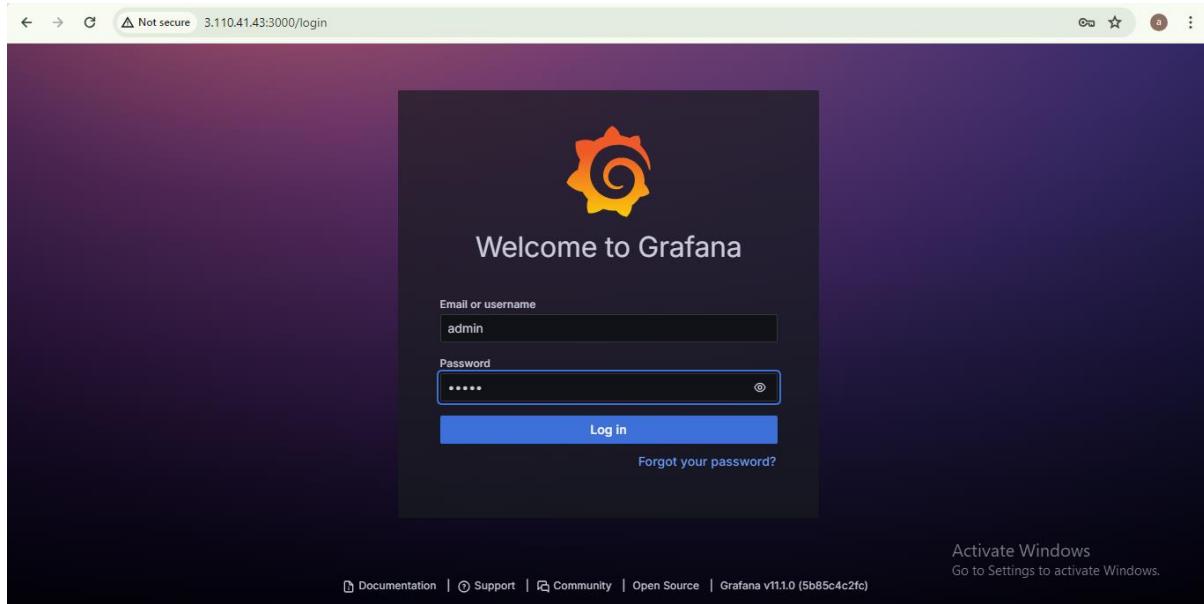
Activate Windows  
Go to Settings to activate Windows.

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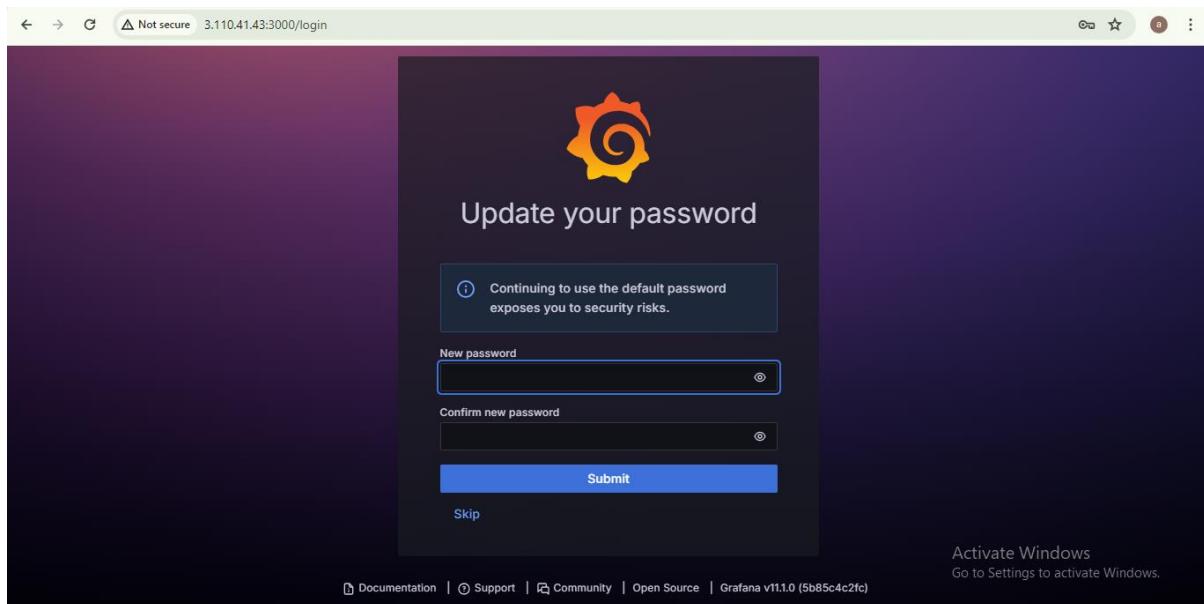


**Step 31:** Enter username and password as admin.

Initial username and password will be admin



Then we get a page to create a new password. It is optional. Skip for now.



## Grafana dashboard

The screenshot shows the Grafana home page. At the top, there's a search bar and a navigation bar with links to Documentation, Tutorials, Community, and Public Slack. Below the header, there's a "Welcome to Grafana" message and a "Basic" section with instructions for setting up Grafana. To the right of the basic section is a "DATA SOURCES" panel with a "TUTORIAL" section about "DATA SOURCE AND DASHBOARDS" and "Grafana fundamentals". It also includes a link to "Add your first data source" and a "Learn how in the docs" button. Next to it is a "DASHBOARDS" panel with a "Create your first dashboard" link and a "Learn how in the docs" button. At the bottom of the main content area, there are links for "Dashboards" and "Starred dashboards". On the right side, there's a sidebar with "Latest from the blog" and an "Activate Windows" message.

Go to DATA SOURCES →

The screenshot shows the "Add data source" configuration page. The URL in the address bar is 3.110.41.43:3000/connections/datasources/new. The page has a breadcrumb navigation: Home > Connections > Data sources > Add data source. The main title is "Add data source" and it says "Choose a data source type". There's a search bar labeled "Filter by name or type" and a "Cancel" button. Below the search bar, there's a section titled "Time series databases" with four options: "Prometheus" (with a Prometheus icon), "Graphite" (with a Graphite icon), "InfluxDB" (with an InfluxDB icon), and "OpenTSDB" (with an OpenTSDB icon). A "Core" badge is present under each of these options. On the right side of the page, there's an "Activate Windows" message with a link to "Go to Settings to activate Windows".

**Step 32:** Click on Prometheus → we need to add Prometheus server URL: http://  
http://52.66.252.181:9090/ → save

The screenshot shows the Grafana interface for managing data sources. A new data source is being created with the name 'prometheus1'. The 'Connection' section contains the URL 'http://52.66.252.181:9090/'. The 'Authentication' section is currently empty. A note on the right side of the screen says 'Activate Windows Go to Settings to activate Windows.'

The screenshot shows the continuation of the data source configuration. Under the 'Connection' tab, the URL 'http://52.66.252.181:9090/' is entered. In the 'Authentication' tab, there is a link to 'Authentication methods'. The 'Advanced' tab is visible at the bottom. A note on the right side of the screen says 'Activate Windows Go to Settings to activate Windows.'

The screenshot shows the Grafana configuration interface for a Prometheus data source. At the top, there's a navigation bar with links for Home, Connections, Data sources, and prometheus1. Below the navigation, there are several configuration sections:

- Cache level:** Set to Low.
- Incremental querying (beta):** Enabled.
- Disable recording rules (beta):** Enabled.
- Other:** Includes fields for Custom query parameters (Example: max\_source\_resolution=5m&timeout) and HTTP method (POST).
- Exemplars:** A button to '+ Add'.

A success message at the bottom states: "Successfully queried the Prometheus API." It also says, "Next, you can start to visualize data by [building a dashboard](#), or by querying data in the [Explore view](#)."

**Step 33:** Now go to grafana home page → Dashboard → create Dashboard → Add Visualization

The screenshot shows the Grafana home page. On the left, there's a sidebar with a "Basic" section containing instructions for setting up Grafana. To the right, there are three main call-to-action cards:

- TUTORIAL DATA SOURCE AND DASHBOARDS**: "Grafana fundamentals" - Set up and understand Grafana if you have no prior experience. This tutorial guides you through the entire process and covers the "Data source" and "Dashboards" steps to the right.
- COMPLETE**: "Add your first data source" - Learn how in the docs.
- DASHBOARDS**: "Create your first dashboard" - Learn how in the docs.

Below these cards, there are sections for "Dashboards" (Starred dashboards, Recently viewed dashboards) and "Latest from the blog". The blog section features an article titled "Obirdability: How to build an observability system for bird songs" with a timestamp of Jul 12.

Not secure 3.110.41.43:3000/dashboards

Home > Dashboards

## Dashboards

Create and manage dashboards to visualize your data

Search for dashboards and folders

Filter by tag Starred

Sort



You haven't created any dashboards yet

+ Create dashboard

Activate Windows  
Go to Settings to activate Windows.

Not secure 3.110.41.43:3000/dashboard/new?orgId=1

Home > Dashboards > New dashboard

### Start your new dashboard by adding a visualization

Select a data source and then query and visualize your data with charts, stats and tables or create lists, markdowns and other widgets.

+ Add visualization

#### Import panel

Add visualizations that are shared with other dashboards.

+ Add library panel

#### Import a dashboard

Import dashboards from files or [grafana.com](#).

Import dashboard

Activate Windows  
Go to Settings to activate Windows.

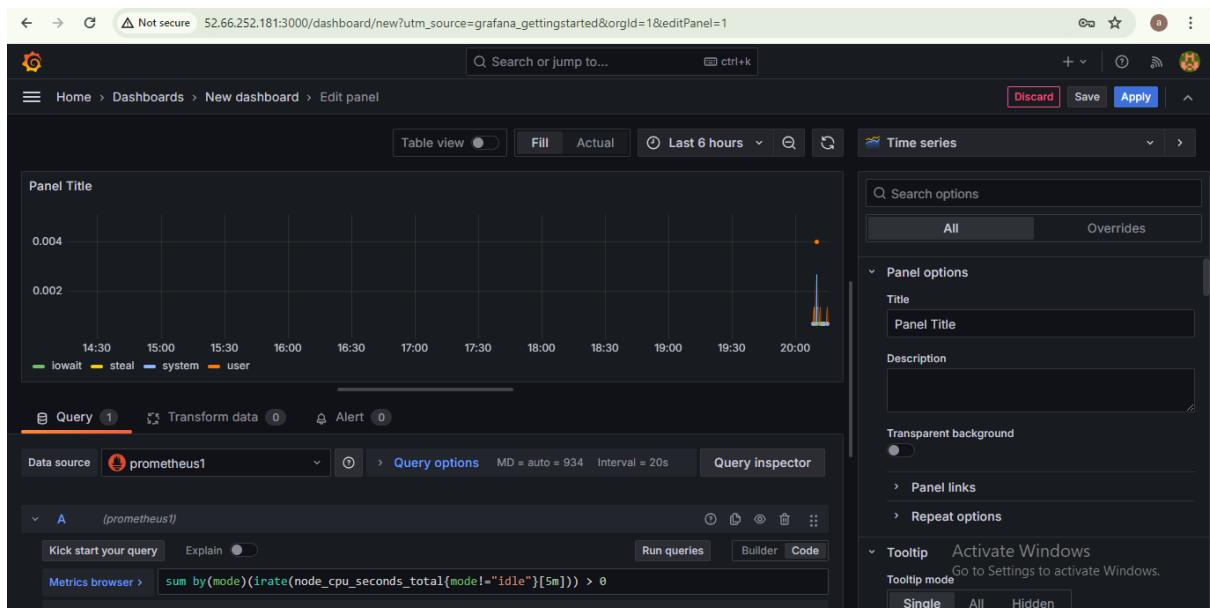
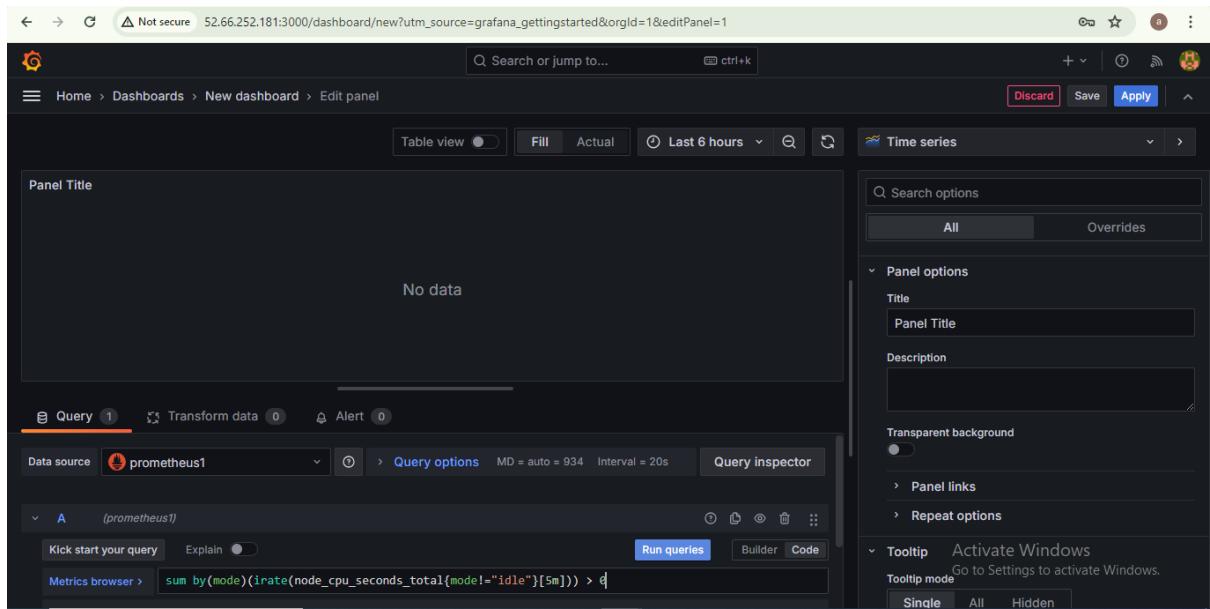
## Step 34: Select Prometheus1 → Then we can see the panel

The screenshot shows the Grafana dashboard editor interface. A new panel titled "Panel Title" is being edited. The panel content area displays "No data". Below it, the "Query" tab is selected, showing a single query configuration. The data source is set to "prometheus1". The "Query options" section indicates MD = auto = 934 and Interval = 20s. The "Code" field is empty, containing the placeholder "Enter a PromQL query...". On the right side, the "Panel options" sidebar is open, showing fields for "Title" (set to "Panel Title"), "Description", and "Transparent background" (disabled). The "Tooltip" section is also visible.

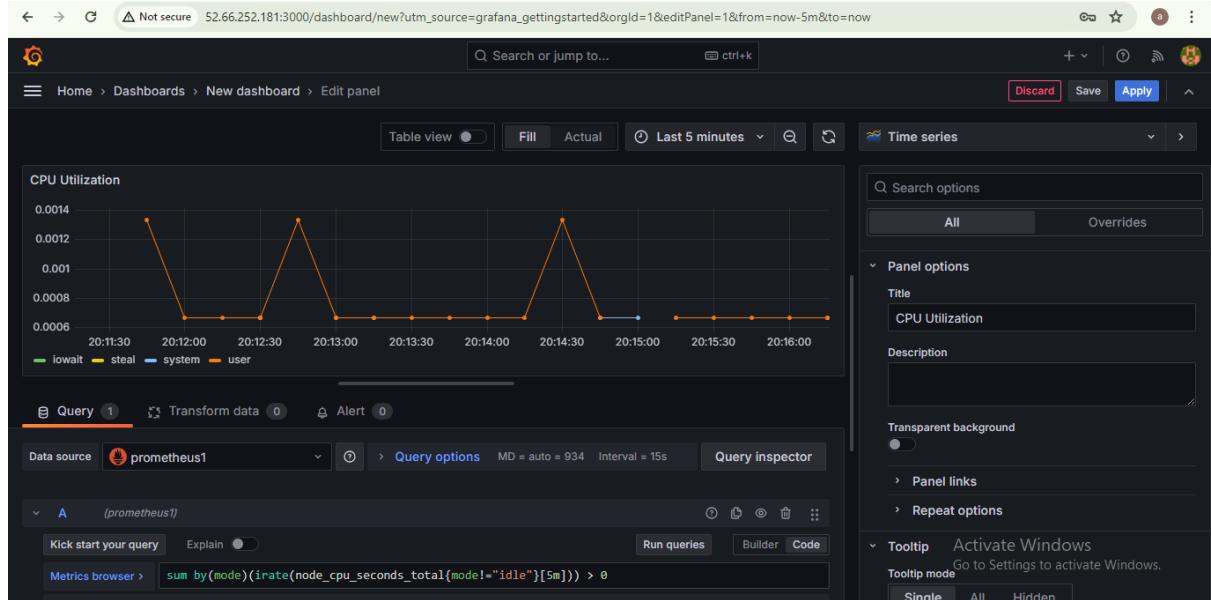
Step 35: To monitor CPU Utilization, we have to use PomQL query : “ sum by(mode)(irate(node\_cpu\_seconds\_total{mode!="idle"}[5m])) > 0 ”

Enter the PomQL Query in Code field and click on Run queries

The screenshot shows the same Grafana dashboard editor interface as the previous one. The panel titled "Panel Title" still displays "No data". The "Query" tab is selected, and the "Code" field now contains the PomQL query: "sum by(mode)(irate(node\_cpu\_seconds\_total{mode!="idle"}[5m])) > 0". An error message "Error: Invalid query: invalid identifier 'irate'" is displayed below the code field. The rest of the interface, including the data source selection, query options, and panel options sidebar, remains the same.



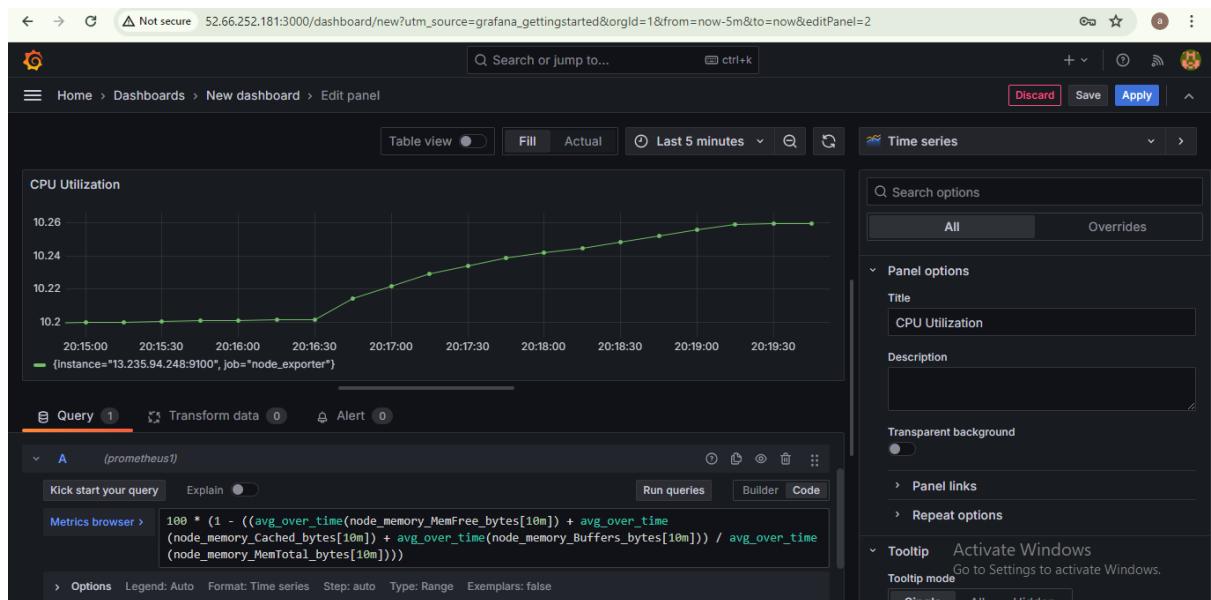
We can set the time period and update the panel title as CPU Utilization as the PomQL Query is for CPU Utilization.



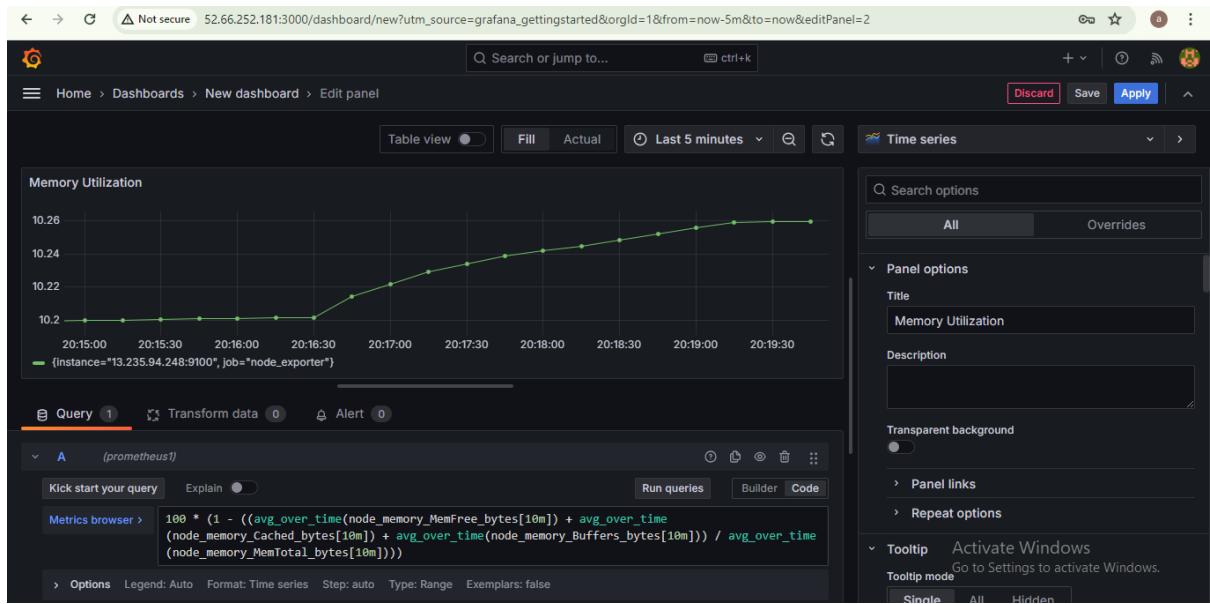
Apply → Save.

**Step 36:** We can duplicate it and create new for Memory Utilization.

Use PomQL query: “`100 * (1 - ((avg_over_time(node_memory_MemFree_bytes[10m]) + avg_over_time(node_memory_Cached_bytes[10m]) + avg_over_time(node_memory_Buffers_bytes[10m])) / avg_over_time(node_memory_MemTotal_bytes[10m])))`”



We can name it to Memory Utilization



Here we can see the CPU Utilization and Memory Utilization of Jenkins Build Server.

