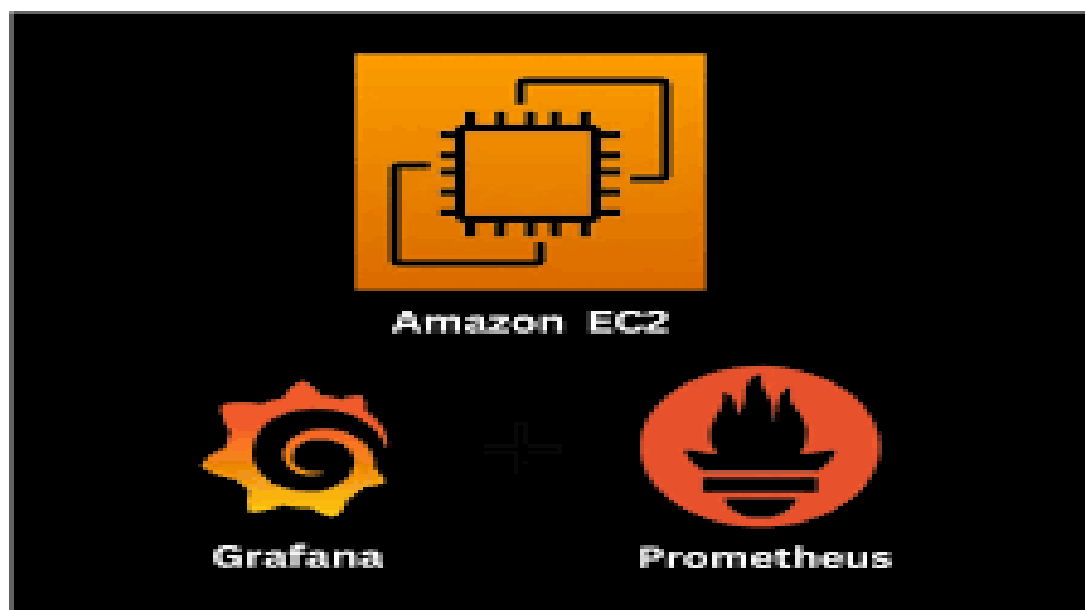




Prometheus, Node Exporter, and Grafana Setup on AWS EC2



NAME : T MANOJ
EMPID : LYAKE2KHS

Prometheus and Grafana Setup for AWS EC2

Introduction

In modern cloud environments, monitoring is crucial for ensuring system reliability, performance, and availability. Prometheus, an open-source monitoring and alerting toolkit, is widely used for collecting system metrics in real-time. It utilizes a pull-based mechanism to scrape metrics from various endpoints. Node Exporter, a lightweight exporter, helps gather system-level metrics from Linux machines. Grafana, a visualization tool, transforms collected data into meaningful dashboards for analysis.

This document provides a step-by-step guide on setting up Prometheus, Node Exporter, and Grafana on AWS EC2 instances. The setup enables real-time system monitoring, visualization, and alerting for efficient infrastructure management.

Overview

This setup involves three main components:

1. **Prometheus** - The core monitoring system that collects and stores metrics.
2. **Node Exporter** - A data exporter that allows Prometheus to collect machine-level metrics.
3. **Grafana** - A visualization tool for creating interactive monitoring dashboards.

The following steps will guide you through the installation and configuration of Prometheus, Node Exporter, and Grafana:

1. Launch an EC2 Instance for Prometheus - Install and configure Prometheus to collect metrics.
2. Install Node Exporter on Agent EC2 - Deploy Node Exporter on separate instances to gather system metrics.
3. Connect Prometheus to Node Exporter - Configure Prometheus to pull metrics from Node Exporter.
4. Install Grafana on Prometheus EC2 Instance - Deploy Grafana for visualization.
5. Configure Prometheus as Data Source in Grafana - Connect Prometheus to Grafana for dashboard integration.
6. Import Grafana Dashboard - Load pre-built dashboards for easier monitoring.
7. Setup Alerts in Grafana - Configure alerting mechanisms for proactive monitoring.

1. Launch EC2 Instance for Prometheus Server

1.1. Create EC2 Instance

1. Login to AWS Management Console
2. Navigate to EC2 Dashboard
3. Click "Launch Instance"
4. Select "Amazon Linux 2023" AMI
5. Choose instance type:
 - o t2.micro for testing environments
6. Add storage (default 8GB is sufficient for initial setup)
7. Add tags:
 - o Key: Name
 - o Value: Prometheus-Server
8. Configure Security Group:
 - o Create new security group: "prometheus-sg"
 - o Add the following inbound rules:
 - SSH (TCP/22) from your IP
 - Custom TCP (9090) from your IP for Prometheus
 - Custom TCP (3000) from your IP for Grafana
 - Custom TCP (9093) from your IP for Alertmanager (optional)
9. Review and Launch
10. Create a new key pair or select an existing one
11. Launch instance

The screenshot shows the AWS Management Console interface for an EC2 instance. The browser address bar indicates the URL: `491085415620-6tnyhdjsj.us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#InstanceDetails:instanceId=i-0774c14b0aa9bebe7`. The console header shows the AWS logo, a search bar, and navigation links for EC2, Instances, and the specific instance ID `i-0774c14b0aa9bebe7`. The main content area displays the "Instance summary for i-0774c14b0aa9bebe7 (MASTER)" with a timestamp "Updated less than a minute ago". The summary is organized into three columns. The first column contains: Instance ID (`i-0774c14b0aa9bebe7`), IPv6 address (none), Hostname type (IP name: `ip-172-31-94-94.ec2.internal`), Answer private resource DNS name (IPv4 (A)), Auto-assigned IP address (none), and IAM Role. The second column contains: Public IPv4 address (none), Instance state (Stopped), Private IP DNS name (IPv4 only) (`ip-172-31-94-94.ec2.internal`), Instance type (`t2.micro`), VPC ID (`vpc-0c33a120e93d325f9`), and Subnet ID. The third column contains: Private IPv4 addresses (`172.31.94.94`), Public IPv4 DNS (none), Elastic IP addresses (none), and an AWS Compute Optimizer finding (Opt-in to AWS Compute Optimizer for recommendations). At the top right of the summary, there are buttons for "Connect", "Instance state" (with a dropdown arrow), and "Actions" (with a dropdown arrow). The footer of the console shows "CloudShell", "Feedback", and copyright information for Amazon Web Services, Inc. (2025), along with links for "Privacy", "Terms", and "Cookie preferences".

491085415620-6tnyhdsj.us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#InstanceDetails:instanceId=i-0d3147780b78002af

aws Search [Alt+S] United States (N. Virginia) cloudprotocols-hybrid-devops (4910-8541-5620) root

EC2 > Instances > i-0d3147780b78002af

Instance summary for i-0d3147780b78002af (APPSERVER1) [Info](#)

Updated less than a minute ago

[Connect](#) [Instance state ▼](#) [Actions ▼](#)

Instance ID i-0d3147780b78002af	Public IPv4 address -	Private IPv4 addresses 172.31.89.250
IPv6 address -	Instance state ⏸ Stopped	Public IPv4 DNS -
Hostname type IP name: ip-172-31-89-250.ec2.internal	Private IP DNS name (IPv4 only) ip-172-31-89-250.ec2.internal	Elastic IP addresses -
Answer private resource DNS name IPv4 (A)	Instance type t2.micro	AWS Compute Optimizer finding Opt-in to AWS Compute Optimizer for recommendation s. Learn more
Auto-assigned IP address -	VPC ID vpc-0c33a120e93d325f9	Auto Scaling Group name
IAM Role	Subnet ID	

[CloudShell](#) [Feedback](#) © 2025, Amazon Web Services, Inc. or its affiliates. [Privacy](#) [Terms](#) [Cookie preferences](#)

491085415620-6tnyhdsj.us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#InstanceDetails:instanceId=i-00fde3788947c9fe0

aws Search [Alt+S] United States (N. Virginia) cloudprotocols-hybrid-devops (4910-8541-5620) root

EC2 > Instances > i-00fde3788947c9fe0

Instance summary for i-00fde3788947c9fe0 (APPSERVER2) [Info](#)

Updated less than a minute ago

[Connect](#) [Instance state ▼](#) [Actions ▼](#)

Instance ID i-00fde3788947c9fe0	Public IPv4 address -	Private IPv4 addresses 172.31.92.208
IPv6 address -	Instance state ⏸ Stopped	Public IPv4 DNS -
Hostname type IP name: ip-172-31-92-208.ec2.internal	Private IP DNS name (IPv4 only) ip-172-31-92-208.ec2.internal	Elastic IP addresses -
Answer private resource DNS name IPv4 (A)	Instance type t2.micro	AWS Compute Optimizer finding Opt-in to AWS Compute Optimizer for recommendation s. Learn more
Auto-assigned IP address -	VPC ID vpc-0c33a120e93d325f9	Auto Scaling Group name
IAM Role	Subnet ID	

[CloudShell](#) [Feedback](#) © 2025, Amazon Web Services, Inc. or its affiliates. [Privacy](#) [Terms](#) [Cookie preferences](#)

1.2. Connect to EC2 Instance

1. Open terminal (Linux/Mac) or SSH client (Windows)

Use SSH to connect:

```
ssh -i your-key.pem ec2-user@your-instance-public-ip
```

Update the system:

```
sudo yum update -y
```

Step 2: Install Prometheus

Download Prometheus:

```
wget https://github.com/prometheus/prometheus/releases/download/v2.41.0/prometheus-2.41.0.linux-amd64.tar.gz
```

```
ec2-user@ip-172-31-94-94:~$ wget https://github.com/prometheus/prometheus/releases/download/v3.2.1/prometheus-3.2.1.linux-amd64.tar.gz
--2025-04-03 08:53:21-- https://github.com/prometheus/prometheus/releases/download/v3.2.1/prometheus-3.2.1.linux-amd64.tar.gz
Resolving github.com (github.com)... 140.82.113.3
Connecting to github.com (github.com)|140.82.113.3|:443... connected.
HTTP request sent, awaiting response... 302 Found
Location: https://objects.githubusercontent.com/github-production-release-asset-2e65be/6838921/22b6d9b0-17b3-4cf6-988a-9d9a7bd3bbc6?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=releaseassetproduction%2F20250403%2Fus-east-1%2F%3%2Faws4_request&X-Amz-Date=20250403T085321Z&X-Amz-Expires=300&X-Amz-Signature=0963a97b3f82e97d12579ff32a575603b0f62cfdaaf71dbaa3e68bcecb2b9866aX-Amz-SignedHeaders=host&response-content-disposition=attachment%3B%20filename%3Dprometheus-3.2.1.linux-amd64.tar.gz&response-content-type=application%2Foctet-stream [following]
--2025-04-03 08:53:21-- https://objects.githubusercontent.com/github-production-release-asset-2e65be/6838921/22b6d9b0-17b3-4cf6-988a-9d9a7bd3bbc6?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=releaseassetproduction%2F20250403%2Fus-east-1%2F%3%2Faws4_request&X-Amz-Date=20250403T085321Z&X-Amz-Expires=300&X-Amz-Signature=0963a97b3f82e97d12579ff32a575603b0f62cfdaaf71dbaa3e68bcecb2b9866aX-Amz-SignedHeaders=host&response-content-disposition=attachment%3B%20filename%3Dprometheus-3.2.1.linux-amd64.tar.gz&response-content-type=application%2Foctet-stream
Resolving objects.githubusercontent.com (objects.githubusercontent.com)... 185.199.110.133, 185.199.111.133, 185.199.108.133, ...
Connecting to objects.githubusercontent.com (objects.githubusercontent.com)|185.199.110.133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 114163078 (109M) [application/octet-stream]
Saving to: 'prometheus-3.2.1.linux-amd64.tar.gz'

prometheus-3.2.1.linux-amd64.tar.gz 100%[=====>] 108.87M 82.9MB/s in 1.3s

2025-04-03 08:53:23 (82.9 MB/s) - 'prometheus-3.2.1.linux-amd64.tar.gz' saved [114163078/114163078]

[ec2-user@ip-172-31-94-94 ~]$
```

Extract the archive:

```
tar -xvzf prometheus-2.41.0.linux-amd64.tar.gz
```

```
total 111488
-rw-r--r-- 1 ec2-user ec2-user 114163078 Feb 26 09:44 prometheus-3.2.1.linux-amd64.tar.gz
[ec2-user@ip-172-31-94-94 ~]$ tar -xvzf prometheus-3.2.1.linux-amd64.tar.gz
prometheus-3.2.1.linux-amd64/
prometheus-3.2.1.linux-amd64/prometheus.yml
prometheus-3.2.1.linux-amd64/LICENSE
prometheus-3.2.1.linux-amd64/NOTICE
prometheus-3.2.1.linux-amd64/prometheus
prometheus-3.2.1.linux-amd64/promtool
[ec2-user@ip-172-31-94-94 ~]$
```

Move into the Prometheus directory:

```
cd prometheus-2.41.0.linux-amd64
```

Move Prometheus binaries to `/usr/local/bin/`:

```
sudo cp prometheus /usr/local/bin/
```

```
sudo cp promtool /usr/local/bin/
```

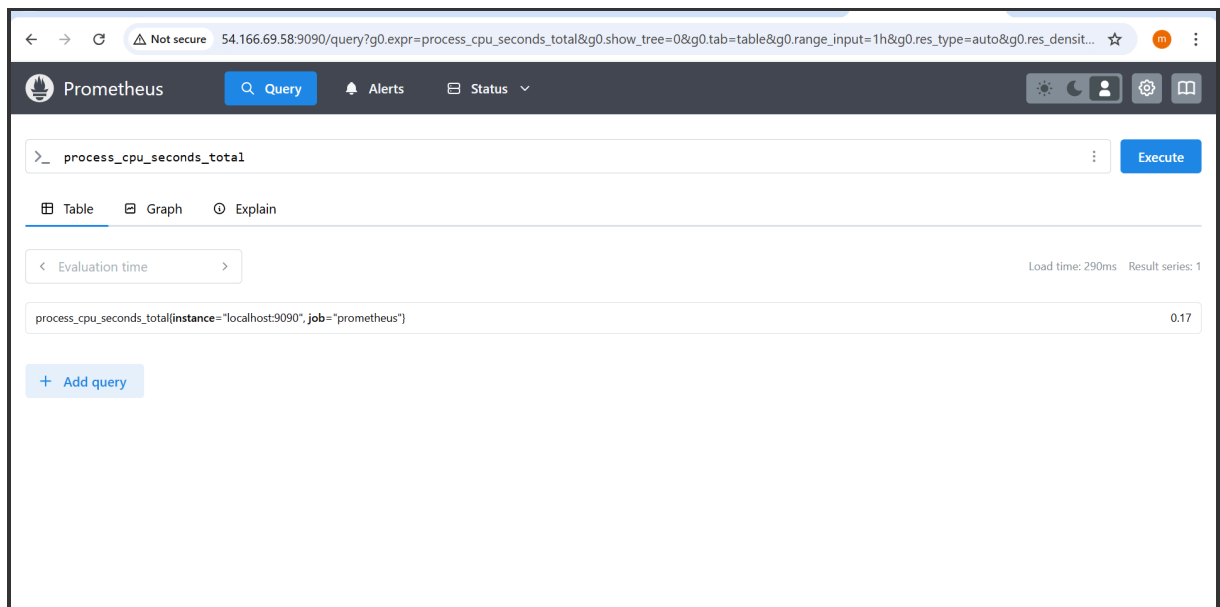
```
[ec2-user@ip-172-31-94-94 prometheus-3.2.1.linux-amd64]$ ll
total 285504
-rw-r--r--. 1 ec2-user ec2-user 11357 Feb 26 09:37 LICENSE
-rw-r--r--. 1 ec2-user ec2-user 3773 Feb 26 09:37 NOTICE
-rwxr-xr-x. 1 ec2-user ec2-user 150306663 Feb 26 09:21 prometheus
-rw-r--r--. 1 ec2-user ec2-user 934 Feb 26 09:37 prometheus.yml
-rwxr-xr-x. 1 ec2-user ec2-user 142027433 Feb 26 09:21 promtool
[ec2-user@ip-172-31-94-94 prometheus-3.2.1.linux-amd64]$
```

Start Prometheus in the background:

```
prometheus --config.file=/etc/prometheus/prometheus.yml &
```

1. Access Prometheus dashboard:

- Open browser and visit: http://<Prometheus_EC2_IP>:9090



2. Install Node Exporter on Agent EC2

Step 1: Launch a New EC2 Instance

1. Go to AWS EC2 dashboard and launch another **Amazon Linux 2** instance.
2. Configure security group to allow **Port 9100** (for Node Exporter).
3. Launch the instance and connect via SSH.

Step 2: Install Node Exporter

Download Node Exporter:

```
wgethttps://github.com/prometheus/node_exporter/releases/download/v1.5.0/node_exporter-1.5.0.linux-amd64.tar.gz
```

491085415620-6tnyhdjsj.us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh/home?addressFamily=ipv4&connType=standard&instanceId=i-0d31477...

Search [Alt+S]

United States (N. Virginia) cloudprotocols-hybrid-devops (4910-8541-5620) root

nt-disposition=attachment%3B%20filename%3Dnode_exporter-1.9.1.linux-amd64.tar.gz&response-content-type=application%2Foctet-stream [following]

--2025-04-03 09:15:16-- https://objects.githubusercontent.com/github-production-release-asset-2e65be/9524057/dc8ec09c-2975-42a2-9591-57dd1ffff7b7?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=releaseassetproduction%2F20250403%2Fus-east-1%2F%3F2Faws4_request&X-Amz-Date=20250403T091516Z&X-Amz-Expires=300&X-Amz-Signature=0342d8d7c44768cc53f0bacfc9ccabdd7e4c8a62ed75b622c11eb3837d50681c&X-Amz-SignedHeaders=host&response-content-disposition=attachment%3B%20filename%3Dnode_exporter-1.9.1.linux-amd64.tar.gz&response-content-type=application%2Foctet-stream

Resolving objects.githubusercontent.com (objects.githubusercontent.com)... 185.199.110.133, 185.199.111.133, 185.199.108.133, ...

Connecting to objects.githubusercontent.com (objects.githubusercontent.com)|185.199.110.133|:443... connected.

HTTP request sent, awaiting response... 200 OK

Length: 11582410 (11M) [application/octet-stream]

Saving to: 'node_exporter-1.9.1.linux-amd64.tar.gz'

node_exporter-1.9.1.linux-amd64.ta 100%[=====>] 11.04M --.-KB/s in 0.1s

2025-04-03 09:15:16 (90.0 MB/s) - 'node_exporter-1.9.1.linux-amd64.tar.gz' saved [11582410/11582410]

[ec2-user@ip-172-31-89-250 ~]\$ ll

total 11312

-rw-r--r--. 1 ec2-user ec2-user 11582410 Apr 1 15:24 node_exporter-1.9.1.linux-amd64.tar.gz

[ec2-user@ip-172-31-89-250 ~]\$

i-0d3147780b78002af (APPSERVER1)

PublicIPs: 35.173.126.243 PrivateIPs: 172.31.89.250

CloudShell Feedback

© 2025, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

491085415620-6tnyhdjsj.us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh/home?region=us-east-1&connType=standard&instanceId=i-00fde3788...

Search [Alt+S]

United States (N. Virginia) cloudprotocols-hybrid-devops (4910-8541-5620) root

Connecting to github.com (github.com)|140.82.114.3|:443... connected.

HTTP request sent, awaiting response... 302 Found

Location: https://objects.githubusercontent.com/github-production-release-asset-2e65be/9524057/dc8ec09c-2975-42a2-9591-57dd1ffff7b7?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=releaseassetproduction%2F20250403%2Fus-east-1%2F%3F2Faws4_request&X-Amz-Date=20250403T092916Z&X-Amz-Expires=300&X-Amz-Signature=42885ce75d261dc15e24e368a9ea66729adf3d9a6e136ab3a755b014b3adc509&X-Amz-SignedHeaders=host&response-content-disposition=attachment%3B%20filename%3Dnode_exporter-1.9.1.linux-amd64.tar.gz&response-content-type=application%2Foctet-stream [following]

--2025-04-03 09:29:16-- https://objects.githubusercontent.com/github-production-release-asset-2e65be/9524057/dc8ec09c-2975-42a2-9591-57dd1ffff7b7?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=releaseassetproduction%2F20250403%2Fus-east-1%2F%3F2Faws4_request&X-Amz-Date=20250403T092916Z&X-Amz-Expires=300&X-Amz-Signature=42885ce75d261dc15e24e368a9ea66729adf3d9a6e136ab3a755b014b3adc509&X-Amz-SignedHeaders=host&response-content-disposition=attachment%3B%20filename%3Dnode_exporter-1.9.1.linux-amd64.tar.gz&response-content-type=application%2Foctet-stream

Resolving objects.githubusercontent.com (objects.githubusercontent.com)... 185.199.111.133, 185.199.110.133, 185.199.109.133, ...

Connecting to objects.githubusercontent.com (objects.githubusercontent.com)|185.199.111.133|:443... connected.

HTTP request sent, awaiting response... 200 OK

Length: 11582410 (11M) [application/octet-stream]

Saving to: 'node_exporter-1.9.1.linux-amd64.tar.gz'

node_exporter-1.9.1.linux-amd64.ta 100%[=====>] 11.04M --.-KB/s in 0.1s

2025-04-03 09:29:16 (77.3 MB/s) - 'node_exporter-1.9.1.linux-amd64.tar.gz' saved [11582410/11582410]

[ec2-user@ip-172-31-92-208 ~]\$

i-00fde3788947c9fe0 (APPSERVER2)

PublicIPs: 54.84.228.186 PrivateIPs: 172.31.92.208

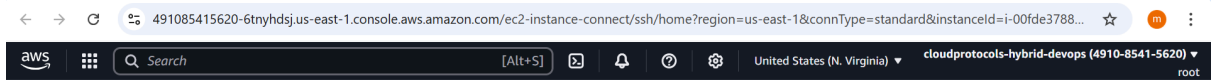
CloudShell Feedback

© 2025, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

Extract the archive:

```
tar -xvzf node_exporter-1.5.0.linux-amd64.tar.gz
```

```
[ec2-user@ip-172-31-89-250 ~]$ tar -xvzf node_exporter-1.9.1.linux-amd64.tar.gz
node_exporter-1.9.1.linux-amd64/
node_exporter-1.9.1.linux-amd64/LICENSE
node_exporter-1.9.1.linux-amd64/NOTICE
node_exporter-1.9.1.linux-amd64/node_exporter
[ec2-user@ip-172-31-89-250 ~]$
```



```
Content-Disposition: attachment; filename=node_exporter-1.9.1.linux-amd64.tar.gz; response-content-type=application/octet-stream
Resolving objects.githubusercontent.com (objects.githubusercontent.com)... 185.199.111.133, 185.199.110.133, 185.199.109.133, ...
Connecting to objects.githubusercontent.com (objects.githubusercontent.com)|185.199.111.133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 11582410 (11M) [application/octet-stream]
Saving to: 'node_exporter-1.9.1.linux-amd64.tar.gz'
```

```
node_exporter-1.9.1.linux-amd64.ta 100%[=====>] 11.04M --.-KB/s in 0.1s

2025-04-03 09:29:16 (77.3 MB/s) - 'node_exporter-1.9.1.linux-amd64.tar.gz' saved [11582410/11582410]
```

```
[ec2-user@ip-172-31-92-208 ~]$ tar -xvzf node_exporter-1.9.1.linux-amd64.tar.gz
node_exporter-1.9.1.linux-amd64/
node_exporter-1.9.1.linux-amd64/LICENSE
node_exporter-1.9.1.linux-amd64/NOTICE
node_exporter-1.9.1.linux-amd64/node_exporter
[ec2-user@ip-172-31-92-208 ~]$ ll
total 11312
drwxr-xr-x. 2 ec2-user ec2-user      56 Apr  1 15:23 node_exporter-1.9.1.linux-amd64
-rw-r--r--. 1 ec2-user ec2-user 11582410 Apr  1 15:24 node_exporter-1.9.1.linux-amd64.tar.gz
[ec2-user@ip-172-31-92-208 ~]$
```

i-00fde3788947c9fe0 (APPSERVER2)

PublicIPs: 54.84.228.186 PrivateIPs: 172.31.92.208



Start Node Exporter in the background:

```
./node_exporter &
```

```
[ec2-user@ip-172-31-89-250 node_exporter-1.9.1.linux-amd64]$ ll
total 21700
-rw-r--r--. 1 ec2-user ec2-user    11357 Apr  1 15:23 LICENSE
-rw-r--r--. 1 ec2-user ec2-user      463 Apr  1 15:23 NOTICE
-rwxr-xr-x. 1 ec2-user ec2-user 22204245 Apr  1 15:19 node_exporter
[ec2-user@ip-172-31-89-250 node_exporter-1.9.1.linux-amd64]$
```



```
time=2025-04-03T09:21:18.849Z level=INFO source=node_exporter.go:141 msg=pressure
time=2025-04-03T09:21:18.849Z level=INFO source=node_exporter.go:141 msg=rapl
time=2025-04-03T09:21:18.849Z level=INFO source=node_exporter.go:141 msg=schedstat
time=2025-04-03T09:21:18.849Z level=INFO source=node_exporter.go:141 msg=selinux
time=2025-04-03T09:21:18.849Z level=INFO source=node_exporter.go:141 msg=sockstat
time=2025-04-03T09:21:18.849Z level=INFO source=node_exporter.go:141 msg=softnet
time=2025-04-03T09:21:18.849Z level=INFO source=node_exporter.go:141 msg=stat
time=2025-04-03T09:21:18.849Z level=INFO source=node_exporter.go:141 msg=tapestats
time=2025-04-03T09:21:18.849Z level=INFO source=node_exporter.go:141 msg=textfile
time=2025-04-03T09:21:18.850Z level=INFO source=node_exporter.go:141 msg=thermal_zone
time=2025-04-03T09:21:18.850Z level=INFO source=node_exporter.go:141 msg=time
time=2025-04-03T09:21:18.850Z level=INFO source=node_exporter.go:141 msg=timex
time=2025-04-03T09:21:18.850Z level=INFO source=node_exporter.go:141 msg=udp_queues
time=2025-04-03T09:21:18.850Z level=INFO source=node_exporter.go:141 msg=uname
time=2025-04-03T09:21:18.850Z level=INFO source=node_exporter.go:141 msg=vmstat
time=2025-04-03T09:21:18.850Z level=INFO source=node_exporter.go:141 msg=watchdog
time=2025-04-03T09:21:18.850Z level=INFO source=node_exporter.go:141 msg=xfs
time=2025-04-03T09:21:18.850Z level=INFO source=node_exporter.go:141 msg=zfs
time=2025-04-03T09:21:18.851Z level=INFO source=tls_config.go:347 msg="Listening on" address=[::]:9100
time=2025-04-03T09:21:18.851Z level=INFO source=tls_config.go:350 msg="TLS is disabled." http2=false address=[::]:9100
```

i-0d3147780b78002af (APPSERVER1)

PublicIPs: 35.173.126.243 PrivateIPs: 172.31.89.250

491085415620-6tnyhdsj.us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh/home?region=us-east-1&connType=standard&instanceId=i-00fde3788...

aws

[Alt+S]

Search

United States (N. Virginia)

cloudprotocols-hybrid-devops (4910-8541-5620)

root

time=2025-04-03T09:30:07.686Z level=INFO source=node_exporter.go:141 msg=pressure

time=2025-04-03T09:30:07.686Z level=INFO source=node_exporter.go:141 msg=rapl

time=2025-04-03T09:30:07.687Z level=INFO source=node_exporter.go:141 msg=schedstat

time=2025-04-03T09:30:07.687Z level=INFO source=node_exporter.go:141 msg=selinux

time=2025-04-03T09:30:07.687Z level=INFO source=node_exporter.go:141 msg=sockstat

time=2025-04-03T09:30:07.687Z level=INFO source=node_exporter.go:141 msg=softnet

time=2025-04-03T09:30:07.687Z level=INFO source=node_exporter.go:141 msg=stat

time=2025-04-03T09:30:07.687Z level=INFO source=node_exporter.go:141 msg=tapestats

time=2025-04-03T09:30:07.687Z level=INFO source=node_exporter.go:141 msg=textfile

time=2025-04-03T09:30:07.687Z level=INFO source=node_exporter.go:141 msg=thermal_zone

time=2025-04-03T09:30:07.687Z level=INFO source=node_exporter.go:141 msg=time

time=2025-04-03T09:30:07.687Z level=INFO source=node_exporter.go:141 msg=timex

time=2025-04-03T09:30:07.687Z level=INFO source=node_exporter.go:141 msg=udp_queues

time=2025-04-03T09:30:07.687Z level=INFO source=node_exporter.go:141 msg=uname

time=2025-04-03T09:30:07.687Z level=INFO source=node_exporter.go:141 msg=vmstat

time=2025-04-03T09:30:07.688Z level=INFO source=node_exporter.go:141 msg=watchdog

time=2025-04-03T09:30:07.688Z level=INFO source=node_exporter.go:141 msg=xfs

time=2025-04-03T09:30:07.688Z level=INFO source=node_exporter.go:141 msg=zfs

time=2025-04-03T09:30:07.688Z level=INFO source=tlscfg.go:347 msg="Listening on" address=[:]:9100

time=2025-04-03T09:30:07.688Z level=INFO source=tlscfg.go:350 msg="TLS is disabled." http2=false address=[:]:9100

i-00fde3788947c9fe0 (APPSERVER2)

PublicIPs: 54.84.228.186 PrivateIPs: 172.31.92.208

CloudShell Feedback

© 2025, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

1. Verify Node Exporter:

- Open browser and visit: http://<Agent_EC2_IP>:9100

Not secure 35.173.126.243:9100

Node Exporter

Prometheus Node Exporter

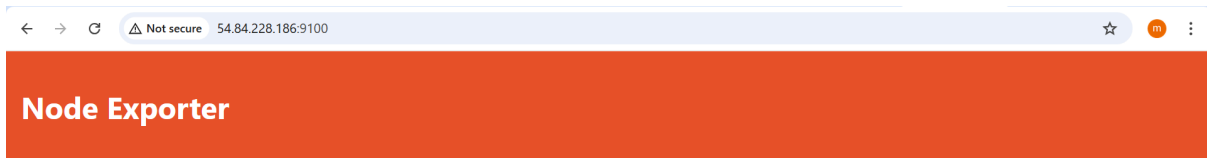
Version: (version=1.9.1, branch=HEAD, revision=f2ec547b49af53815038a50265aa2adcd1275959)

Metrics

Download a detailed report of resource usage (pprof format, from the Go runtime):

- [heap usage \(memory\)](#)
- [CPU usage \(60 second profile\)](#)

To visualize and share profiles you can upload to [pprof.me](#)



Prometheus Node Exporter

Version: (version=1.9.1, branch=HEAD, revision=f2ec547b49af53815038a50265aa2adcd1275959)

- [Metrics](#)

Download a detailed report of resource usage (pprof format, from the Go runtime):

- [heap usage \(memory\)](#)
- [CPU usage \(60 second profile\)](#)

To visualize and share profiles you can upload to [pprof.me](#)

3. Connect Prometheus to Node Exporter

Step 1: Edit Prometheus Configuration

1. SSH into the Prometheus EC2 instance.

Edit Prometheus configuration file:

```
sudo vi /etc/prometheus/prometheus.yml
Add Node Exporter target:

scrape_configs:
- job_name: 'node_exporter'
  static_configs:
    - targets: ['<AGENT_IP>:9100']
```

```
root@ip-172-31-94-94:/usr/local/bin
GNU nano 8.3 prometheus.yml Modified
# my global config
global:
  scrape_interval: 15s # Set the scrape interval to every 15 seconds. Default is every 1 minute.
  evaluation_interval: 15s # Evaluate rules every 15 seconds. The default is every 1 minute.
  # scrape_timeout is set to the global default (10s).

# Alertmanager configuration
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: ["localhost:9090"]
  - job_name: "APPSERVER1"

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

    static_configs:
      - targets: ["35.173.126.243:9100"]
```

```
root@ip-172-31-94-94:/usr/local/bin
GNU nano 8.3 prometheus.yml Modified
# Alertmanager configuration
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: ["localhost:9090"]
  - job_name: "APPSERVER1"

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

    static_configs:
      - targets: ["35.173.126.243:9100"]
  - job_name: "APPSERVER2"

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

    static_configs:
      - targets: ["54.84.228.186:9100"]
```

prometheus --config.file=/etc/prometheus/prometheus.yml &

2. Check the output on the Prometheus dashboard:

http://<Prometheus_EC2_IP>:9090

← → ↺

Not secure 54.166.69.58:9090/query?g0.expr=process_cpu_seconds_total&g0.show_tree=0&g0.tab=table&g0.range_input=1h&g0.res_type=auto&g0.res_densit...

☆ m ⋮

Prometheus

Query

Alerts

Status ▾

>_ process_cpu_seconds_total ⋮

Execute

Table

Graph

Explain

< Evaluation time >

Load time: 570ms Result series: 2

process_cpu_seconds_total(instance="localhost:9090", job="prometheus")	0.13
process_cpu_seconds_total(instance="35.173.126.243:9100", job="APPSERVER1")	0.03

+ Add query

← → ↺

Not secure 54.166.69.58:9090/query?g0.expr=process_cpu_seconds_total&g0.show_tree=0&g0.tab=table&g0.range_input=1h&g0.res_type=auto&g0.res_densit...

☆ m ⋮

Prometheus

Query

Alerts

Status ▾

>_ process_cpu_seconds_total ⋮

Execute

Table

Graph

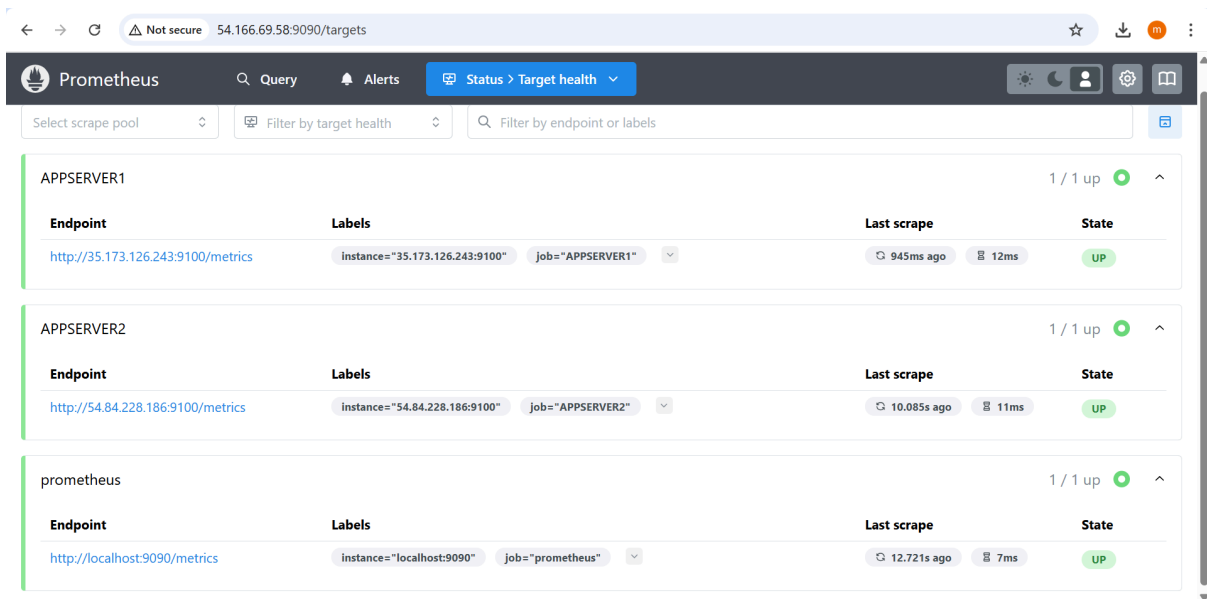
Explain

< Evaluation time >

Load time: 588ms Result series: 3

process_cpu_seconds_total(instance="localhost:9090", job="prometheus")	0.13
process_cpu_seconds_total(instance="35.173.126.243:9100", job="APPSERVER1")	0.15
process_cpu_seconds_total(instance="54.84.228.186:9100", job="APPSERVER2")	0.02

+ Add query



4. Install Grafana on Prometheus EC2 Instance

Step 1: Install Grafana

Download Grafana:

```
wget
https://dl.grafana.com/oss/release/grafana-10.0.0.linux-amd64.tar.gz
```

```
root@ip-172-31-94-94:~# cd /usr/local/bin
grafana-v11.6.0/storybook/133.d7ae3658.iframe.bundle.js
grafana-v11.6.0/storybook/6693.4e34a2c1.iframe.bundle.js.LICENSE.txt
grafana-v11.6.0/storybook/Forms-RadioButtonGroup-RadioButtonGroup-story.1078ebda.iframe.bundle.js
grafana-v11.6.0/storybook/1067.d812d496e.iframe.bundle.js
grafana-v11.6.0/storybook/7197.5923daa3.iframe.bundle.js
grafana-v11.6.0/storybook/3269.690309c5.iframe.bundle.js
grafana-v11.6.0/storybook/931.9976c7fd.iframe.bundle.js.LICENSE.txt
grafana-v11.6.0/storybook/Slider-RangeSlider-story.0b746af9.iframe.bundle.js
grafana-v11.6.0/storybook/ThemeDemos-ThemeDemo-story.983b599a.iframe.bundle.js.LICENSE.txt
grafana-v11.6.0/storybook/index.json
grafana-v11.6.0/storybook/2581.e62908b9.iframe.bundle.js.LICENSE.txt
grafana-v11.6.0/storybook/Layout-Box-Box-story.be78ed87.iframe.bundle.js
grafana-v11.6.0/storybook/3505.f3079359.iframe.bundle.js.LICENSE.txt
grafana-v11.6.0/storybook/Modal-Modal-story.c4960061.iframe.bundle.js
grafana-v11.6.0/storybook/nunito-sans-bold.woff2
grafana-v11.6.0/storybook/405.49f52d7a.iframe.bundle.js
grafana-v11.6.0/storybook/5567.fb9ca180.iframe.bundle.js
grafana-v11.6.0/storybook/nunito-sans-italic.woff2
grafana-v11.6.0/storybook/9013.727a05b0.iframe.bundle.js
grafana-v11.6.0/storybook/SecretInput-SecretInput-story.3ca0112c.iframe.bundle.js
grafana-v11.6.0/storybook/9653.c28f7c12.iframe.bundle.js
grafana-v11.6.0/storybook/UnitPicker-UnitPicker-story.c78e386a.iframe.bundle.js
grafana-v11.6.0/storybook/sb-common-assets/
grafana-v11.6.0/storybook/sb-common-assets/nunito-sans-regular.woff2
grafana-v11.6.0/storybook/sb-common-assets/favicon.svg
grafana-v11.6.0/storybook/sb-common-assets/nunito-sans-bold-italic.woff2
grafana-v11.6.0/storybook/sb-common-assets/nunito-sans-bold.woff2
grafana-v11.6.0/storybook/sb-common-assets/nunito-sans-italic.woff2
grafana-v11.6.0/storybook/9141.bee9f96e.iframe.bundle.js.LICENSE.txt
grafana-v11.6.0/storybook/ValuePicker-ValuePicker-story.a5a3ec44.iframe.bundle.js
grafana-v11.6.0/storybook/6614.f7ebe30b.iframe.bundle.js
grafana-v11.6.0/storybook/5821.18e9fcf1.iframe.bundle.js
grafana-v11.6.0/storybook/Menu-Menu-story.a22ec08a.iframe.bundle.js
grafana-v11.6.0/storybook/3868.fb70548b.iframe.bundle.js
grafana-v11.6.0/plugins-bundled/
[root@ip-172-31-94-94 bin]# ll
total 467108
drwxr-xr-x. 4 root root      58 Apr  3 09:40 data
-rw-r--r--. 1 root root 185962056 Mar 25 20:25 grafana-enterprise-11.6.0.linux-amd64.tar.gz
drwxr-xr-x. 1 root root   16384 Apr  3 09:40 grafana-v11.6.0
-rwxr-xr-x. 1 root root 150306663 Apr  3 08:57 prometheus
-rw-r--r--. 1 root root   1265 Apr  3 09:32 prometheus.yml
-rwxr-xr-x. 1 root root 142027433 Apr  3 09:06 promtool
[root@ip-172-31-94-94 bin]#
```

Extract the archive:

```
tar -xvzf grafana-10.0.0.linux-amd64.tar.gz
```

```

[root@ip-172-31-94-94 bin]# cd grafana-v11.0.0/
[root@ip-172-31-94-94 grafana-v11.0.0]# ll
total 112
-rw-r--r--. 1 root root 6536 Mar 21 14:00 Dockerfile
-rw-r--r--. 1 root root 12155 Mar 21 14:02 LICENSE
-rw-r--r--. 1 root root 105 Mar 21 14:00 NOTICE.md
-rw-r--r--. 1 root root 3269 Mar 21 14:00 README.md
-rw-r--r--. 1 root root 8 Mar 21 14:02 VERSION
drwxr-xr-x. 2 root root 62 Mar 21 14:06 bin
drwxr-xr-x. 3 root root 107 Mar 21 14:00 conf
drwxr-xr-x. 3 root root 21 Apr 3 09:40 docs
drwxr-xr-x. 2 root root 16384 Mar 21 14:05 npm-artifacts
drwxr-xr-x. 6 root root 58 Apr 3 09:40 packaging
drwxr-xr-x. 2 root root 6 Mar 21 14:03 plugins-bundled
drwxr-xr-x. 17 root root 16384 Mar 21 14:07 public
drwxr-xr-x. 8 root root 32768 Mar 21 14:05 storybook
drwxr-xr-x. 2 root root 26 Apr 3 09:40 tools
[root@ip-172-31-94-94 grafana-v11.0.0]#

```

Move into the Grafana directory:

```
cd grafana-11.0.0
```

Start Grafana in the background:

```
./bin/grafana-server &
```

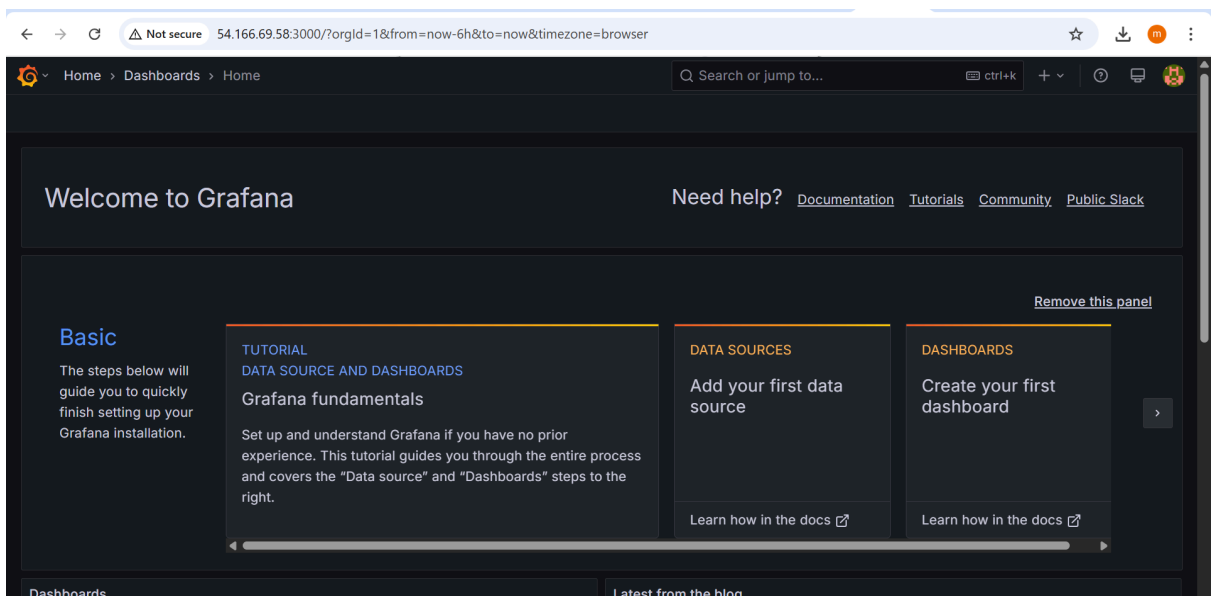
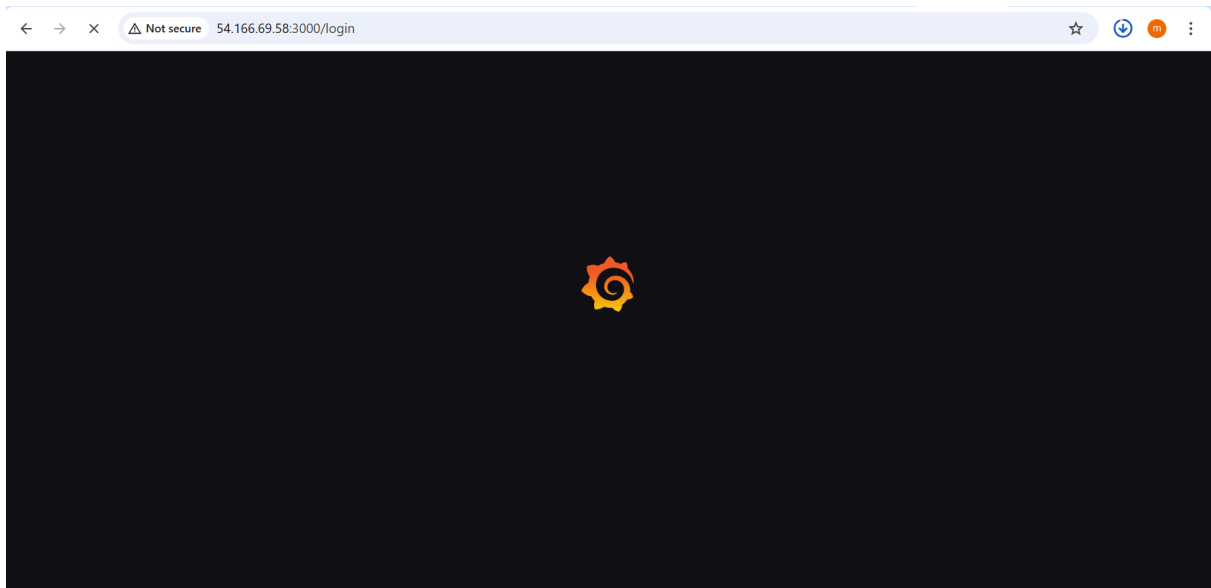
```

root@ip-172-31-94-94:/usr/local/bin/grafana-v11.6.0/bin
INFO [04-03|09:48:40] Applying new configuration to Alertmanager logger=ngalert.notifier.alertmanager org=1 configHash=d2c56faca6af2a5772ff4253222f7386
INFO [04-03|09:48:40] Using simple database alert instance store logger=ngalert
INFO [04-03|09:48:40] Using sync state persister logger=ngalert.state.manager.persist
INFO [04-03|09:48:40] Running in alternative execution of Error/NoData mode logger=ngalert.state.manager
INFO [04-03|09:48:40] registering usage stat providers logger=infra.usagestats.collector usageStatsProvidersLen=2
INFO [04-03|09:48:40] HTTP Server Listen logger=http.server address=[::]:3000 protocol=http subUrl= socket=
INFO [04-03|09:48:40] Warning state cache for startup logger=ngalert.state.manager
ERROR [04-03|09:48:40] Failed to get renderer plugin sources logger=renderer.manager error="failed to open plugins path"
INFO [04-03|09:48:40] Storage starting logger=grafanaStorageLogger
INFO [04-03|09:48:40] Installing plugin logger=plugin.backgroundinstaller pluginId=grafana-pyroscope-app version=
INFO [04-03|09:48:40] Starting MultiOrg Alertmanager logger=ngalert.multiorg.alertmanager
INFO [04-03|09:48:40] State cache has been initialized logger=ngalert.state.manager states=0 duration=66.026466ms
INFO [04-03|09:48:40] Starting scheduler logger=ngalert.scheduler tickInterval=10s maxAttempts=3
INFO [04-03|09:48:40] starting logger=liker firstLook=2025-04-03T09:48:50Z
INFO [04-03|09:48:40] starting to provision alerting logger=provisioning.alerting
INFO [04-03|09:48:40] finished to provision alerting logger=provisioning.alerting
INFO [04-03|09:48:40] starting to provision dashboards logger=provisioning.dashboard
INFO [04-03|09:48:40] finished to provision dashboards logger=provisioning.dashboard
INFO [04-03|09:48:41] Patterns update finished logger=plugin.angular detectors.provider.dynamic duration=309.184356ms
INFO [04-03|09:48:41] Update check succeeded logger=grafana.update.checker duration=422.438318ms
INFO [04-03|09:48:41] Update check succeeded logger=plugins.update.checker duration=419.357673ms
INFO [04-03|09:48:41] Installing plugin logger=plugin.installer pluginId=grafana-pyroscope-app version=
INFO [04-03|09:48:41] Adding GroupVersion featuretoggle.grafana.app v0.1.0 to ResourceManager logger=grafana-apiser
INFO [04-03|09:48:41] Adding GroupVersion iam.grafana.app v0.1.0 to ResourceManager logger=grafana-apiser
INFO [04-03|09:48:41] Adding GroupVersion notifications.alerting.grafana.app v0.1.0 to ResourceManager logger=grafana-apiser
INFO [04-03|09:48:41] Adding GroupVersion userstorage.grafana.app v0.1.0 to ResourceManager logger=grafana-apiser
INFO [04-03|09:48:41] Adding GroupVersion playlist.grafana.app v0.1.0 to ResourceManager logger=grafana-apiser
INFO [04-03|09:48:41] Adding GroupVersion dashboard.grafana.app v0.1.0 to ResourceManager logger=grafana-apiser
INFO [04-03|09:48:41] Adding GroupVersion dashboard.grafana.app v2.0.0 to ResourceManager logger=grafana-apiser
INFO [04-03|09:48:41] Downloaded and extracted grafana-pyroscope-app v1.2.0 zip successfully to /usr/local/bin/grafana-v11.6.0/data/plugins/grafana-pyroscope
-app logger=installer.fs
INFO [04-03|09:48:41] app registry initialized logger=app-registry
INFO [04-03|09:48:41] Plugin registered logger=plugins.registration pluginId=grafana-pyroscope-app
INFO [04-03|09:48:41] Plugin successfully installed logger=plugin.backgroundinstaller pluginId=grafana-pyroscope-app version= duration=1.107198504
s
INFO [04-03|09:48:41] Installing plugin logger=plugin.backgroundinstaller pluginId=grafana-lokiexplore-app version=
INFO [04-03|09:48:42] Installing plugin logger=plugin.installer pluginId=grafana-lokiexplore-app version=
INFO [04-03|09:48:42] Downloaded and extracted grafana-lokiexplore-app v1.0.9 zip successfully to /usr/local/bin/grafana-v11.6.0/data/plugins/grafana-lokiexp
lore-app logger=installer.fs
INFO [04-03|09:48:42] Plugin registered logger=plugins.registration pluginId=grafana-lokiexplore-app
INFO [04-03|09:48:42] Plugin successfully installed logger=plugin.backgroundinstaller pluginId=grafana-lokiexplore-app version= duration=476.57831
ms

```

1. Access Grafana dashboard:

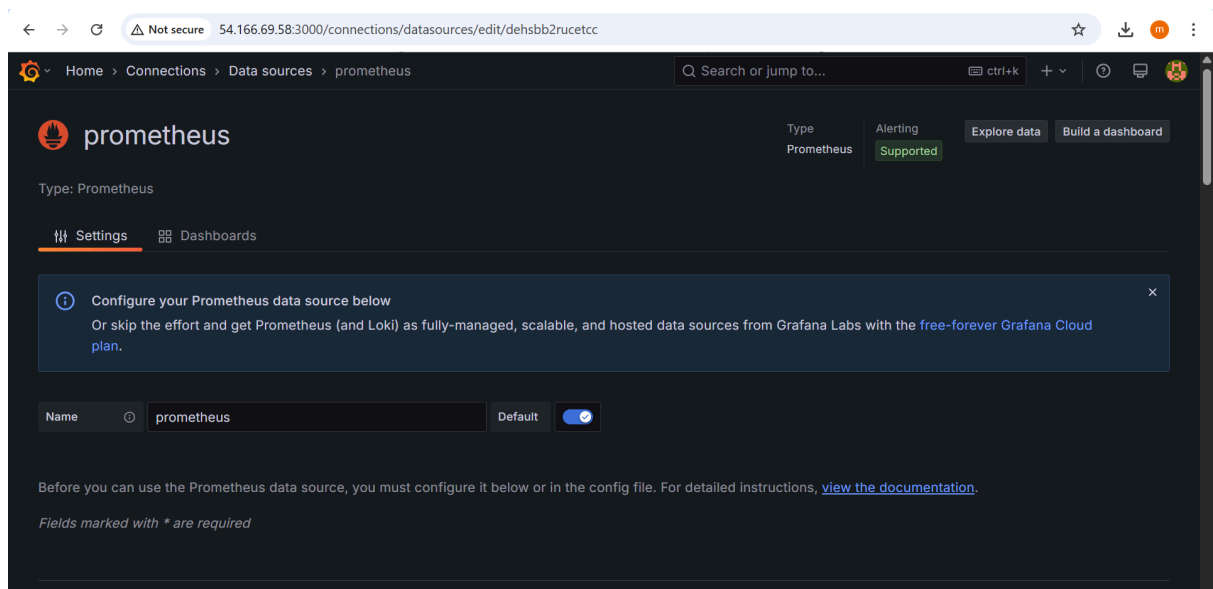
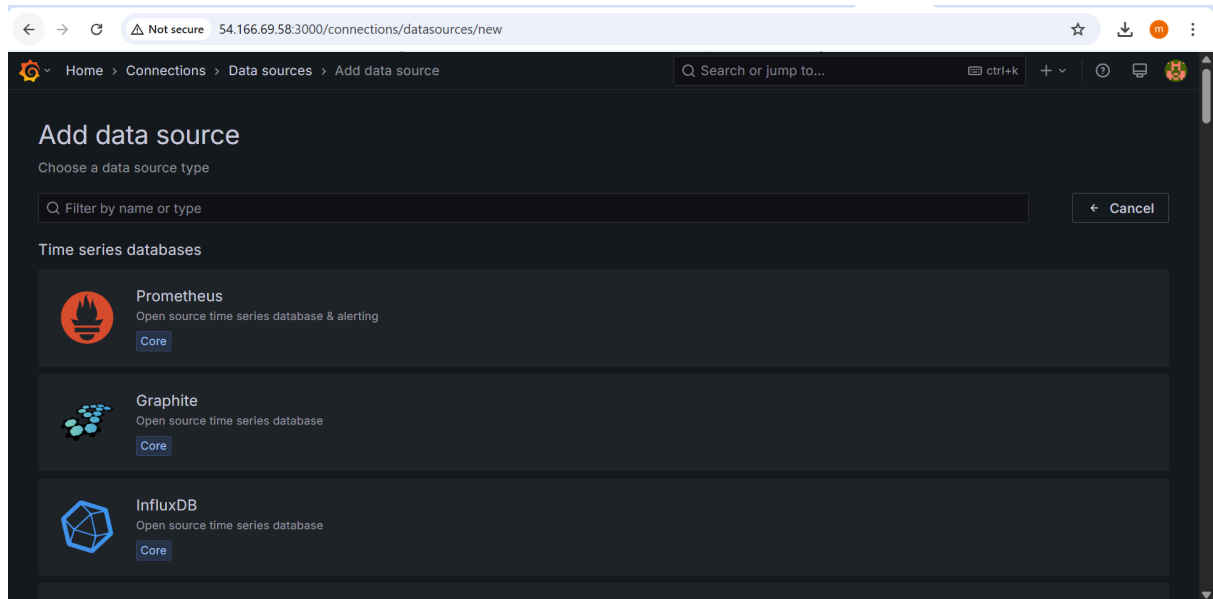
- Open browser and visit: http://<Prometheus_EC2_IP>:3000
- Default credentials:
 - Username: [admin](#)
 - Password: [admin](#)

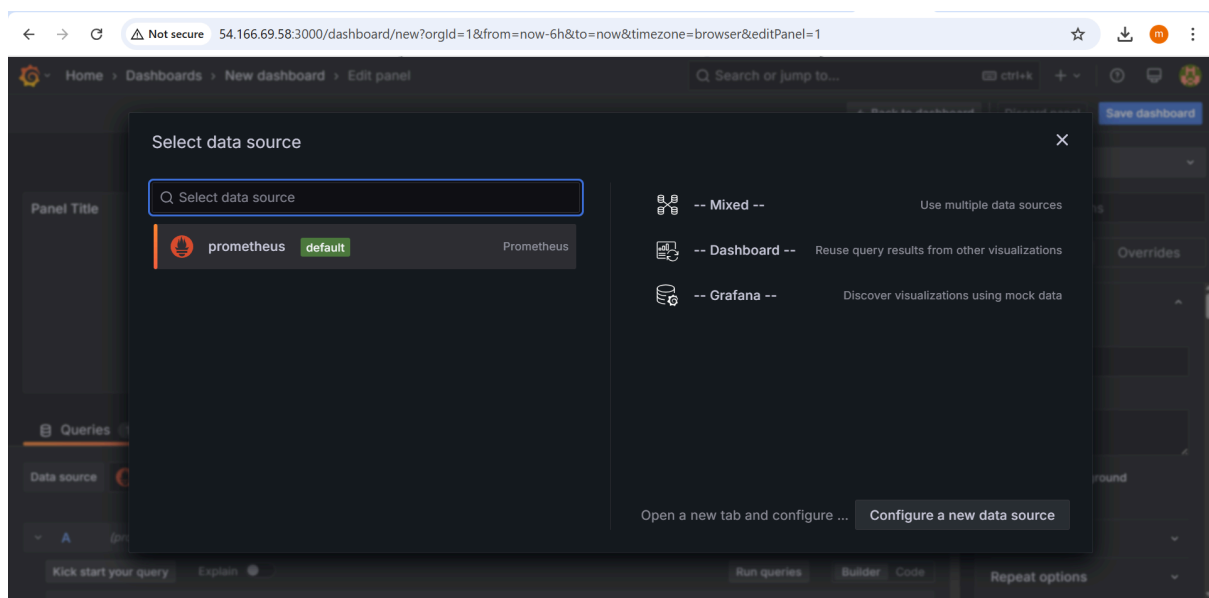
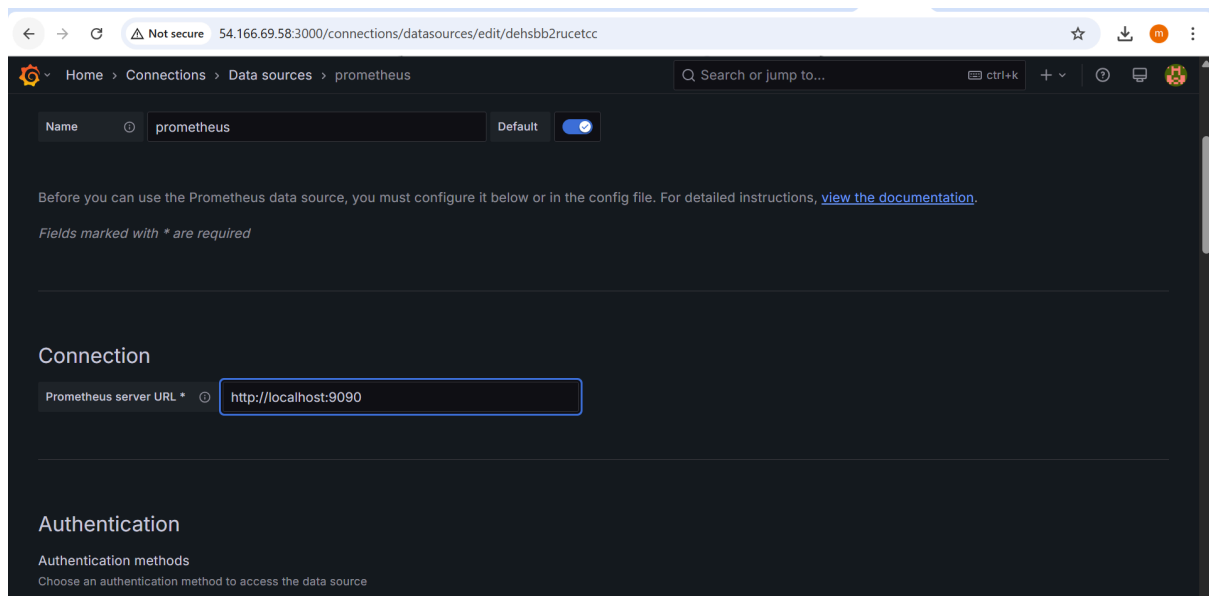


5. Configure Prometheus as Data Source in Grafana

1. Log into **Grafana Dashboard**.
2. Go to **Configuration** → **Data Sources**.
3. Click **Add Data Source**.
4. Select **Prometheus**.
5. Enter URL: `http://localhost:9090`.

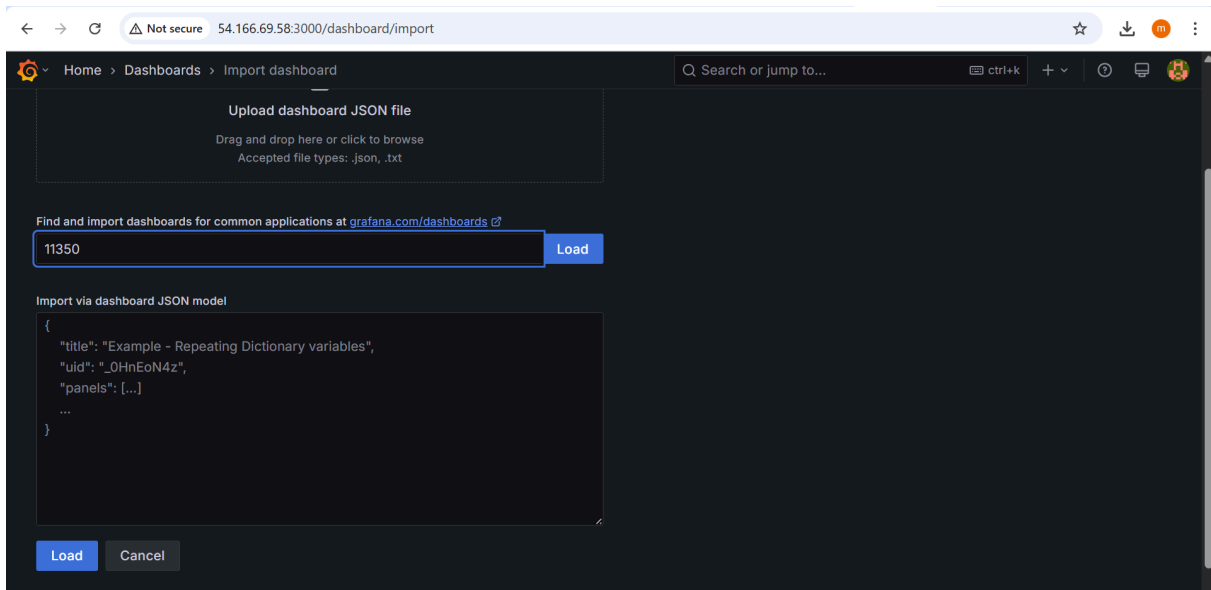
6. Click **Save & Test**.



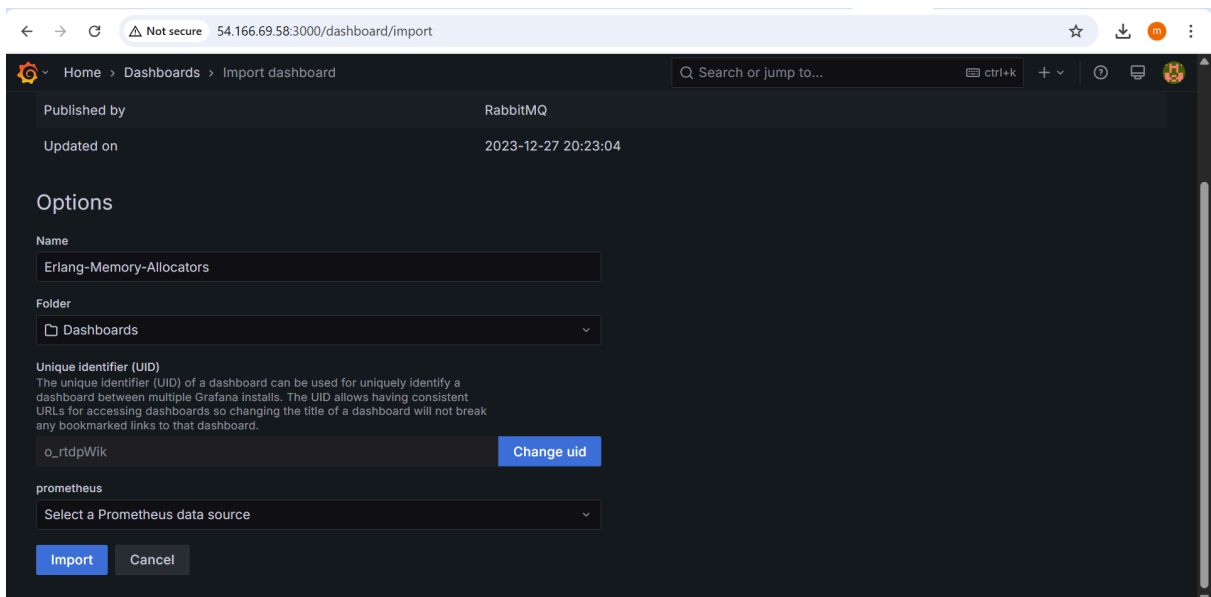


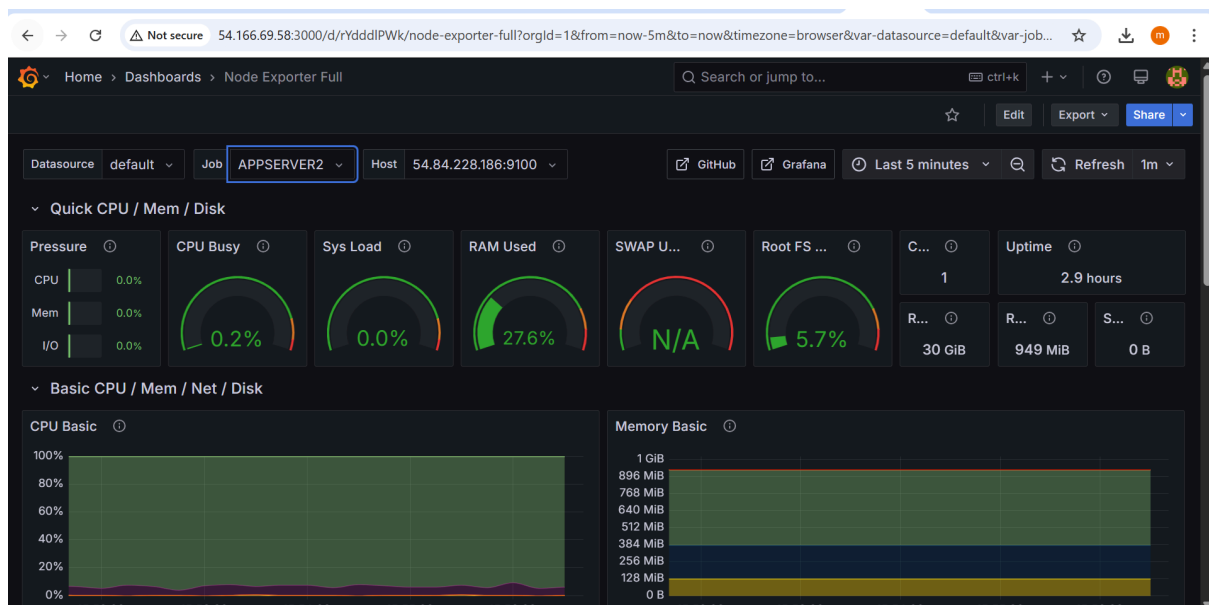
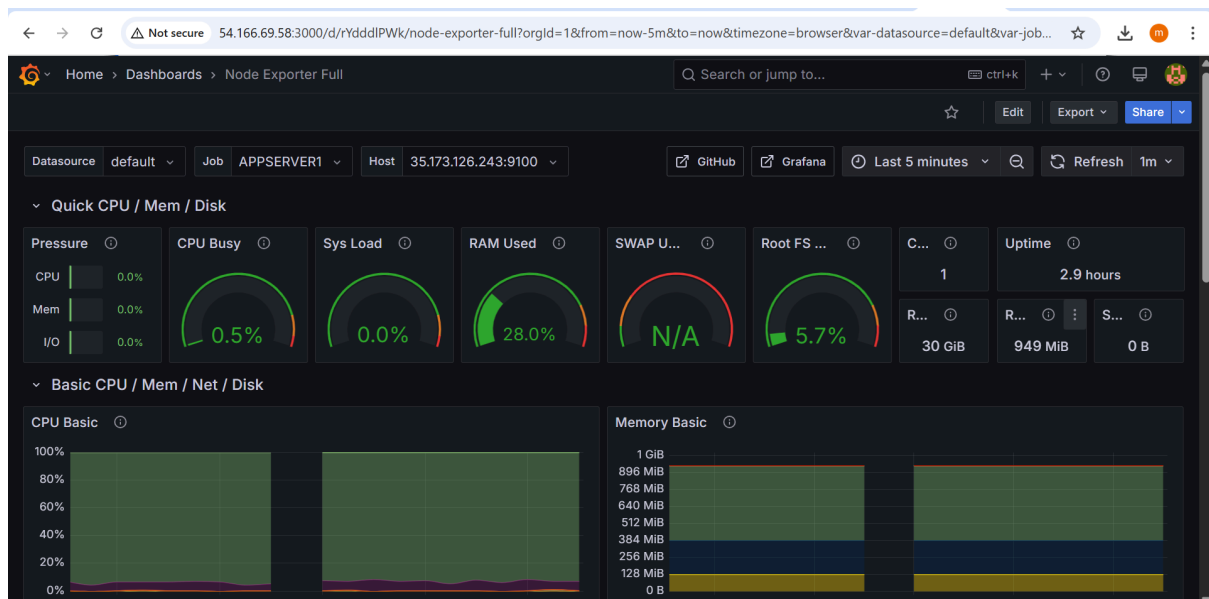
6. Import Grafana Dashboard

1. Go to **Grafana Dashboard** → **Import**.
2. Enter Dashboard ID: **11350** (Node Exporter Dashboard).



3. Select **Prometheus** as the Data Source.
4. Click **Import**.





7. Setup Alerts in PROMETHEUS

1.create an alert yaml file

```
root@ip-172-31-94-94:/usr/local/bin
GNU nano 8.3 alert.yml Modified
groups:
- name: test-alert
  rules:
  - alert: InstanceDown
    expr: up == 0
    for: 1m
    labels:
    severity: critical
    annotations:
    summary: "Instance is down"
    description: "Prometheus has detected that an instance is down for more than 1 minute."

[Help] [Ctrl+O] Write Out [Ctrl+W] Where Is [Ctrl+Q] Cut [Ctrl+I] Execute [Ctrl+L] Location [Ctrl+U] Undo [Ctrl+A] Set Mark [Ctrl+M] To Bracket
[Ctrl+X] Exit [Ctrl+S] Read File [Ctrl+R] Replace [Ctrl+P] Paste [Ctrl+J] Justify [Ctrl+N] Go To Line [Ctrl+B] Redo [Ctrl+G] Copy [Ctrl+H] Where Was
```

2.edit the config file and add the created yml file

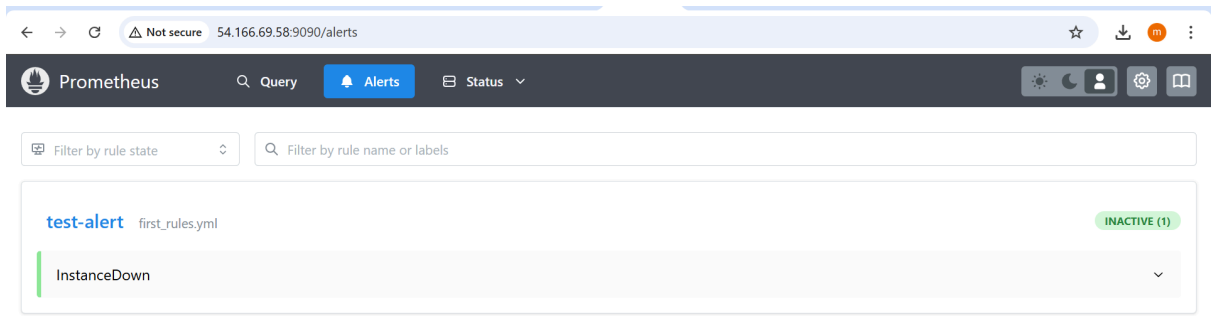
```
root@ip-172-31-94-94:/usr/local/bin/alertmanager-0.27.0.linux-amd64
[root@ip-172-31-94-94 bin]# ./alertmanager --config.file=alertmanager.yml
-bash: ./alertmanager: No such file or directory
[root@ip-172-31-94-94 bin]# cd
[root@ip-172-31-94-94 bin]# wget https://github.com/prometheus/alertmanager/releases/download/v0.27.0/alertmanager-0.27.0.linux-amd64.tar.gz
tar -xvzf alertmanager-0.27.0.linux-amd64.tar.gz
cd alertmanager-0.27.0.linux-amd64
--2025-04-03 10:32:43-- https://github.com/prometheus/alertmanager/releases/download/v0.27.0/alertmanager-0.27.0.linux-amd64.tar.gz
Resolving github.com (github.com)... 140.82.113.3
Connecting to github.com (github.com)|140.82.113.3|:443... connected.
HTTP request sent, awaiting response... 302 Found
Location: https://objects.githubusercontent.com/github-production-release-asset-2e65be/11452538/18333c17-a97b-4a1d-84f7-3562435ca553?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=releaseassetproduction%2F20250403%2Fus-east-1%2Fsa%2Faws4_request&X-Amz-Date=20250403T103243Z&X-Amz-Expires=300&X-Amz-Signature=d40fedf6f7cef83e9f769b5e00ed2df7a65fae6507af28297847747b77c74f5b4X-Amz-SignedHeaders=host&response-content-disposition=attachment%3B%20filename%3Dalertmanager-0.27.0.linux-amd64.tar.gz&response-content-type=application%2Foctet-stream [following]
--2025-04-03 10:32:43-- https://objects.githubusercontent.com/github-production-release-asset-2e65be/11452538/18333c17-a97b-4a1d-84f7-3562435ca553?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=releaseassetproduction%2F20250403%2Fus-east-1%2Fsa%2Faws4_request&X-Amz-Date=20250403T103243Z&X-Amz-Expires=300&X-Amz-Signature=d40fedf6f7cef83e9f769b5e00ed2df7a65fae6507af28297847747b77c74f5b4X-Amz-SignedHeaders=host&response-content-disposition=attachment%3B%20filename%3Dalertmanager-0.27.0.linux-amd64.tar.gz&response-content-type=application%2Foctet-stream
Resolving objects.githubusercontent.com (objects.githubusercontent.com)... 185.199.110.133, 185.199.109.133, 185.199.108.133, ...
Connecting to objects.githubusercontent.com (objects.githubusercontent.com)|185.199.110.133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 30866868 (29M) [application/octet-stream]
Saving to: 'alertmanager-0.27.0.linux-amd64.tar.gz'

alertmanager-0.27.0.linux-amd64.tar.gz 100%[=====] 29.44M 69.9MB/s in 0.4s

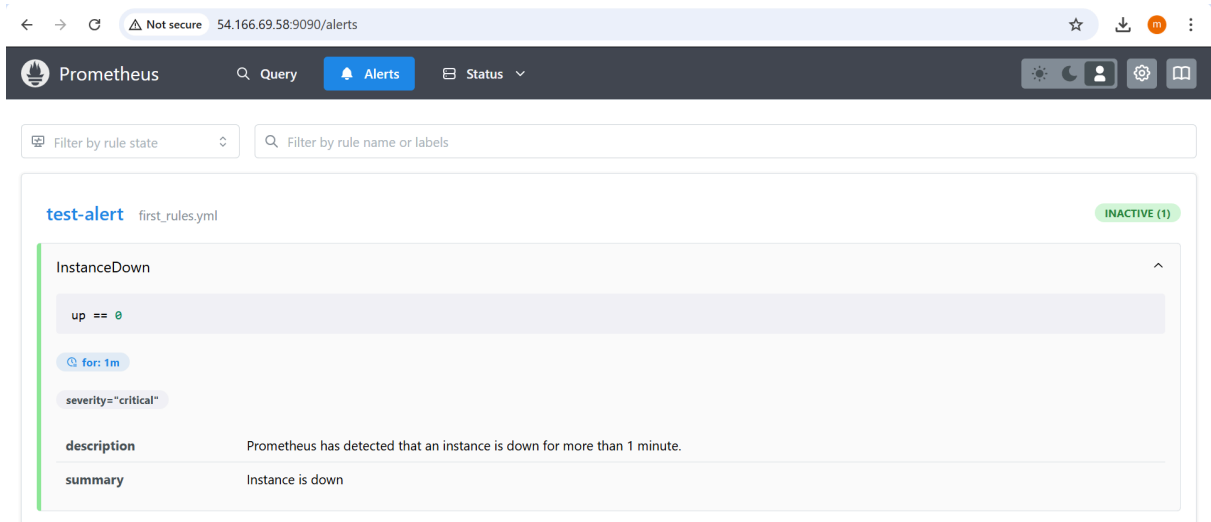
2025-04-03 10:32:43 (69.9 MB/s) - 'alertmanager-0.27.0.linux-amd64.tar.gz' saved [30866868/30866868]

alertmanager-0.27.0.linux-amd64/
alertmanager-0.27.0.linux-amd64/alertmanager
alertmanager-0.27.0.linux-amd64/alertmanager.yml
alertmanager-0.27.0.linux-amd64/NOTICE
alertmanager-0.27.0.linux-amd64/amt01
alertmanager-0.27.0.linux-amd64/LICENSE
[root@ip-172-31-94-94 alertmanager-0.27.0.linux-amd64]# mv alertmanager /usr/local/bin/
mv amt01 /usr/local/bin/
[root@ip-172-31-94-94 alertmanager-0.27.0.linux-amd64]# alertmanager --version
alertmanager, version 0.27.0 (branch: HEAD, revision: 0aa3c2aad14cfff039931923ab16b26b7481783b5)
 build user: root@22cd11f671e9
 build date: 20240228-11:51:20
 go version: go1.21.7
 platform: linux/amd64
 tags: netgo
[root@ip-172-31-94-94 alertmanager-0.27.0.linux-amd64]#
```

3.check the output of alert in prometheus dashboard



4.yml file contains of alert details of System.



8. Setup Alerts in Grafana

1. Go to **Alerting** → **Contact Points**.
2. Add Contact Point (Email, Slack, etc.).
3. Configure **Notification Rules**.
4. Enable and Test Alerts

← → ↻ ⚠ Not secure 54.166.69.58:3000/alerting/notifications/receivers/Z3JhZmFuYS1kZWZhdWw0LWVtYWls/edit ☆ m

Home > Alerting > Contact points

Search or jump to... ctrl+k + ⌵ ⌚ ⌵

Contact points

Choose how to notify your contact points when an alert instance fires

Alertmanager Grafana

Update contact point

Manage permissions

Name *

grafana-default-email

Integration

Email

Test Duplicate Delete

Addresses

You can enter multiple email addresses using a ";", "\n" or "," separator

<dreamers2k22@email.com>

> Optional Email settings

> Notification settings

ec2-user@ip-172-31-94-94:/usr/local/bin/grafana-v11.6.0/conf

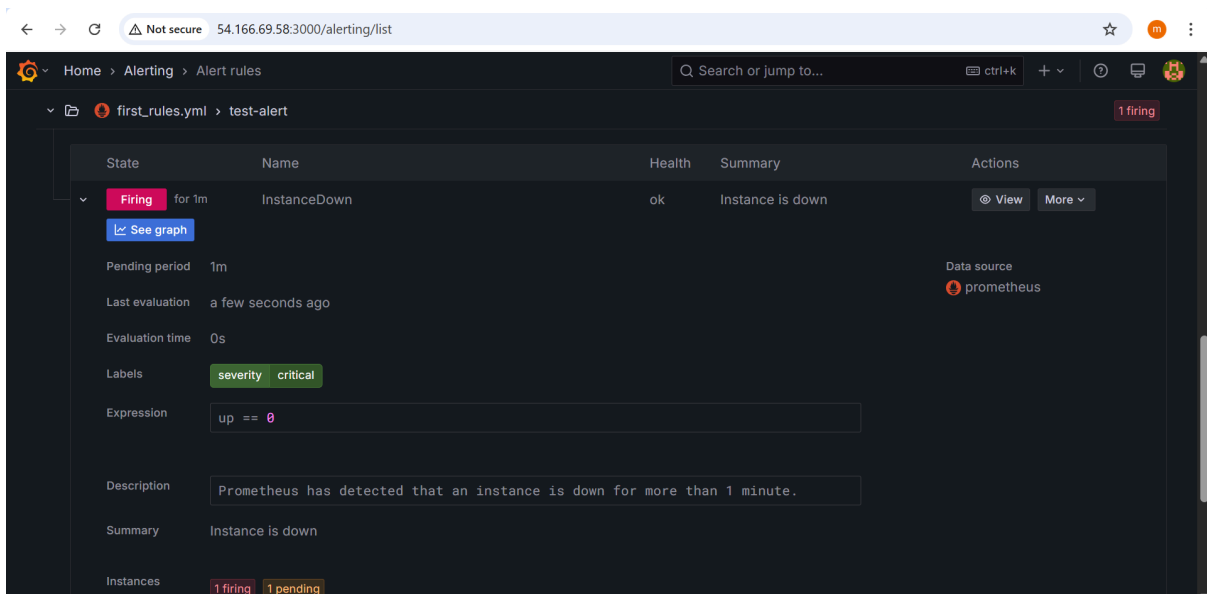
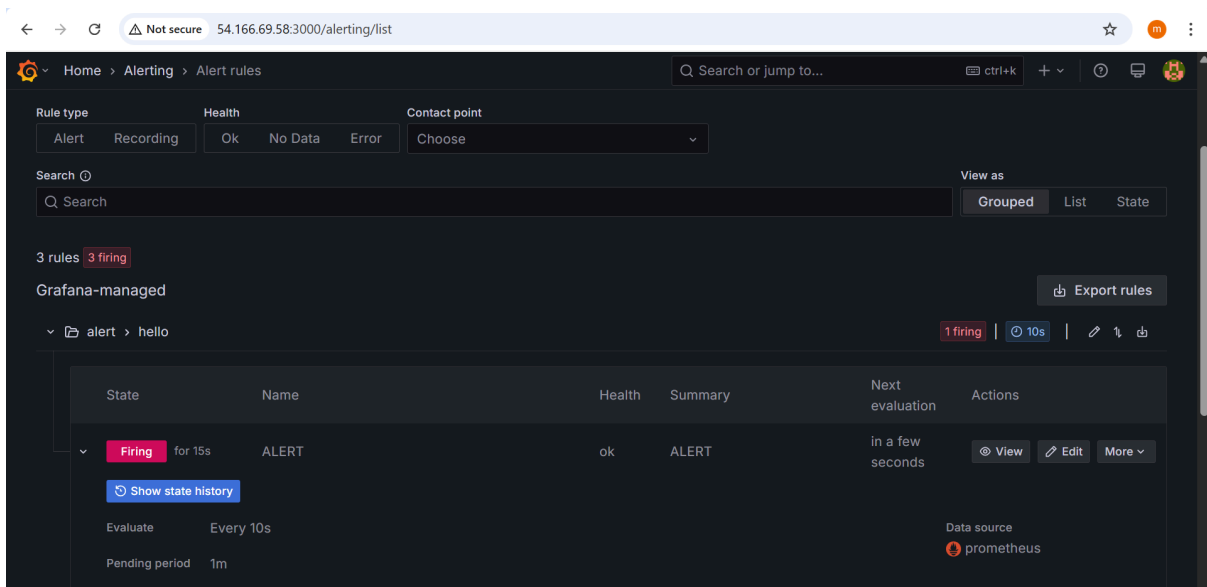
GNU nano 8.3 defaults.ini

```
permission_validation_enabled = true

##### SMTP / Emailing #####
[smtp]
enabled = true
host = smtp.gmail.com:587
user = dreamers2k22@gmail.com
# If the password contains # or ; you have to wrap it with triple
password = admin
cert_file =
key_file =
skip_verify = false
from_address = dreamers2k22@gmail.com
from_name = Grafana
ehlo_identity =
startTLS_policy = OpportunisticStartTLS
enable_tracing = false

[smtp.static_headers]
# Include custom static headers in all outgoing emails
```

^G Help ^O Write Out ^F Where Is ^K Cut ^T Execute
^X Exit ^R Read File ^\ Replace ^U Paste ^J Justify



Conclusion

Prometheus serves as the core monitoring system, collecting real-time system metrics using a pull-based mechanism. Grafana acts as the visualization layer, providing interactive dashboards and alerts. Together, they ensure efficient monitoring and proactive issue detection in your AWS environment.