

## Prometheus Installation:

Username Creation:

```
sudo useradd \  
--system \  
--no-create-home \  
--shell /bin/false Prometheus
```

Command:

```
wget  
https://github.com/prometheus/prometheus/releases/download/v2.47.1/prometheus-  
2.47.1.linux-amd64.tar.gz  
tar -xvf prometheus-2.47.1.linux-amd64.tar.gz  
sudo mkdir -p /data /etc/prometheus  
cd prometheus-2.47.1.linux-amd64/  
sudo mv prometheus promtool /usr/local/bin/  
sudo mv consoles/ console_libraries/ /etc/prometheus/  
sudo mv prometheus.yml /etc/prometheus/prometheus.yml  
sudo chown -R prometheus:prometheus /etc/prometheus/ /data/  
cd  
rm -rf prometheus-2.47.1.linux-amd64.tar.gz  
prometheus --version  
sudo vim /etc/systemd/system/prometheus.service
```

```

| default | my-service | 9001 | http://192.168.49.2:30024 |
|-----|-----|-----|-----|
* Starting tunnel for service my-service.
| NAMESPACE | NAME | TARGET PORT | URL |
|-----|-----|-----|-----|
| default | my-service | | http://127.0.0.1:45403 |
|-----|-----|-----|-----|
🔗 Opening service default/my-service in default browser...
🔗 http://127.0.0.1:45403
🔗 Because you are using a Docker driver on linux, the terminal needs to be open to run it.
^C Stopping tunnel for service my-service.
maahij@MOHAMEDMAAHIJ:~$ sudo nano deploy.yml
maahij@MOHAMEDMAAHIJ:~$ kubectl port-forward svc/my-service 9000:9000
error: Service my-service does not have a service port 9000
maahij@MOHAMEDMAAHIJ:~$ sudo nano deploy.yml
maahij@MOHAMEDMAAHIJ:~$ kubectl apply -f deploy.yml
deployment.apps/my-deploy configured
service/my-service configured
maahij@MOHAMEDMAAHIJ:~$ minikube service my-service
| NAMESPACE | NAME | TARGET PORT | URL |
|-----|-----|-----|-----|
| default | my-service | 9000 | http://192.168.49.2:30024 |
|-----|-----|-----|-----|
* Starting tunnel for service my-service.
| NAMESPACE | NAME | TARGET PORT | URL |
|-----|-----|-----|-----|
| default | my-service | | http://127.0.0.1:36193 |
|-----|-----|-----|-----|
🔗 Opening service default/my-service in default browser...
🔗 http://127.0.0.1:36193
🔗 Because you are using a Docker driver on linux, the terminal needs to be open to run it.
^C Stopping tunnel for service my-service.
maahij@MOHAMEDMAAHIJ:~$ kubectl port-forward svc/my-service 9000:9000
Forwarding from 127.0.0.1:9000 -> 8080
Forwarding from [::1]:9000 -> 8080
^Cmaahij@MOHAMEDMAAHIJ:~$ sudo useradd \
--system \
--no-create-home \
--shell /bin/false prometheus
[sudo] password for maahij:

-P, --prefix PREFIX_DIR    prefix directory where are located the /etc/* files
-s, --shell SHELL          login shell of the new account
-u, --uid UID              user ID of the new account
-U, --user-group           create a group with the same name as the user
-z, --selinux-user SEUSER  use a specific SEUSER for the SELinux user mapping
--extrausers              Use the extra users database

maahij@MOHAMEDMAAHIJ:~$ sudo useradd \
--system \
--no-create-home \
--shell /bin/false prometheus
maahij@MOHAMEDMAAHIJ:~$
maahij@MOHAMEDMAAHIJ:~$ wget https://github.com/prometheus/prometheus/releases/download/v2.47.1/prometheus-2.47.1.linux-amd64.tar.gz
tar -xvf prometheus-2.47.1.linux-amd64.tar.gz
sudo mkdir -p /data /etc/prometheus
cd prometheus-2.47.1.linux-amd64/
sudo mv prometheus.promtool /usr/local/bin/
sudo mv consoles/ console.libraries/ /etc/prometheus/
sudo mv prometheus.yml /etc/prometheus/prometheus.yml
sudo chown -R prometheus:prometheus /etc/prometheus/ /data/
--2025-03-22 06:34:04-- https://github.com/prometheus/prometheus/releases/download/v2.47.1/prometheus-2.47.1.linux-amd64.tar.gz
Resolving github.com (github.com)... 20.207.73.82
Connecting to github.com (github.com)[20.207.73.82]:443... connected.
HTTP request sent, awaiting response... 302 Found
Location: https://objects.githubusercontent.com/github-production-release-asset-2e65be/6838921/2f9b7b37-63a0-428b-adb5-0294482fd743?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=releaseassetproduction%2F20250322%2Fus-east-1%2Fsa%2Faws4_request&X-Amz-Date=20250322T063217Z&X-Amz-Expires=300&X-Amz-Signature=a3ae458dc223be8c8988ccb3698192e0768e01b4c308f4e6acbc3cb871dbe7&X-Amz-SignedHeaders=host&response-content-disposition=attachment%3B%20filename%3Dprometheus-2.47.1.linux-amd64.tar.gz&response-content-type=application%2Foctet-stream [following]
--2025-03-22 06:34:04-- https://objects.githubusercontent.com/github-production-release-asset-2e65be/6838921/2f9b7b37-63a0-428b-adb5-0294482fd743?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=releaseassetproduction%2F20250322%2Fus-east-1%2Fsa%2Faws4_request&X-Amz-Date=20250322T063217Z&X-Amz-Expires=300&X-Amz-Signature=a3ae458dc223be8c8988ccb3698192e0768e01b4c308f4e6acbc3cb871dbe7&X-Amz-SignedHeaders=host&response-content-disposition=attachment%3B%20filename%3Dprometheus-2.47.1.linux-amd64.tar.gz&response-content-type=application%2Foctet-stream
Resolving objects.githubusercontent.com (objects.githubusercontent.com)... 185.199.109.133, 185.199.110.133, 185.199.111.133, ...
Connecting to objects.githubusercontent.com (objects.githubusercontent.com)[185.199.109.133]:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 95713066 (91M) [application/octet-stream]
Saving to: 'prometheus-2.47.1.linux-amd64.tar.gz'

prometheus-2.47.1.linux-amd64.tar.gz 100%[=====] 91.28M 20.6MB/s in 5.9s

2025-03-22 06:34:12 (15.4 MB/s) - 'prometheus-2.47.1.linux-amd64.tar.gz' saved [95713066/95713066]

prometheus-2.47.1.linux-amd64/

```

Prometheus.service:

[Unit]

Description=Prometheus

Wants=network-online.target

After=network-online.target

StartLimitIntervalSec=500

StartLimitBurst=5

[Service]

User=prometheus

Group=prometheus

Type=simple

Restart=on-failure

RestartSec=5s

ExecStart=/usr/local/bin/prometheus \

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

--storage.tsdb.path=/data \

--web.console.templates=/etc/prometheus/consoles \

--web.console.libraries=/etc/prometheus/console\_libraries \

--web.listen-address=0.0.0.0:9090 \

--web.enable-lifecycle

[Install]

WantedBy=multi-user.target

```
Mar 22 06:40:10 MOHAMEDMAAHIJ systemd[1]: Started prometheus.service - Prometheus.
[lines 1-10/10 (END)]
Mar 22 06:40:10 MOHAMEDMAAHIJ prometheus[123599]: ts=2025-03-22T06:40:10.540Z caller=head.go:681 level=info component=tsdb msg="On-disk memory mappable chunk replay completed" duration=4.374µs
Mar 22 06:40:10 MOHAMEDMAAHIJ prometheus[123599]: ts=2025-03-22T06:40:10.540Z caller=head.go:689 level=info component=tsdb msg="Replaying WAL, this may take a while"
Mar 22 06:40:10 MOHAMEDMAAHIJ prometheus[123599]: ts=2025-03-22T06:40:10.541Z caller=head.go:760 level=info component=tsdb msg="WAL segment loaded" segment=0 maxSegment=0
Mar 22 06:40:10 MOHAMEDMAAHIJ prometheus[123599]: ts=2025-03-22T06:40:10.541Z caller=head.go:797 level=info component=tsdb msg="WAL replay completed" checkpoint_replay_duration=918.381µs wbl_replay_duration=390ns total_replay_duration=1.044545ms
Mar 22 06:40:10 MOHAMEDMAAHIJ prometheus[123599]: ts=2025-03-22T06:40:10.544Z caller=main.go:1045 level=info fs_type=EXT4_SUPER_MAGIC
Mar 22 06:40:10 MOHAMEDMAAHIJ prometheus[123599]: ts=2025-03-22T06:40:10.544Z caller=main.go:1048 level=info msg="TSDB started"
Mar 22 06:40:10 MOHAMEDMAAHIJ prometheus[123599]: ts=2025-03-22T06:40:10.544Z caller=main.go:1229 level=info msg="Loading configuration file" filename=/etc/prometheus/prometheus.yml
Mar 22 06:40:10 MOHAMEDMAAHIJ prometheus[123599]: ts=2025-03-22T06:40:10.545Z caller=main.go:1266 level=info msg="Completed loading of configuration file" filename=/etc/prometheus/prometheus.yml totalDuration=1.288694ms db_storage=2.29µs remote_storage=2.767µs web_handler=976ns query_engine=1.553µs scrape=414.785µs scrape_sd=79.527µs notify=114.65µs notify_sd=22.349µs rules=2.854µs tracing=54.596µs
Mar 22 06:40:10 MOHAMEDMAAHIJ prometheus[123599]: ts=2025-03-22T06:40:10.545Z caller=main.go:1009 level=info msg="Server is ready to receive web requests."
Mar 22 06:40:10 MOHAMEDMAAHIJ prometheus[123599]: ts=2025-03-22T06:40:10.545Z caller=manager.go:1009 level=info component="rule manager" msg="Starting rule manager..."

^C
maahij@MOHAMEDMAAHIJ:~$ sudo systemctl enable prometheus
maahij@MOHAMEDMAAHIJ:~$ sudo systemctl start prometheus
maahij@MOHAMEDMAAHIJ:~$ sudo systemctl status prometheus
● prometheus.service - Prometheus
   Loaded: loaded (/etc/systemd/system/prometheus.service; enabled; preset: enabled)
   Active: active (running) since Sat 2025-03-22 06:40:10 UTC; 29s ago
     Main PID: 123599 (prometheus)
       Tasks: 16 (limit: 9115)
      Memory: 26.0M (0)
    CGroup: /system.slice/prometheus.service
            └─123599 /usr/local/bin/prometheus --config.file=/etc/prometheus/prometheus.yml --storage.tsdb.path=/data --web.console.templates=/etc/prometh
Mar 22 06:40:10 MOHAMEDMAAHIJ prometheus[123599]: ts=2025-03-22T06:40:10.540Z caller=head.go:681 level=info component=tsdb msg="On-disk memory mappable chunk replay completed" duration=4.374µs
Mar 22 06:40:10 MOHAMEDMAAHIJ prometheus[123599]: ts=2025-03-22T06:40:10.540Z caller=head.go:689 level=info component=tsdb msg="Replaying WAL, this may take a while"
Mar 22 06:40:10 MOHAMEDMAAHIJ prometheus[123599]: ts=2025-03-22T06:40:10.541Z caller=head.go:760 level=info component=tsdb msg="WAL segment loaded" segment=0 maxSegment=0
Mar 22 06:40:10 MOHAMEDMAAHIJ prometheus[123599]: ts=2025-03-22T06:40:10.541Z caller=head.go:797 level=info component=tsdb msg="WAL replay completed" checkpoint_replay_duration=918.381µs wbl_replay_duration=390ns total_replay_duration=1.044545ms
Mar 22 06:40:10 MOHAMEDMAAHIJ prometheus[123599]: ts=2025-03-22T06:40:10.544Z caller=main.go:1045 level=info fs_type=EXT4_SUPER_MAGIC
Mar 22 06:40:10 MOHAMEDMAAHIJ prometheus[123599]: ts=2025-03-22T06:40:10.544Z caller=main.go:1048 level=info msg="TSDB started"
```

Endpoint	State	Labels	Last Scrape	Scrape Duration	Error
<b>jenkins (0/1 up)</b> <a href="#">show less</a>					
http://localhost:8080/prometheus	DOWN	instance="localhost:8080" job="jenkins"	17.553s ago	7.092ms	server returned HTTP status 403 Forbidden
<b>node_export (1/1 up)</b> <a href="#">show less</a>					
http://localhost:9100/metrics	UP	instance="localhost:9100" job="node_export"	16.278s ago	65.601ms	
<b>prometheus (1/1 up)</b> <a href="#">show less</a>					
http://localhost:9090/metrics	UP	instance="localhost:9090" job="prometheus"	10.655s ago	8.395ms	

Node Exporter:

Commands for installation:

```
sudo mv \
node_exporter-1.6.1.linux-amd64/node_exporter \
/usr/local/bin/
rm -rf node_exporter*
```

Node exporter file:

[Unit]

Description=Node Exporter

Wants=network-online.target

After=network-online.target

StartLimitIntervalSec=500

StartLimitBurst=5

[Service]

User=node\_exporter

Group=node\_exporter

Type=simple

Restart=on-failure

RestartSec=5s

ExecStart=/usr/local/bin/node\_exporter \

--collector.logind

[Install]

WantedBy=multi-user.target

Service check : sudo systemctl enable node\_exporter

sudo systemctl start node\_exporter

sudo systemctl status node\_exporter

journalctl -u node\_exporter -f --no-pager

Reload Prometheus: curl -X POST <http://localhost:9090/-/reload>

## **Grafana:**

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

wget -q -O - https://packages.grafana.com/gpg.key | sudo apt-key add -

echo "deb https://packages.grafana.com/oss/deb stable main" | sudo tee -a /etc/apt/sources.list.d/grafana.list

sudo apt-get update

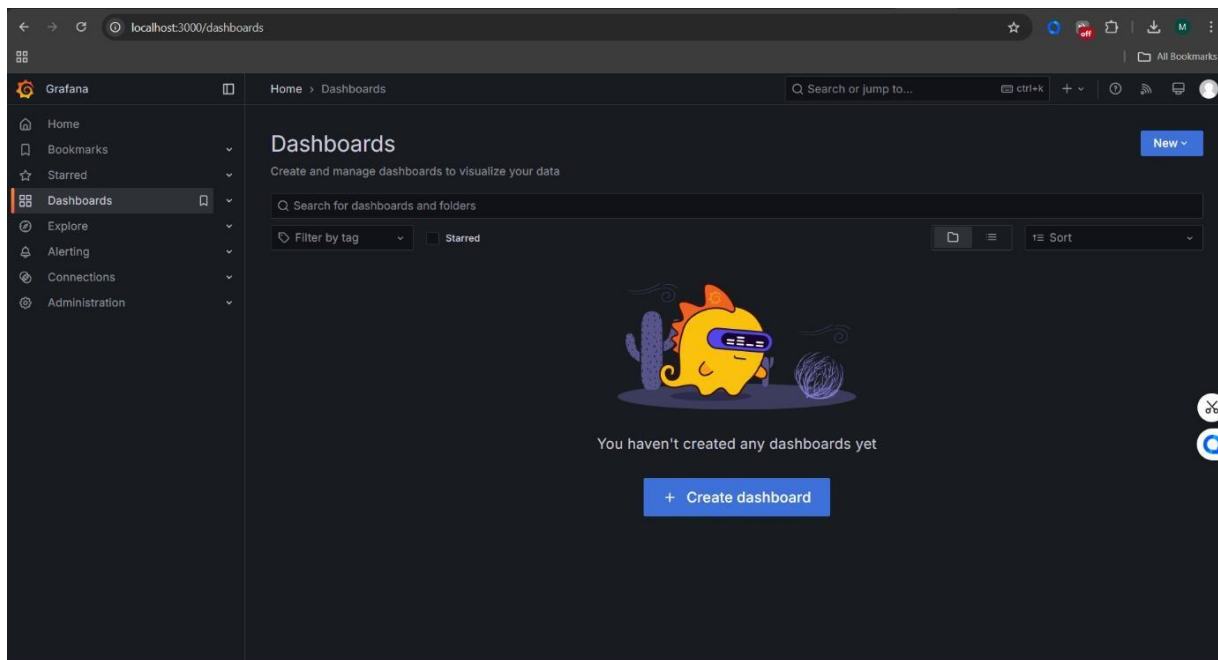
sudo apt-get -y install grafana

sudo systemctl enable grafana-server

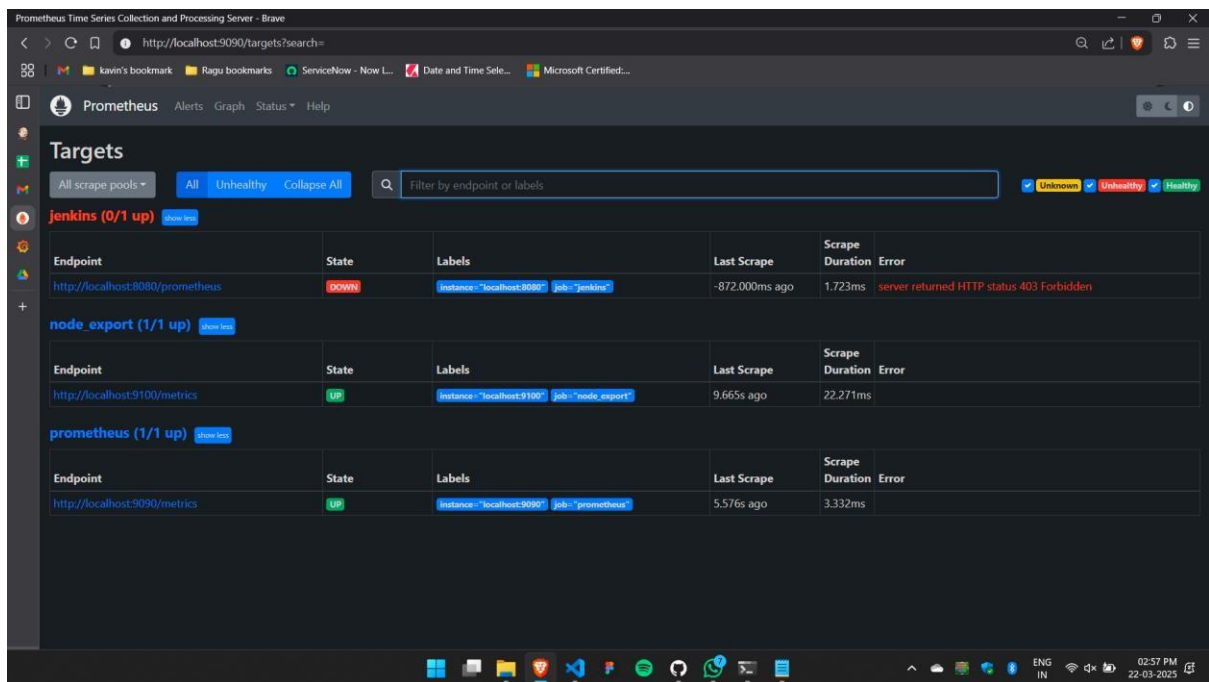
sudo systemctl start grafana-server

sudo systemctl status grafana-server

## Grafana UI:



## Status in prometheus:

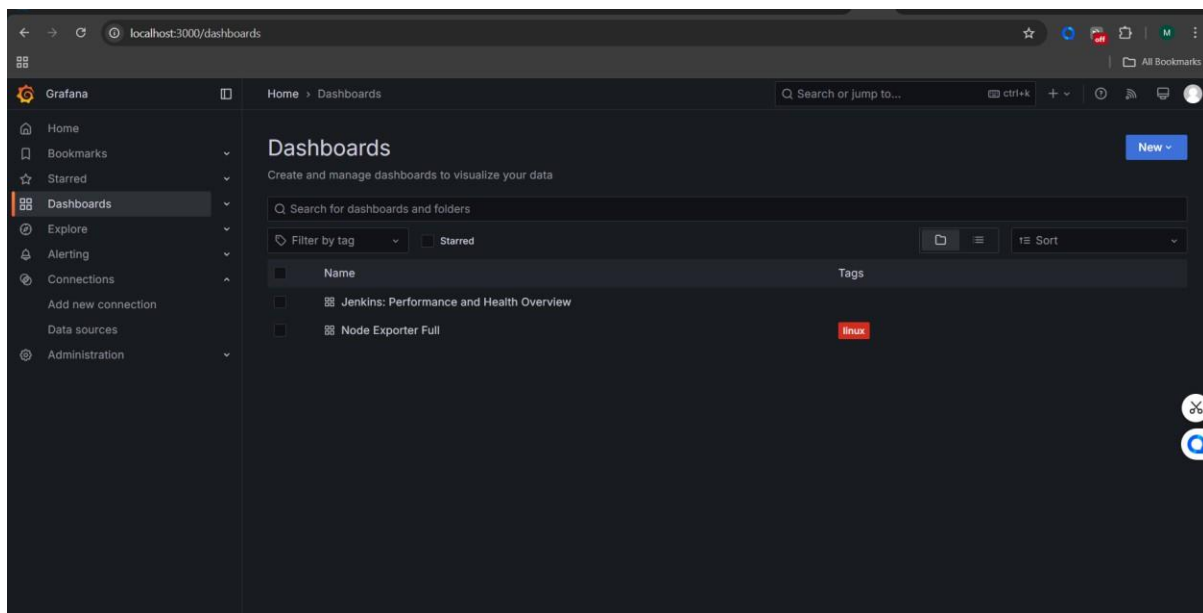


## Metrics in Prometheus:

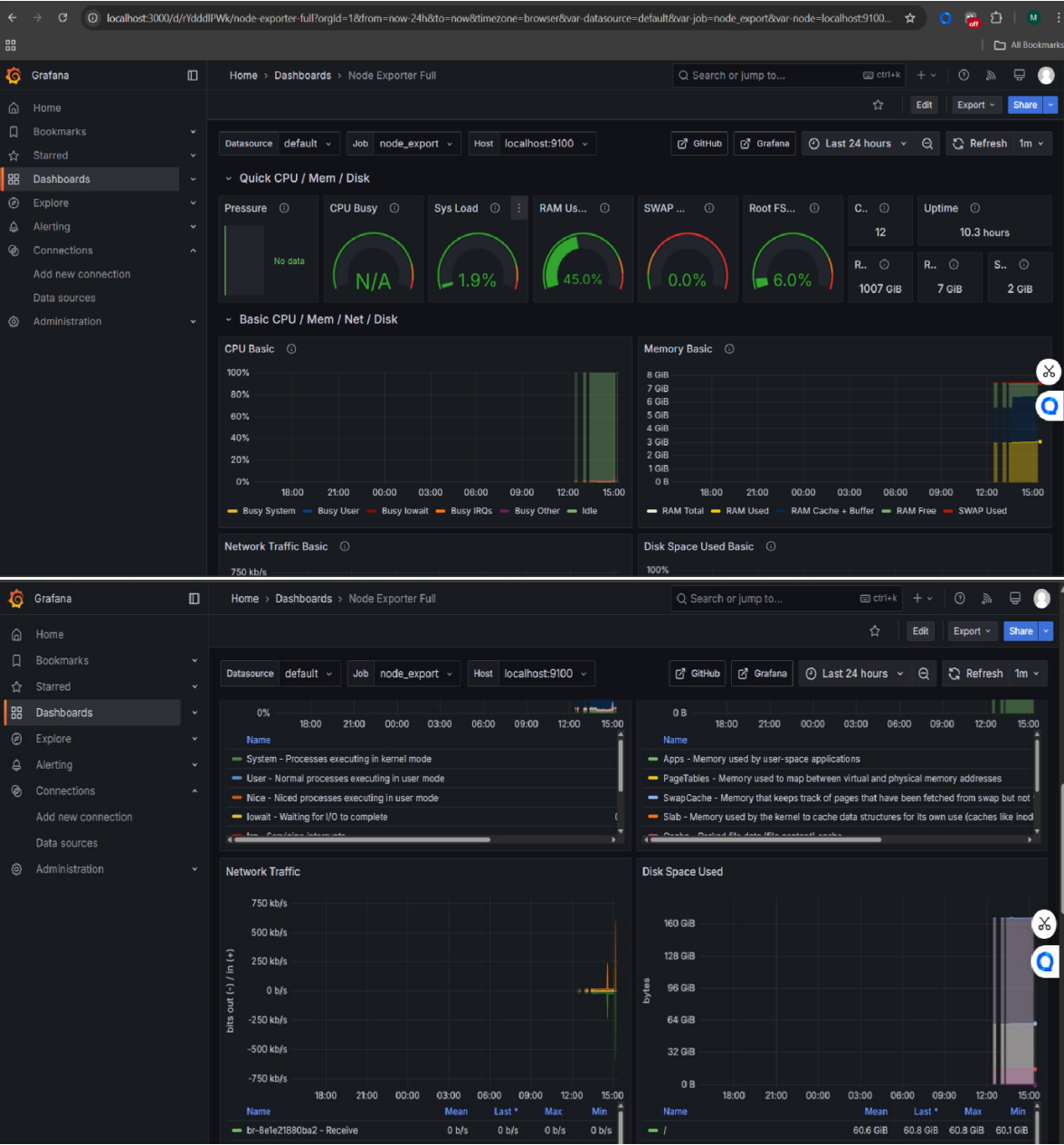
```
localhost:9090/metrics

prometheus_engine_query_log_enabled 0
# HELP prometheus_engine_query_log_failures_total The number of query log failures.
# TYPE prometheus_engine_query_log_failures_total counter
prometheus_engine_query_log_failures_total 0
# HELP prometheus_engine_query_samples_total The total number of samples loaded by all queries.
# TYPE prometheus_engine_query_samples_total counter
prometheus_engine_query_samples_total 0
# HELP prometheus_http_request_duration_seconds Histogram of latencies for HTTP requests.
# TYPE prometheus_http_request_duration_seconds histogram
prometheus_http_request_duration_seconds_bucket(handler="/",le="0.1") 2
prometheus_http_request_duration_seconds_bucket(handler="/",le="0.2") 2
prometheus_http_request_duration_seconds_bucket(handler="/",le="0.4") 2
prometheus_http_request_duration_seconds_bucket(handler="/",le="1") 2
prometheus_http_request_duration_seconds_bucket(handler="/",le="3") 2
prometheus_http_request_duration_seconds_bucket(handler="/",le="8") 2
prometheus_http_request_duration_seconds_bucket(handler="/",le="20") 2
prometheus_http_request_duration_seconds_bucket(handler="/",le="60") 2
prometheus_http_request_duration_seconds_bucket(handler="/",le="120") 2
prometheus_http_request_duration_seconds_bucket(handler="/",le="+Inf") 2
prometheus_http_request_duration_seconds_sum(handler="/") 0.000305274
prometheus_http_request_duration_seconds_count(handler="/") 2
prometheus_http_request_duration_seconds_bucket(handler="/-/ready",le="0.1") 6
prometheus_http_request_duration_seconds_bucket(handler="/-/ready",le="0.2") 6
prometheus_http_request_duration_seconds_bucket(handler="/-/ready",le="0.4") 6
prometheus_http_request_duration_seconds_bucket(handler="/-/ready",le="1") 6
prometheus_http_request_duration_seconds_bucket(handler="/-/ready",le="3") 6
prometheus_http_request_duration_seconds_bucket(handler="/-/ready",le="8") 6
prometheus_http_request_duration_seconds_bucket(handler="/-/ready",le="20") 6
prometheus_http_request_duration_seconds_bucket(handler="/-/ready",le="60") 6
prometheus_http_request_duration_seconds_bucket(handler="/-/ready",le="120") 6
prometheus_http_request_duration_seconds_bucket(handler="/-/ready",le="+Inf") 6
prometheus_http_request_duration_seconds_sum(handler="/-/ready") 0.000266480
prometheus_http_request_duration_seconds_count(handler="/-/ready") 6
prometheus_http_request_duration_seconds_bucket(handler="/-/reload",le="0.1") 1
prometheus_http_request_duration_seconds_bucket(handler="/-/reload",le="0.2") 1
prometheus_http_request_duration_seconds_bucket(handler="/-/reload",le="0.4") 1
prometheus_http_request_duration_seconds_bucket(handler="/-/reload",le="1") 1
prometheus_http_request_duration_seconds_bucket(handler="/-/reload",le="3") 1
prometheus_http_request_duration_seconds_bucket(handler="/-/reload",le="8") 1
prometheus_http_request_duration_seconds_bucket(handler="/-/reload",le="20") 1
prometheus_http_request_duration_seconds_bucket(handler="/-/reload",le="60") 1
prometheus_http_request_duration_seconds_bucket(handler="/-/reload",le="120") 1
prometheus_http_request_duration_seconds_bucket(handler="/-/reload",le="+Inf") 1
prometheus_http_request_duration_seconds_sum(handler="/-/reload") 0.003070448
prometheus_http_request_duration_seconds_count(handler="/-/reload") 1
prometheus_http_request_duration_seconds_bucket(handler="/api/v1/label/name/values",le="0.1") 6
prometheus_http_request_duration_seconds_bucket(handler="/api/v1/label/name/values",le="0.2") 6
prometheus_http_request_duration_seconds_bucket(handler="/api/v1/label/name/values",le="0.4") 6
```

## Node Exporter:

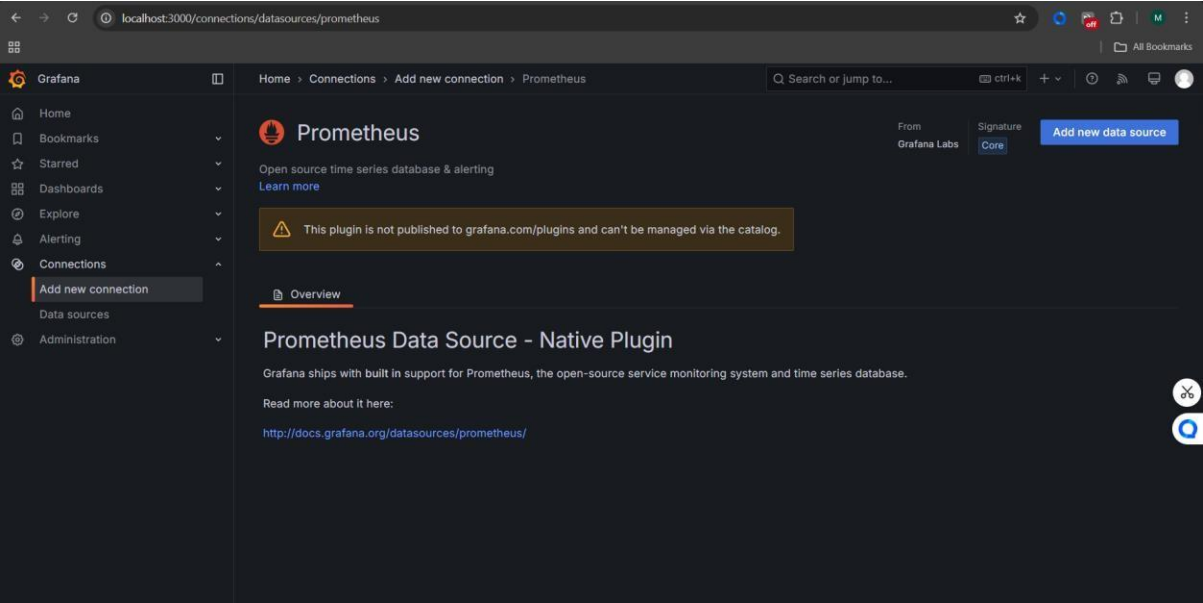


Dashboard:

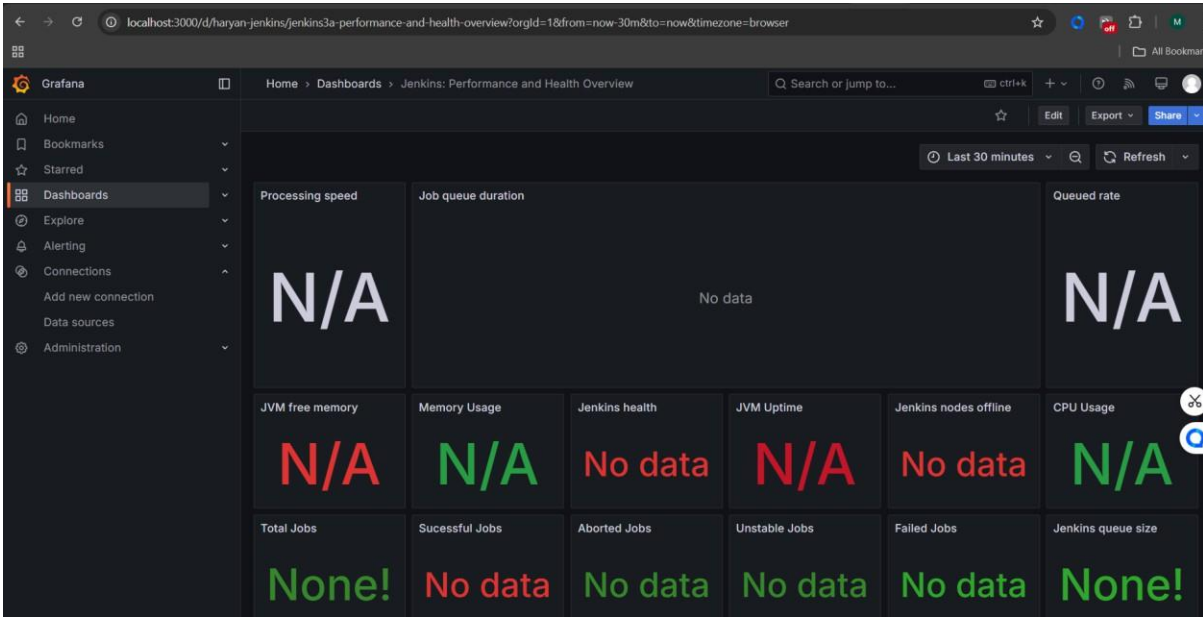




Jenkins Overview:

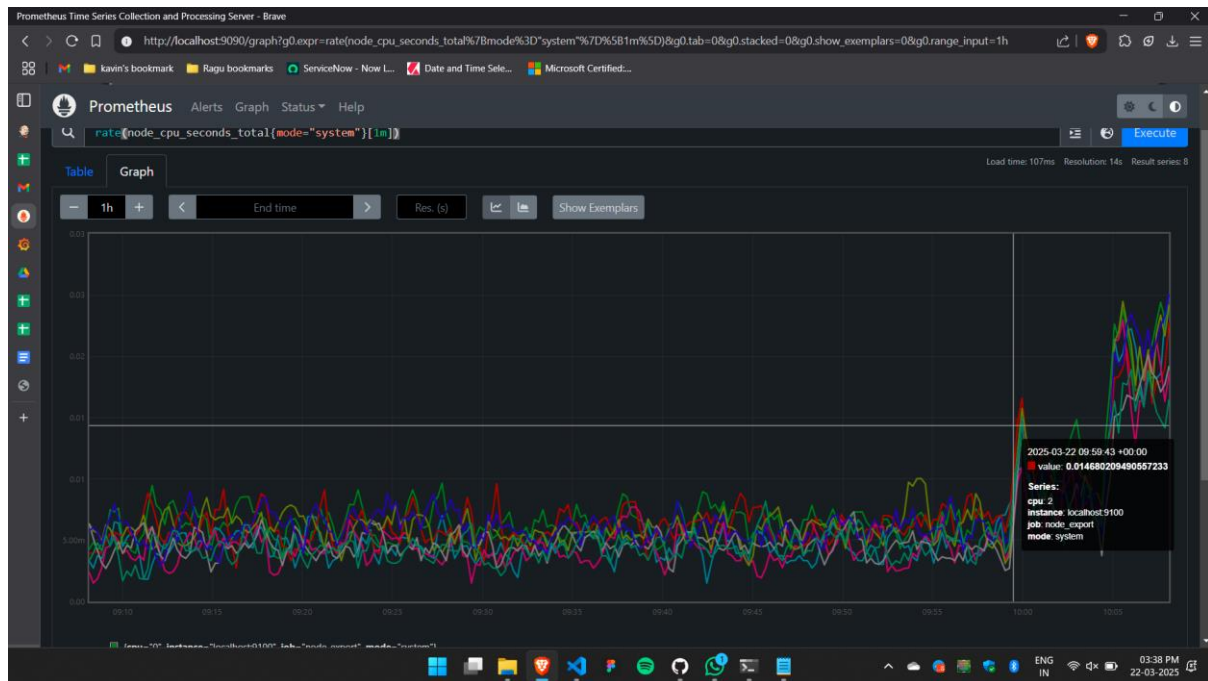


Dashboard:

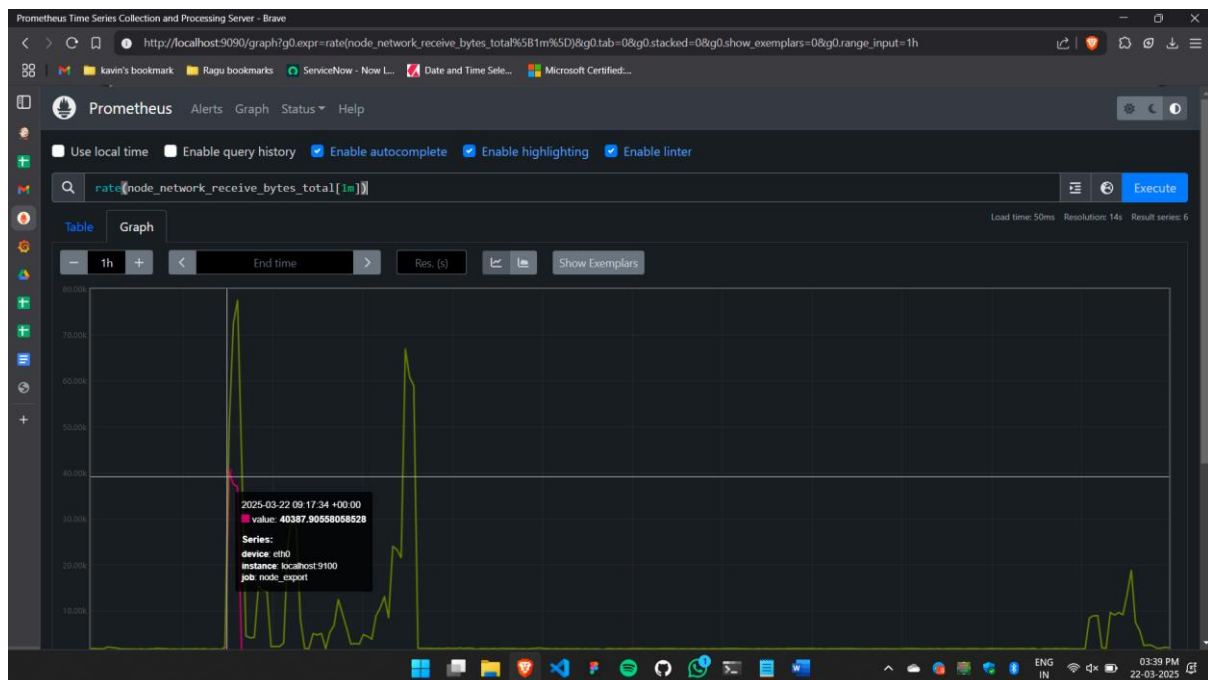


Prometheus analysis:

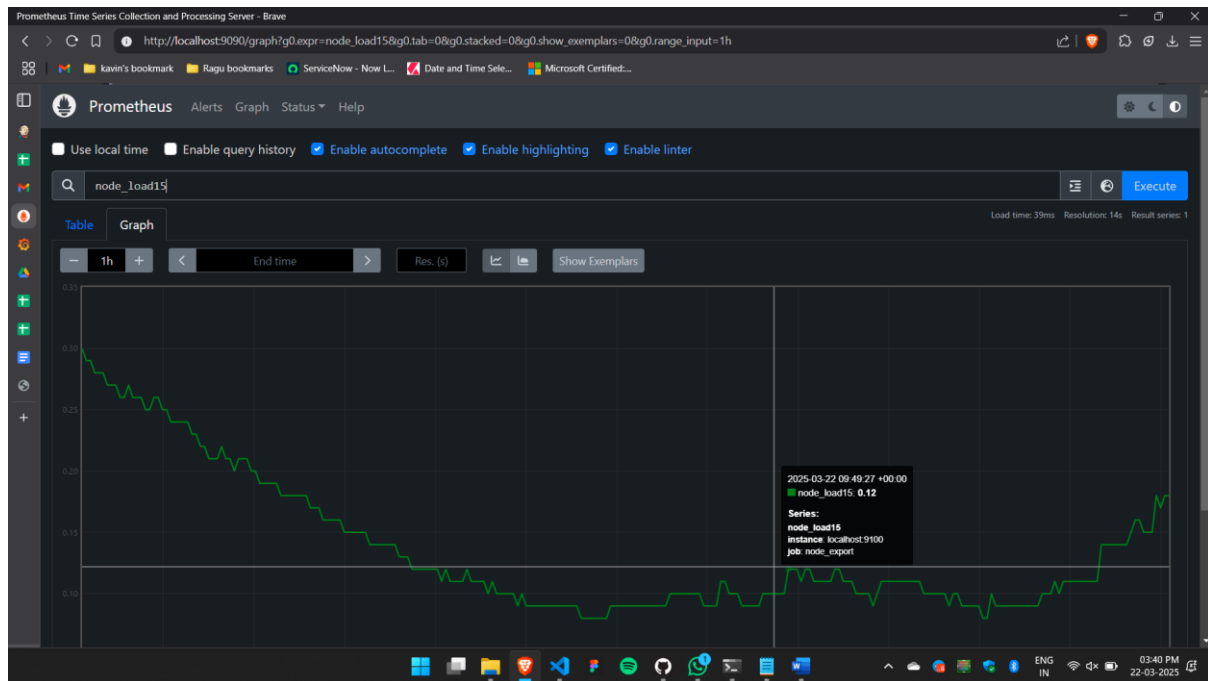
`rate(node_cpu_seconds_total{mode="system"}[1m])`



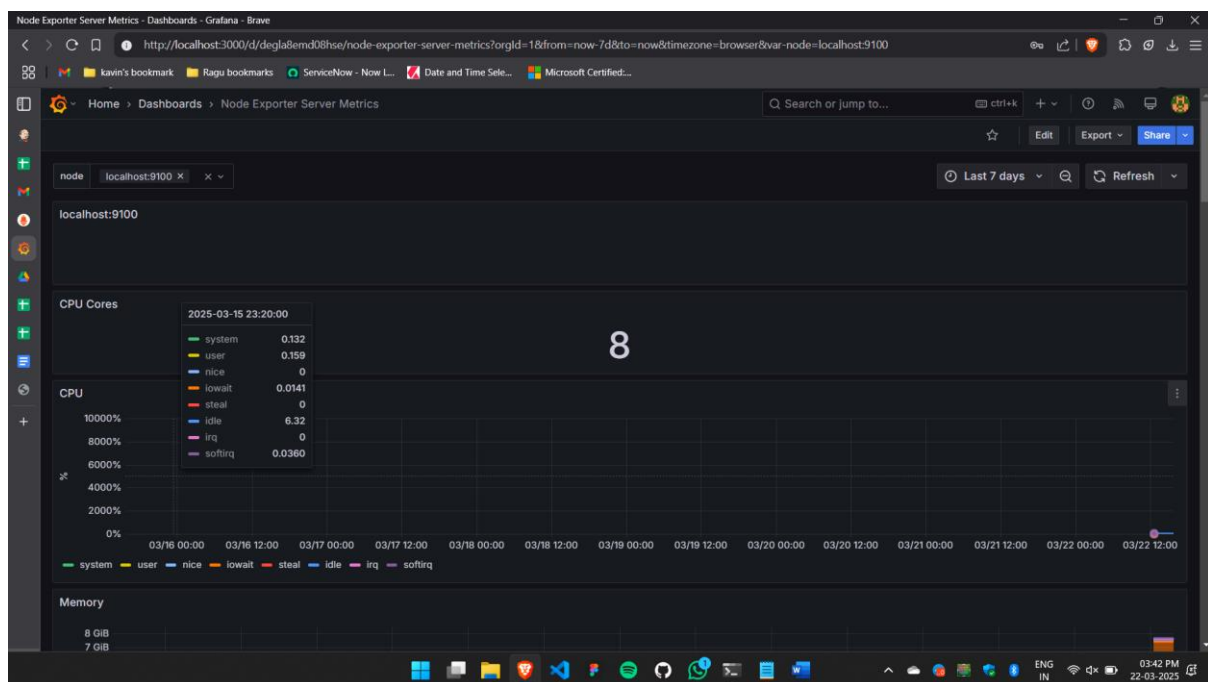
`rate(node_network_receive_bytes_total[1m])`



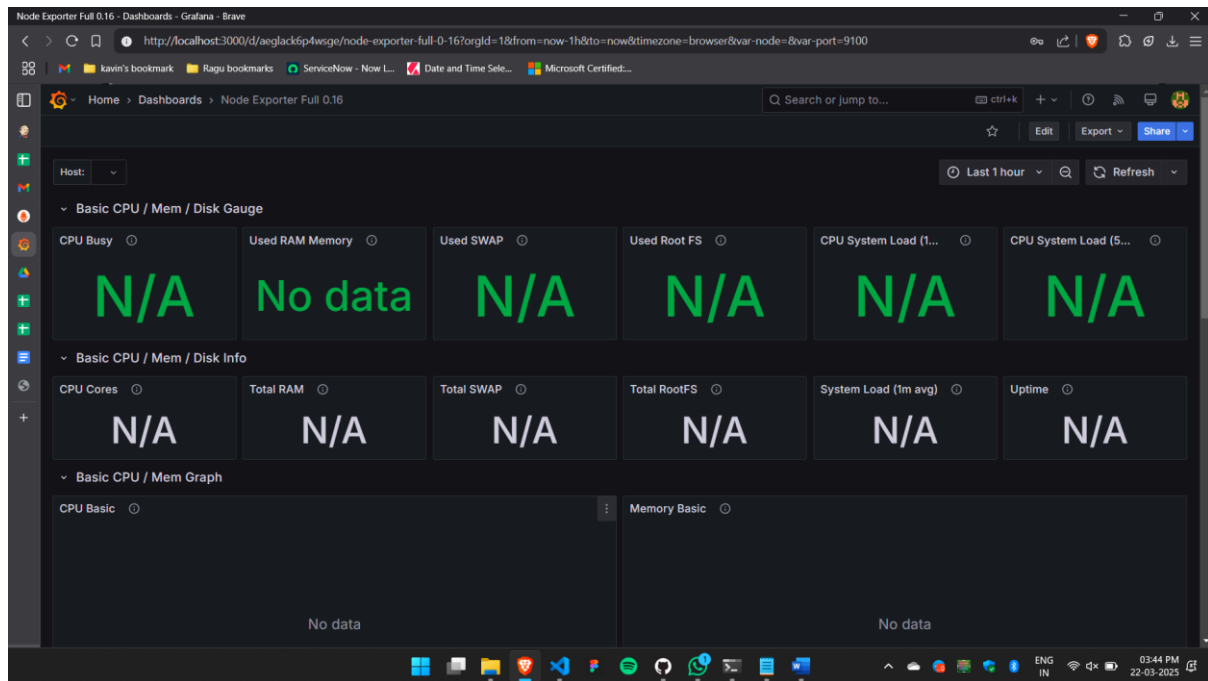
`node_load15`



Dashboard: (405)  
Node Exporter Service metrics,



Dashboard (5174):  
Node Exporter Full 0.16,



Dashboard (9096):  
1 Node Exporter 1.0.1

