Prometheus, Node Exporter, and Grafana Setup Documentation

Prometheus is an open-source system monitoring and alerting toolkit originally built at SoundCloud. It is now a standalone open source project . Prometheus joined the Cloud Native Computing Foundation in 2016 as the second hosted project, after Kubernetes.

Features

1. a multi-dimensional data model with time series data identified by metric name and key/value pairs
2. PromQL, a flexible query language to leverage this dimensionality
3. no reliance on distributed storage; single server nodes are autonomous
4. time series collection happens via a pull model over HTTP
5. pushing time series is supported via an intermediary gateway
6. targets are discovered via service discovery or static configuration
7. multiple modes of graphing and dashboarding support

Commands:

1. Prometheus Setup

Installing Prometheus

```bash
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/
```

Configuring Prometheus Service

Create a systemd service file:

```bash
sudo vim /etc/systemd/system/prometheus.service
```

Add the following content:

```ini
[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

```

### Starting Prometheus

```bash

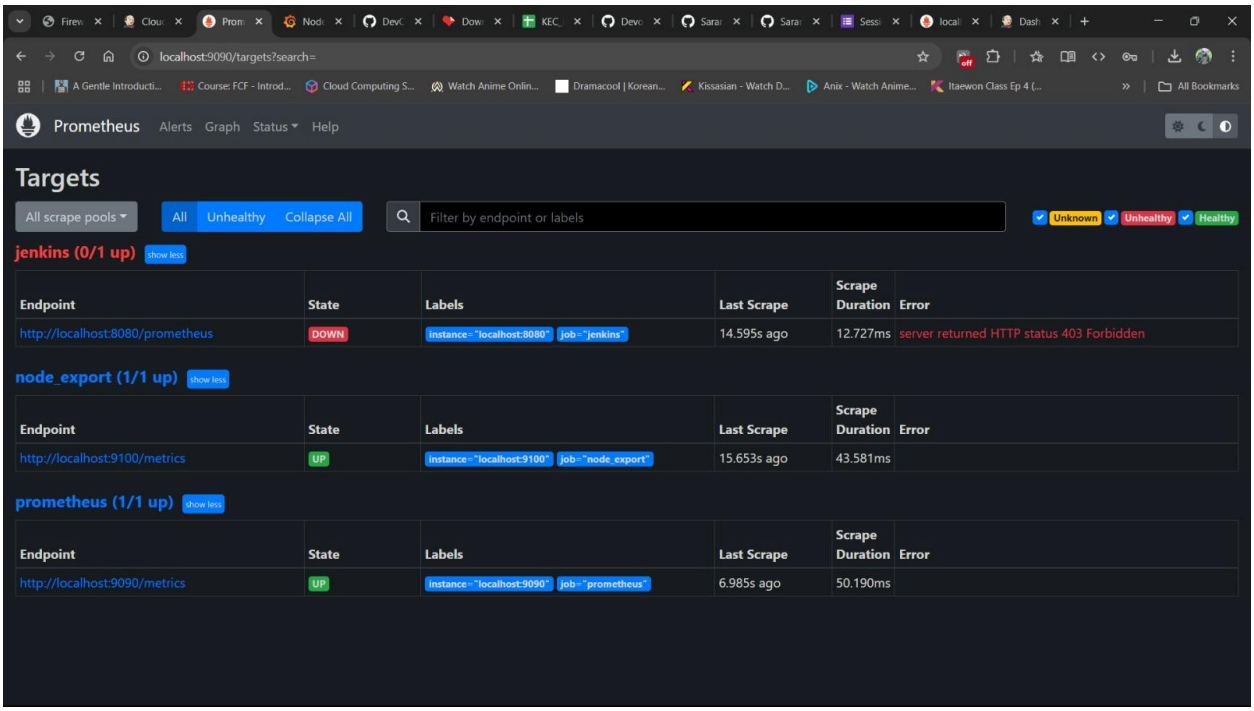
sudo systemctl enable prometheus

sudo systemctl start prometheus

sudo systemctl status prometheus

journalctl -u prometheus -f --no-pager

```
```



2. Node Exporter Setup

Installing Node Exporter

```bash

wget https://github.com/prometheus/node_exporter/releases/download/v1.6.1/node_exporter-1.6.1.linux-amd64.tar.gz

tar -xvf node_exporter-1.6.1.linux-amd64.tar.gz

sudo mv node_exporter-1.6.1.linux-amd64/node_exporter /usr/local/bin/

rm -rf node_exporter*

```

Configuring Node Exporter Service

Create a systemd service file:

```bash
sudo vim /etc/systemd/system/node_exporter.service
```

Add the following content:

```ini
[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
```

Starting Node Exporter

```bash
sudo systemctl enable node_exporter
```

sudo systemctl start node_exporter

sudo systemctl status node_exporter

journalctl -u node_exporter -f --no-pager

```

## 3. Prometheus Configuration File

Modify Prometheus configuration:

```bash

sudo vim /etc/prometheus/prometheus.yml

```

Add the following content:

```yaml

scrape_configs:

  - job_name: node_export

    static_configs:

      - targets: ["localhost:9100"]


  - job_name: 'jenkins'

    metrics_path: '/prometheus'

    static_configs:

      - targets: ['<jenkins-ip>:8080']

```

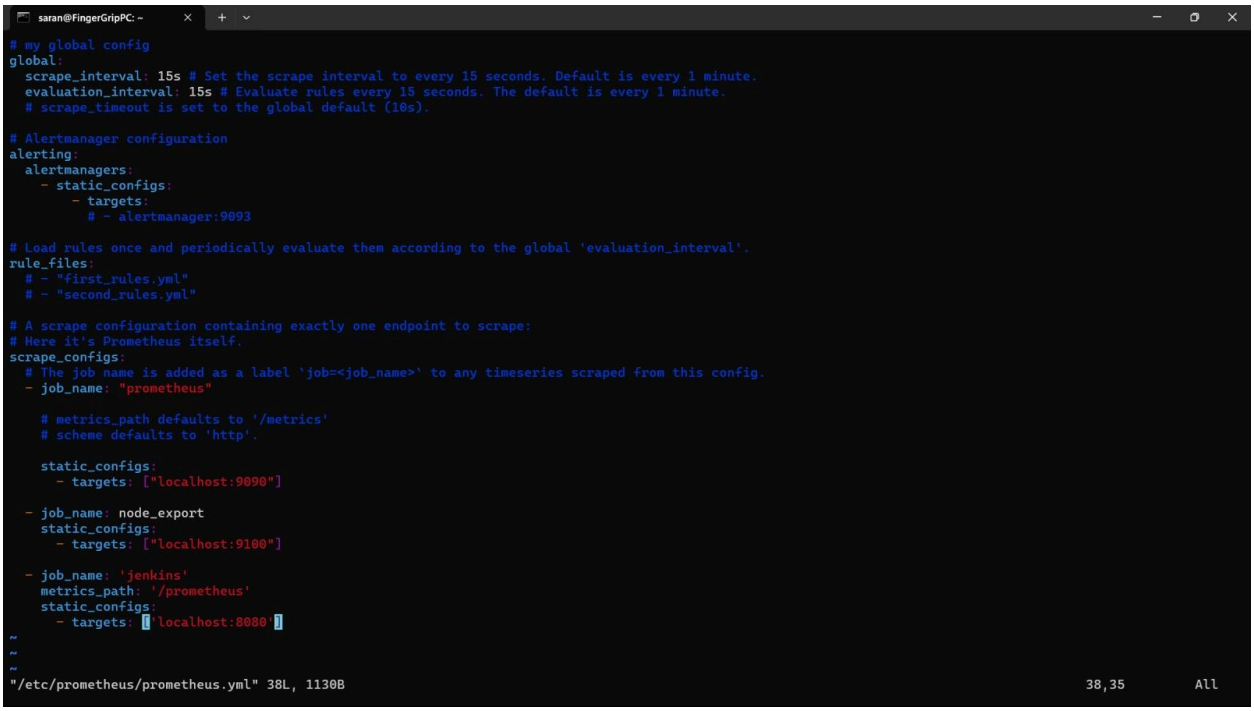

Reload Prometheus configuration:

```bash

promtool check config /etc/prometheus/prometheus.yml

curl -X POST http://localhost:9090/-/reload

```
```



4. Grafana Setup

Installing Grafana

```bash

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

```

Starting Grafana

```bash

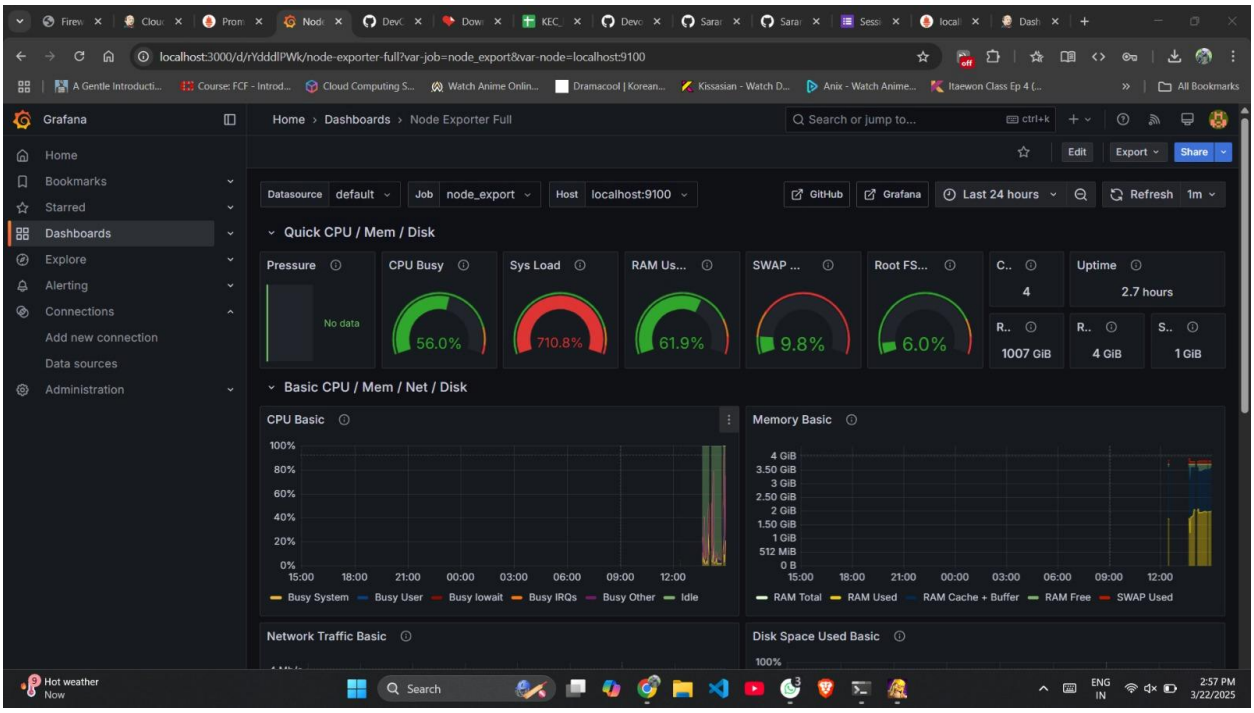
sudo systemctl enable grafana-server
```

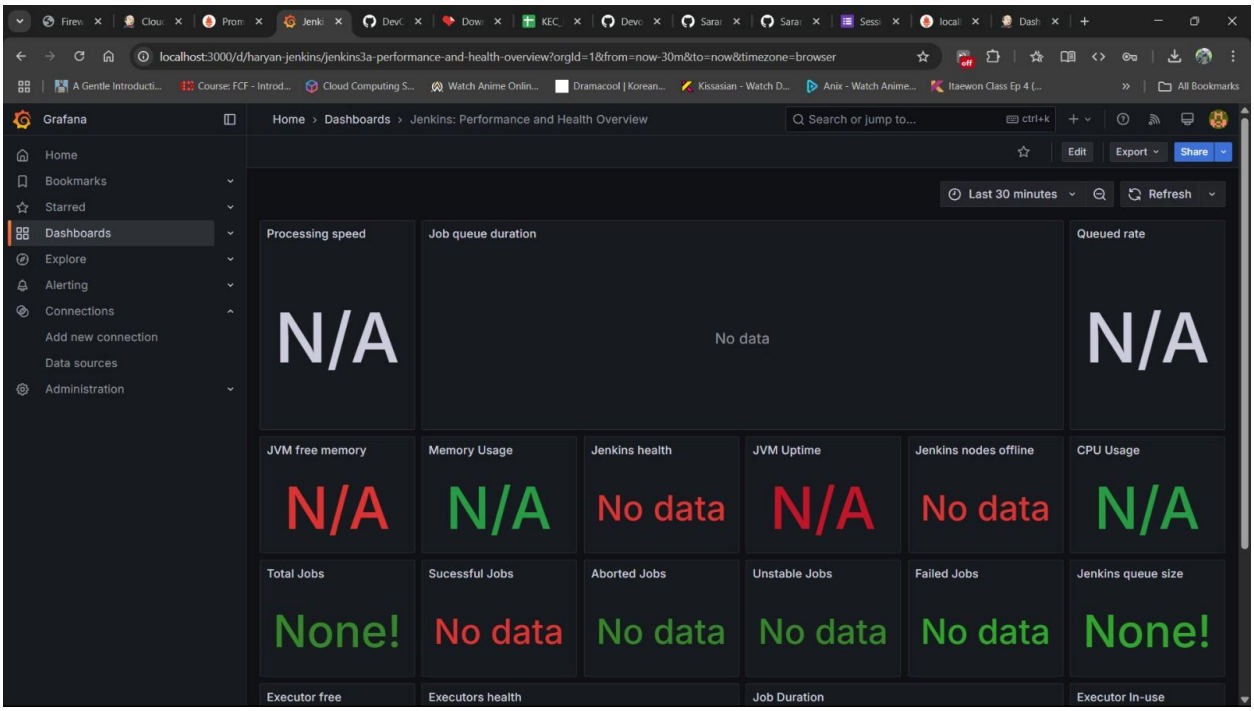
sudo systemctl start grafana-server

sudo systemctl status grafana-server

```

Dashboard:


```


localhost:3000/d/haryan-jenkins/jenkins3a-performance-and-health-overview?orgId=1&from=now-30m&to=now&timezone=browser
Grafana
Home
Bookmarks
Starred
Dashboards
Explore
Alerting
Connections
Add new connection
Data sources
Administration
Home › Dashboards › Jenkins: Performance and Health Overview
Search or jump to...
ctrl+k
Edit
Export
Share
Last 30 minutes
Refresh
Processing speed
N/A
Job queue duration
No data
Queued rate
N/A
JVM free memory
N/A
Memory Usage
N/A
Jenkins health
No data
JVM Uptime
N/A
Jenkins nodes offline
No data
CPU Usage
N/A
Total Jobs
None!
Sucessful Jobs
No data
Aborted Jobs
No data
Unstable Jobs
No data
Failed Jobs
No data
Jenkins queue size
None!
Executor free
Executors health
Job Duration
Executor In-use