Jenkins Monitoring with Prometheus and Grafana on Ubuntu 22.04 LTS

Prerequisites

- Ubuntu 22.04 LTS
- Root user account with sudo privileges
- Prometheus system user and group
- Sufficient storage and good internet connectivity
- Required ports:
    - Prometheus: 9090
    - Grafana: 3000
    - Node Exporter: 9100

Update System Repository Index

sudo apt update -y

Step #1: Install Prometheus on Ubuntu 22.04 LTS

Create a System User for Prometheus

sudo useradd --no-create-home --shell /bin/false prometheus

Create Configuration and Library Directories

sudo mkdir /etc/prometheus

sudo mkdir /var/lib/prometheus

Set Ownership of the Prometheus Directory

sudo chown prometheus:prometheus /var/lib/prometheus

Navigate to /tmp Directory

cd /tmp/

Download Prometheus

wget https://github.com/prometheus/prometheus/releases/download/v2.47.2/prometheus-2.47.2.linux-amd64.tar.gz

Extract Prometheus Files

sudo tar -xvf prometheus-2.47.2.linux-amd64.tar.gz

Move Configuration Files

cd prometheus-2.47.2.linux-amd64

sudo mv console* /etc/prometheus

sudo mv prometheus.yml /etc/prometheus

sudo chown -R prometheus:prometheus /etc/prometheus

Move Prometheus Binary and Set Ownership

sudo mv prometheus /usr/local/bin/

sudo chown prometheus:prometheus /usr/local/bin/prometheus

Create Prometheus Systemd Service File

sudo nano /etc/systemd/system/prometheus.service

Add the Following Configuration

[Unit]

Description=Prometheus

Wants=network-online.target

After=network-online.target

[Service]

User=prometheus

Group=prometheus

Type=simple

ExecStart=/usr/local/bin/prometheus \

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

--storage.tsdb.path /var/lib/prometheus/ \

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

--web.console.libraries=/etc/prometheus/console_libraries

[Install]

WantedBy=multi-user.target

Reload Systemd and Start Prometheus Service

sudo systemctl daemon-reload

sudo systemctl start prometheus

sudo systemctl enable prometheus

sudo systemctl status prometheus

Access Prometheus in Browser

<server-ip>:9090

Step #2: Install Node Exporter on Ubuntu 22.04 LTS

Download Node Exporter

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

Extract the Files

sudo tar xvfz node_exporter-*.*-amd64.tar.gz

Move Binary File

sudo mv node_exporter-*.*-amd64/node_exporter /usr/local/bin/

Create Node Exporter User

sudo useradd -rs /bin/false node_exporter

Create Systemd Service File

sudo nano /etc/systemd/system/node_exporter.service

Add the Following Configuration

[Unit]

Description=Node Exporter

After=network.target

[Service]

User=node_exporter

Group=node_exporter

Type=simple

ExecStart=/usr/local/bin/node_exporter

[Install]

WantedBy=multi-user.target

Reload Systemd and Start Node Exporter

sudo systemctl daemon-reload

sudo systemctl enable node_exporter

sudo systemctl start node_exporter

sudo systemctl status node_exporter

Update Prometheus Configuration

sudo nano /etc/prometheus/prometheus.yml

Add the Following Configuration

```
- job_name: 'Node_Exporter'
  scrape_interval: 5s
  static_configs:
    - targets: ['<Server_IP_of_Node_Exporter_Machine>:9100']
```

Restart Prometheus

sudo systemctl restart prometheus.service

Step #3: Install Grafana on Ubuntu 22.04 LTS

Add Grafana GPG Key and Repository

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

sudo add-apt-repository "deb https://packages.grafana.com/oss/deb stable main"

sudo apt update

Install Grafana

sudo apt install grafana

Start and Enable Grafana Service

sudo systemctl start grafana-server

sudo systemctl status grafana-server

sudo systemctl enable grafana-server

Access Grafana in Browser

<instance_ip>:3000

Default Credentials

Username: admin

Password: admin

Add Prometheus as Data Source

1. Click **Add data source**
2. Select **Prometheus**
3. Enter http://localhost:9090
4. Click **Save and test**

Import Dashboard

1. Click **Dashboard → + symbol → Import Dashboard**
2. Enter **Dashboard ID: 1860**
3. Click **Load**

Step #4: Install Jenkins on Ubuntu 22.04 LTS

Install Java

```
sudo apt update
sudo apt install fontconfig openjdk-17-jre
java -version
```

Install Jenkins

```
sudo wget -O /usr/share/keyrings/jenkins-keyring.asc \
 https://pkg.jenkins.io/debian/jenkins.io-2023.key
echo deb [signed-by=/usr/share/keyrings/jenkins-keyring.asc] \
  https://pkg.jenkins.io/debian binary/ | sudo tee \
  /etc/apt/sources.list.d/jenkins.list > /dev/null
sudo apt-get update
sudo apt-get install jenkins
```

Start and Enable Jenkins Service

```
sudo systemctl enable jenkins
sudo systemctl start jenkins
sudo systemctl status jenkins
```

Step #5: Configure Jenkins Monitoring

Install Prometheus Plugin in Jenkins

1. Go to **Manage Jenkins → Plugins → Available Plugins**
2. Search for **Prometheus** and install it

Update Prometheus Configuration

```
sudo nano /etc/prometheus/prometheus.yml
```

Add the Following Configuration

```
- job_name: 'jenkins'
  metrics_path: '/prometheus'
  static_configs:
```

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

Restart Prometheus

sudo systemctl restart prometheus

Import Jenkins Dashboard

1. Click **Dashboard → + symbol → Import Dashboard**
2. Enter **Dashboard ID: 9964**
3. Click **Load**

Conclusion

This guide covers Jenkins monitoring using Prometheus, Node Exporter, and Grafana on Ubuntu 22.04 LTS.