**Monitoring Tool Using Prometheus and Grafana on AWS EC2 Server**

The open source tool which is to installed in  server is Grafana .  Grafana can be used to monitor infrastructure performance and availability metrics, such as CPU usage, memory usage, network traffic, and disk usage.

Installation steps are written below.

Grafana runs on **3000** port.

The steps which have written below need to implement in the AWS servers its implemented in free tier server .

**Agenda :**

Install Prometheus and configure Prometheus to monitor itself

Install Node Exporter on other EC2 Instances

Configure Prometheus for the EC2 Instance

Install Grafana

**Prerequisite:**

Prometheus EC2 instance t2.micro

Node EC2 instances to monitor

Security Groups Configured properly

**Security Groups Configured on EC2 Instances**

Port 9090 — Prometheus Server

Port 9100 — Prometheus Node Exporter

Port 3000 — Grafana

**Install Prometheus:**

1.Create a new user and add new directories

sudo useradd --no-create-home prometheus

sudo mkdir /etc/prometheus

sudo mkdir /var/lib/prometheus

2**. Download the Prometheus, extract it and put it in usr/local/bin folder and finally delete the software.**

wget  <https://github.com/prometheus/prometheus/releases/download/v2.23.0/prometheus-2.23.0.linux-amd64.tar.gz>

tar -xvf prometheus-2.23.0.linux-amd64.tar.gz

sudo cp prometheus-2.23.0.linux-amd64/prometheus /usr/local/bin

sudo cp prometheus-2.23.0.linux-amd64/promtool /usr/local/bin

sudo cp -r prometheus-2.23.0.linux-amd64/consoles /etc/prometheus/

sudo cp -r prometheus-2.23.0.linux-amd64/console\_libraries /etc/prometheus

sudo cp prometheus-2.23.0.linux-amd64/promtool /usr/local/bin/

rm -rf prometheus-2.23.0.linux-amd64.tar.gz prometheus-2.19.0.linux-amd64

3. **Now we will configure Prometheus to monitor itself using yaml file. Create a prometheus.yml file at /etc/prometheus/prometheus.yml with the below content.**

global:

  scrape\_interval: 15s

  external\_labels:

    monitor: 'prometheus'

scrape\_configs:

  - job\_name: 'prometheus'

    static\_configs:

      - targets: ['localhost:9090']

**Sudo systemctl restart prometheus**

4**. create a file /etc/systemd/system/prometheus.service with the below content.**

[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

5.**Change the ownership of all folders and files which we have created to the user which we have created in the first step**

sudo chown prometheus:prometheus /etc/prometheus

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

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

sudo chown -R prometheus:prometheus /etc/prometheus/console**s**

sudo chown -R prometheus:prometheus /etc/prometheus/console\_libraries

sudo chown -R prometheus:prometheus /var/lib/prometheus

6**. Now we will configure the service and start it.**

sudo systemctl daemon-reload

sudo systemctl enable prometheus

sudo systemctl start prometheus

sudo systemctl status prometheus

7.  **Now open it on the browser using below url.**

http://ip:9090

8. **Install Node Exporter**

Now to monitor your servers you need to install the node exporter on all your target machine which is like a monitoring agent on all the servers.

**Installation steps are as follows:**

**Step 1: Download the latest node exporter package**

cd /tmp  
curl -LO <https://github.com/prometheus/node_exporter/releases/download/v0.18.1/node_exporter-0.18.1.linux-amd64.tar.gz>

**Step 2: Unpack the tarball**

tar -xvf node\_exporter-0.18.1.linux-amd64.tar.gz

**Step 3: Move the node export binary to /usr/local/bin**

sudo mv node\_exporter-0.18.1.linux-amd64/node\_exporter /usr/local/bin/

**Create a Custom Node Exporter Service.**

**Follow the below steps to create Node exporter Service.**

**Step 1: Create a node\_exporter user to run the node exporter service.**sudo useradd -rs /bin/false node\_exporter.

**Step 2: Create a node\_exporter service file under systemd.**

sudo nano  **/etc/systemd/system/node\_exporter.service**

**Step 3: Add the following service file content to the service file and save it.**

[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

**Step 4: Reload the system daemon and star the node exporter service**.

sudo systemctl daemon-reload

sudo systemctl start node\_exporter

**Step 5: check the node exporter status to make sure it is running in the active state.**

sudo systemctl status node\_exporter

**Step 6: Enable the node exporter service to the system startup.**

sudo systemctl enable node\_exporter

Now, node exporter would be exporting metrics on port 9100.

You can see all the server metrics by visiting your server URL on /metrics as shown below.

http://<server-IP>:9100/metrics

Configure the Server as Target on Prometheus Server

Now that we have the node exporter up and running on the server, we have to add this server a target on the Prometheus server configuration.

Note: This configuration should be done on the Prometheus server.

**Step 1: Login to the Prometheus server and open the prometheus.yml file.**

sudo nano **/etc/prometheus/prometheus.yml**

**Step 2: Under the scrape config section add the node exporter target as shown below. Change 10.142.0.3 with your server IP where you have setup node exporter. Job name can be your server hostname or IP for identification purposes.**

- job\_name: 'node\_exporter\_metrics'

  scrape\_interval: 5s

  static\_configs:

    - targets: ['10.142.0.3:9100']

**Note: When we need to add multiple server to monitor all the server ip can be added in the targets .**

**Step 3: Restart the prometheus service for the configuration changes to take place.**

sudo systemctl restart prometheus

**Install Grafana :**

Once Prometheus is installed successfully then we can install the Grafana and configure Prometheus as a datasource.

Installation steps are written below.

**Step 1:**It will download the software using wget and then run the grafana as a service

sudo apt-get install -y adduser libfontconfig1

wget https://dl.grafana.com/oss/release/grafana\_7.3.4\_amd64.deb

sudo dpkg -i grafana\_7.3.4\_amd64.deb

sudo systemctl daemon-reload

sudo systemctl start grafana-server

sudo systemctl status grafana-server

sudo systemctl enable grafana-server.service

**Step 2: Now open it on the browser using below url:**

**Make sure that port 3000 is open for this instance.**

http://yourip:3000  
Login with username : admin and password admin

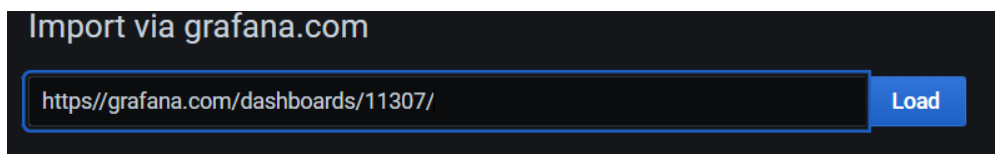
**Step 3: Add Prometheus DataSource**

Click on Setting ->datasources

**Click on Explore highlighted in red -> Select Prometheus as a datasource**

**Grafana provides lot of dashboards which we can directly import in our Grafana instance and use it.**

In this example, we will use below dashboard



**Import the dashboard**

Click on + icon -> Import

**Once import dashboard is done it will show the node exporter dashboard on grafana.**

**Conclusion:**

We have successfully  monitor the AWS EC2 instances using Prometheus and visualize the dashboard using Grafana.