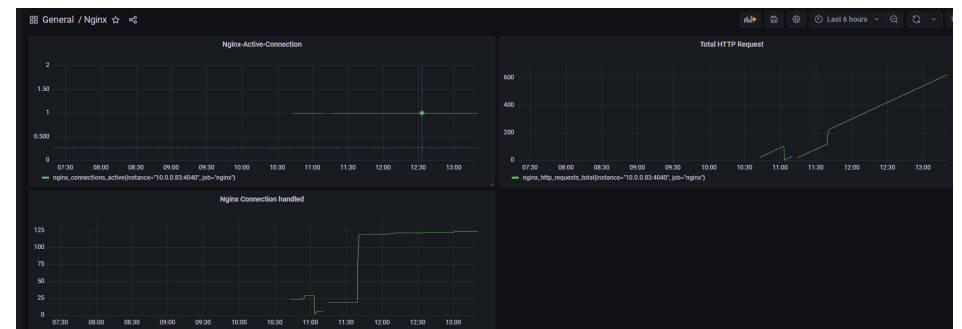


Prometheus and Grafana Monitoring system Architecture





Install the prometheus on ubuntu and start the service

- 1 `https://prometheus.io/download/` download according to your os
- 2 `wget https://github.com/prometheus/prometheus/releases/download/v2.35.0/prometheus-2.35.0.linux-amd64.tar.gz`
- 3 `tar zxvf prometheus-2.35.0.linux-amd64.tar.gz`
- 4 `sudo useradd --no-create-home --shell /bin/false prometheus`
`sudo mkdir /etc/prometheus`
`sudo mkdir /var/lib/prometheus`
`sudo chown prometheus:prometheus /etc/prometheus`
`sudo chown prometheus:prometheus /var/lib/prometheus`

create the user and give the rights to the user



Install the prometheus on ubuntu and start the service

5

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

6

```
sudo cp -r prometheus-files/conssoles /etc/prometheus  
sudo cp -r prometheus-files/console_libraries /etc/prometheus  
sudo chown -R prometheus:prometheus /etc/prometheus/conssoles  
sudo chown -R prometheus:prometheus /etc/prometheus/console_libraries
```

create the prometheus directory if not exist at that location

7

```
sudo vi /etc/prometheus/prometheus.yml
```

```
global:  
  scrape_interval: 10s  
  
scrape_configs:  
  - job_name: 'prometheus'  
    scrape_interval: 5s  
    static_configs:  
      - targets: ['localhost:9090']
```

8

```
change the ownership of the file  
sudo chown prometheus:prometheus /etc/prometheus/  
prometheus.yml
```



Install the prometheus on ubuntu and start the service

9

```
sudo vi /etc/systemd/system/prometheus.service
```

10

```
[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
```



Install the prometheus on ubuntu and start the service

11

```
sudo systemctl daemon-reload
```

12

```
sudo systemctl start prometheus  
sudo systemctl status prometheus
```

13

```
ubuntu@prometheus:~/prometheus-2.35.0.linux-amd64$ sudo systemctl status prometheus  
● prometheus.service - Prometheus  
   Loaded: loaded (/etc/systemd/system/prometheus.service; disabled; vendor preset: enabled)  
   Active: active (running) since Sun 2022-04-24 07:15:31 UTC; 1h 25min ago  
     Main PID: 3627 (prometheus)  
       Tasks: 8 (limit: 4626)  
      Memory: 32.1M  
     CGroup: /system.slice/prometheus.service  
             └─3627 /usr/local/bin/prometheus --config.file /etc/prometheus/prometheus.yml --st
```



install the nginx server and configure the exporter in prometheus

1

```
sudo apt-get install nginx
```

2

```
wget https://github.com/nginxinc/nginx-prometheus-exporter/releases/download/v0.10.0/nginx-prometheus-exporter_0.10.0_linux_arm64.tar.gz
```

3

```
tar zxvf nginx-prometheus-exporter_0.10.0_linux_arm64.tar.gz
```

4

```
mv nginx-prometheus-exporter /usr/local/bin  
useradd -r nginx_exporter
```



install the nginx server and configure the exporter in prometheus

5

```
nano /etc/systemd/system/nginx_prometheus_exporter.service
```

```
[Unit]
Description=NGINX Prometheus Exporter
After=network.target

[Service]
Type=simple
User=nginx_exporter
Group=nginx_exporter
ExecStart=/usr/local/bin/nginx-prometheus-exporter \
  -web.listen-address=10.0.0.83:4040 \
  -nginx.scrape-uri http://127.0.0.1/metrics

SyslogIdentifier=nginx_prometheus_exporter
Restart=always

[Install]
WantedBy=multi-user.target
```

it is ip address where the
Nginx Exporter Installed in
these case exporter installed
in same machine where
prometheus installed



install the nginx server and configure the exporter in prometheus

6

/etc/nginx/sites-available/default

```
server {  
    listen 80;  
    location /metrics {  
        stub_status on;  
        allow 127.0.0.1; #only allow requests from localhost  
        deny all;      #deny all other hosts  
    }  
}
```

7

```
sudo systemctl daemon-reload  
sudo systemctl enable --now nginx_prometheus_exporter.service
```

```
ubuntu@myinstacne:~$ sudo systemctl status nginx_prometheus_exporter.service  
● nginx_prometheus_exporter.service - NGINX Prometheus Exporter  
   Loaded: loaded (/etc/systemd/system/nginx_prometheus_exporter.service; e  
   Active: active (running) since Tue 2022-04-26 06:40:37 UTC; 33s ago  
   Main PID: 3172 (nginx-prometheu)  
     Tasks: 7 (limit: 4657)  
    Memory: 2.9M
```




configure the prometheus.yml for nginx metrics

8

/etc/prometheus/prometheus.yml

9

```
global:
  scrape_interval: 10s

scrape_configs:
  - job_name: 'prometheus'
    scrape_interval: 5s
    static_configs:
      - targets: ['localhost:9090']

  - job_name: 'nginx'
    scrape_interval: 15s
    static_configs:
      - targets: ['10.0.0.83:4040']
```



verify the configuration

10



Prometheus

Alerts

Graph

Status ▾

Help

Service Discovery



Filter by labels

- [nginx \(1 / 1 active targets\)](#)
- [prometheus \(1 / 1 active targets\)](#)

nginx

[show less](#)

Discovered Labels

`__address__ = "10.0.0.83:4040"`
`__metrics_path__ = "/metrics"`
`__scheme__ = "http"`
`__scrape_interval__ = "15s"`
`__scrape_timeout__ = "10s"`
`job = "nginx"`

Target Labels

`instance = "10.0.0.83:4040"`
`job = "nginx"`

now go to grafana and create the dashboard for nginx metrics



install grafana

1

```
sudo apt-get install -y apt-transport-https  
sudo apt-get install -y software-properties-common wget  
wget -q -O - https://packages.grafana.com/gpg.key | sudo apt-  
key add -
```

2

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

3

```
sudo apt-get update  
sudo apt-get install grafana
```

4

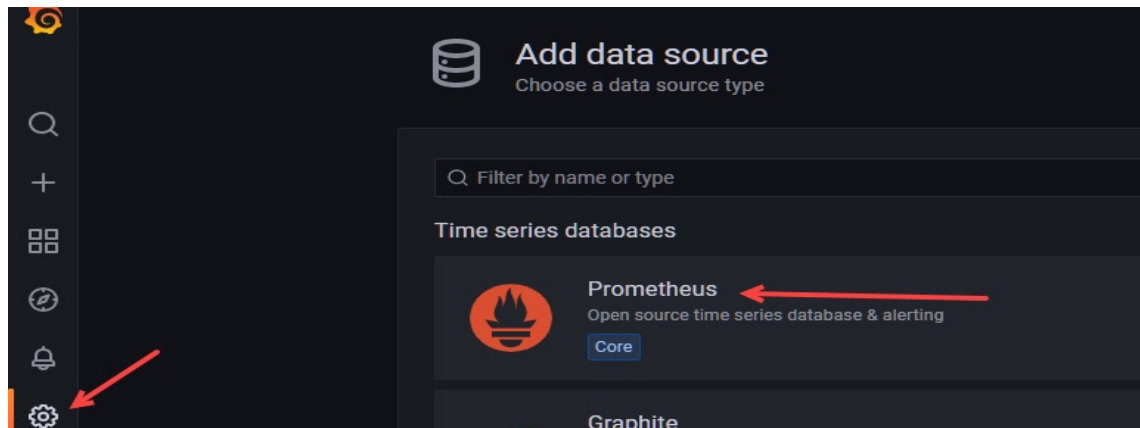
```
sudo systemctl enable --now grafana-server.service
```



configure prometheus data source in grafana

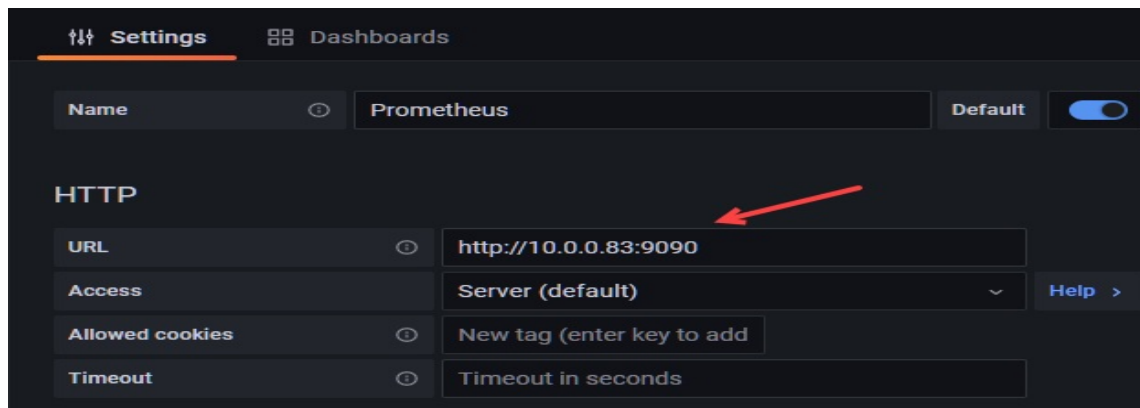
5

Go to Settings | Data Source | Prometheus



6

configure the ip address of prometheus in grafana





create nginx metrics dashboard

7

Go to Settings | Data Source | Prometheus

The screenshot shows the Grafana Explore interface with the Prometheus data source selected. The interface is divided into several sections with numbered callouts:

- 1**: The left sidebar menu, where the 'Settings' icon (gear) is highlighted.
- 2**: The 'Metrics browser' dropdown menu, which is open and shows a list of nginx metrics including `nginx_connections_accepted`, `nginx_connections_active`, `nginx_connections_handled`, `nginx_connections_reading`, `nginx_connections_waiting`, `nginx_connections_writing`, `nginx_http_requests_total`, `nginx_up`, and `nginxexporter_build_info`.
- 3**: The 'Select labels to search in' section, which shows a list of labels: `commit (1)`, `date (1)`, `instance (1)`, `job (1)`, and `version (1)`.
- 4**: The 'Select (multiple) values for your labels' section, which shows a list of values for the `instance` label: `10.0.0.83:4040` and `nginx`.
- 5**: The '4. Resulting selector' section, which shows the resulting selector: `{instance="10.0.0.83:4040", job="nginx"}`.
- 6**: The 'Add to dashboard' button in the top right corner.

At the bottom of the interface, there are buttons for '+ Add query', 'Query history', and 'Inspector'. The 'Options' section at the bottom shows 'Legend: Auto', 'Format: Time series', and 'Type: Both'.

choose the metrics then add to dashboard



create nginx metrics dashboard

7

Go to Settings | Data Source | Prometheus



data receive from prometheus and graph created by grafana