

Install Prometheus Server

- Configuration basic authentication username/password
- Screenshot of login prompt while trying to access prometheus
- Screenshot of prometheus dashboard

Download and Install Prometheus using,

```
VERSION=$(curl  
https://raw.githubusercontent.com/prometheus/prometheus/master/VERSION  
)
```

wget

```
https://github.com/prometheus/prometheus/releases/download/v\${VERSION}/  
prometheus-\${VERSION}.linux-amd64.tar.gz
```

```
tar xvzf prometheus-${VERSION}.linux-amd64.tar.gz
```

```
lostinserver@lostinserver:~$ VERSION=$(curl https://raw.githubusercontent.com/pr  
ometheus/prometheus/master/VERSION)  
% Total    % Received % Xferd  Average Speed   Time    Time     Time  Current  
             Dload  Upload  Total   Spent    Left   Speed  
100  12 100  12    0    0    10      0  0:00:01  0:00:01 --:--:--   10  
lostinserver@lostinserver:~$ wget https://github.com/prometheus/prometheus/relea  
ses/download/v${VERSION}/prometheus-${VERSION}.linux-amd64.tar.gz  
--2021-12-06 11:16:09-- https://github.com/prometheus/prometheus/releases/downl  
oad/v2.32.0-rc.0/prometheus-2.32.0-rc.0.linux-amd64.tar.gz  
Resolving github.com (github.com)... 20.205.243.166  
Connecting to github.com (github.com)|20.205.243.166|:443... connected.  
HTTP request sent, awaiting response... 302 Found  
Location: https://objects.githubusercontent.com/github-production-release-asset-  
2e65be/6838921/d4b11ccb-c6e4-4401-9d93-1da7f6716c24?X-Amz-Algorithm=AWS4-HMAC-SH  
A256&X-Amz-Credential=AKIAIWNNJYAX4CSVEH53A%2F20211206%2Fus-east-1%2Fs3%2Faws4_re  
quest&X-Amz-Date=20211206T053110Z&X-Amz-Expires=300&X-Amz-Signature=66e0dc227ad4  
90dabb4045189cb325260694eab395c876e647bc3e4408d0cbf7&X-Amz-SignedHeaders=host&ac  
tor_id=0&key_id=0&repo_id=6838921&response-content-disposition=attachment%3B%20f  
ilename%3Dprometheus-2.32.0-rc.0.linux-amd64.tar.gz&response-content-type=applic  
ation%2Foctet-stream [following]  
--2021-12-06 11:16:10-- https://objects.githubusercontent.com/github-production  
-release-asset-2e65be/6838921/d4b11ccb-c6e4-4401-9d93-1da7f6716c24?X-Amz-Algorit
```

```

prometheus-2.32.0-r 100%[=====>] 71.61M 2.95MB/s in 34s
2021-12-06 11:16:47 (2.09 MB/s) - 'prometheus-2.32.0-rc.0.linux-amd64.tar.gz' saved [75092211/75092211]

lostinservice@lostinservice:~$ tar xvzf prometheus-${VERSION}.linux-amd64.tar.gz
prometheus-2.32.0-rc.0.linux-amd64/
prometheus-2.32.0-rc.0.linux-amd64/consales/
prometheus-2.32.0-rc.0.linux-amd64/consales/index.html.example
prometheus-2.32.0-rc.0.linux-amd64/consales/node-cpu.html
prometheus-2.32.0-rc.0.linux-amd64/consales/node-disk.html
prometheus-2.32.0-rc.0.linux-amd64/consales/node-overview.html
prometheus-2.32.0-rc.0.linux-amd64/consales/node.html
prometheus-2.32.0-rc.0.linux-amd64/consales/prometheus-overview.html
prometheus-2.32.0-rc.0.linux-amd64/consales/prometheus.html
prometheus-2.32.0-rc.0.linux-amd64/console_libraries/
prometheus-2.32.0-rc.0.linux-amd64/console_libraries/menu.lib

```

Now to create password using bcrypt module we do as,

python3

import getpass

import bcrypt

hashed_password = bcrypt.hashpw("centos".encode("utf-8"),

bcrypt.gensalt())

hashed_password.decode()

```

lostinservice@lostinservice:~$ python3
Python 3.8.10 (default, Sep 28 2021, 16:10:42)
[GCC 9.3.0] on linux
Type "help", "copyright", "credits" or "license" for more information.
>>> import getpass
>>> import bcrypt
>>> hashed_password = bcrypt.hashpw("centos".encode("utf-8"), bcrypt.gensalt())
>>> hashed_password.decode()
'$2b$12$okVzrlphQlu6MYHwLdV5Eem2RTFouYpla5Lv.WvUru7lj.XHRLgxe'
>>> █

```

Now we set basic auth,

sudo vi /etc/prometheus/web.yml

```
basic_auth_users:
  admin: $2b$12$0KVzrlphQlu6MYHwLdV5Eem2RTFouYpla5Lv.WvUru7lj.XHRIgxe
```

\$2b\$12\$0KVzrlphQlu6MYHwLdV5Eem2RTFouYpla5Lv.WvUru7lj.XHRIgxe is our hashed password.

```
lostins@lostins:~$ sudo cp prometheus-2.32.0-rc.0.linux-amd64/prometheus
prometheus prometheus.yml
lostins@lostins:~$ sudo cp prometheus-2.32.0-rc.0.linux-amd64/promtool /usr/local/bin
lostins@lostins:~$ sudo cp prometheus-2.32.0-rc.0.linux-amd64/promtool /usr/local/bin
lostins@lostins:~$ sudo cp prometheus-2.32.0-rc.0.linux-amd64/consoles/ /etc/prometheus/
cp: -r not specified; omitting directory 'prometheus-2.32.0-rc.0.linux-amd64/consoles/'
lostins@lostins:~$ sudo cp prometheus-2.32.0-rc.0.linux-amd64/consoles /etc/prometheus/
cp: -r not specified; omitting directory 'prometheus-2.32.0-rc.0.linux-amd64/consoles'
lostins@lostins:~$ sudo cp -r prometheus-2.32.0-rc.0.linux-amd64/consoles /etc/prometheus/
lostins@lostins:~$ sudo cp -r prometheus-2.32.0-rc.0.linux-amd64/console_libraries /etc/prometheus/
lostins@lostins:~$
```

Now we create service file and modify as below:

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

```
[Unit]
Description=Prometheus service file
After=network.target

[Service]
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 \
  --web.config.file /etc/prometheus/web.yml

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

Now run the below,

Systemctl daemon-reload

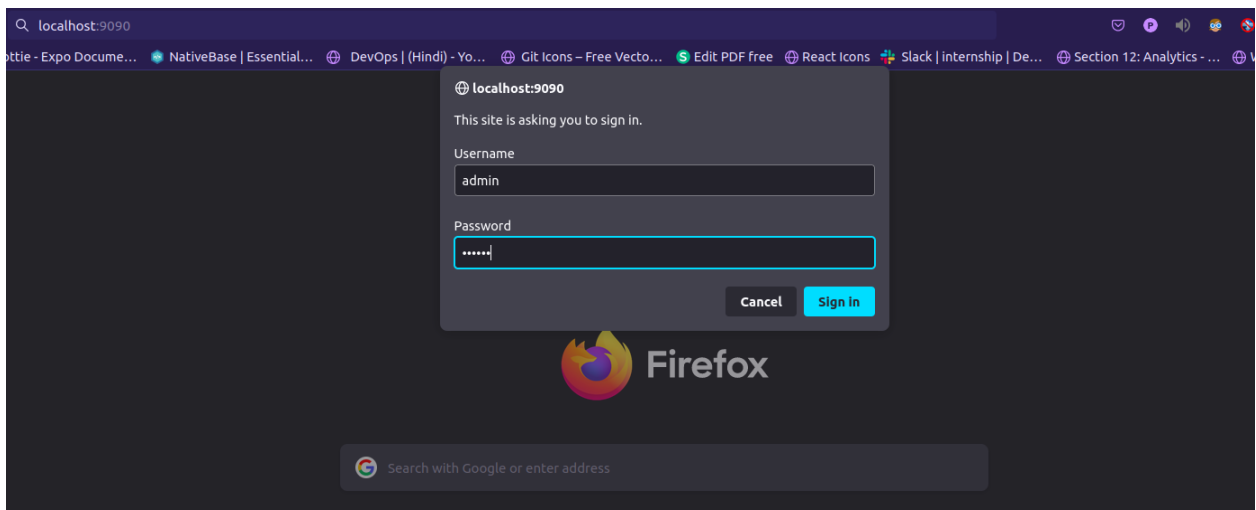
Systemctl restart prometheus.service

Systemctl status prometheus.service

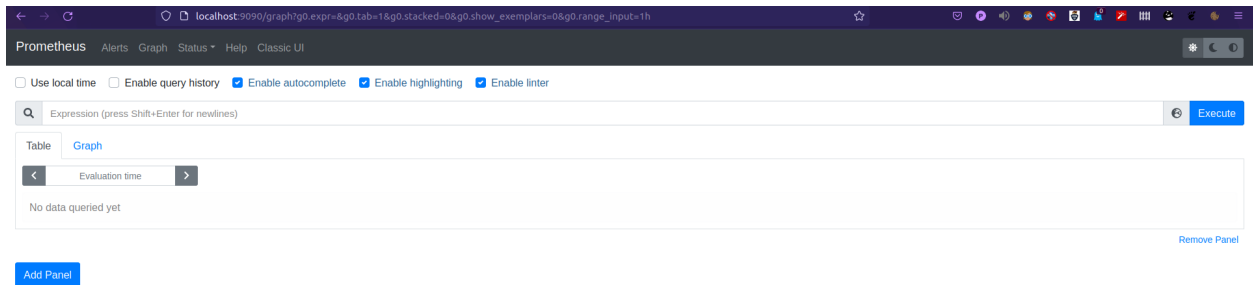
```
lostinservice@lostinservice:~$ sudo systemctl daemon-reload
lostinservice@lostinservice:~$ sudo systemctl restart prometheus.service
lostinservice@lostinservice:~$ sudo systemctl status prometheus.service
● prometheus.service - Prometheus service file
   Loaded: loaded (/etc/systemd/system/prometheus.service; disabled; vendor preset: ena
   Active: active (running) since Mon 2021-12-06 12:09:04 +0545; 1s ago
     Main PID: 76580 (prometheus)
        Tasks: 9 (limit: 9364)
       Memory: 18.7M
      CGroup: /system.slice/prometheus.service
              └─76580 /usr/local/bin/prometheus --config.file /etc/prometheus/prometheus.y

दि सम्बर 06 12:09:04 lostinservice prometheus[76580]: ts=2021-12-06T06:24:04.593Z caller=hea
दि सम्बर 06 12:09:04 lostinservice prometheus[76580]: ts=2021-12-06T06:24:04.593Z caller=hea
दि सम्बर 06 12:09:04 lostinservice prometheus[76580]: ts=2021-12-06T06:24:04.593Z caller=hea
दि सम्बर 06 12:09:04 lostinservice prometheus[76580]: ts=2021-12-06T06:24:04.594Z caller=hea
दि सम्बर 06 12:09:04 lostinservice prometheus[76580]: ts=2021-12-06T06:24:04.594Z caller=hea
दि सम्बर 06 12:09:04 lostinservice prometheus[76580]: ts=2021-12-06T06:24:04.595Z caller=mai
दि सम्बर 06 12:09:04 lostinservice prometheus[76580]: ts=2021-12-06T06:24:04.595Z caller=mai
दि सम्बर 06 12:09:04 lostinservice prometheus[76580]: ts=2021-12-06T06:24:04.595Z caller=mai
```

Login to the port **9090** with user **admin** and password as **centos** as,



We can finally see the **prometheus** homepage as,



Install node exporter on another machine than the server

- Add that machine target to server configuration
- Share screenshot from status->targets to show the available nodes
- Share configuration of node exporter & prometheus server

For installing we open our **Centos7** VM and,

wget

https://github.com/prometheus/node_exporter/releases/download/v0.16.0-rc.1/node_exporter-0.16.0-rc.1.linux-amd64.tar.gz

tar -xzvf node_exporter-0.16.0-rc.1.linux-amd64.tar.gz

mv node_exporter-0.16.0-rc.1.linux-amd64 node_exporter

cd /etc/systemd/system/

vim node_exporter.service

```

100%[=====>] 5,617,869  2.03MB/s  in 2.6s

2021-12-04 09:52:35 (2.03 MB/s) - 'node_exporter-0.16.0-rc.1.linux-amd64.tar.gz'
  saved [5617869/5617869]

[root@server2 ~]# tar -xvzf node_exporter-0.16.0-rc.1.linux-amd64.tar.gz
node_exporter-0.16.0-rc.1.linux-amd64/
node_exporter-0.16.0-rc.1.linux-amd64/LICENSE
node_exporter-0.16.0-rc.1.linux-amd64/node_exporter
node_exporter-0.16.0-rc.1.linux-amd64/NOTICE
[root@server2 ~]# mv node_exporter-0.16.0-rc.1.linux-amd64 node_exporter
[root@server2 ~]# cd /etc/systemd/system/
[root@server2 system]# vim node_exporter.service

```

Include the below in node_exporter.service file:

[Unit]

Description=Node Exporter

Wants=network-online.target

After=network-online.target

[Service]

ExecStart=~/.node_exporter/node_exporter

[Install]

WantedBy=default.target

```

[Unit]
Description=Node Exporter
Wants=network-online.target
After=network-online.target
[Service]
ExecStart=/root/.node_exporter/node_exporter
[Install]
WantedBy=default.target
~
~

```

```
systemctl daemon-reload
systemctl start node_exporter
systemctl enable node_exporter
Systemctl status node_exporter
netstat -plntu
```

```
[root@server2 system]# systemctl daemon-reload
[root@server2 system]# systemctl restart node_exporter
[root@server2 system]# systemctl status node_exporter
● node_exporter.service - Node Exporter
   Loaded: loaded (/etc/systemd/system/node_exporter.service; enabled; vendor preset: disabled)
   Active: active (running) since Sat 2021-12-04 10:21:45 EST; 8s ago
 Main PID: 6691 (node_exporter)
   CGroup: /system.slice/node_exporter.service
           └─6691 /root/node_exporter/node_exporter

Dec 04 10:21:45 server2 node_exporter[6691]: time="2021-12-04T10:21:45-05:00" level=info msg=" - st...97"
Dec 04 10:21:45 server2 node_exporter[6691]: time="2021-12-04T10:21:45-05:00" level=info msg=" - te...97"
Dec 04 10:21:45 server2 node_exporter[6691]: time="2021-12-04T10:21:45-05:00" level=info msg=" - ti...97"
Dec 04 10:21:45 server2 node_exporter[6691]: time="2021-12-04T10:21:45-05:00" level=info msg=" - ti...97"
Dec 04 10:21:45 server2 node_exporter[6691]: time="2021-12-04T10:21:45-05:00" level=info msg=" - un...97"
Dec 04 10:21:45 server2 node_exporter[6691]: time="2021-12-04T10:21:45-05:00" level=info msg=" - vm...97"
Dec 04 10:21:45 server2 node_exporter[6691]: time="2021-12-04T10:21:45-05:00" level=info msg=" - wi...97"
Dec 04 10:21:45 server2 node_exporter[6691]: time="2021-12-04T10:21:45-05:00" level=info msg=" - xf...97"
Dec 04 10:21:45 server2 node_exporter[6691]: time="2021-12-04T10:21:45-05:00" level=info msg=" - zf...97"
Dec 04 10:21:45 server2 node_exporter[6691]: time="2021-12-04T10:21:45-05:00" level=info msg="Liste...11"
Hint: Some lines were ellipsized, use -l to show in full.
[root@server2 system]# netstat -plntu
Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State       PID/Program name
tcp        0      0 0.0.0.0:22              0.0.0.0:*               LISTEN      1017/sshd
tcp        0      0 127.0.0.1:25            0.0.0.0:*               LISTEN      1264/master
tcp6       0      0 :::22                   :::*                    LISTEN      1017/sshd
tcp6       0      0 :::1:25                 :::*                    LISTEN      1264/master
tcp6       0      0 :::9100                  :::*                    LISTEN      6691/node_exporter
udp        0      0 127.0.0.1:323          0.0.0.0:*               648/chronyd
```

We can clearly see that the node_exporter is running in **port 9100**

Now, Adding node exporter target to prometheus server we do,

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

Include the below :

global:

```
scrape_interval: 15s
```

rule_files:

```
- 'prometheus.rules.yml'
```

scrape_configs:

- job_name: 'prometheus'
 scrape_interval: 5s
 static_configs:
 - targets: [192.168.1.104:9090]
- basic_auth:
 - username: admin
 - password: centos
- job_name: 'node_exporter'
 scrape_interval: 5s
 static_configs:
 - targets: [192.168.1.168:9100]

```
global:
  scrape_interval: 15s

rule_files:
  - 'prometheus.rules.yml'

scrape_configs:

  - job_name: 'prometheus'
    scrape_interval: 5s
    static_configs:
      - targets: ['192.168.1.104:9090']
    basic_auth:
      username: admin
      password: centos

  - job_name: 'node_exporter'
    scrape_interval: 5s
    static_configs:
      - targets: ['192.168.1.168:9100']
```


Restarting the service,

```
lostins@lostins:/etc/prometheus$ sudo systemctl restart prometheus.service
lostins@lostins:/etc/prometheus$ sudo systemctl status prometheus.service
● prometheus.service - Prometheus service file
   Loaded: loaded (/etc/systemd/system/prometheus.service; disabled; vendor preset: enabled)
   Active: active (running) since Tue 2021-12-07 13:53:52 +0545; 9s ago
     Main PID: 53050 (prometheus)
        Tasks: 9 (limit: 9364)
       Memory: 32.9M
      CGroup: /system.slice/prometheus.service
              └─53050 /usr/local/bin/prometheus --config.file /etc/prometheus/prometheus.yml --storage.ts

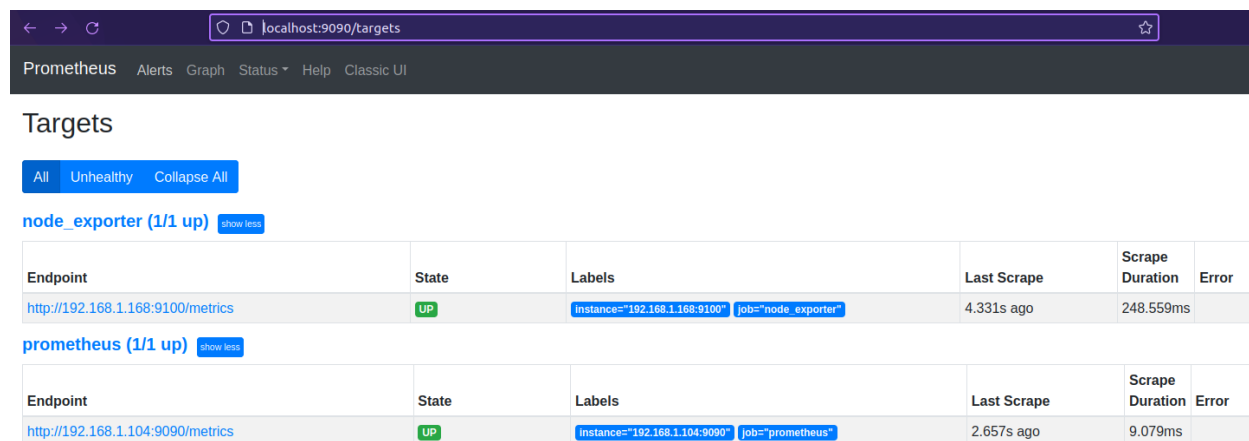
दि सम्बर 07 13:53:52 lostins prometheus[53050]: ts=2021-12-07T08:08:52.901Z caller=head.go:597 level=>
दि सम्बर 07 13:53:52 lostins prometheus[53050]: ts=2021-12-07T08:08:52.901Z caller=head.go:597 level=>
दि सम्बर 07 13:53:52 lostins prometheus[53050]: ts=2021-12-07T08:08:52.902Z caller=head.go:597 level=>
दि सम्बर 07 13:53:52 lostins prometheus[53050]: ts=2021-12-07T08:08:52.902Z caller=head.go:603 level=>
दि सम्बर 07 13:53:52 lostins prometheus[53050]: ts=2021-12-07T08:08:52.902Z caller=head.go:603 level=>
दि सम्बर 07 13:53:52 lostins prometheus[53050]: ts=2021-12-07T08:08:52.904Z caller=main.go:945 level=>
दि सम्बर 07 13:53:52 lostins prometheus[53050]: ts=2021-12-07T08:08:52.904Z caller=main.go:948 level=>
दि सम्बर 07 13:53:52 lostins prometheus[53050]: ts=2021-12-07T08:08:52.904Z caller=main.go:1129 level=>
दि सम्बर 07 13:53:52 lostins prometheus[53050]: ts=2021-12-07T08:08:52.905Z caller=main.go:1166 level=>
दि सम्बर 07 13:53:52 lostins prometheus[53050]: ts=2021-12-07T08:08:52.905Z caller=main.go:897 level=>
```

Now we allow the 9100 port to the firewall rules in the VM as,

firewall-cmd --add-port=9100/tcp
firewall-cmd --reload

```
[root@server2 system]# firewall-cmd --add-port=9100/tcp
success
[root@server2 system]# firewall-cmd --reload
success
```

Now we check the browser in, <http://localhost:9090/targets>



Endpoint	State	Labels	Last Scrape	Scrape Duration	Error
http://192.168.1.168:9100/metrics	UP	instance="192.168.1.168:9100" job="node_exporter"	4.331s ago	248.559ms	

Endpoint	State	Labels	Last Scrape	Scrape Duration	Error
http://192.168.1.104:9090/metrics	UP	instance="192.168.1.104:9090" job="prometheus"	2.657s ago	9.079ms	

Install grafana server on same server as prometheus

- Add prometheus data source to grafana, should be connected through basic auth
- Screenshot of working data source config
- Import & apply dashboard for node_exporter
- Screenshot of dashboard of nodes with live metrics shown.

To install grafana,

```
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 -
```

```
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 install grafana
```

```
ox.org.list:1 and /etc/apt/sources.list.d/virtualbox.org.list:2
lostinserver@lostinserver:~$ sudo apt-get install grafana
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  libio-pty-perl libipc-run-perl libtime-duration-perl moreutils smartmontools
Use 'sudo apt autoremove' to remove them.
The following NEW packages will be installed:
  grafana
0 upgraded, 1 newly installed, 0 to remove and 77 not upgraded.
Need to get 73.1 MB of archives.
After this operation, 247 MB of additional disk space will be used.
Get:1 https://packages.grafana.com/oss/deb stable/main amd64 grafana amd64 8.3.0 [73.1 MB]
Fetched 73.1 MB in 23s (3,141 kB/s)
Selecting previously unselected package grafana.
(Reading database ... 259226 files and directories currently installed.)
Preparing to unpack .../grafana_8.3.0_amd64.deb ...
Unpacking grafana (8.3.0) ...
Setting up grafana (8.3.0) ...
Adding system user `grafana' (UID 131) ...
Adding new user `grafana' (UID 131) with group `grafana' ...
Not creating home directory `/usr/share/grafana'.
### NOT starting on installation, please execute the following statements to configure grafana to
automatically using systemd
sudo /bin/systemctl daemon-reload
sudo /bin/systemctl enable grafana-server
```

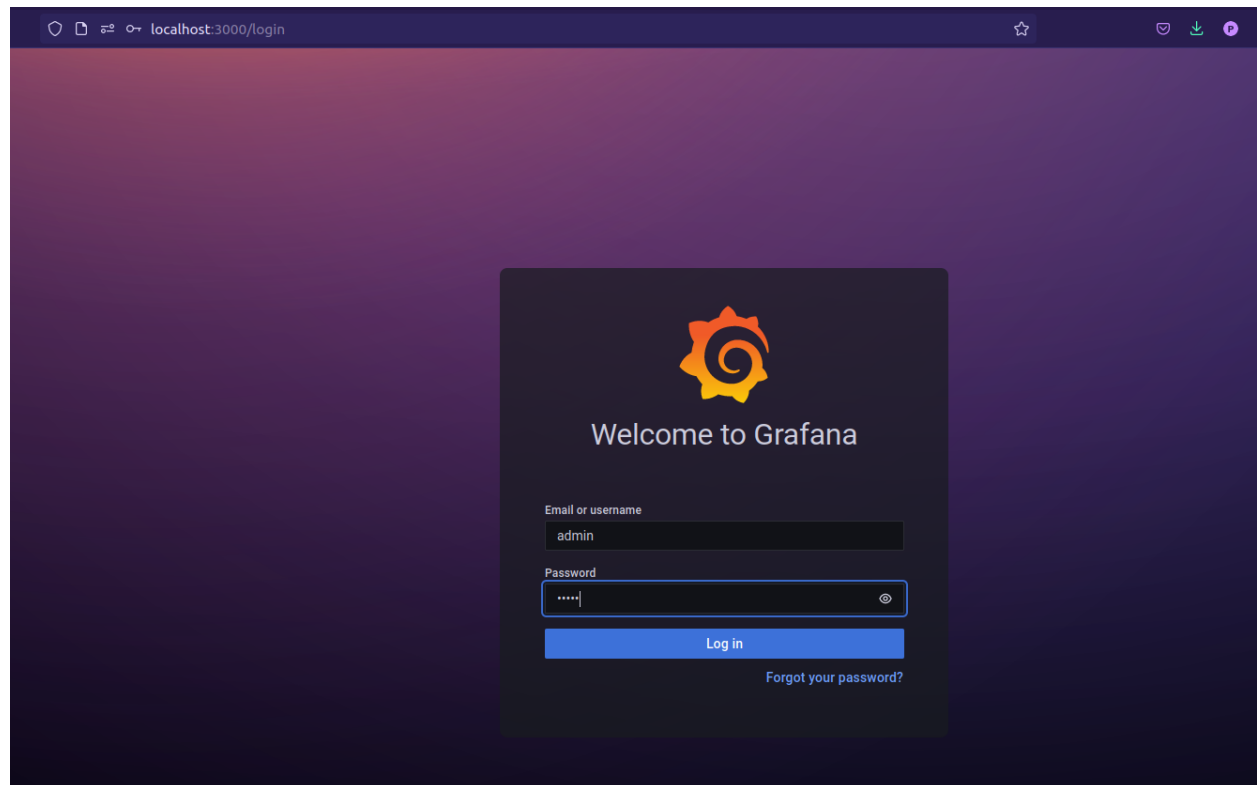
Now to start the grafana service,

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

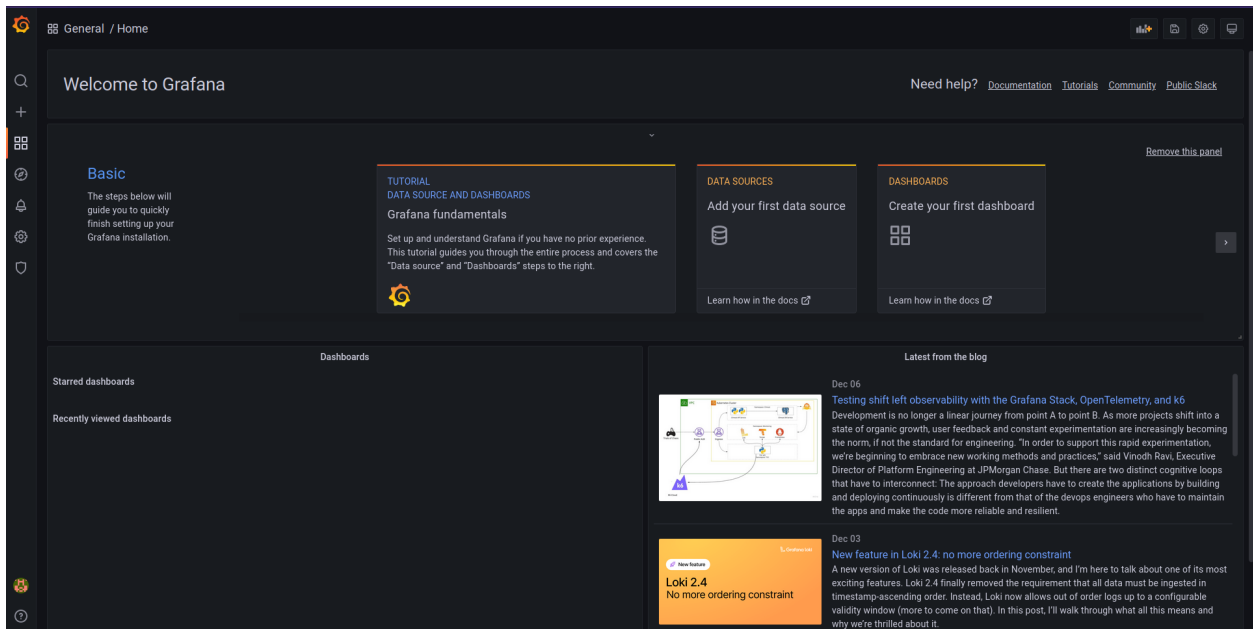
```
sudo systemctl start grafana-server.service
```

```
sudo systemctl status grafana-server.service
```

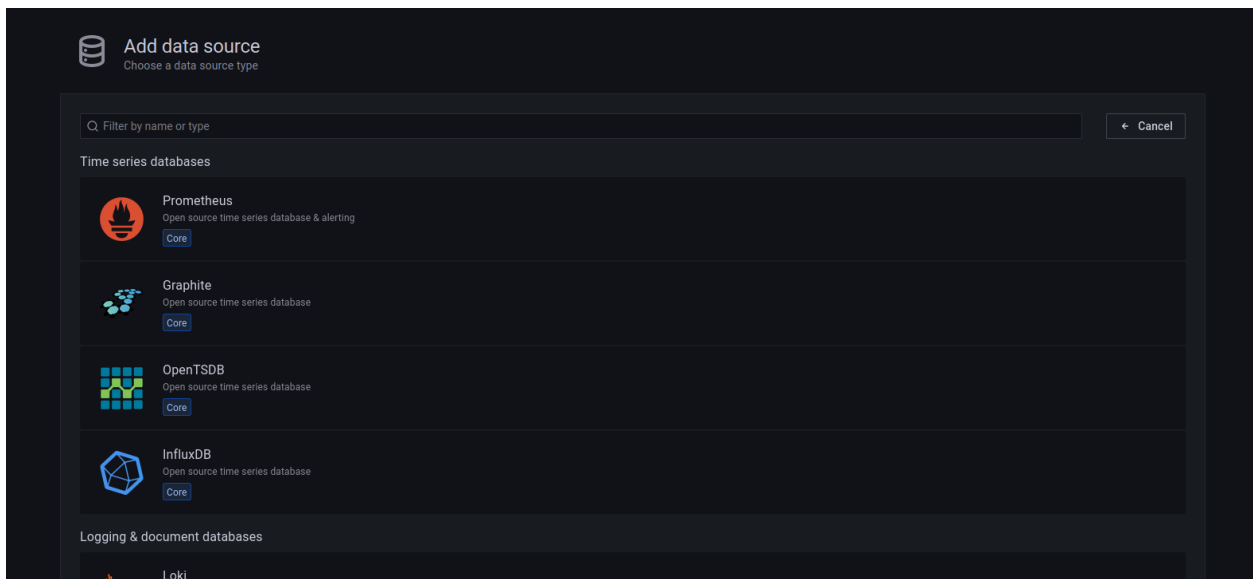
```
lostinservice@lostinservice:~$ sudo systemctl enable grafana-server.service
Synchronizing state of grafana-server.service with SysV service script with /lib/systemd/systemd-sysv-
tall.
Executing: /lib/systemd/systemd-sysv-install enable grafana-server
Created symlink /etc/systemd/system/multi-user.target.wants/grafana-server.service → /lib/systemd/syst
grafana-server.service.
lostinservice@lostinservice:~$ sudo systemctl start grafana-server.service
lostinservice@lostinservice:~$ sudo systemctl status grafana-server.service
● grafana-server.service - Grafana instance
   Loaded: loaded (/lib/systemd/system/grafana-server.service; enabled; vendor preset: enabled)
   Active: active (running) since Tue 2021-12-07 14:23:12 +0545; 3s ago
     Docs: http://docs.grafana.org
    Main PID: 80005 (grafana-server)
      Tasks: 9 (limit: 9364)
     Memory: 69.9M
    CGroup: /system.slice/grafana-server.service
            └─80005 /usr/sbin/grafana-server --config=/etc/grafana/grafana.ini --pidfile=/run/grafana
```

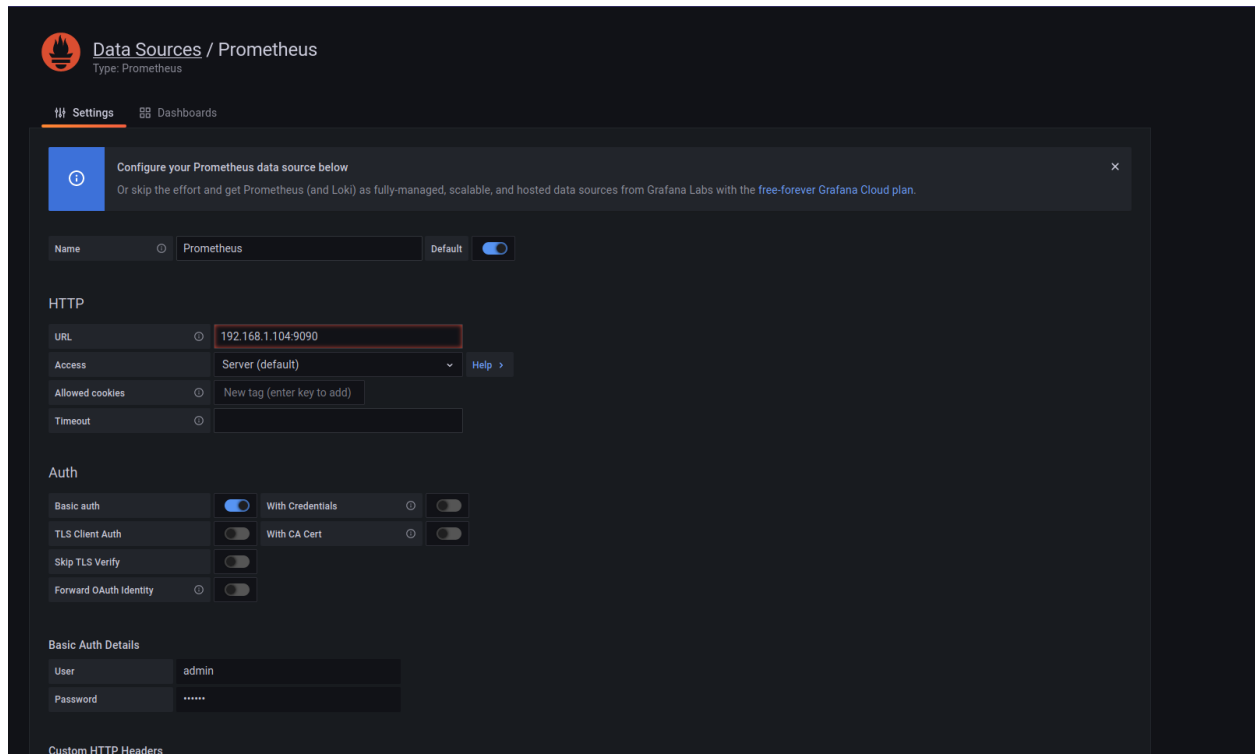


Use the default **admin** and **admin** username and password respectively which is default. Provide the new password and we can login inside.



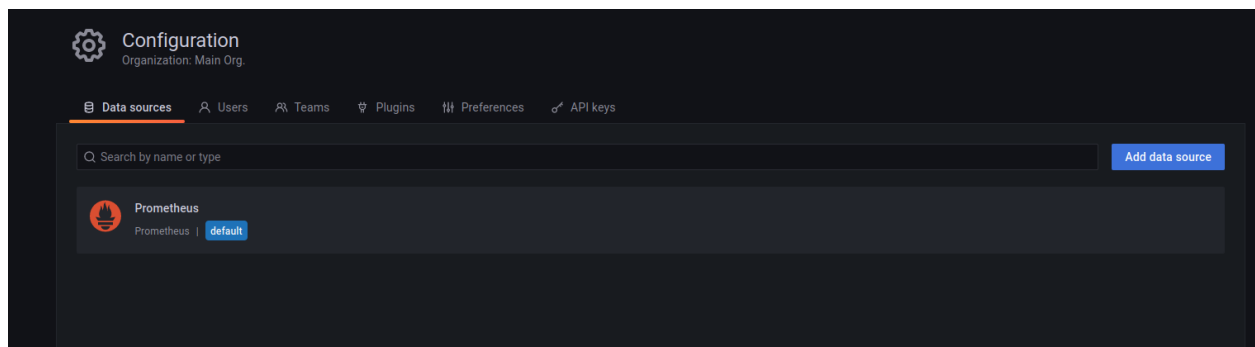
Next we add the Prometheus data source in grafana from configuration as below:





The screenshot shows the 'Data Sources / Prometheus' configuration page in Grafana. The page has a dark theme. At the top, there's a header with the Grafana logo and the text 'Data Sources / Prometheus' and 'Type: Prometheus'. Below the header, there are tabs for 'Settings' and 'Dashboards'. The 'Settings' tab is active. A blue notification box at the top says 'Configure your Prometheus data source below' and provides a link to Grafana Cloud. The configuration form includes a 'Name' field set to 'Prometheus' with a 'Default' toggle switch. Under the 'HTTP' section, there are fields for 'URL' (set to '192.168.1.104:9090'), 'Access' (set to 'Server (default)'), 'Allowed cookies' (set to 'New tag (enter key to add)'), and 'Timeout'. Under the 'Auth' section, there are toggle switches for 'Basic auth' (checked), 'TLS Client Auth', 'Skip TLS Verify', and 'Forward OAuth Identity'. There are also fields for 'With Credentials' and 'With CA Cert'. Under the 'Basic Auth Details' section, there are fields for 'User' (set to 'admin') and 'Password' (masked with dots). At the bottom, there's a section for 'Custom HTTP Headers'.

The data source has successfully been created as,



Now import the dashboard from <https://grafana.com/grafana/dashboards/>

All dashboards » [Node Exporter Full](#)



Node Exporter Full by rfraile

DASHBOARD

Last updated: 7 months ago

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Downloads: **10575447**

Reviews: **43**



[Add your review!](#)

Overview

Revisions

Reviews



Nearly all default values exported by Prometheus node exporter graphed.

Only requires the default job_name: node, add as many targets as you need in '/etc/prometheus/prometheus.yml'.

```
- job_name: node
  static_configs:
    - targets: ['localhost:9100']
```

Get this dashboard:

1860

[Copy ID to Clipboard](#)

[Download JSON](#)

[How do I import this dashboard?](#)

Dependencies:

GRAFANA 7.3.7

GAUGE

The id is **1860** as shown above so,



Import

Import dashboard from file or Grafana.com

[Upload JSON file](#)

Import via grafana.com

1860

[Load](#)

Import via panel json

[Load](#)

Name

Folder

Unique identifier (UID)

The unique identifier (UID) of a dashboard can be used to uniquely identify a dashboard between multiple Grafana installs. The UID allows having consistent URLs for accessing dashboards so changing the title of a dashboard will not break any bookmarked links to that dashboard.

Change uid

Prometheus

Import Cancel



