

1.

## Install Prometheus Server

- Configuration basic authentication username/password

Answer:

First, we need to create the configuration and data directories for Prometheus. To create the configuration directory, we run the following command;

- `sudo mkdir -p /etc/prometheus`
- `sudo mkdir -p /var/lib/prometheus`

```
aashish@Zagent:~$ sudo mkdir -p /etc/prometheus
aashish@Zagent:~$ sudo mkdir -p /var/lib/prometheus
sudo: mkdir: command not found
aashish@Zagent:~$ sudo mkdir -p /var/lib/prometheus
```

Once the directories are created, we grab the compressed installation file;

- `$ wget`  
<https://github.com/prometheus/prometheus/releases/download/v2.31.0/prometheus-2.31.0.linux-amd64.tar.gz>

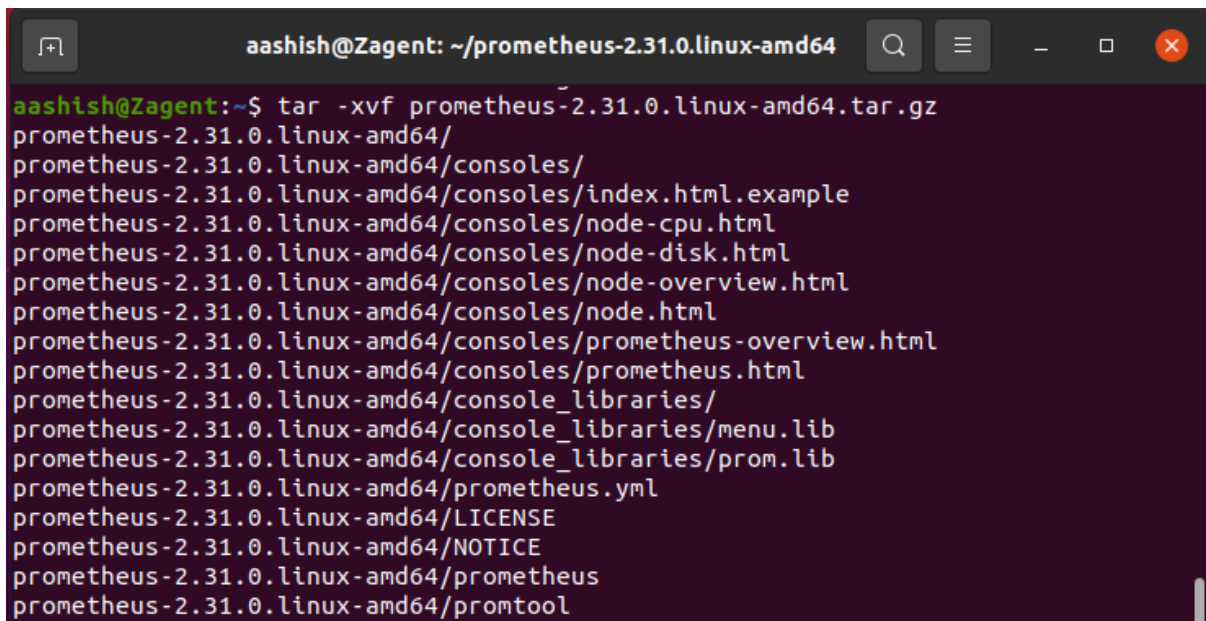
```
aashish@Zagent: ~/prometheus-2.31.0.linux-amd64
--2021-12-05 00:29:07-- https://objects.githubusercontent.com/github-production-release-asset-2e65be/6838921/7e0716f1-df36-4948-bf60-7dcbee92147b?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=AKIAIWNJYAX4CSVEH53A%2F20211204%2Fus-east-1%2Fs3%2Faws4_request&X-Amz-Date=20211204T184407Z&X-Amz-Expires=300&X-Amz-Signature=0f623d3d215e9d650b743e7f5e8076912e2e4ff7331ad5439e496b8660a2e8b5&X-Amz-SignedHeaders=host&actor_id=0&key_id=0&repo_id=6838921&response-content-disposition=attachment%3B%20filename%3Dprometheus-2.31.0.linux-amd64.tar.gz&response-content-type=application%2Foctet-stream [following]
Resolving objects.githubusercontent.com (objects.githubusercontent.com)... 185.199.110.133, 185.199.111.133, 185.199.108.133, ...
Connecting to objects.githubusercontent.com (objects.githubusercontent.com)|185.199.110.133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 73091480 (70M) [application/octet-stream]
Saving to: 'prometheus-2.31.0.linux-amd64.tar.gz'

prometheus-2.31.0.l 100%[=====>] 69.71M  2.76MB/s   in 30s

2021-12-05 00:29:38 (2.29 MB/s) - 'prometheus-2.31.0.linux-amd64.tar.gz' saved [73091480/73091480]
```

Once downloaded, we extract the tarball file as follows;

```
- tar -xvf prometheus-2.31.0.linux-amd64.tar.gz
```



```
aashish@Zagent: ~/prometheus-2.31.0.linux-amd64
aashish@Zagent:~$ tar -xvf prometheus-2.31.0.linux-amd64.tar.gz
prometheus-2.31.0.linux-amd64/
prometheus-2.31.0.linux-amd64/consoles/
prometheus-2.31.0.linux-amd64/consoles/index.html.example
prometheus-2.31.0.linux-amd64/consoles/node-cpu.html
prometheus-2.31.0.linux-amd64/consoles/node-disk.html
prometheus-2.31.0.linux-amd64/consoles/node-overview.html
prometheus-2.31.0.linux-amd64/consoles/node.html
prometheus-2.31.0.linux-amd64/consoles/prometheus-overview.html
prometheus-2.31.0.linux-amd64/consoles/prometheus.html
prometheus-2.31.0.linux-amd64/console_libraries/
prometheus-2.31.0.linux-amd64/console_libraries/menu.lib
prometheus-2.31.0.linux-amd64/console_libraries/prom.lib
prometheus-2.31.0.linux-amd64/prometheus.yml
prometheus-2.31.0.linux-amd64/LICENSE
prometheus-2.31.0.linux-amd64/NOTICE
prometheus-2.31.0.linux-amd64/prometheus
prometheus-2.31.0.linux-amd64/promtool
```

Next, we move the prometheus and promtool binary files to /usr/local/bin/ folder as follows;

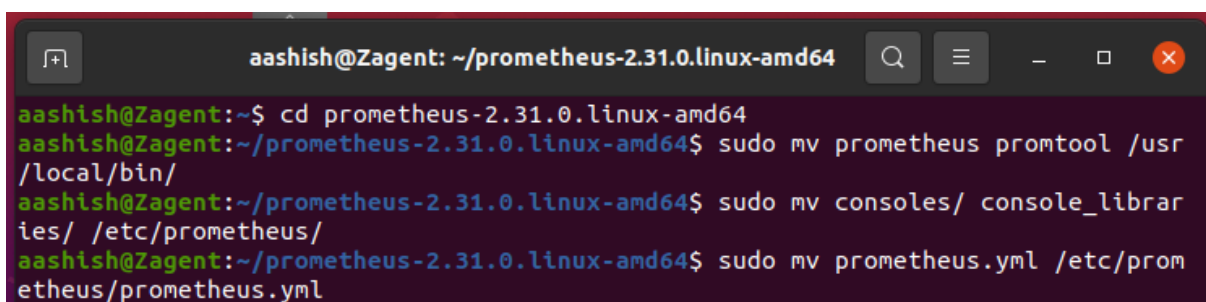
```
- sudo mv prometheus promtool /usr/local/bin/
```

Then, we move console files in console directory and library files in the console\_libraries to /etc/prometheus/ directory as follows;

```
- sudo mv consoles/ console_libraries/ /etc/prometheus/
```

Also, we move the prometheus.yml template config file to the /etc/prometheus/ as follows;

```
- sudo mv prometheus.yml /etc/prometheus/prometheus.yml
```



```
aashish@Zagent: ~/prometheus-2.31.0.linux-amd64
aashish@Zagent:~$ cd prometheus-2.31.0.linux-amd64
aashish@Zagent:~/prometheus-2.31.0.linux-amd64$ sudo mv prometheus promtool /usr/local/bin/
aashish@Zagent:~/prometheus-2.31.0.linux-amd64$ sudo mv consoles/ console_libraries/ /etc/prometheus/
aashish@Zagent:~/prometheus-2.31.0.linux-amd64$ sudo mv prometheus.yml /etc/prometheus/prometheus.yml
```

To check the prometheus version, we use;

```
- prometheus --version
```

```
- promtool --version
```

```
aashish@Zagent: ~/prometheus-2.31.0.linux-amd64
aashish@Zagent:~/prometheus-2.31.0.linux-amd64$ prometheus --version
prometheus, version 2.31.0 (branch: HEAD, revision: d4c83da6d252d4edfddb639fb817ebdb8e9ab2e4)
  build user:      root@395d507f537a
  build date:      20211102-10:28:54
  go version:      go1.17.2
  platform:        linux/amd64
```

```
aashish@Zagent: ~/prometheus-2.31.0.linux-amd64
aashish@Zagent:~/prometheus-2.31.0.linux-amd64$ promtool --version
promtool, version 2.31.0 (branch: HEAD, revision: d4c83da6d252d4edfddb639fb817ebdb8e9ab2e4)
  build user:      root@395d507f537a
  build date:      20211102-10:28:54
  go version:      go1.17.2
  platform:        linux/amd64
```

Next, we create a prometheus group using the following command;

```
- sudo groupadd --system prometheus
```

Then , we create prometheus user and assign it to the just created prometheus group as follows;

```
- sudo useradd -s /sbin/nologin --system -g prometheus prometheus
```

Next, we configure the directory ownership and permission as follows;

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

```
- sudo chmod -R 775 /etc/prometheus/ /var/lib/prometheus/
```

```
aashish@Zagent:~/prometheus-2.31.0.linux-amd64$ sudo groupadd --system prometheus
aashish@Zagent:~/prometheus-2.31.0.linux-amd64$ sudo useradd -s /sbin/nologin --system -g prometheus prometheus
aashish@Zagent:~/prometheus-2.31.0.linux-amd64$ sudo chown -R prometheus:prometheus /etc/prometheus/ /var/lib/prometheus/
aashish@Zagent:~/prometheus-2.31.0.linux-amd64$ sudo chown -R 775 /etc/prometheus/ /var/lib/prometheus/
```

Now, we create a systemd file for prometheus using the text editor as follows;

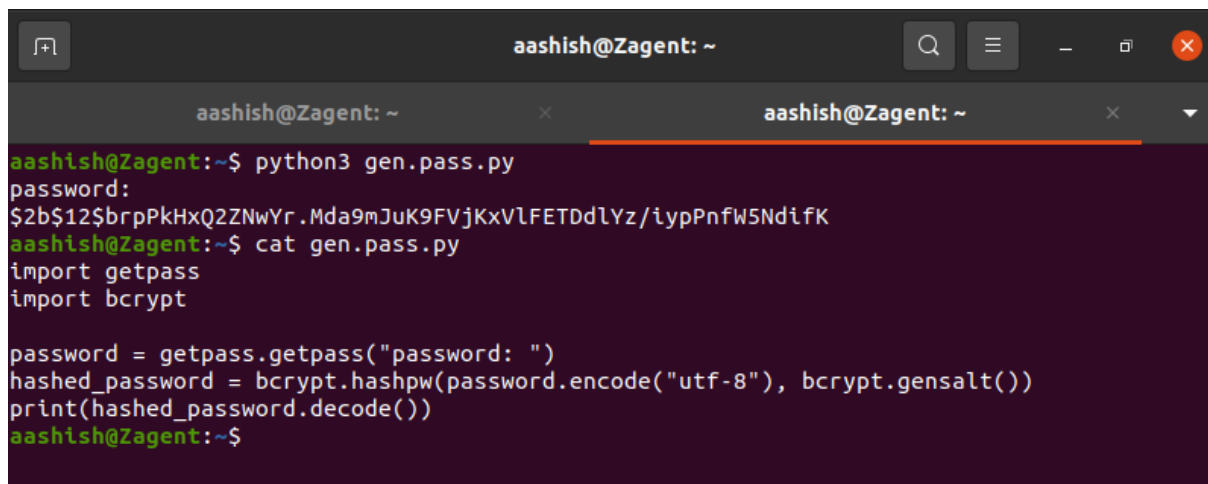
```
aashish@Zagent: ~  
GNU nano 4.8 /etc/systemd/system/prometheus.service  
[Unit]  
Description=Prometheus  
Wants=network-online.target  
After=network-online.target  
  
[Service]  
User=prometheus  
Group=prometheus  
Restart=always  
Type=simple  
ExecStart=/usr/local/bin/prometheus \  
--config.file /etc/prometheus/prometheus.yml \  
--storage.tsdb.path /var/lib/prometheus/ \  
--web.console.templates /etc/prometheus/consoles \  
--web.console.libraries /etc/prometheus/console_libraries \  
--web.listen-address=0.0.0.0:9090 \  
--web.config.file=/home/aashish/prometheus-2.31.0.linux-amd64/web.yml  
[Install]  
WantedBy=multi-user.target
```

Then, we reload the daemon and restart prometheus as follows;

- **sudo systemctl daemon-reload**
- **sudo systemctl restart prometheus**
- **sudo systemctl status prometheus**

```
aashish@Zagent: ~  
aashish@Zagent: /usr/local/bin  
aashish@Zagent:~$ sudo nano /etc/systemd/system/prometheus.service  
aashish@Zagent:~$ sudo systemctl daemon-reload  
aashish@Zagent:~$ sudo systemctl restart prometheus.service  
aashish@Zagent:~$ sudo systemctl status prometheus.service  
● prometheus.service - Prometheus  
   Loaded: loaded (/etc/systemd/system/prometheus.service; enabled; vendor pr  
   Active: active (running) since Sun 2021-12-05 01:19:10 +0545; 5s ago  
     Main PID: 60323 (prometheus)  
       Tasks: 7 (limit: 5235)  
      Memory: 18.2M  
     CGroup: /system.slice/prometheus.service  
             └─60323 /usr/local/bin/prometheus --config.file /etc/prometheus/pr  
दि सम्बर 05 01:19:11 Zagent prometheus[60323]: ts=2021-12-04T19:34:11.082Z caller>  
दि सम्बर 05 01:19:11 Zagent prometheus[60323]: ts=2021-12-04T19:34:11.082Z caller>  
दि सम्बर 05 01:19:11 Zagent prometheus[60323]: ts=2021-12-04T19:34:11.083Z caller>  
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दि सम्बर 05 01:19:11 Zagent prometheus[60323]: ts=2021-12-04T19:34:11.084Z caller>  
दि सम्बर 05 01:19:11 Zagent prometheus[60323]: ts=2021-12-04T19:34:11.087Z caller>  
दि सम्बर 05 01:19:11 Zagent prometheus[60323]: ts=2021-12-04T19:34:11.087Z caller>  
दि सम्बर 05 01:19:11 Zagent prometheus[60323]: ts=2021-12-04T19:34:11.087Z caller>  
दि सम्बर 05 01:19:11 Zagent prometheus[60323]: ts=2021-12-04T19:34:11.094Z caller>  
दि सम्बर 05 01:19:11 Zagent prometheus[60323]: ts=2021-12-04T19:34:11.094Z caller>
```

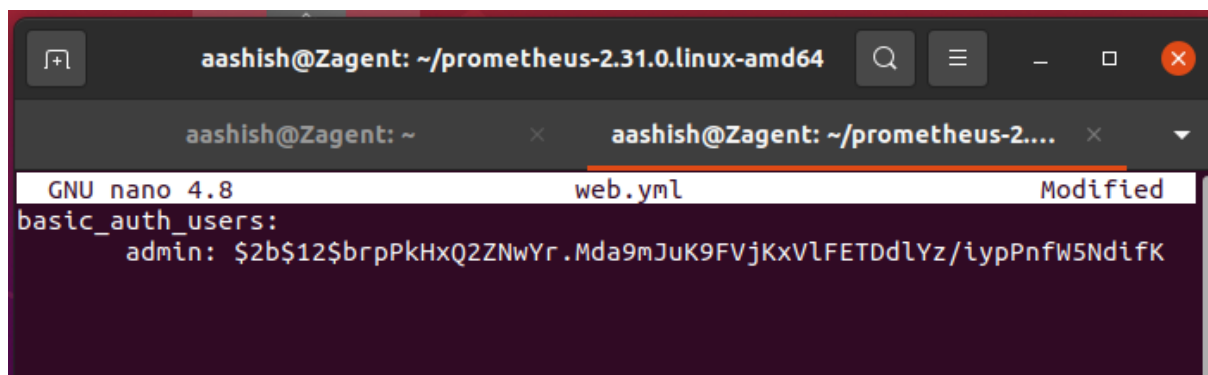
We created a hashed password using python as follows;



```
aashish@Zagent: ~  
aashish@Zagent: ~  
aashish@Zagent:~$ python3 gen.pass.py  
password:  
$2b$12$brpPkHxQ2ZNwYr.Mda9mJuK9FVjKxVlFETDdLYz/iypPnfW5NdifK  
aashish@Zagent:~$ cat gen.pass.py  
import getpass  
import bcrypt  
  
password = getpass.getpass("password: ")  
hashed_password = bcrypt.hashpw(password.encode("utf-8"), bcrypt.gensalt())  
print(hashed_password.decode())  
aashish@Zagent:~$
```

Next, we create a web.yml file inside the /home/aashish/prometheus-2.31.0.linux-amd64 as follows;

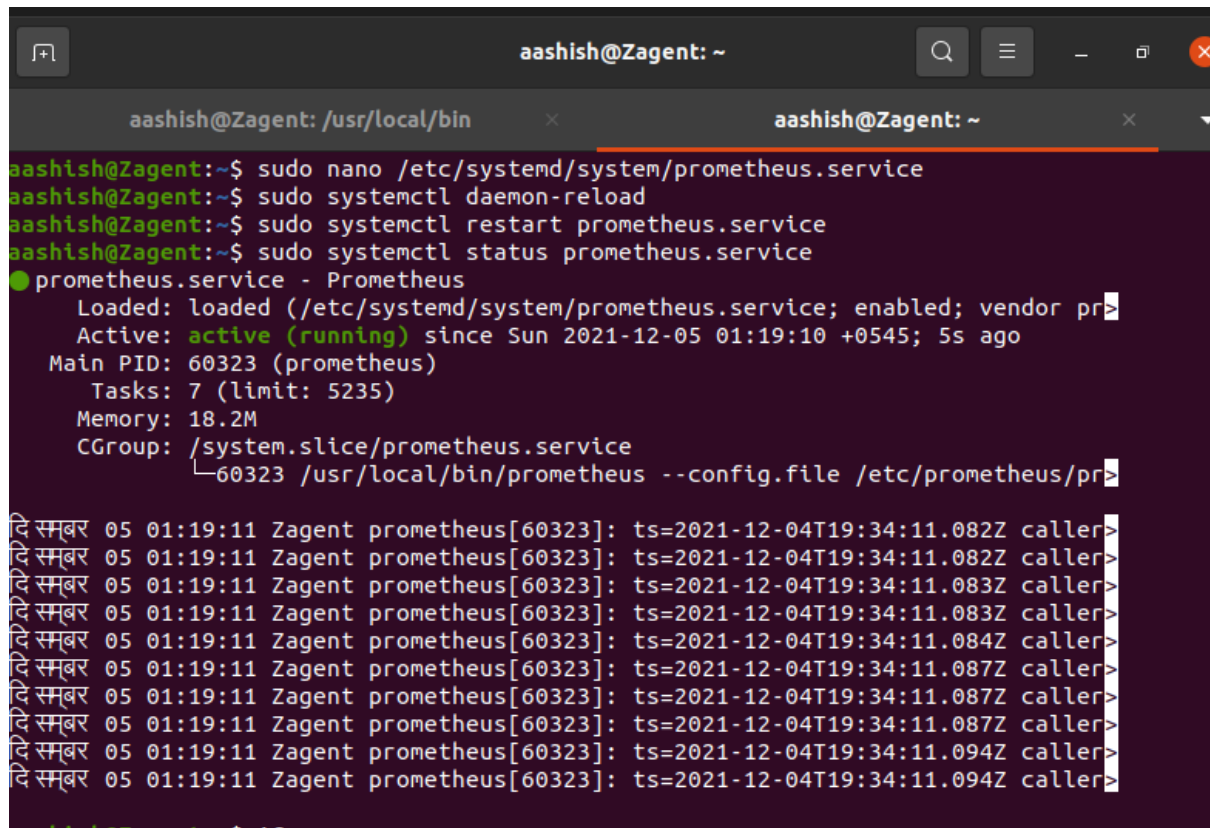
- **cd /home/aashish/prometheus-2.31.0.linux-amd64**
- **sudo nano web.yml**



```
aashish@Zagent: ~/prometheus-2.31.0.linux-amd64  
aashish@Zagent: ~/prometheus-2...  
GNU nano 4.8 web.yml Modified  
basic_auth_users:  
  admin: $2b$12$brpPkHxQ2ZNwYr.Mda9mJuK9FVjKxVlFETDdLYz/iypPnfW5NdifK
```

Again, we reload the daemon and restart prometheus as follows;

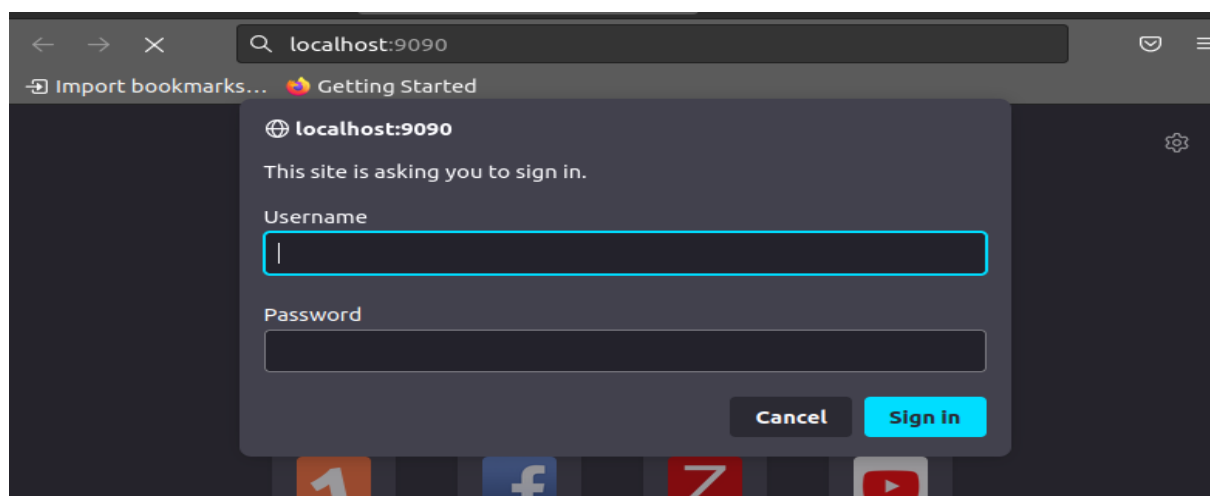
- **sudo systemctl daemon-reload**
- **sudo systemctl restart prometheus**
- **Sudo systemctl status prometheus**



```
aashish@Zagent: ~  
aashish@Zagent: /usr/local/bin  
aashish@Zagent:~$ sudo nano /etc/systemd/system/prometheus.service  
aashish@Zagent:~$ sudo systemctl daemon-reload  
aashish@Zagent:~$ sudo systemctl restart prometheus.service  
aashish@Zagent:~$ sudo systemctl status prometheus.service  
● prometheus.service - Prometheus  
   Loaded: loaded (/etc/systemd/system/prometheus.service; enabled; vendor pr  
   Active: active (running) since Sun 2021-12-05 01:19:10 +0545; 5s ago  
 Main PID: 60323 (prometheus)  
    Tasks: 7 (limit: 5235)  
  Memory: 18.2M  
   CGroup: /system.slice/prometheus.service  
           └─60323 /usr/local/bin/prometheus --config.file /etc/prometheus/pr  
दि सम्बर 05 01:19:11 Zagent prometheus[60323]: ts=2021-12-04T19:34:11.082Z caller>  
दि सम्बर 05 01:19:11 Zagent prometheus[60323]: ts=2021-12-04T19:34:11.082Z caller>  
दि सम्बर 05 01:19:11 Zagent prometheus[60323]: ts=2021-12-04T19:34:11.083Z caller>  
दि सम्बर 05 01:19:11 Zagent prometheus[60323]: ts=2021-12-04T19:34:11.083Z caller>  
दि सम्बर 05 01:19:11 Zagent prometheus[60323]: ts=2021-12-04T19:34:11.084Z caller>  
दि सम्बर 05 01:19:11 Zagent prometheus[60323]: ts=2021-12-04T19:34:11.087Z caller>  
दि सम्बर 05 01:19:11 Zagent prometheus[60323]: ts=2021-12-04T19:34:11.087Z caller>  
दि सम्बर 05 01:19:11 Zagent prometheus[60323]: ts=2021-12-04T19:34:11.087Z caller>  
दि सम्बर 05 01:19:11 Zagent prometheus[60323]: ts=2021-12-04T19:34:11.094Z caller>  
दि सम्बर 05 01:19:11 Zagent prometheus[60323]: ts=2021-12-04T19:34:11.094Z caller>
```

Now, we verify prometheus via web browser with basic authentication added as follows;

- **http://localhost:9090**



We are logged in to the prometheus dashboard as follows;

