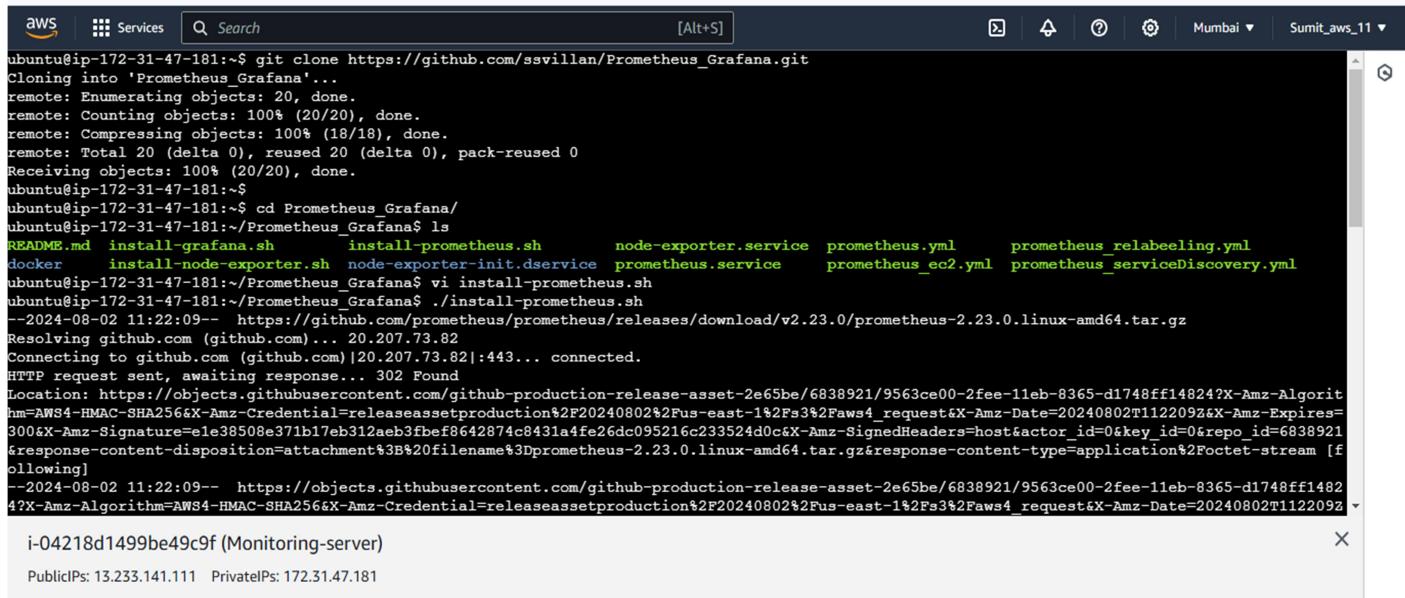


[Guvi Task]

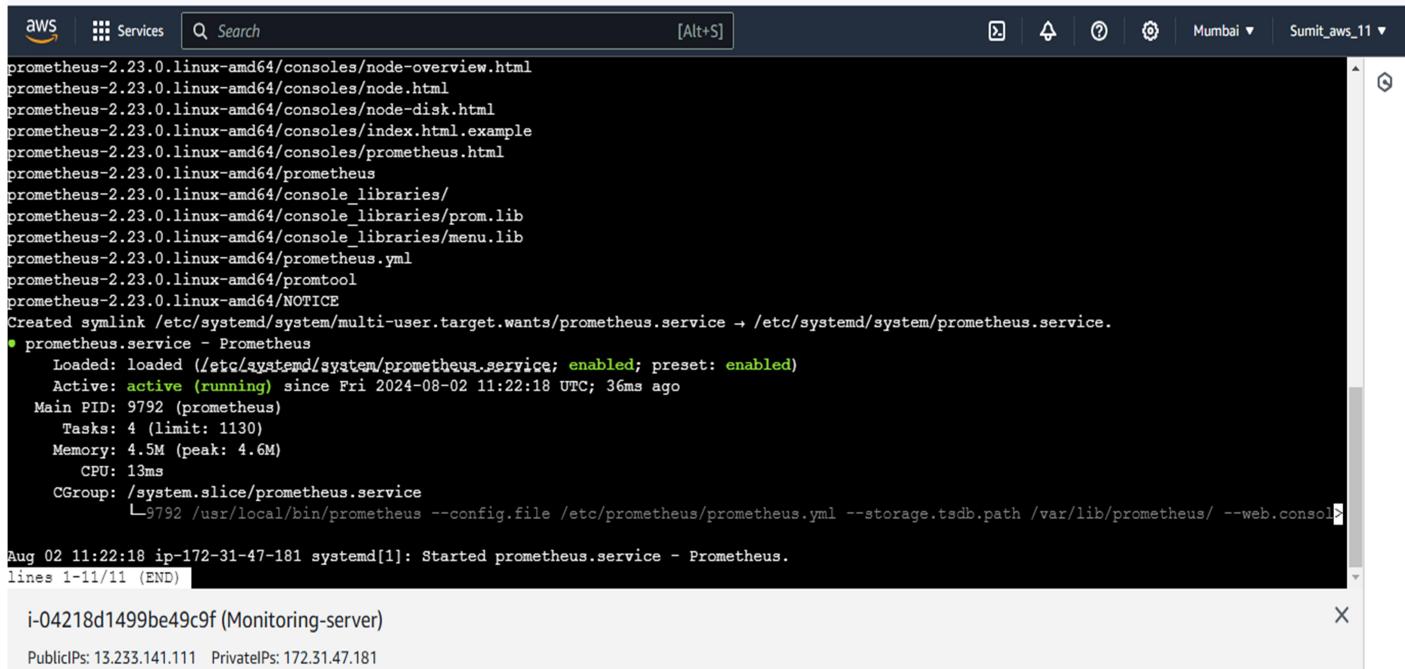
Day 2 - Monitoring Tool -Prometheus & Grafana

TASK: Install Prometheus and Grafana on a Linux EC2 machine, connect Prometheus to Grafana, and create a dashboard to view metrics.

- **Install Prometheus**



```
aws | Services | Q Search [Alt+S] Mumbai | Sumit_aws_11
ubuntu@ip-172-31-47-181:~$ git clone https://github.com/ssvillan/Prometheus_Grafana.git
Cloning into 'Prometheus_Grafana'...
remote: Enumerating objects: 20, done.
remote: Counting objects: 100% (20/20), done.
remote: Compressing objects: 100% (18/18), done.
remote: Total 20 (delta 0), reused 20 (delta 0), pack-reused 0
Receiving objects: 100% (20/20), done.
ubuntu@ip-172-31-47-181:~$ ubuntu@ip-172-31-47-181:~$ cd Prometheus_Grafana/
ubuntu@ip-172-31-47-181:~/Prometheus_Grafana$ ls
README.md  install-grafana.sh  install-prometheus.sh  node-exporter.service  prometheus.yml  prometheus_relabeling.yml
docker      install-node-exporter.sh  node-exporter-init.dservice  prometheus.service  prometheus_ec2.yml  prometheus_serviceDiscovery.yml
ubuntu@ip-172-31-47-181:~/Prometheus_Grafana$ vi install-prometheus.sh
ubuntu@ip-172-31-47-181:~/Prometheus_Grafana$ ./install-prometheus.sh
--2024-08-02 11:22:09-- https://github.com/prometheus/prometheus/releases/download/v2.23.0/prometheus-2.23.0.linux-amd64.tar.gz
Resolving github.com (github.com) ... 20.207.73.82
Connecting to github.com (github.com)|20.207.73.82|:443... connected.
HTTP request sent, awaiting response... 302 Found
Location: https://objects.githubusercontent.com/github-production-release-asset-2e65be/6838921/9563ce00-2fee-11eb-8365-d1748ff14824?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=releaseassetproduction%2F20240802%2Fsus-east-1%2F%2Faws4_request&X-Amz-Date=20240802T112209Z&X-Amz-Expires=300&X-Amz-Signature=e1e3b508e371b17eb312aeb3f8642874c8431a4fe26dc095216c233524d0c&X-Amz-SignedHeaders=host&actor_id=0&key_id=0&repo_id=6838921
<response-content-disposition>attachment;filename=prometheus-2.23.0.linux-amd64.tar.gz<response-content-type>application/octet-stream [f
allowing]
--2024-08-02 11:22:09-- https://objects.githubusercontent.com/github-production-release-asset-2e65be/6838921/9563ce00-2fee-11eb-8365-d1748ff14824?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=releaseassetproduction%2F20240802%2Fsus-east-1%2F%2Faws4_request&X-Amz-Date=20240802T112209Z
i-04218d1499be49c9f (Monitoring-server)
PublicIPs: 13.233.141.111 PrivateIPs: 172.31.47.181
```



```
aws | Services | Q Search [Alt+S] Mumbai | Sumit_aws_11
prometheus-2.23.0.linux-amd64/consoles/node-overview.html
prometheus-2.23.0.linux-amd64/consoles/node.html
prometheus-2.23.0.linux-amd64/consoles/node-disk.html
prometheus-2.23.0.linux-amd64/consoles/index.html.example
prometheus-2.23.0.linux-amd64/consoles/prometheus.html
prometheus-2.23.0.linux-amd64/prometheus
prometheus-2.23.0.linux-amd64/console_libraries/
prometheus-2.23.0.linux-amd64/console_libraries/prom.lib
prometheus-2.23.0.linux-amd64/console_libraries/menu.lib
prometheus-2.23.0.linux-amd64/prometheus.yml
prometheus-2.23.0.linux-amd64/promtool
prometheus-2.23.0.linux-amd64/NOTICE
Created symlink /etc/systemd/system/multi-user.target.wants/prometheus.service → /etc/systemd/system/prometheus.service.
• prometheus.service - Prometheus
  Loaded: loaded (/etc/systemd/system/prometheus.service; enabled; preset: enabled)
  Active: active (running) since Fri 2024-08-02 11:22:18 UTC; 36ms ago
    Main PID: 9792 (prometheus)
       Tasks: 4 (limit: 1130)
      Memory: 4.5M (peak: 4.6M)
        CPU: 13ms
       CGroup: /system.slice/prometheus.service
              └─9792 /usr/local/bin/prometheus --config.file /etc/prometheus/prometheus.yml --storage.tsdb.path /var/lib/prometheus/ --web.console
```

```
Aug 02 11:22:18 ip-172-31-47-181 systemd[1]: Started prometheus.service - Prometheus.
lines 1-11/11 (END)
```

```
i-04218d1499be49c9f (Monitoring-server)
PublicIPs: 13.233.141.111 PrivateIPs: 172.31.47.181
```

- go to Security Groups and open port Number 9090 for Prometheus page
- Then you take that Local IP id with port Number (13.233.141.111:9090) and open the Prometheus page.

Prometheus Alerts Graph Status Help Classic UI

Targets

All Unhealthy

prometheus (1/1 up) show less

Endpoint	State	Labels	Last Scrape	Scrape Duration	Error
http://localhost:9090/metrics	UP	instance="localhost:9090" job="prometheus"	790.000ms	4.897ms	



- **Install Node Export**

```

ubuntu@ip-172-31-47-181:~/Prometheus_Grafana$ ls
ubuntu@ip-172-31-47-181:~/Prometheus_Grafana$ ./install-node-exporter.sh
ubuntu@ip-172-31-47-181:~/Prometheus_Grafana$ ./install-node-exporter.sh
--2024-08-02 11:55:18-- https://github.com/prometheus/node_exporter/releases/download/v1.0.1/node_exporter-1.0.1.linux-amd64.tar.gz
Resolving github.com (github.com)... 20.207.73.82
Connecting to github.com (github.com)|20.207.73.82|:443... connected.
HTTP request sent, awaiting response... 302 Found
Location: https://objects.githubusercontent.com/github-production-release-asset-2e65be/9524057/2ae54580-afed-11ea-8b8a-89172cffc39d?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=releaseassetproduction%2F20240802%2Fs-east-1%2Fs3%2Faws4_request&X-Amz-Date=20240802T115518Z&X-Amz-Expires=300&X-Amz-Signature=365cd0bf347b143ffff40443a10d9dc03a696445e510c07d88e0ede6ecbd154e6X-Amz-SignedHeaders=host&actor_id=0&key_id=0&repo_id=9524057&response-content-disposition=attachment%3B%20filename%3Dnode_exporter-1.0.1.linux-amd64.tar.gz&response-content-type=application%2Foctet-stream[following]
--2024-08-02 11:55:18-- https://objects.githubusercontent.com/github-production-release-asset-2e65be/9524057/2ae54580-afed-11ea-8b8a-89172cffc39d?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=releaseassetproduction%2F20240802%2Fs-east-1%2Fs3%2Faws4_request&X-Amz-Date=20240802T115518Z&X-Amz-Expires=300&X-Amz-Signature=365cd0bf347b143ffff40443a10d9dc03a696445e510c07d88e0ede6ecbd154e6X-Amz-SignedHeaders=host&actor_id=0&key_id=0&repo_id=9524057&response-content-disposition=attachment%3B%20filename%3Dnode_exporter-1.0.1.linux-amd64.tar.gz&response-content-type=application%2Foctet-stream
Resolving objects.githubusercontent.com (objects.githubusercontent.com)... 185.199.109.133, 185.199.110.133, 185.199.111.133, ...
Connecting to objects.githubusercontent.com (objects.githubusercontent.com)|185.199.109.133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 9520728 (9.1M) [application/octet-stream]
Saving to: 'node_exporter-1.0.1.linux-amd64.tar.gz'

i-04218d1499be49c9f (Monitoring-server)
PublicIPs: 13.233.141.111 PrivateIPs: 172.31.47.181

```

The screenshot shows a terminal window within the AWS CloudWatch interface. The title bar includes the AWS logo, 'Services' button, a search bar with placeholder 'Search', and system status indicators like 'Mumbai' and 'Sumit_aws_11'. The main content area displays the following text:

```

Length: 9520728 (9.1M) [application/octet-stream]
Saving to: 'node_exporter-1.0.1.linux-amd64.tar.gz'

node_exporter-1.0.1.linux-amd64.tar. 100%[=====] 9.08M --.-KB/s in 0.07s
● node-exporter.service - Prometheus Node Exporter Service
  Loaded: loaded (/etc/systemd/system/node-exporter.service; enabled; preset: enabled)
  Active: active (running) since Fri 2024-08-02 11:55:20 UTC; 35ms ago
    Main PID: 9975 (node_exporter)
      Tasks: 3 (limit: 1130)
     Memory: 1.7M (peak: 1.9M)
        CPU: 8ms
       CGroup: /system.slice/node-exporter.service
           └─9975 /usr/local/bin/node_exporter

Aug 02 11:55:20 ip-172-31-47-181 node_exporter[9975]: level=info ts=2024-08-02T11:55:20.884Z caller=node_exporter.go:112 collector=thermal_zone
Aug 02 11:55:20 ip-172-31-47-181 node_exporter[9975]: level=info ts=2024-08-02T11:55:20.884Z caller=node_exporter.go:112 collector=time
Aug 02 11:55:20 ip-172-31-47-181 node_exporter[9975]: level=info ts=2024-08-02T11:55:20.884Z caller=node_exporter.go:112 collector=timex
Aug 02 11:55:20 ip-172-31-47-181 node_exporter[9975]: level=info ts=2024-08-02T11:55:20.884Z caller=node_exporter.go:112 collector=udp_queues
Aug 02 11:55:20 ip-172-31-47-181 node_exporter[9975]: level=info ts=2024-08-02T11:55:20.884Z caller=node_exporter.go:112 collector=uname
Aug 02 11:55:20 ip-172-31-47-181 node_exporter[9975]: level=info ts=2024-08-02T11:55:20.884Z caller=node_exporter.go:112 collector=vmstat
Aug 02 11:55:20 ip-172-31-47-181 node_exporter[9975]: level=info ts=2024-08-02T11:55:20.884Z caller=node_exporter.go:112 collector=xfs
Aug 02 11:55:20 ip-172-31-47-181 node_exporter[9975]: level=info ts=2024-08-02T11:55:20.884Z caller=node_exporter.go:112 collector=zfs
Aug 02 11:55:20 ip-172-31-47-181 node_exporter[9975]: level=info ts=2024-08-02T11:55:20.884Z caller=node_exporter.go:191 msg="Listening on" addr="0.0.0.0:9100"
Aug 02 11:55:20 ip-172-31-47-181 node_exporter[9975]: level=info ts=2024-08-02T11:55:20.884Z caller=tls_config.go:170 msg="TLS is disabled and ip>
~
```

Below the terminal output, there is a status summary:

i-04218d1499be49c9f (Monitoring-server)
 PublicIPs: 13.233.141.111 PrivateIPs: 172.31.47.181

- go to Security Groups and open port Number 9100 for Node Export page
 Then you take that Local IP id with port Number (13.233.141.111:9100) and search

Node Exporter

[Metrics](#)

- **Install Grafana**

```

ubuntu@ip-172-31-47-181:~/Prometheus_Grafana$ ls
ubuntu@ip-172-31-47-181:~/Prometheus_Grafana$ ./install-grafana.sh
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
adduser is already the newest version (3.137ubuntu1).
adduser set to manually installed.
The following additional packages will be installed:
  fontconfig-config fonts-dejavu-core fonts-dejavu-mono
The following NEW packages will be installed:
  fontconfig-config fonts-dejavu-core fonts-dejavu-mono libfontconfig1
0 upgraded, 4 newly installed, 0 to remove and 21 not upgraded.
Need to get 1513 kB of archives.
After this operation, 4257 kB of additional disk space will be used.
Get:1 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 fonts-dejavu-mono all 2.37-8 [502 kB]
Get:2 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 fonts-dejavu-core all 2.37-8 [835 kB]
Get:3 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 fontconfig-config amd64 2.15.0-1.1ubuntu2 [37.3 kB]
Get:4 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libfontconfig1 amd64 2.15.0-1.1ubuntu2 [139 kB]
Fetched 1513 kB in 0s (35.8 MB/s)
Selecting previously unselected package fonts-dejavu-mono.
(Reading database ... 98327 files and directories currently installed.)

```

i-04218d1499be49c9f (Monitoring-server)

PublicIPs: 13.233.141.111 PrivateIPs: 172.31.47.181

```

Unpacking grafana (7.3.4) ...
Setting up grafana (7.3.4) ...
info: Selecting UID from range 100 to 999 ...

info: Adding system user 'grafana' (UID 111) ...
info: Adding new user 'grafana' (UID 111) with group 'grafana' ...
info: Not creating home directory '/usr/share/grafana'.
### NOT starting on installation, please execute the following statements to configure grafana to start automatically using systemd
sudo /bin/systemctl daemon-reload
sudo /bin/systemctl enable grafana-server
### You can start grafana-server by executing
sudo /bin/systemctl start grafana-server
● grafana-server.service - Grafana instance
   Loaded: loaded (/usr/lib/systemd/system/grafana-server.service; disabled; preset: enabled)
     Active: active (running) since Fri 2024-08-02 12:04:39 UTC; 34ms ago
       Docs: http://docs.grafana.org
   Main PID: 10540 (grafana-server)
      Tasks: 4 (limit: 1130)
     Memory: 2.3M (peak: 2.4M)
        CPU: 6ms
      CGroup: /system.slice/grafana-server.service
              └─10540 /usr/sbin/grafana-server --config=/etc/grafana/grafana.ini --pidfile=/var/run/grafana/grafana-server.pid --packaging=deb cf

Aug 02 12:04:39 ip-172-31-47-181 systemd[1]: Started grafana-server.service - Grafana instance.
lines 1-12/12 (END)

```

i-04218d1499be49c9f (Monitoring-server)

PublicIPs: 13.233.141.111 PrivateIPs: 172.31.47.181

- go to Security Groups and open port Number 3000 for Grafana page
- Then you take that Local IP id with port Number (13.233.141.111:3000) and search

The screenshot shows the Grafana interface. At the top, there's a navigation bar with icons for Home, Settings, and Help. Below it is the main dashboard titled "Welcome to Grafana". The "Basic" section contains a brief introduction and links to "TUTORIAL", "DATA SOURCE AND DASHBOARDS", and "Grafana fundamentals". The "DATA SOURCES" and "DASHBOARDS" sections also have links to documentation. At the bottom, there are sections for "Starred dashboards", "Recently viewed dashboards", and "Latest from the blog". A status bar at the bottom right shows the date (Jul 31), weather (26°C Light rain), and system info (ENG 17:46).

```

aws Services Search [Alt+S]
ubuntu@ip-172-31-47-181:~/Prometheus_Grafana$ 
ubuntu@ip-172-31-47-181:~/Prometheus_Grafana$ cd
ubuntu@ip-172-31-47-181:~$ 
ubuntu@ip-172-31-47-181:~$ cd /etc/prometheus
ubuntu@ip-172-31-47-181:/etc/prometheus$ ls
console_libraries consoles prometheus.yml
ubuntu@ip-172-31-47-181:/etc/prometheus$ sudo vi prometheus.yml
ubuntu@ip-172-31-47-181:/etc/prometheus$ sudo systemctl restart prometheus
ubuntu@ip-172-31-47-181:/etc/prometheus$ sudo systemctl status prometheus
● prometheus.service - Prometheus
   Loaded: loaded (/etc/systemd/system/prometheus.service; enabled; preset: enabled)
     Active: active (running) since Fri 2024-08-02 13:28:38 UTC; 11s ago
       Main PID: 11402 (prometheus)
          Tasks: 6 (limit: 1130)
         Memory: 30.5M (peak: 30.7M)
            CPU: 139ms
           CGroup: /system.slice/prometheus.service
                   └─11402 /usr/local/bin/prometheus --config.file /etc/prometheus/prometheus.yml --storage.tsdb.path /var/lib/prometheus/ --web.conso>

Aug 02 13:28:38 ip-172-31-47-181 prometheus[11402]: level=info ts=2024-08-02T13:28:38.882Z caller=head.go:717 component=tsdb msg="WAL segment lo>
Aug 02 13:28:38 ip-172-31-47-181 prometheus[11402]: level=info ts=2024-08-02T13:28:38.883Z caller=head.go:717 component=tsdb msg="WAL segment lo>
Aug 02 13:28:38 ip-172-31-47-181 prometheus[11402]: level=info ts=2024-08-02T13:28:38.886Z caller=head.go:717 component=tsdb msg="WAL segment lo>
Aug 02 13:28:38 ip-172-31-47-181 prometheus[11402]: level=info ts=2024-08-02T13:28:38.886Z caller=head.go:717 component=tsdb msg="WAL segment lo>
Aug 02 13:28:38 ip-172-31-47-181 prometheus[11402]: level=info ts=2024-08-02T13:28:38.887Z caller=head.go:722 component=tsdb msg="WAL replay com>

i-04218d1499be49c9f (Monitoring-server)
PublicIPs: 13.233.141.111 PrivateIPs: 172.31.47.181

```

The screenshot shows the AWS CloudWatch Metrics Insights interface. At the top, there's a navigation bar with 'Services' and a search bar. The main area displays a log file with the following content:

```
global:
  scrape_interval: 15s
  external_labels:
    monitor: 'prometheus'

scrape_configs:
  - job_name: 'prometheus'
    static_configs:
      - targets: ['localhost:9100']
      - targets: ['13.127.53.238:9100']

-- INSERT --
i-04218d1499be49c9f (Monitoring-server)
PublicIPs: 13.233.141.111 PrivateIPs: 172.31.47.181

# HELP go_gc_duration_seconds A summary of the pause duration of garbage collection cycles.
# TYPE go_gc_duration_seconds summary
go_gc_duration_seconds{quantile="0"} 9.623e-06
go_gc_duration_seconds{quantile="0.25"} 9.929e-06
go_gc_duration_seconds{quantile="0.5"} 1.0319e-05
go_gc_duration_seconds{quantile="0.75"} 1.1104e-05
go_gc_duration_seconds{quantile="1"} 5.9061e-05
go_gc_duration_seconds_sum 0.000520644
go_gc_duration_seconds_count 35
# HELP go_goroutines Number of goroutines that currently exist.
# TYPE go_goroutines gauge
go_goroutines 8
# HELP go_info Information about the Go environment.
# TYPE go_info gauge
go_info{version="go1.14.4"} 1
# HELP go_memstats_alloc_bytes Number of bytes allocated and still in use.
# TYPE go_memstats_alloc_bytes gauge
go_memstats_alloc_bytes 3.341728e+06
# HELP go_memstats_alloc_bytes_total Total number of bytes allocated, even if freed.
# TYPE go_memstats_alloc_bytes_total counter
go_memstats_alloc_bytes_total 8.4610008e+07
# HELP go_memstats_buck_hash_sys_bytes Number of bytes used by the profiling bucket hash table.
# TYPE go_memstats_buck_hash_sys_bytes gauge
go_memstats_buck_hash_sys_bytes 1.470023e+06
# HELP go_memstats_frees_total Total number of frees.
# TYPE go_memstats_frees_total counter
go_memstats_frees_total 888957
# HELP go_memstats_gc_cpu_fraction The fraction of this program's available CPU time used by the GC since the program started.
# TYPE go_memstats_gc_cpu_fraction gauge
go_memstats_gc_cpu_fraction 9.493580540467087e-06
# HELP go_memstats_gc_sys_bytes Number of bytes used for garbage collection system metadata.
# TYPE go_memstats_gc_sys_bytes gauge
go_memstats_gc_sys_bytes 3.574024e+06
# HELP go_memstats_heap_alloc_bytes Number of heap bytes allocated and still in use.
# TYPE go_memstats_heap_alloc_bytes gauge
go_memstats_heap_alloc_bytes 3.341728e+06
# HELP go_memstats_heap_idle_bytes Number of heap bytes waiting to be used.
# TYPE go_memstats_heap_idle_bytes gauge
go_memstats_heap_idle_bytes 6.2660608e+07
```

- Go to the Grafana page and click to the data base or data source inside the data source Prometheus is the inside the Prometheus give URL <http://13.233.141.111:9090> and save
- Create the Dashboard click on add on panel click on metric and select node inside the node select node_cpu_sec
- Next click on visualization and select one stat graph and save the dashboard

