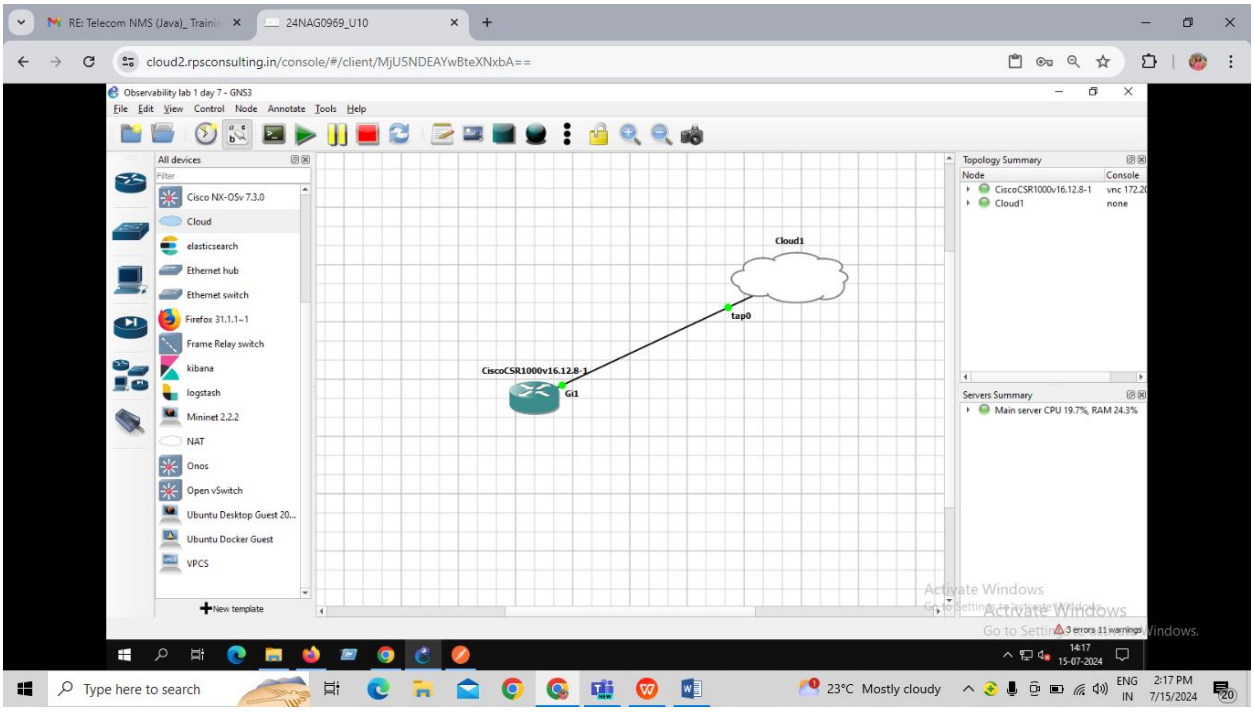
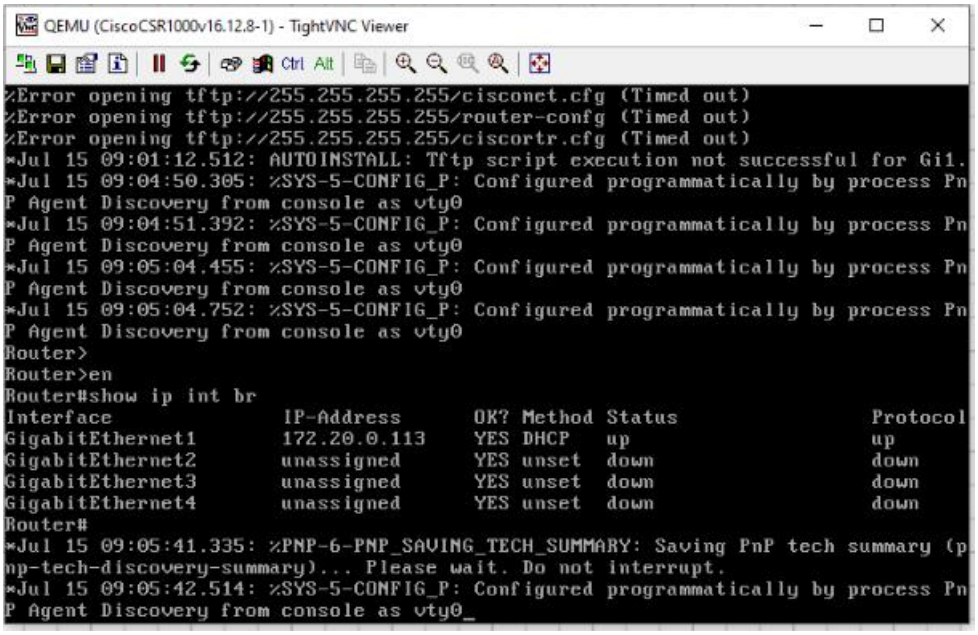
OBSERVABILITY LAB 1

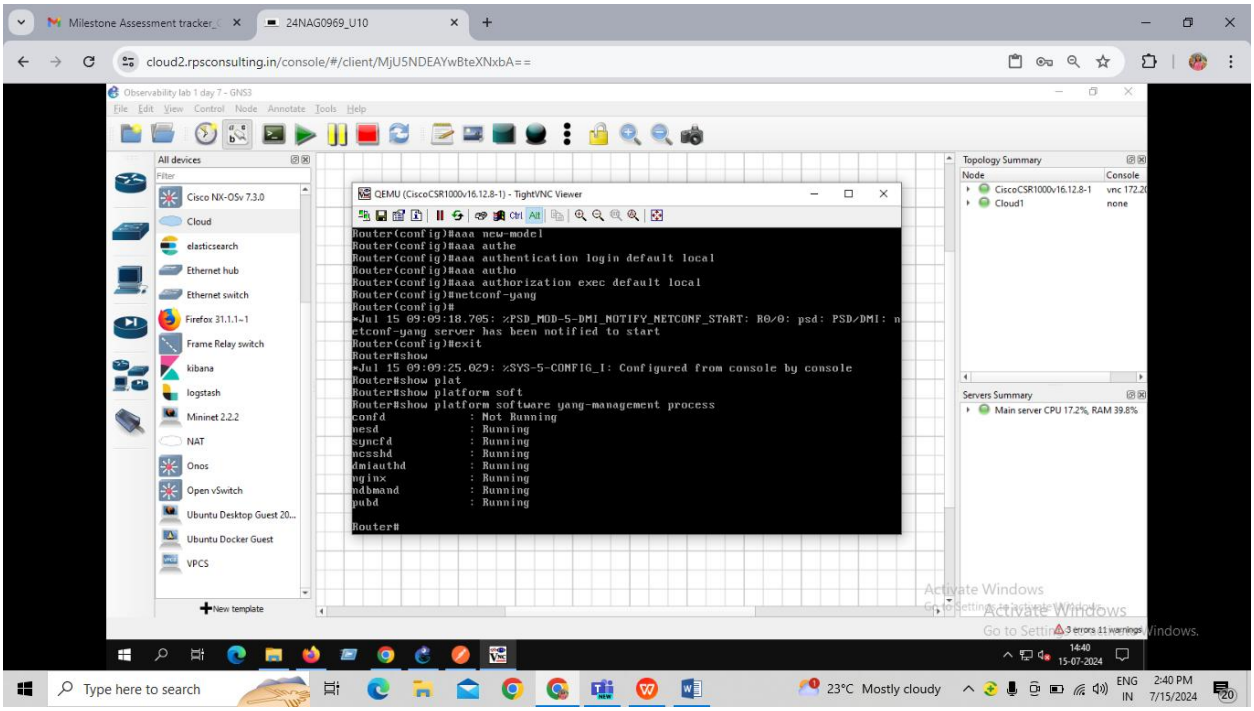
LAB: Enable the Telemetry configuration on Cisco Router, Telegraf will receive the stats and store in Influx DB , Grafana will be used to display the stats.

Topology:





Step 2: Configure the router for Yang-Management process



Step 3: Configure the Telemetry on router for CPU, Memory, and Interface
Login to below URL:
https://github.com/jeremycohoe/cisco-ios-xe-mdt/blob/master/cat9k-174-device-health-dashboa
Configure the Telemetry for IETF 3305, 3307, 3310, 3313, 3314 as per the commands described on above URL
Source IP address: Ip address of router (check show ip interface br)
Receiver IP: 172.20.0.11 (Telegraf IP address)

CPU – 3305

```
Router>
*Jul 15 09:35:08.316: %SEC_LOGIN-5-LOGIN_SUCCESS: Login Success [user: admin] [S
ource: LOCAL] [localport: 0] at 09:35:08 UTC Mon Jul 15 2024
Router>
Router>en
Router#
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#
Router(config)#telemetry ietf subscription 3305
Router(config-mdt-subs)#encoding encode-kvgpb
Router(config-mdt-subs)#$h /process-cpu-ios-xe-oper:cpu-usage/cpu-utilization
Router(config-mdt-subs)#source-address 172.20.0.113
Router(config-mdt-subs)#stream yang-push
Router(config-mdt-subs)#update-policy periodic 3000
Router(config-mdt-subs)#$ address 172.20.0.11 57500 protocol grpc-tcp
Router(config-mdt-subs)#
```

```
Router#show telemetry ietf subscription all
  Telemetry subscription brief

  ID               Type        State       Filter type
  ---------------------------------------------------------
  3305             Configured  Valid       xpath

Router#_
```

Memory - 3307

```
Router#
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#telemetry ietf subscription 3307
Router(config-mdt-subs)#encoding encode-kvgpb
Router(config-mdt-subs)#$ios-xe-oper:memory-statistics/memory-statistic
Router(config-mdt-subs)#source-address 172.20.0.113
Router(config-mdt-subs)#stream yang-push
Router(config-mdt-subs)#update-policy periodic 3000
Router(config-mdt-subs)#$ address 172.20.0.11 57500 protocol grpc-tcp
Router(config-mdt-subs)#_
```

```
Router#show telemetry ietf subscription all
  Telemetry subscription brief

  ID               Type        State       Filter type
  ---------------------------------------------------------
  3305             Configured  Valid       xpath
  3307             Configured  Valid       xpath

Router#
```

MDT - 3310

```
Router#
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#telemetry ietf subscription 3310
Router(config-mdt-subs)#encoding encode-kvgpb
Router(config-mdt-subs)#$h /mdt-oper:mdt-oper-data/mdt-subscriptions
Router(config-mdt-subs)#source-address 172.20.0.113
Router(config-mdt-subs)#stream yang-push
Router(config-mdt-subs)#update-policy periodic 3000
Router(config-mdt-subs)#receiver ip address 172.20.0.11 57500 protocol grpc-tcp
Router(config-mdt-subs)#
Router(config-mdt-subs)#_
```

```
Router#
Router#show telemetry ietf subscription all
  Telemetry subscription brief

  ID               Type        State       Filter type
  ---------------------------------------------------------
  3305             Configured  Valid       xpath
  3307             Configured  Valid       xpath
  3310             Configured  Valid       xpath

Router#
```

OpenConfig Interfaces - 3313

```
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#telemetry ietf subscription 3313
Router(config-mdt-subs)#encoding encode-kvgpb
Router(config-mdt-subs)#$h /oc-if:interfaces/interface/state/counters
Router(config-mdt-subs)#source-address 172.20.0.113
Router(config-mdt-subs)#stream yang-push
Router(config-mdt-subs)#update-policy periodic 3000
Router(config-mdt-subs)#$ address 172.20.0.11 57500 protocol grpc-tcp
Router(config-mdt-subs)#
Router(config-mdt-subs)#
```

```
Router#
Router#show telemetry ietf subscription all
  Telemetry subscription brief

  ID               Type        State       Filter type
  ---------------------------------------------------------
  3305             Configured  Valid       xpath
  3307             Configured  Valid       xpath
  3310             Configured  Valid       xpath
  3313             Configured  Valid       xpath

Router#
```

Native Interfaces - 3314

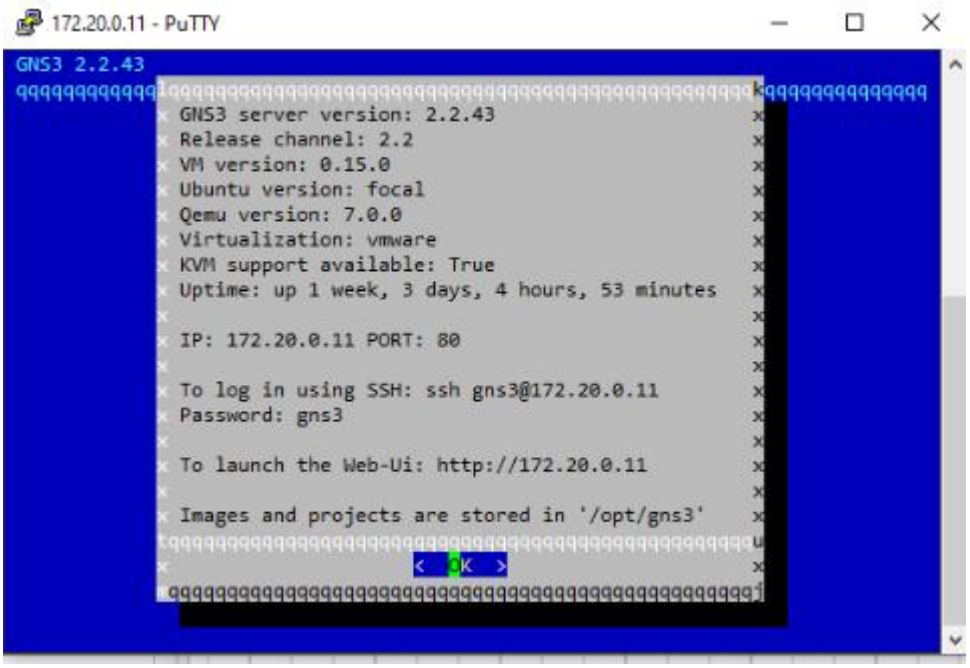
```
Router#
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#telemetry ietf subscription 3314
Router(config-mdt-subs)#encoding encode-kvgpb
Router(config-mdt-subs)#$h /interfaces-ios-xe-oper:interfaces/interface
Router(config-mdt-subs)#source-address 172.20.0.113
Router(config-mdt-subs)#stream yang-push
Router(config-mdt-subs)#update-policy periodic 3000
Router(config-mdt-subs)#$ address 172.20.0.11 57500 protocol grpc-tcp
Router(config-mdt-subs)#
Router(config-mdt-subs)#
```

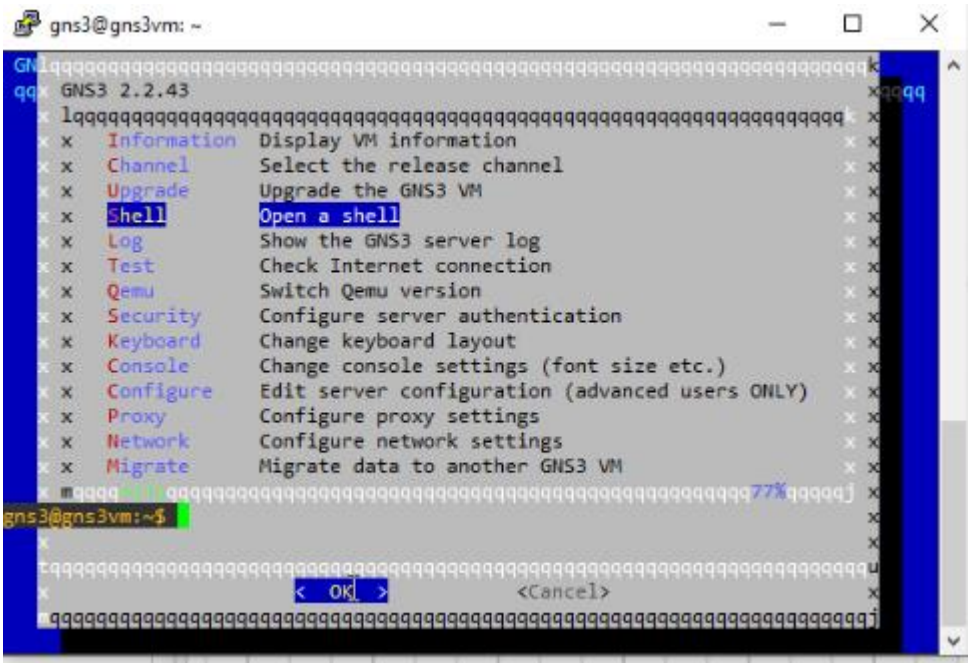
Post configuration, check the status of Telemetry on router

```
Router#
Router#show telemetry ietf subscription all
  Telemetry subscription brief

  ID               Type        State       Filter type
  ------------------------------------------------------
  3305             Configured  Valid       xpath
  3307             Configured  Valid       xpath
  3310             Configured  Valid       xpath
  3313             Configured  Valid       xpath
  3314             Configured  Valid       xpath

Router#
```

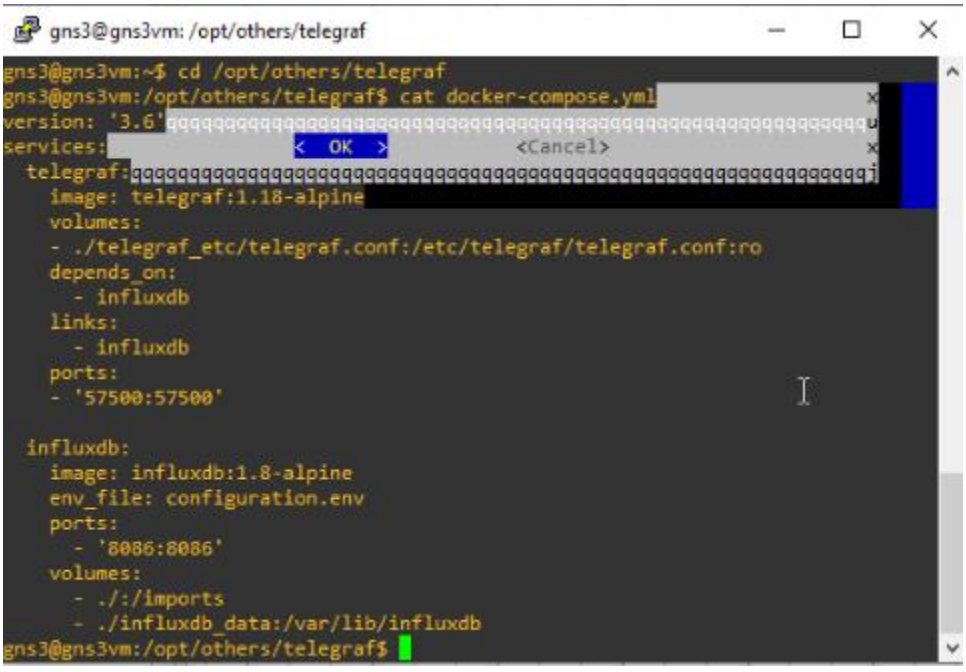
```
Router#
Router#show telemetry internal connection
Telemetry connection

Peer Address     Port  VRF Source Address  Transport  State         Profile
---------------- ----- --- --------------- ---------- ------------ ------------
172.20.0.11      57500   0 172.20.0.113    grpc-tcp   Connecting

Router#_
```

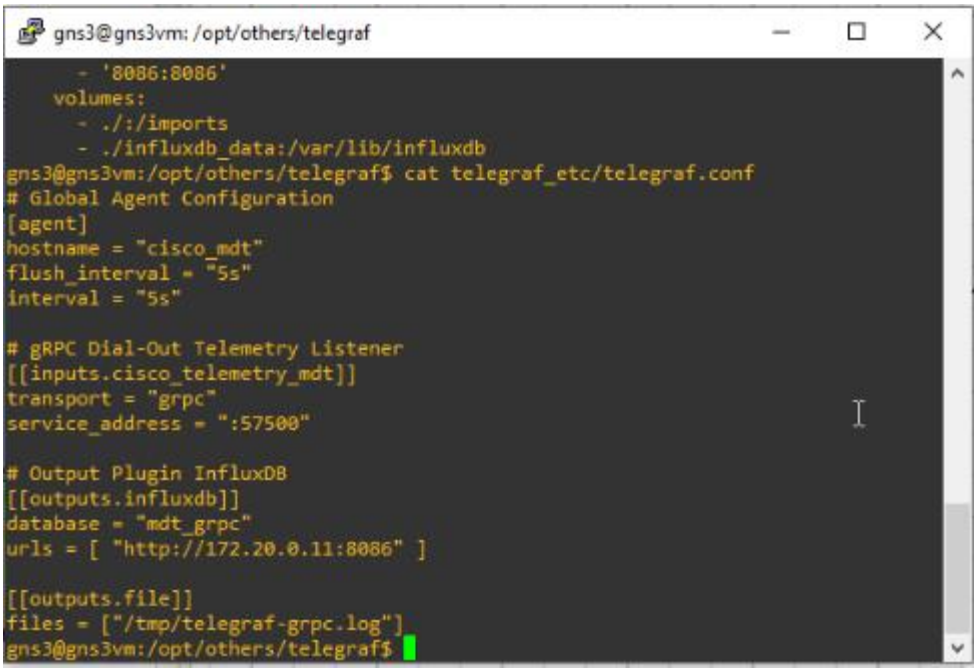
Step4: Login via putty (IP: 172.20.0.11) (user : gns3 Pass: gns3)

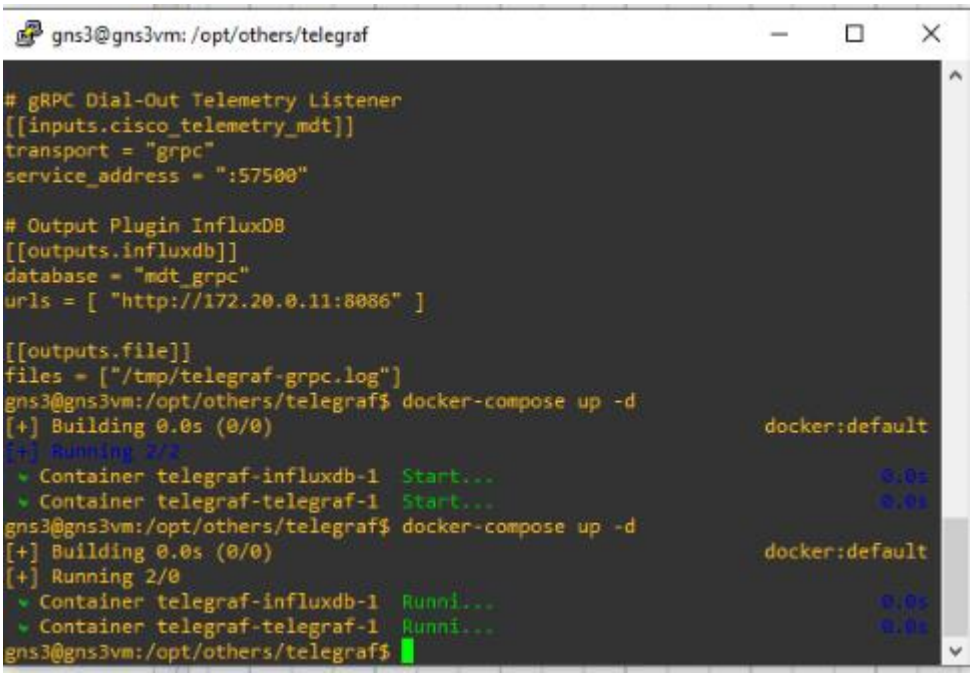




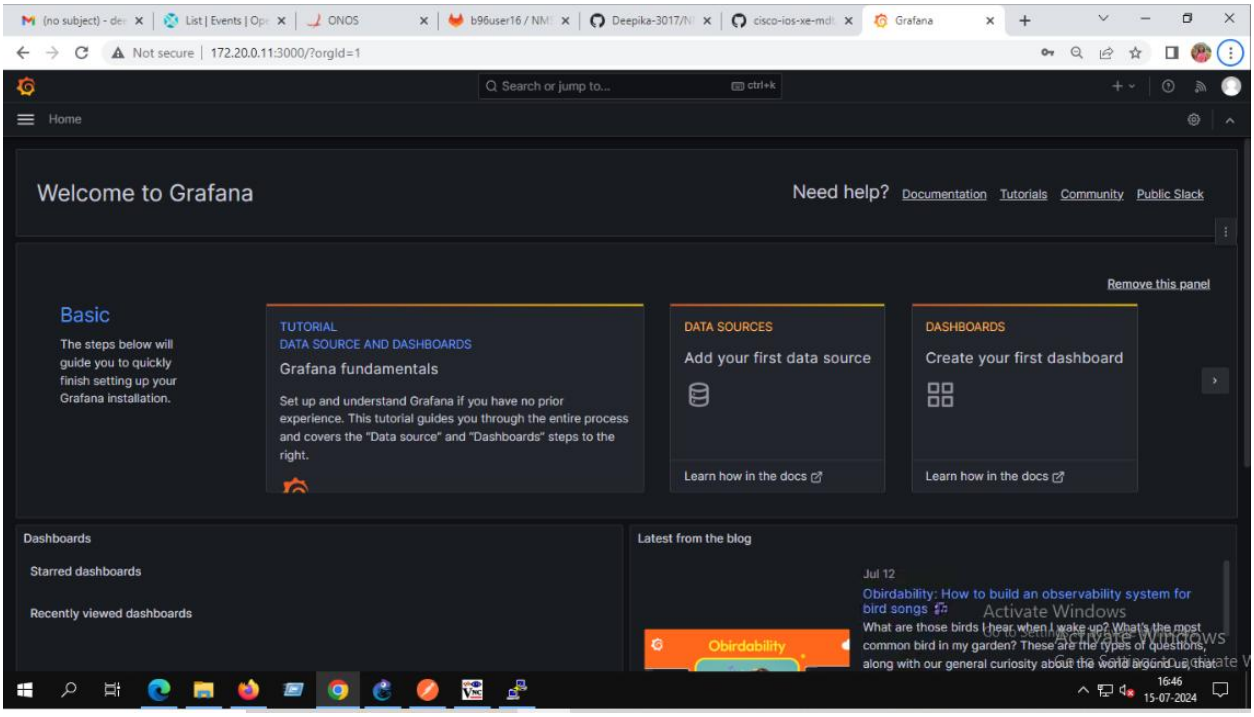
Check the telegraf and influxdb container configuration



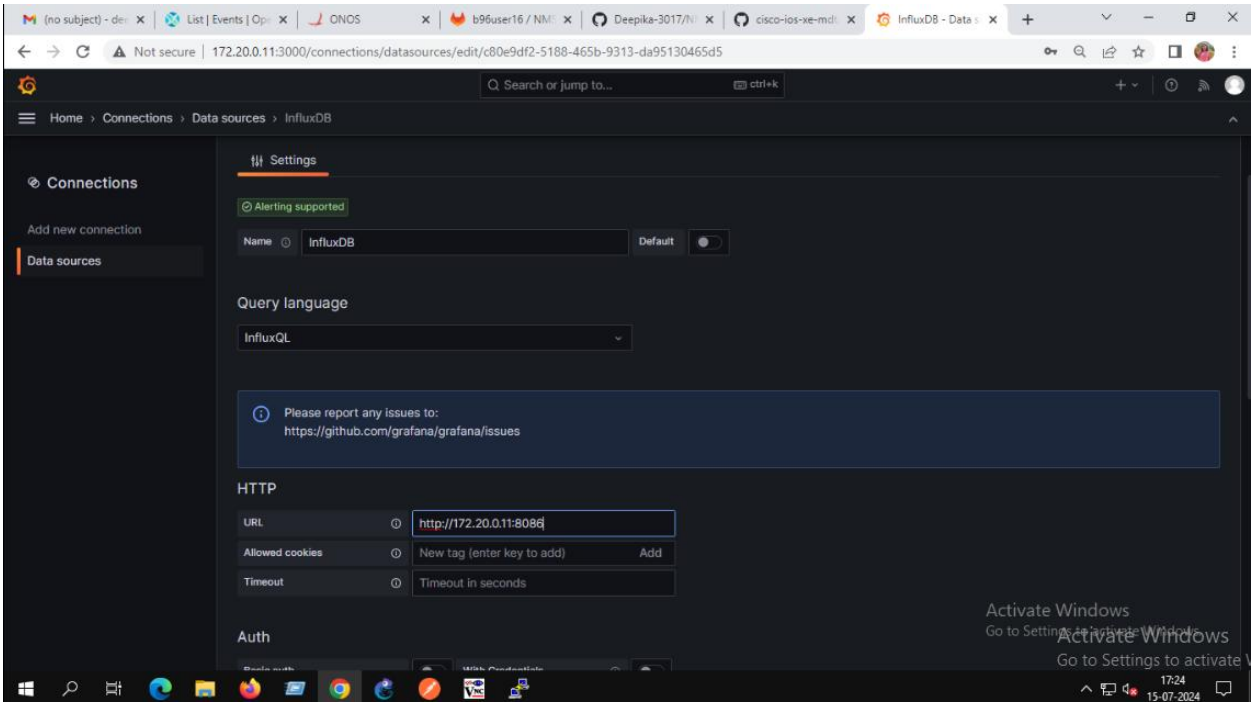


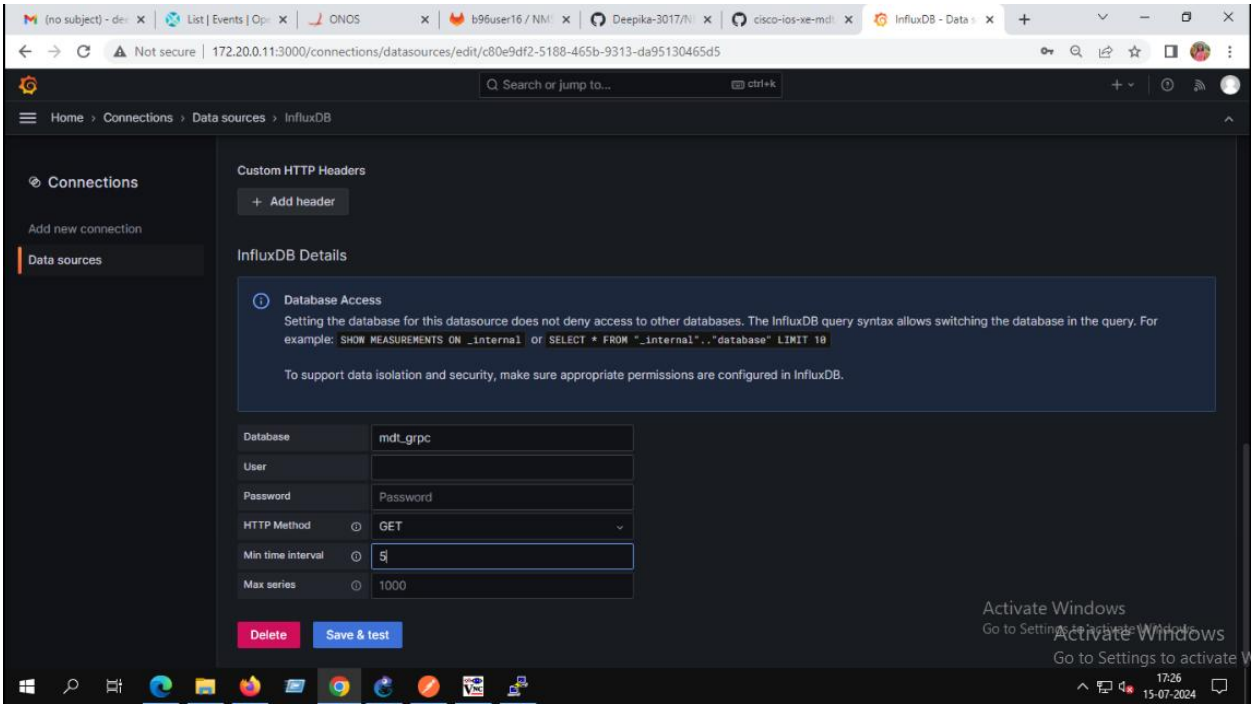


Step 5: Login to Grafana:

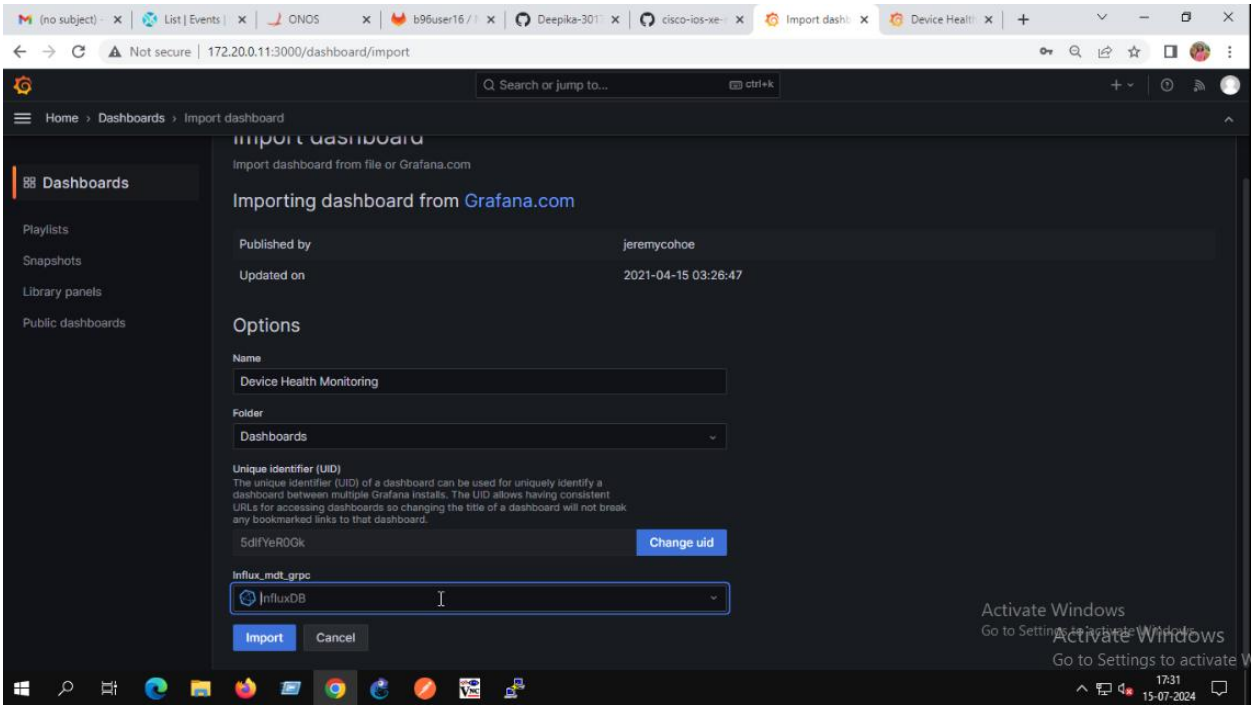


Import the InfluxDB database

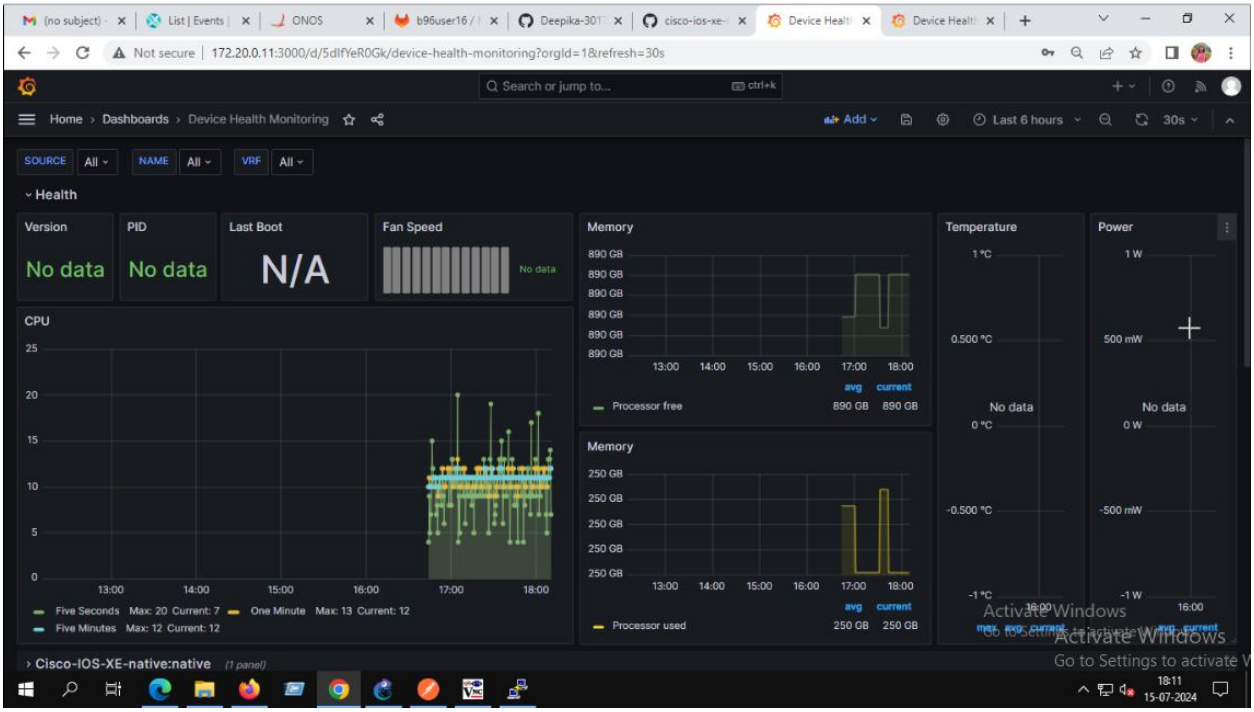




Import the Dashboard:
https://grafana.com/grafana/dashboards/13462-device-health-monitoring/



Check the Grafana Dashboard: CPU, Memory, and interface stats to be updated




```
Router#show telemetry internal connection
Telemetry connection

Peer Address     Port  VRF Source Address  Transport  State         Profile
---------------- ----- --- --------------- ---------- ------------- -------------
172.20.0.11      57500   0 172.20.0.113    grpc-tcp   Active

Router#
*Jul 15 12:04:13.808: hwidb pointer not found for Control Plane
```