SNMP/Prometheus/Grafana Setup:

NOTE: I got inspiration from this tutorial on how to install SNMP exporter
https://sbcode.net/prometheus/snmp-exporter/

To install SNMP Exporter run these commands:

```
wget
https://github.com/prometheus/snmp_exporter/releases/download/v0.19.0/snmp_export
er-0.19.0.linux-amd64.tar.gz
tar xzf snmp_exporter-0.19.0.linux-amd64.tar.gz

cd snmp_exporter-0.26.0.linux-amd64
ls -lh
cp ./snmp_exporter /usr/local/bin/snmp_exporter
cp ./snmp.yml /usr/local/bin/snmp.yml
cd /usr/local/bin/
```

After, we want to create the snmp-exporter.service:

```
sudo vim /etc/systemd/system/snmp-exporter.service

[Unit]
Description=Prometheus SNMP Exporter Service
After=network.target

[Service]
Type=simple
User=prometheus
ExecStart=/usr/local/bin/snmp_exporter --config.file="/usr/local/bin/snmp.yml"

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

Now run the snmp-exporter:

```
systemctl daemon-reload
sudo service snmp-exporter start
sudo service snmp-exporter status
```

Now we want to install Prometheus:

```
sudo apt update
sudo apt install prometheus
```

Now we want to install Grafana:

```
sudo apt update
sudo apt-get install -y adduser libfontconfig1
wget https://dl.grafana.com/oss/release/grafana_9.3.2_amd64.deb
sudo dpkg -i grafana_9.3.2_amd64.deb
sudo service grafana-server start
```

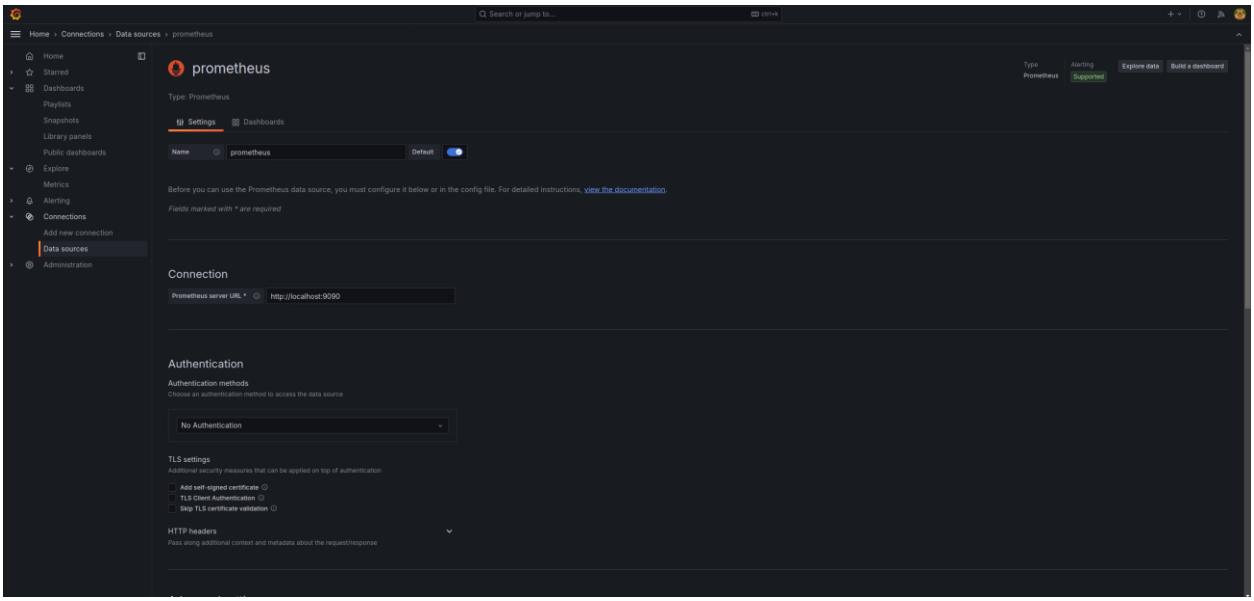
To get SNMP working in Grafana we must…

1st create a Prometheus data source:

Navigate to http://localhost:3000/connections/datasources and in the top right select “Add a data source”

Enter the connection as “http://localhost:9090”

Scroll down and click “Save and Test”

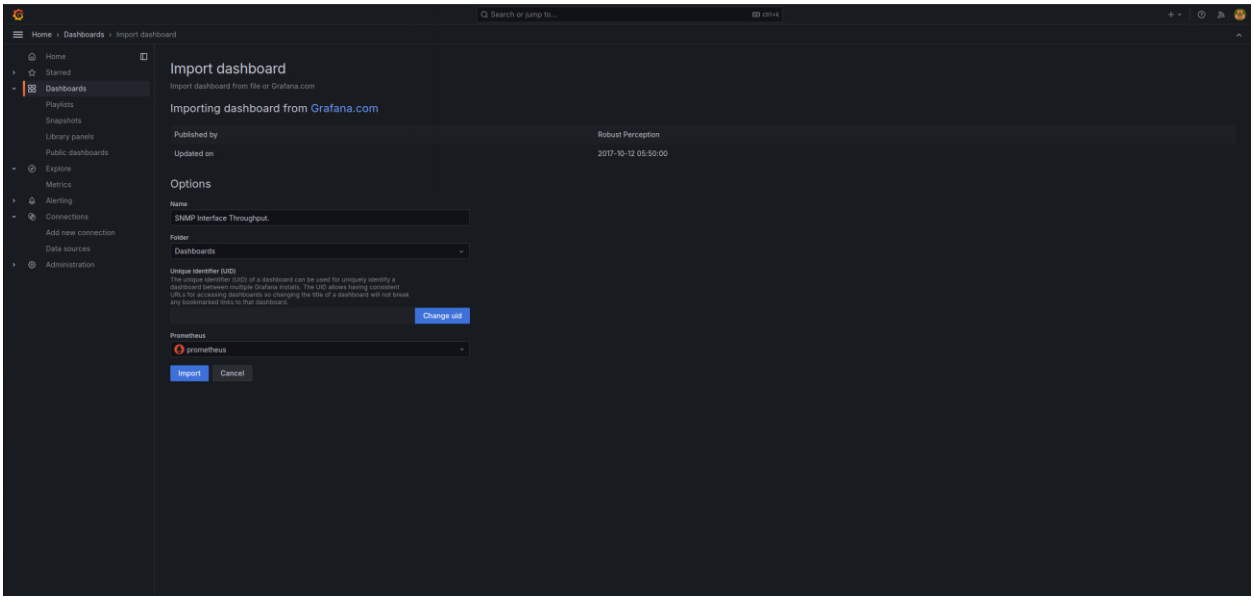


2nd create/import a Dashboard:

In my case, I imported pre-created dashboards to display my SNMP metrics.

Navigate to http://localhost:3000/dashboards and in the top right click New → Import

Input your Dashboard ID and select Prometheus as the data source



InfluxDB/gRPC Setup:

As denoted in the Lab2Guide, configure all devices for gRPC

Now download gnmic:

```
bash -c "$(curl -sL https://get-gnmic.openconfig.net)"
```

Create a gnmic.yml file to add hosts to the gRPC calls:

```
username: admin
password: admin
insecure: true

targets:
  R1:
    address: 10.100.0.6:6030
  R2:
    address: 10.100.0.7:6030
  R3:
    address: 10.100.0.8:6030
  R4:
    address: 10.100.0.9:6030
  S3:
    address: 10.100.0.3:6030
  S4:
    address: 10.100.0.4:6030
```

```
  S1:
    address: 10.200.0.1:6030
  S2:
    address: 10.200.0.2:6030

subscriptions:
  interface-counters:
    paths:
      - /interfaces/interface/state/oper-status
      - /components/component/cpu/utilization/state/instant
    sample-interval: 10s

outputs:
  influxdb:
    type: influxdb
    url: http://localhost:8086
    org: boulder
    bucket: netman
    token:
NzDeX6UuoJRiSbcpy7BBKeqzecFC9ennIzHsiOVkUpVoAfmbKt3B6SYfbcL2dwxGjzuO_xEu5-
NFLOJqgKGmzQ==
    override-timestamps: false
    timestamp-precision: s
    health-check-period: 30s
    debug: true
```

Now we install InfluxDB:

```
sudo apt-get update && sudo apt-get install influxdb2
sudo service influxdb start
```

Now navigate to localhost:8086 and follow the signup instructions.

Once logged in, create a bucket by navigating to Load Data → Buckets. In the top right create a bucket named ‘netman’.

After the bucket is created, run the command:

```
gnmic subscribe --config gnmic.yml -d
```

Now navigate to Load Explorer and select a query to see CPU data.

Syslog/Promtail/Loki/Grafana Setup:

Install Syslog-ng, Promtail and Loki:

```
wget https://github.com/lux4rd0/grafana-loki-syslog-aio/archive/main.zip
unzip main.zip
cd grafana-loki-syslog-aio-main
docker-compose -f ./docker-compose-filesystem.yml up -d
```

Now navigate to the Grafana instance we created earlier. Please follow the instructions to add a data source, but for the instance select Loki instead of Prometheus.

For adding the dashboard, follow the dashboard adding instructions above and used Dashboard ID: 13766