

# gRPC and Influxdb

## gRPC on Arista cEOS devices

I added the following commands on all the Arista cEOS devices in my clab topology.

```
daemon TerminAttr
  exec /usr/bin/TerminAttr -ingestgrpcurl=unix:/var/run/ingestgrpc.sock -taillogs
--ingestauth=key,user:user --gnmi -grpc
management api gnmi
  transport grpc default
```

Next, I created a gnmic.yaml file

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

targets:
  R1:
    address: 192.168.100.2:6030
  R2:
    address: 192.168.100.3:6030
  R3:
    address: 192.168.100.4:6030
  R4:
    address: 192.168.100.5:6030
  S1:
    address: 192.168.100.6:6030
  S2:
    address: 192.168.100.7:6030
  S3:
    address: 192.168.100.8:6030
  S4:
    address: 192.168.100.9:6030
```

```
subscriptions:
  interface-counters:
    paths:
      - /interfaces/interface/state/oper-status
      - /interfaces/interface/state/counters/in-octets
      - /interfaces/interface/state/counters/out-octets
      - /components/component/cpu/
    sample-interval: 1s

outputs:
  influxdb:
    type: influxdb
    address: http://localhost:8086
    org: netman
    bucket: lab2-stream
    token:
UU04aDyKLDIm1G-2yApPchkOKCJ7SSlOtie7WBTw3Oaklvjk9iF55p4ioZOHWxdvrJODqz4Tn
glpgzFVgQzivA==
    override-timestamps: false
    timestamp-precision: s
    health-check-period: 30s
    debug: true
```

I created a `gnmic.service` file, enabled and started this service

```
[Unit]
Description=gNMIc Service
After=network.target

[Service]
ExecStart=/usr/local/bin/gnmic --config /usr/local/bin/gnmic.yaml subscribe --port 6030
Restart=on-failure
User=root
StandardOutput=syslog
```

```
StandardError=syslog
SyslogIdentifier=gnmic-service

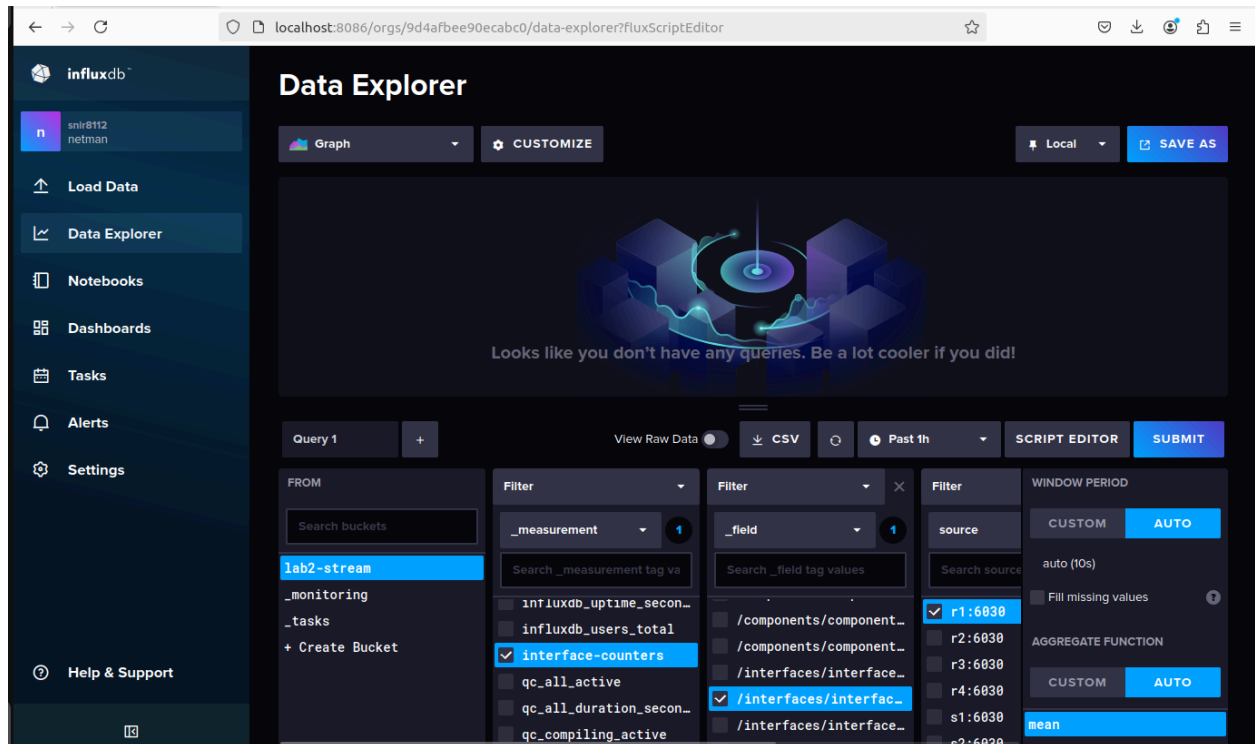
[Install]
WantedBy=multi-user.target
```

## Influxdb installation

```
# Ubuntu and Debian
# Add the InfluxData key to verify downloads and add the repository
curl --silent --location -O \
https://repos.influxdata.com/influxdata-archive.key
echo "943666881a1b8d9b849b74caebf02d3465d6beb716510d86a39f6c8e8dac7515
influxdata-archive.key" \
| sha256sum --check - && cat influxdata-archive.key \
| gpg --dearmor \
| tee /etc/apt/trusted.gpg.d/influxdata-archive.gpg > /dev/null \
&& echo 'deb [signed-by=/etc/apt/trusted.gpg.d/influxdata-archive.gpg]
https://repos.influxdata.com/debian stable main' \
| tee /etc/apt/sources.list.d/influxdata.list
# Install influxdb
sudo apt-get update && sudo apt-get install influxdb2

sudo service influxdb start
```

Went to localhost:8086/ and voila! I was able to access InfluxDB



# SNMP, SNMP Exporter and Prometheus

## SNMP Exporter Installation

This link will have the installation file:

[https://github.com/prometheus/snmp\\_exporter/releases](https://github.com/prometheus/snmp_exporter/releases)

I moved the `snmp_exporter` and `snmp.yml` to `/usr/local/bin`. Then, I created a systemd service for `snmp_exporter`

### [Unit]

Description=SNMP Exporter

After=network.target

### [Service]

Type=simple

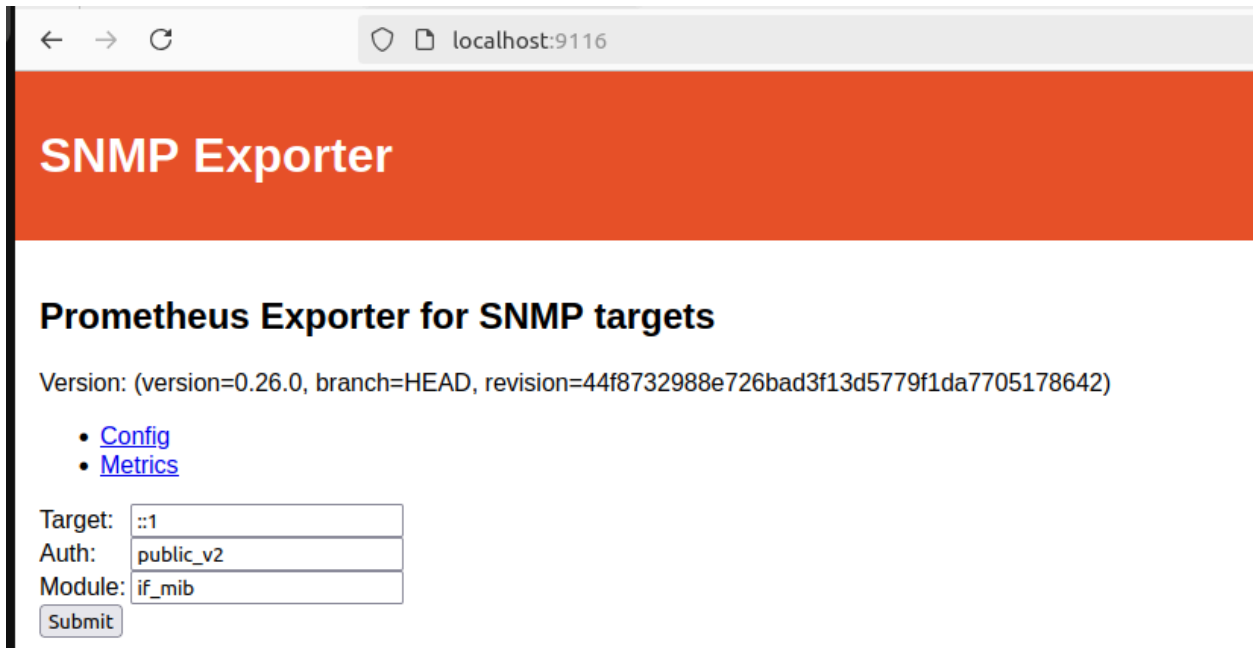
ExecStart=/usr/local/bin/snmp\_exporter --config.file=/usr/local/bin/snmp.yml

User=prometheus

[Install]

WantedBy=multi-user.target

And I was able to access SNMP Exporter on port 9116.



← → ↻ localhost:9116

# SNMP Exporter

## Prometheus Exporter for SNMP targets

Version: (version=0.26.0, branch=HEAD, revision=44f8732988e726bad3f13d5779f1da7705178642)

- [Config](#)
- [Metrics](#)

Target:

Auth:

Module:

## Prometheus Installation

```
sudo apt install prometheus
```

I updated the `/etc/prometheus/prometheus.yml` file

```
- job_name: 'snmp'
  scrape_interval: 1s
  scrape_timeout: 1s

  static_configs:
    - targets:
      - '192.168.100.2'
      - '192.168.100.3'
```

```

- '192.168.100.4'
- '192.168.100.5'
- '192.168.100.6'
- '192.168.100.7'
- '192.168.100.8'
- '192.168.100.9'
labels:
group: 'arista'
metrics_path: /snmp
relabel_configs:
- source_labels: [__meta_snmp_target_label]
action: replace
target_label: instance
- source_labels: [__address__]
target_label: __param_target
- source_labels: [__param_target]
target_label: instance
- target_label: __address__
replacement: localhost:9116

```

I was able to access prometheus on port 9090.


The screenshot shows the Prometheus web interface at localhost:9090. The query bar contains the query `ifOperStatus`. The 'Execute' button is highlighted. Below the query bar, the 'Graph' tab is selected, showing a table of results. The table has two columns: 'Element' and 'Value'. The results show the value of `ifOperStatus` for various instances of the `ifOperStatus` metric.

Element	Value
<code>ifOperStatus{group="arista",ifAlias="h1",ifDescr="Ethernet1",ifIndex="1",ifName="Ethernet1",instance="192.168.100.6",job="snmp"}</code>	1
<code>ifOperStatus{group="arista",ifAlias="h2",ifDescr="Ethernet2",ifIndex="2",ifName="Ethernet2",instance="192.168.100.6",job="snmp"}</code>	1
<code>ifOperStatus{group="arista",ifAlias="h3",ifDescr="Ethernet1",ifIndex="1",ifName="Ethernet1",instance="192.168.100.7",job="snmp"}</code>	1
<code>ifOperStatus{group="arista",ifAlias="h4.1",ifDescr="Ethernet2",ifIndex="2",ifName="Ethernet2",instance="192.168.100.7",job="snmp"}</code>	1
<code>ifOperStatus{group="arista",ifAlias="s1.3",ifDescr="Ethernet3",ifIndex="3",ifName="Ethernet3",instance="192.168.100.7",job="snmp"}</code>	1
<code>ifOperStatus{group="arista",ifDescr="Ethernet1",ifIndex="1",ifName="Ethernet1",instance="192.168.100.2",job="snmp"}</code>	1
<code>ifOperStatus{group="arista",ifDescr="Ethernet1",ifIndex="1",ifName="Ethernet1",instance="192.168.100.3",job="snmp"}</code>	1
<code>ifOperStatus{group="arista",ifDescr="Ethernet1",ifIndex="1",ifName="Ethernet1",instance="192.168.100.4",job="snmp"}</code>	1
<code>ifOperStatus{group="arista",ifDescr="Ethernet1",ifIndex="1",ifName="Ethernet1",instance="192.168.100.5",job="snmp"}</code>	1


# Grafana Visualization

I added 2 Data Sources under Configuration > Data Sources.


## InfluxDB Data Source

 influxdb

Type: InfluxDB

 Settings

Name


 influxdb

Default

☐


Query language

Flux


 Support for Flux in Grafana is currently in beta  
Please report any issues to:  
<https://github.com/grafana/grafana/issues>

HTTP

URL




Allowed cookies

Add

Timeout



## Auth

Basic auth	<input checked="" type="checkbox"/>	With Credentials ⓘ	<input type="checkbox"/>
TLS Client Auth	<input type="checkbox"/>	With CA Cert ⓘ	<input type="checkbox"/>
Skip TLS Verify	<input type="checkbox"/>		
Forward OAuth Identity ⓘ	<input type="checkbox"/>		

## Basic Auth Details

User	admin
Password	configured

Reset

## Custom HTTP Headers

+ Add header

## InfluxDB Details

Organization	netman
Token	configured
Default Bucket	lab2-stream
Min time interval ⓘ	10s
Max series ⓘ	1000

Reset



# Prometheus Data Source

Name ⓘprometheusDefault

Before you can use the Prometheus data source, you must configure it below or in the config file. For detailed instructions, [view the documentation](#).

Fields marked with \* are required

Connection

Prometheus server URL \* ⓘhttp://localhost:9090/

Authentication

Authentication methods

Choose an authentication method to access the data source

No Authentication ▾

TLS settings

Additional security measures that can be applied on top of authentication

☐ Add self-signed certificate ⓘ

☐ TLS Client Authentication ⓘ

☐ Skip TLS certificate validation ⓘ

HTTP headers ▾

Pass along additional context and metadata about the request/response

Advanced settings

Additional settings are optional settings that can be configured for more control over your data source.

Advanced HTTP settings

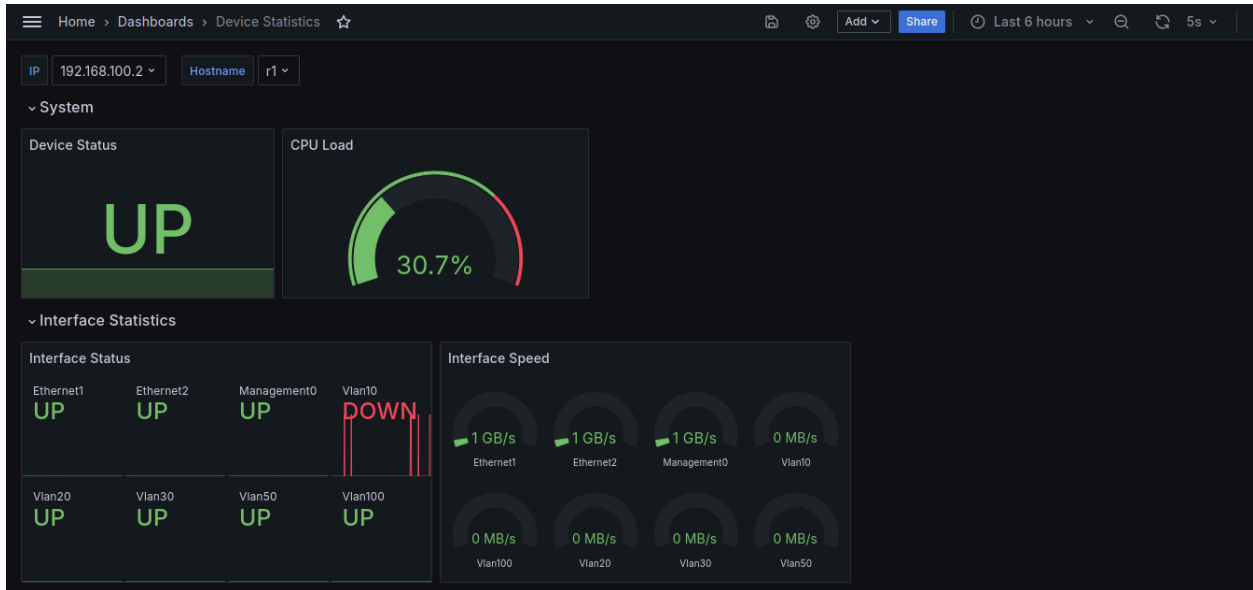
Allowed cookies ⓘNew cookie (hit enter to add)Add

Timeout ⓘTimeout in seconds

Alerting

Manage alerts via Alerting UI ⓘ☒

Post this, I created a dashboard using both these data sources on Grafana.



▼ Traffic

