Monitoring: Prometheus + Grafana

Zur Überwachung der Stabilität des Systems, von Verbrauchswerten und mehr können wir Prometheus und Grafana nutzen.

Klassisches Setup mit Raspberry OS (Debian 12 Bookworm)

Installation von Grafana

https://grafana.com/tutorials/install-grafana-on-raspberry-pi

```
sudo mkdir -p /etc/apt/keyrings/
wget -q -O - https://apt.grafana.com/gpg.key | gpg --dearmor | sudo tee /etc/apt/keyrings/grafana.gpg > /dev/null
echo "deb https://packages.grafana.com/oss/deb stable main" | sudo tee -a /etc/apt/sources.list.d/grafana.list
sudo apt-get update
sudo apt-get install -y grafana
sudo /bin/systemctl enable grafana-server --now
sudo /bin/systemctl status grafana-server
```

Nach der Installation ist das Grafana Web Interface unter http://fabaccess.local:3000 erreichbar. Weitere Tipps und Tricks zur Einrichtung von Grafana sind an dieser Stelle aktuell eher Out of Scope und werden nicht behandelt.

Installation von Prometheus

> Wir nutzen aktuell Prometheus Version 2.X. Seit kurzem ist auch Prometheus in Version 3 verfügbar. Eetwaige Breaking Changes müssen noch überprüft werden.
>
> Siehe https://github.com/prometheus/prometheus/tags

Wir beziehen uns zum Teil auf die Dokumentation von https://pimylifeup.com/raspberry-pi-prometheus

Dedizierten Prometheus User hinzufügen

```
sudo useradd -m -s /bin/bash prometheus
```

Prometheus installieren

```
cd /opt
wget https://github.com/prometheus/prometheus/releases/download/v2.55.1/prometheus-2.55.1.linux-armv7.tar.gz
tar xfz prometheus-2.55.1.linux-armv7.tar.gz
mv prometheus-2.55.1.linux-armv7/ prometheus/
rm prometheus-2.55.1.linux-armv7.tar.gz

chown -R prometheus:prometheus prometheus/
```

Wir fügen etwas Web Security hinzu, da sonst jeder später den Prometheus Web Service ohne Passwort aufrufen kann. Je nach Setup kann das okay sein oder auch nicht. Wir fügen es wie folgt ein (siehe auch https://prometheus.io/docs/guides/basic-auth):

```
sudo apt install python3-bcrypt
```

```
sudo vim /opt/prometheus/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())
```

Wir führen das Script aus und geben ein Passwort ein

```
python3 /opt/prometheus/gen-pass.py
```

Den daraus gewonnenen Output nutzen wir in folgender Konfigurationsdatei, die Benutzername und Passwort enthält:

```
sudo vim /opt/prometheus/web.yml
```

```
basic_auth_users:
    admin: $2b$12$hNf2lSsxfm0.i4a.1kVpSOVyBCfIB51VRjgBUyv6kdnyTlgWj81Ay
```

Service erstellen und Prometheus starten

```
sudo vim /etc/systemd/system/prometheus.service
```

```
[Unit]
Description=Prometheus Server
Documentation=https://prometheus.io/docs/introduction/overview/
After=network-online.target

[Service]
User=prometheus
Restart=on-failure

ExecStart=/opt/prometheus/prometheus --web.config.file=/opt/prometheus/web.yml --
config.file=/opt/prometheus/prometheus.yml --storage.tsdb.path=/opt/prometheus/data

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

```
sudo systemctl daemon-reload
sudo systemctl enable prometheus.service --now
sudo systemctl status prometheus.service
```

Nach dem Start ist Prometheus erreichbar unter http://fabaccess.local:9090.

Installation von FabAccess Prometheus Exporter (Port 9000)

FabAccess hat einen eigenen Exporter für Prometheus. Dieser findet sich unter https://gitlab.com/fabinfra/fabaccess/prometheus-exporter

> Der FabAccess Exporter für Prometheus funktioniert nur mit pycapnp Version 1.3.0 oder niedriger. Ab Version 2.0.0 gibt es Fehler, die den Start des Service verhindern.
> Details

```
sudo apt install python3-pip python3-venv

cd /opt/prometheus/
git clone https://gitlab.com/fabinfra/fabaccess/prometheus-exporter.git fabaccess-exporter --recursive
```

```
cd /opt/prometheus/fabaccess-exporter/
python3 -m venv env
. env/bin/activate #activate venv
pip install -r requirements.txt

#pycpnp Overwrite
pip install pycapnp==1.3.0
chown -R prometheus:prometheus /opt/prometheus/fabaccess-exporter/
```

als Service anlegen und starten

> Die Variablen `BFFH_USER` und `BFFH_PASSWORD` können mit einem beliebigen Nutzer aus BFFH befüllt werden. Sinnvollerweise hat der verwendete Nutzer mindestens globale Leserechte auf allen Ressourcen. Hierzu kann der Admin-User verwendet, oder ein dedizierter Monitoring-Benutzer angelegt werden. Wir verwenden im Beispiel einen eigenen Nutzer namens `fabaccess-prometheus-exporter`.

```
sudo vim /etc/systemd/system/prometheus-fabaccess-exporter.service
```

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

[Service]
Type=simple
User=prometheus
Group=root
Environment="EXPORTER_PORT=9000"
Environment="BFFH_HOST=YOUR.HOST.TLD"
Environment="BFFH_PORT=59661"
Environment="BFFH_USER=fabaccess-prometheus-exporter"
Environment="BFFH_PASSWORD=PASSWORD_OF_PROMETHEUS_USER_IN_BFF"
Environment="POLLING_INTERVAL_SECONDS=5"
ExecStart=/opt/prometheus/fabaccess-exporter/env/bin/python3 /opt/prometheus/fabaccess-exporter/main.py
Restart=always
RestartSec=5

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

```
sudo systemctl daemon-reload
sudo systemctl enable /etc/systemd/system/prometheus-fabaccess-exporter.service --now
sudo systemctl status prometheus-fabaccess-exporter.service
```

> **Sicherheitshinweis**
>
> Der Exporter ist im Browser auf dem Port 9000 via http erreichbar. Es ist je Setup zu überprüfen, ob das zu lauschende Interface z.B. nur `localhost` sein soll!

Installation von mqtt-exporter (Port 9001)

Das Setup basiert auf https://github.com/kpetremann/mqtt-exporter

TLS Support: https://github.com/kpetremann/mqtt-exporter/pull/52 (aktuell nicht verwendet, weil alles auf dem gleichen Host)

```
sudo apt install python3-pip python3-venv


cd /opt/prometheus/
git clone https://github.com/kpetremann/mqtt-exporter.git
cd /opt/prometheus/mqtt-exporter/
python3 -m venv env
. env/bin/activate #activate venv
pip install -r requirements/base.txt
chown -R prometheus:prometheus /opt/prometheus/mqtt-exporter/
```

Manuell starten und testen

```
MQTT_ADDRESS=127.0.0.1 MQTT_PORT=1883 MQTT_USERNAME=fablabc MQTT_PASSWORD=THEPASSWORD
PROMETHEUS_PORT=9001 /opt/prometheus/mqtt-exporter/env/bin/python3 exporter.py
```

Als Service

```
sudo vim /etc/systemd/system/prometheus-mqtt-exporter.service
```

```
[Unit]
Description=Prometheus MQTT Exporter
After=network-online.target
```

```
[Service]
User=prometheus
Restart=on-failure

Environment="MQTT_ADDRESS=127.0.0.1"
Environment="MQTT_PORT=1883"
#TLS config - needs merged PR https://github.com/kpetremann/mqtt-exporter/pull/52
#Environment="MQTT_ENABLE_TLS=True"
#Environment="MQTT_TLS_NO_VERIFY=False"
#Environment="MQTT_ADDRESS=YOUR.HOST.TLD"
#Environment="MQTT_PORT=8883"
Environment="MQTT_USERNAME=fablabc"
Environment="MQTT_PASSWORD=THE_PASSWORD"
Environment="PROMETHEUS_PORT=9001"
ExecStart=/opt/prometheus/mqtt-exporter/env/bin/python3 /opt/prometheus/mqtt-exporter/exporter.py

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

```
sudo systemctl daemon-reload
sudo systemctl enable /etc/systemd/system/prometheus-mqtt-exporter.service --now
sudo journalctl -f -u prometheus-mqtt-exporter.service
```

Der Log Output (Klicken zum Anzeigen):

```
PORT=9001 python3 exporter.py
INFO:mqtt-exporter:subscribing to "#"
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_ty', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_if', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_ofln', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_onln', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_state_0', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_state_1', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_rl_0', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_rl_1', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_rl_2', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_rl_3', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_rl_4', labels=())
```

```
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_rl_5', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_rl_6', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_rl_7', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_rl_8', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_rl_9', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_rl_10', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_rl_11', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_rl_12', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_rl_13', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_rl_14', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_rl_15', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_rl_16', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_rl_17', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_rl_18', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_rl_19', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_rl_20', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_rl_21', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_rl_22', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_rl_23', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_rl_24', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_rl_25', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_rl_26', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_rl_27', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_rl_28', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_rl_29', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_rl_30', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_rl_31', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_swc_0', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_swc_1', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_swc_2', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_swc_3', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_swc_4', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_swc_5', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_swc_6', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_swc_7', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_swc_8', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_swc_9', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_swc_10', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_swc_11', labels=())
```

```
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_swc_12', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_swc_13', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_swc_14', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_swc_15', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_swc_16', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_swc_17', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_swc_18', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_swc_19', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_swc_20', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_swc_21', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_swc_22', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_swc_23', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_swc_24', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_swc_25', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_swc_26', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_swc_27', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_btn_0', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_btn_1', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_btn_2', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_btn_3', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_btn_4', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_btn_5', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_btn_6', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_btn_7', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_btn_8', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_btn_9', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_btn_10', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_btn_11', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_btn_12', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_btn_13', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_btn_14', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_btn_15', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_btn_16', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_btn_17', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_btn_18', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_btn_19', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_btn_20', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_btn_21', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_btn_22', labels=())
```

INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_btn_23', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_btn_24', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_btn_25', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_btn_26', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_btn_27', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_btn_28', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_btn_29', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_btn_30', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_btn_31', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_so_4', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_so_11', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_so_13', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_so_17', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_so_20', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_so_30', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_so_68', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_so_73', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_so_82', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_so_114', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_so_117', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_lk', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_lt_st', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_bat', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_dslp', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_ver', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_sn_ENERGY_Total', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_sn_ENERGY_Yesterday', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_sn_ENERGY_Today', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_sn_ENERGY_Power', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_sn_ENERGY_ApparentPower', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_sn_ENERGY_ReactivePower', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_sn_ENERGY_Factor', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_sn_ENERGY_Voltage', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_sn_ENERGY_Current', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_POWER', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_UptimeSec', labels=())

```
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_Heap', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_Sleep', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_LoadAvg', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_MqttCount', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_Wifi_AP', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_Wifi_Channel', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_Wifi_RSSI', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_Wifi_Signal', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_Wifi_LinkCount', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_ENERGY_Total', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_ENERGY_Yesterday', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_ENERGY_Today', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_ENERGY_Period', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_ENERGY_Power', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_ENERGY_ApparentPower',
labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_ENERGY_ReactivePower',
labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_ENERGY_Factor', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_ENERGY_Voltage', labels=())
INFO:mqtt-exporter:creating prometheus metric: PromMetricId(name='mqtt_ENERGY_Current', labels=())
```

Sicherheitshinweis

Der Exporter ist im Browser auf dem Port 9001 via http erreichbar. Es ist je Setup zu überprüfen, ob das zu lauschende Interface z.B. nur `localhost` sein soll!

Prometheus Konfiguration ergänzen

Damit die beiden Exporter Daten liefern und diese dann durch Grafana grafisch ausgewertet werden können, benötigen wir eine angepasste Konfiguration:

```
sudo vim /opt/prometheus/prometheus.yml
```

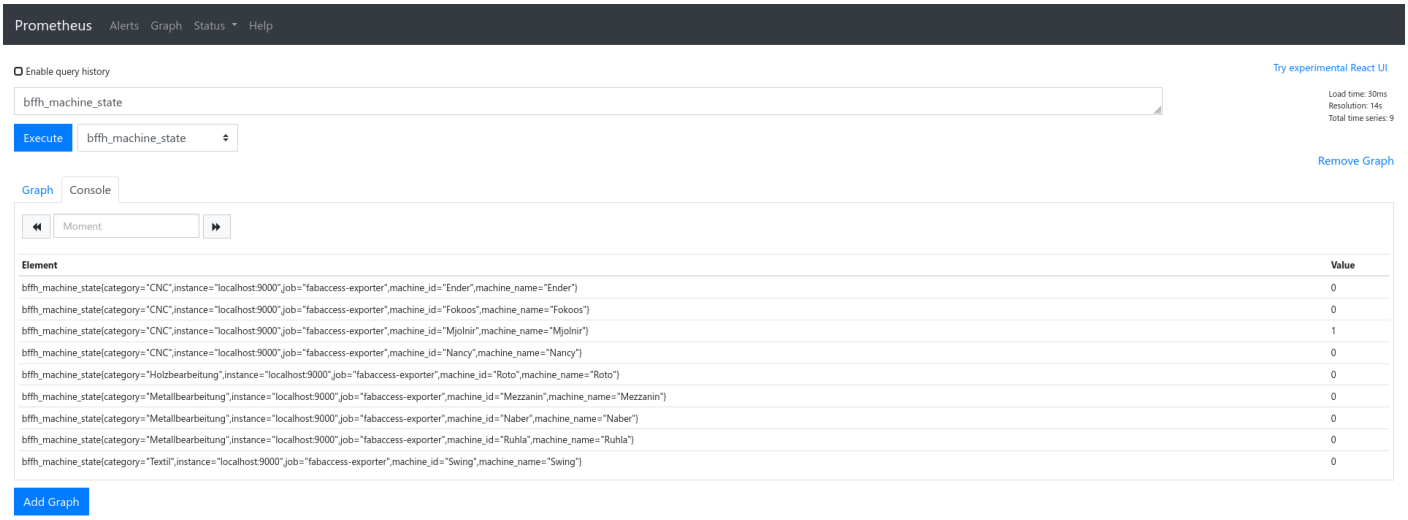
```
global:
  scrape_interval:     15s
  evaluation_interval: 15s

alerting:
```

```
  alertmanagers:
  - static_configs:
    - targets:
      # - alertmanager:9093

rule_files:
  # - "first_rules.yml"
  # - "second_rules.yml"

scrape_configs:
  - job_name: 'prometheus'
    static_configs:
    - targets: ['localhost:9090']
  - job_name: 'fabaccess-exporter'
    scrape_interval: 5s
    static_configs:
      - targets: ['localhost:9000']
  - job_name: 'mqtt-exporter'
    scrape_interval: 5s
    static_configs:
      - targets: ['localhost:9001']
```

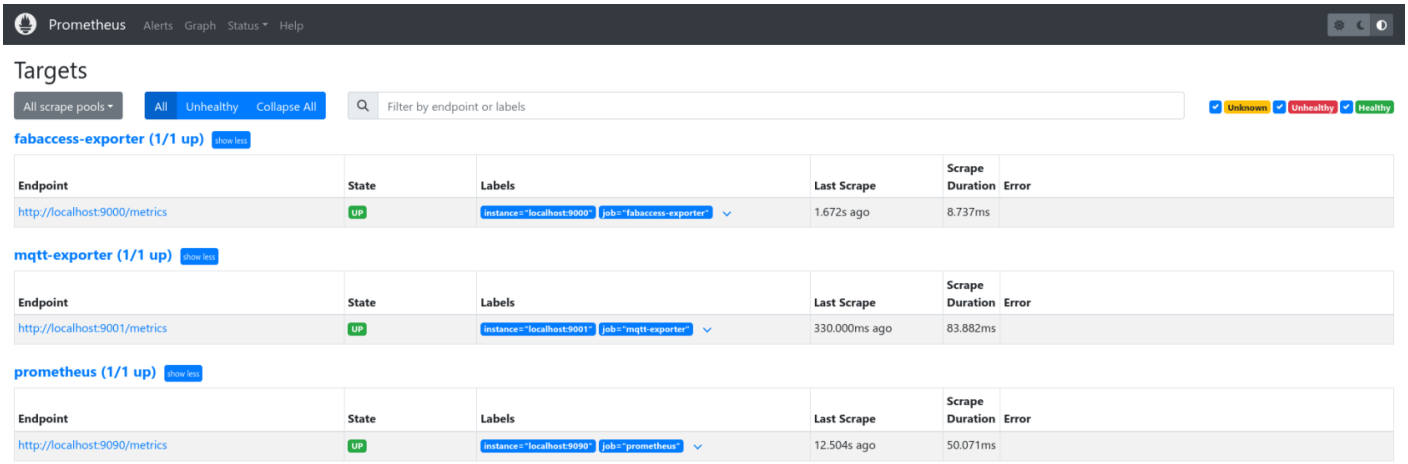
```
sudo systemctl restart prometheus.service
```

Prometheus Web Oberfläche

Beispiel Screenshot



Ob unsere Services korrekt laufen, können wir hier auch schnell überprüfen:



Grafana Monitoring Dashboard

Ein FabAccess Grafana Dashboard kann unter

https://grafana.com/grafana/dashboards/22385 heruntergeladen werden.

Datenquelle anlegen

Bevor wir es importieren, legen wir zunächst jedoch unter

http://fabaccess.local:3000/connections/datasources die notwendige Prometheus

Datenquelle ("Datasource") an. Diese ist in unserem Beispiel http://localhost:9090. Sofern

Basic Auth in `web.yml` konfiguriert wurde, so muss dies hier ebenso eingestellt werden.

Suche oder springe zu... ctrl+k

Home › Verbindungen › Datenquellen › prometheus

prometheus

Type
Prometheus

Alerting
Supported

Explore data | Build a dashboard

Type: Prometheus

Settings | Dashboards

Name: prometheus | Default

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

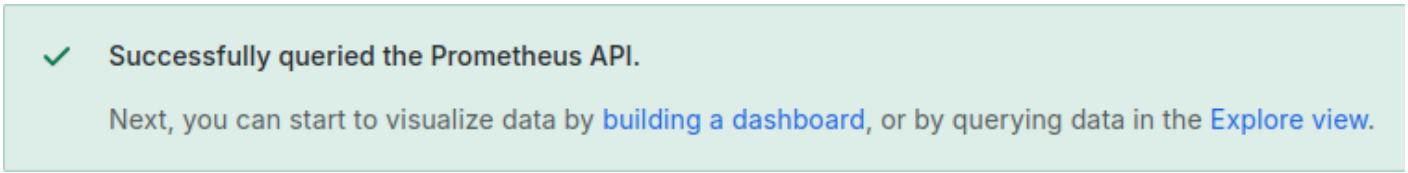
HTTP headers

Pass along additional context and metadata about the request/response

Advanced settings

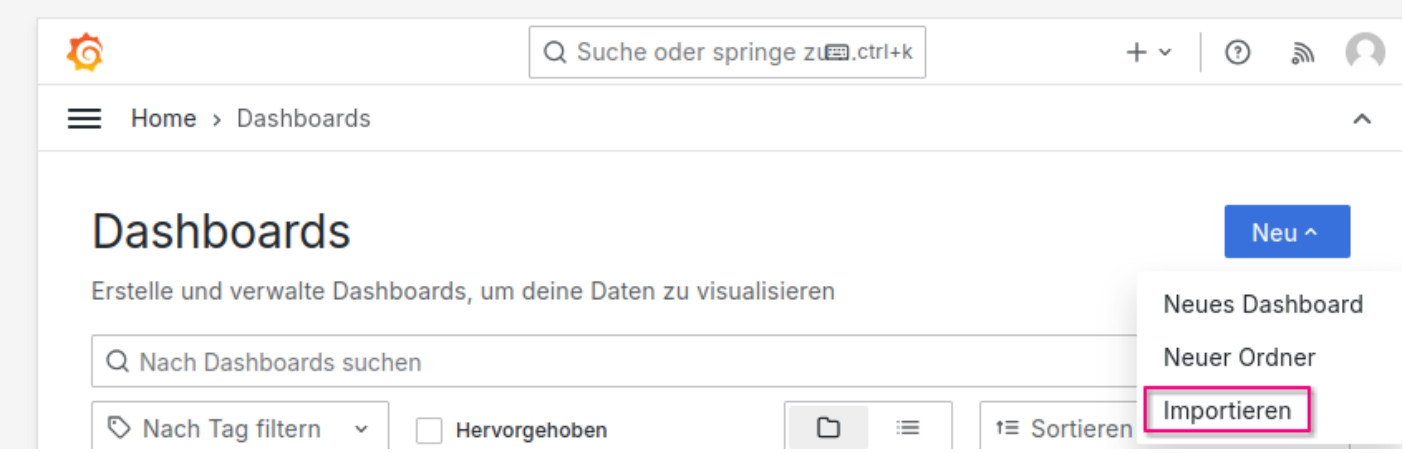
Additional settings are optional settings that can be configured for more control over your data source.

Mit "Save & Test" speichern und bestätigen wir. Das Ergebnis sollte akzeptiert werden:

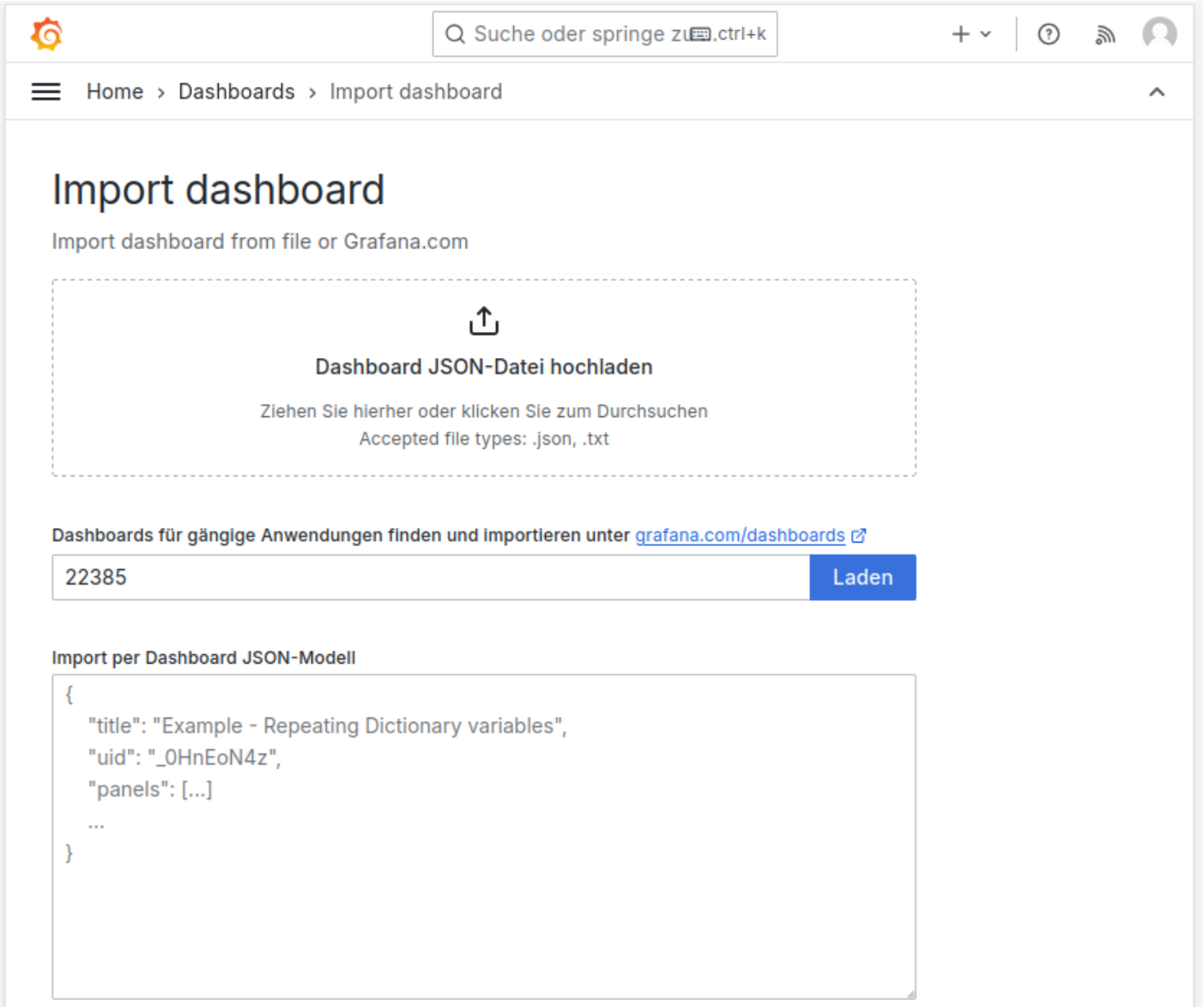


Dashboard importieren

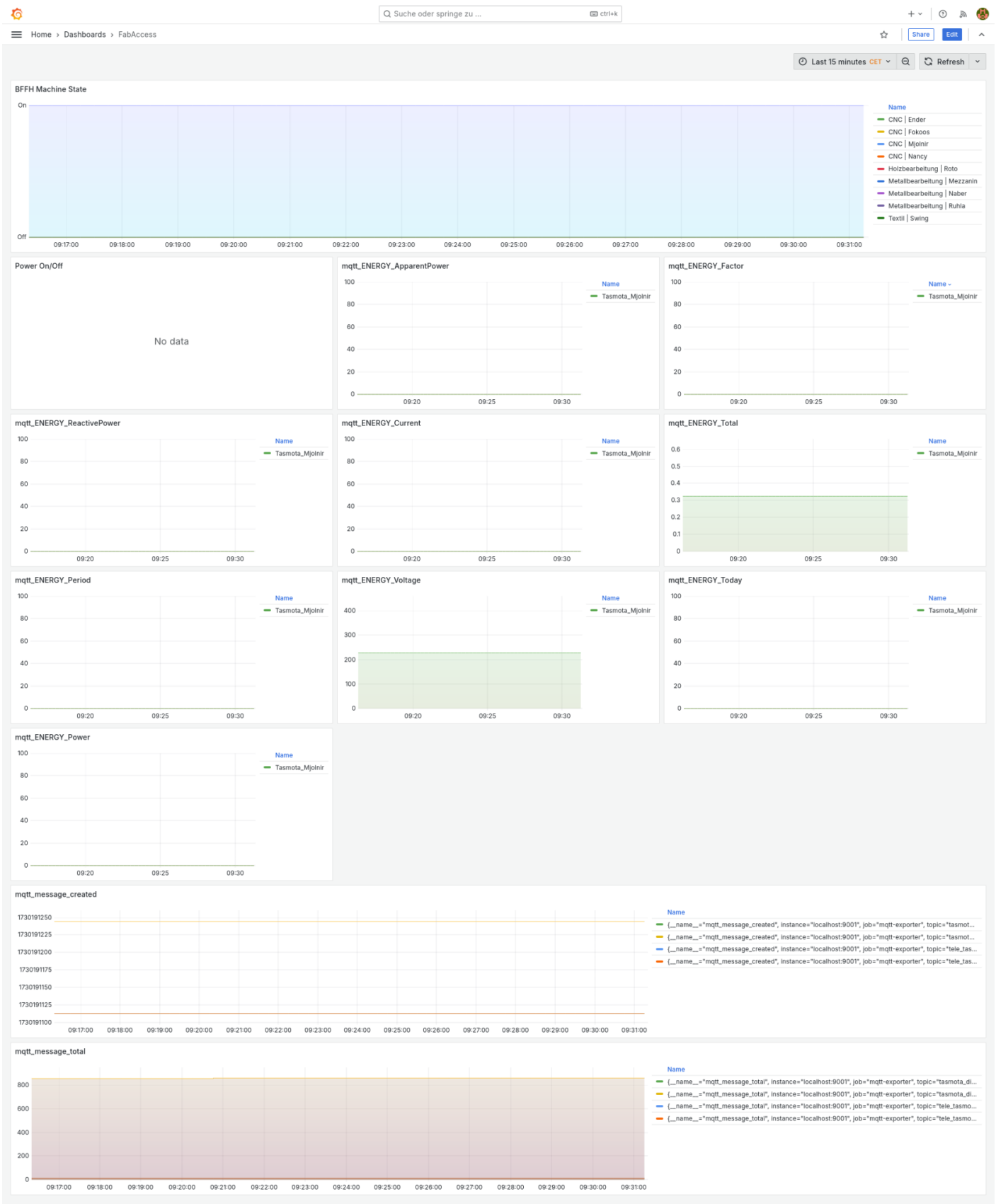
Das Importieren des Dashboards in Grafana ist sehr simpel:



Durch Eingabe der ID des Dashboards ist ein Direktimport möglich. Alternativ kann der json-Inhalt hineingeposted werden:



Beispiel Screenshot



Monitoring Setup mit Docker

Ein alternatives Setup unter Verwendung von Docker findet sich unter

https://gitlab.com/fabinfra/fabaccess/grafana

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Erstellt: 26 Oktober 2024 12:11:23 von Mario Voigt (Stadtfabrikanten e.V.)
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