

Docker installieren

```
sudo apt update
```

```
sudo apt install -y docker.io
```

Der Befehl `sudo apt install -y docker.io` installiert Docker

Nach der Installation mit dem nächsten Schritt fortfahren und die MQTT-Client-Tools installieren:

```
sudo apt install -y mosquitto-clients
```

nächste Schritte:

```
# Verzeichnis erstellen
```

```
mkdir -p $HOME/mosquitto
```

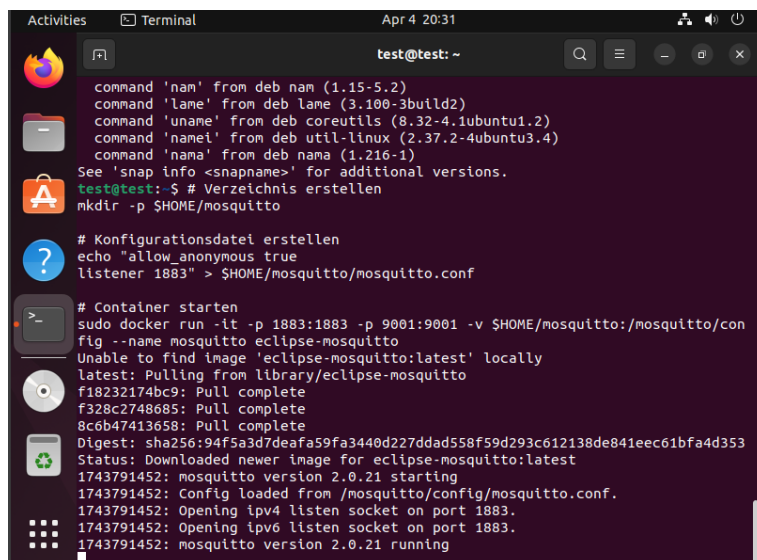
```
# Konfigurationsdatei erstellen
```

```
echo "allow_anonymous true
```

```
listener 1883" > $HOME/mosquitto/mosquitto.conf
```

```
# Container starten
```

```
sudo docker run -it -p 1883:1883 -p 9001:9001 -v $HOME/mosquitto:/mosquitto/config -  
-name mosquitto eclipse-mosquitto
```



```
test@test: ~  
command 'nam' from deb nam (1.15-5.2)  
command 'lame' from deb lame (3.100-3build2)  
command 'unane' from deb coreutils (8.32-4.1ubuntu1.2)  
command 'namei' from deb util-linux (2.37.2-4ubuntu3.4)  
command 'nama' from deb nama (1.216-1)  
See 'snap info <snapname>' for additional versions.  
test@test: ~$ # Verzeichnis erstellen  
mkdir -p $HOME/mosquitto  
  
# Konfigurationsdatei erstellen  
echo "allow_anonymous true  
listener 1883" > $HOME/mosquitto/mosquitto.conf  
  
# Container starten  
sudo docker run -it -p 1883:1883 -p 9001:9001 -v $HOME/mosquitto:/mosquitto/con  
fig --name mosquitto eclipse-mosquitto  
Unable to find image 'eclipse-mosquitto:latest' locally  
latest: Pulling from library/eclipse-mosquitto  
f18232174bc9: Pull complete  
f328c2748685: Pull complete  
8c6b47413658: Pull complete  
Digest: sha256:94f5a3d7deafa59fa3440d227ddad558f59d293c612138de841eec61bfa4d353  
Status: Downloaded newer image for eclipse-mosquitto:latest  
1743791452: mosquitto version 2.0.21 starting  
1743791452: Config loaded from /mosquitto/config/mosquitto.conf.  
1743791452: Opening ipv4 listen socket on port 1883.  
1743791452: Opening ipv6 listen socket on port 1883.  
1743791452: mosquitto version 2.0.21 running
```

Nachdem der Container läuft, neues Terminal-Fenster für die nächsten Schritte öffnen.

Sensor einrichten

```
# Skript erstellen
```

```
nano sensor.sh
```

diesen Code einfügen:

```
#!/bin/bash

while true; do

    VALUE=$((RANDOM % 100))

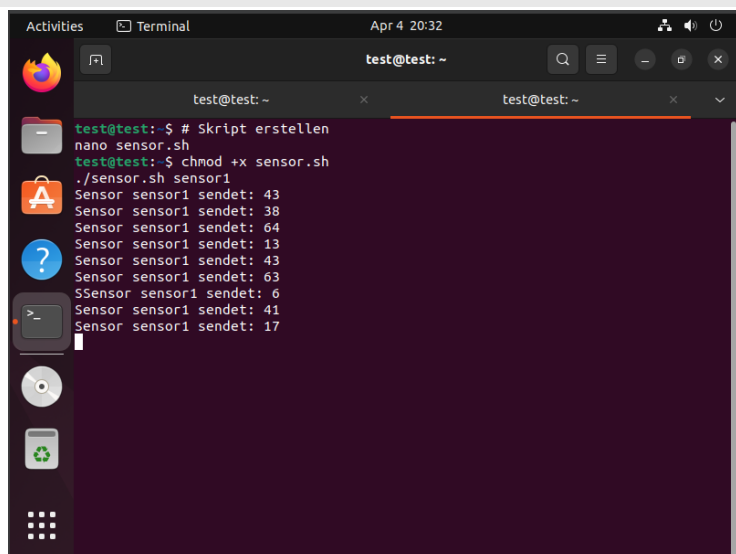
    echo "Sensor $1 sendet: $VALUE"

    mosquitto_pub -h 127.0.0.1 -t "sensor/$1" -m "$VALUE"

    sleep 2

done
```

Ausführbar machen und starten:

A screenshot of a Linux terminal window. The window title is "Terminal" and the date/time is "Apr 4 20:32". The prompt is "test@test: ~". The user has entered the following commands: "nano sensor.sh", "chmod +x sensor.sh", and ". /sensor.sh sensor1". The output shows a series of messages: "Sensor sensor1 sendet: 43", "Sensor sensor1 sendet: 38", "Sensor sensor1 sendet: 64", "Sensor sensor1 sendet: 13", "Sensor sensor1 sendet: 43", "Sensor sensor1 sendet: 63", "Sensor sensor1 sendet: 6", "Sensor sensor1 sendet: 41", and "Sensor sensor1 sendet: 17". The terminal has a dark purple background and a light-colored cursor.

```
test@test: ~
test@test:~$ nano sensor.sh
test@test:~$ chmod +x sensor.sh
test@test:~$ ./sensor.sh sensor1
Sensor sensor1 sendet: 43
Sensor sensor1 sendet: 38
Sensor sensor1 sendet: 64
Sensor sensor1 sendet: 13
Sensor sensor1 sendet: 43
Sensor sensor1 sendet: 63
Sensor sensor1 sendet: 6
Sensor sensor1 sendet: 41
Sensor sensor1 sendet: 17
```

Grafana installieren

```
# Repository hinzufügen
```

```
sudo apt-get install -y apt-transport-https software-properties-common
```

```
sudo add-apt-repository "deb https://packages.grafana.com/oss/deb stable main"
```

```
wget -q -O - https://packages.grafana.com/gpg.key | sudo apt-key add -
```

```
sudo apt update
```

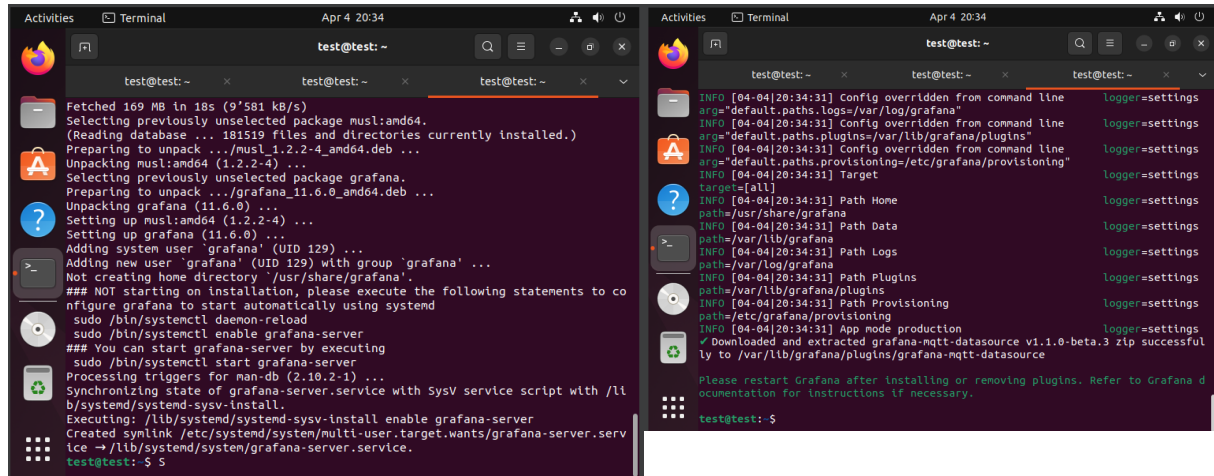
```
# Grafana installieren
```

```
sudo apt install -y grafana
```

Starten

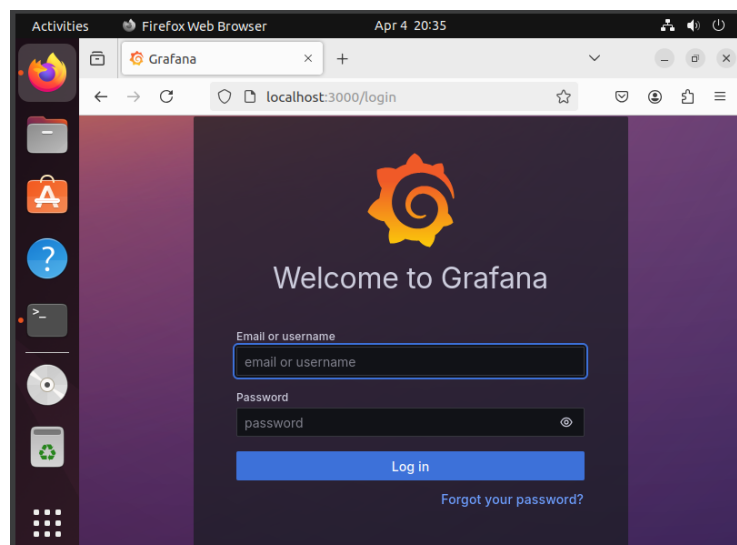
```
sudo systemctl start grafana-server
```

```
sudo systemctl enable grafana-server
```



MQTT-Plugin installieren

http://localhost:3000 im Browser öffnen, mit admin/admin anmelden und MQTT-Datenquelle und Dashboard einrichten.



MQTT-Datenquelle hinzufügen

