

## 1. Dependence

- OS System: Ubuntu
- Mysql (best to use an existing database server to save configuration)
- Docker & Docker-compose

This service depends on mysql 、 Docker & Docker-Compose, please install these two services first(Version No requirements)。

## 2. MySQL

### 2.1 mysql remote access

Remote access configuration is required if the database is newly installed. Otherwise, skip this configuration.

<https://www.techrepublic.com/article/create-mysql-8-database-user-remote-access-databases/>

### 2.2 Create database

```
ubuntu@kiwi:~$  
ubuntu@kiwi:~$ mysql -u root -p  
Enter password:  
Welcome to the MySQL monitor.  Commands end with ; or \g.  
Your MySQL connection id is 14  
Server version: 8.0.29-0ubuntu0.21.10.2 (Ubuntu)  
  
Copyright (c) 2000, 2022, Oracle and/or its affiliates.  
  
Oracle is a registered trademark of Oracle Corporation and/or its  
affiliates. Other names may be trademarks of their respective  
owners.  
  
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.  
mysql> create database modbus;  
  
mysql> exit  
Bye  
ubuntu@kiwi:~$
```

Import the existing database file Modbus.sql

```
ubuntu@kiwi:~$ mysql -u root -p modbus < modbus.sql
```

## 3. Net

Modbus Gateway IP: 155.69.142.189

Check whether the network connection between the host and the Modbus gateway

is normal.

```
ubuntu@kiwi:~$ ping 155.69.142.189
PING 155.69.142.189 (155.69.142.189) 56(84) bytes of data.
```

## 4. Configure

- Place the Modbus.zip on the server, Unzip Modbus.zip
- Modify Modbus/Web/main.py, setting the database connection information.

```
main.py
from flask import Flask, request, jsonify, render_template, url_for, redirect
from flask_sqlalchemy import SQLAlchemy
from threading import Thread, Event
from queue import Queue
import time, json
from datetime import datetime, timedelta
import modbus_tk.defines as cst
import modbus_tk.modbus_tcp as modbus_tcp
from flask_migrate import Migrate

from sqlalchemy import create_engine
from sqlalchemy.ext.declarative import declarative_base
from sqlalchemy.orm import sessionmaker
from sqlalchemy import Column, Integer, SmallInteger, DECIMAL, DateTime, Float

from jsonschema import validate
from validate_params import schema
from decimal import Decimal

MYSQL_HOST = '155.69.142.189'
MYSQL_USERNAME = 'root'
MYSQL_PASSWORD = 'Modbus123!'

MODBUS_TCP_SERVER = '155.69.142.197'
MODBUS_TCP_PORT = 502
```

Replace new IP & Account

- Use the console to access the Modbus folder

```
ubuntu@kiwi:~/Own/ModBus$
ubuntu@kiwi:~/Own/ModBus$
ubuntu@kiwi:~/Own/ModBus$ ls
Doc  docker-compose.yml  Dockerfile  grafana.ini  Tools  venv  Web
```

- build

```
ubuntu@kiwi:~/Own/ModBus$
ubuntu@kiwi:~/Own/ModBus$ sudo docker-compose up --build
```

```

grafana | logger=grafanaStorageLogger t=2022-10-24T01:
grafana | logger=http.server t=2022-10-24T01:05:06.283
protocol=http subUrl= socket=
web | Starting ReadThread
web | Starting WriteThread

```

➤ Abort: Control + c

```

^CGracefully stopping... (press Ctrl+C again to force)
Stopping web ...
Stopping grafana ...
^CKilling web ...
Killing grafana ...
^CERROR: Aborting.
ubuntu@kiwi:~/Own/ModBus$ ^C
ubuntu@kiwi:~/Own/ModBus$ █

```

➤ Restart:

```

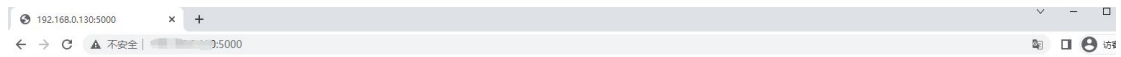
Stopping web ...
Stopping grafana ...
^CKilling web ...
Killing grafana ...
^CERROR: Aborting.
ubuntu@kiwi:~/Own/ModBus$ ^C
ubuntu@kiwi:~/Own/ModBus$ █
ubuntu@kiwi:~/Own/ModBus$ sudo docker-compose start
Starting web ... done
Starting grafana ... done
ubuntu@kiwi:~/Own/ModBus$ █

```

## 5. Test

Visit the website with the new IP

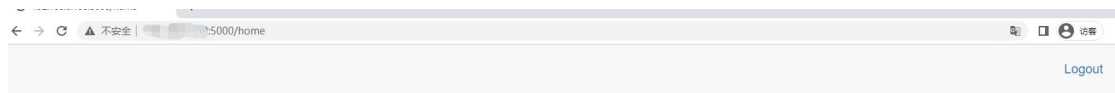
<http://IP:5000>



Login

Username:

Password:



2022-09-09 14:33:16

Real-time Readings

room\_temperature\_setpoint: 23.1  
room\_temperature\_1: 22.8  
room\_temperature\_2: 22.9  
room\_humidity\_1: 46.9  
room\_humidity\_2: 48.5  
bms\_local: 0  
fcu\_ss\_cmd: 0  
fcu\_trip: 0  
fcu\_status: 1  
fcu\_low\_speed: 0  
fcu\_med\_speed: 0  
fcu\_high\_speed: 0  
fcu\_airflow\_rate: 8469

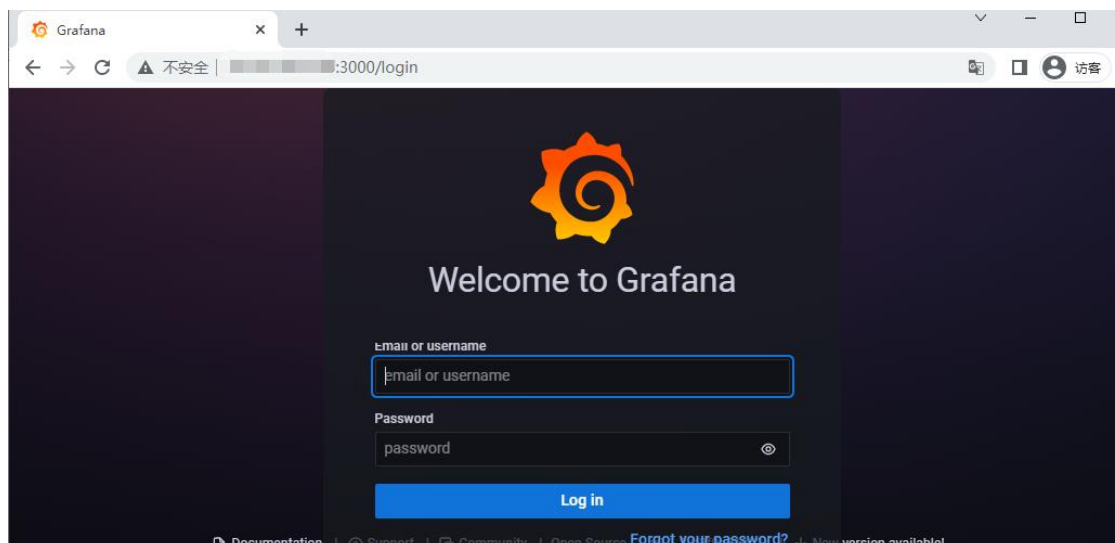
off\_coil\_temperature: 23.0  
chwr\_temperature: 21.4  
chws\_temperature: 8.9  
water\_leakage\_status: 0  
chw\_valve\_cmd: 12.2  
chw\_valve\_position: 11.5  
chw\_flow\_rate: 11941  
U: 228.923  
I: 7.633  
PF: 5.0000  
W: 2233  
KWH: 1234561.89

Control Handlers

room\_temperature\_setpoint: 23.1  
valve\_ovr\_flag: 0  
valve\_ovr\_cmd: 10.0  
fcu\_ss\_ovr\_flag: 0  
fcu\_ss\_ovr\_cmd: 0  
fcu\_speed\_ovr\_flag: 0  
fcu\_speed\_ovr\_cmd: 0

copy right

<http://IP:3000>



## 6. Other

For other information please see NTU ModBus.pdf