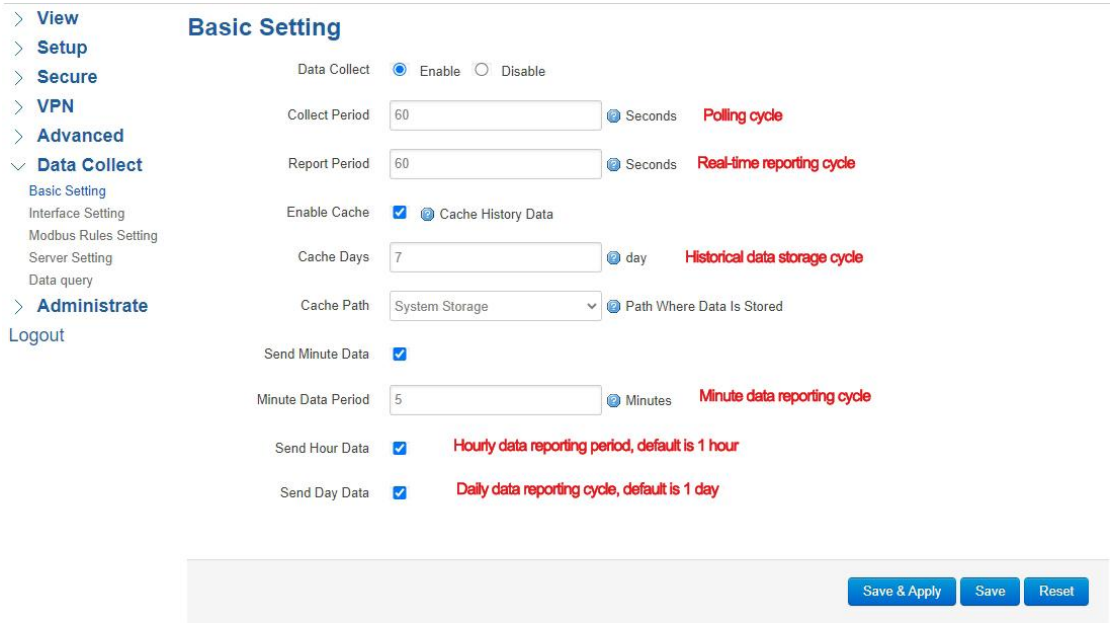
listing

Basic settings



Acquisition cycle: how often the device polling

Reporting cycle: how often the collected data is reported to the center.

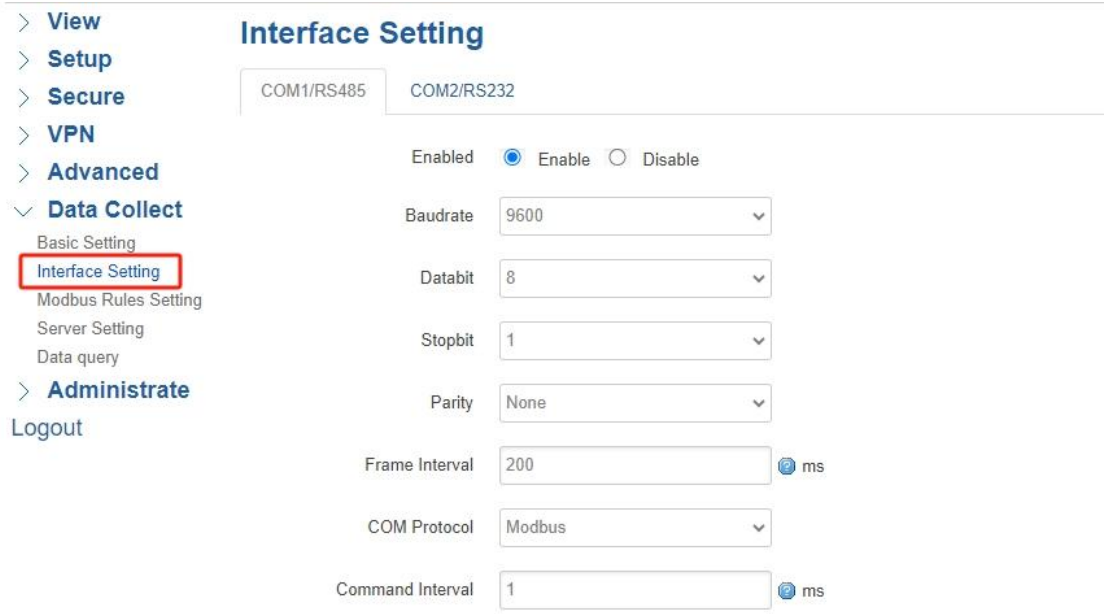
Enable cache: offline data can be cached locally and uploaded online.

Minute data, hourly data: the corresponding minute and hourly reporting cycle will be used only when using the environmental protection 212 protocol.

I、Interface settings

Interface settings are lower computer parameters

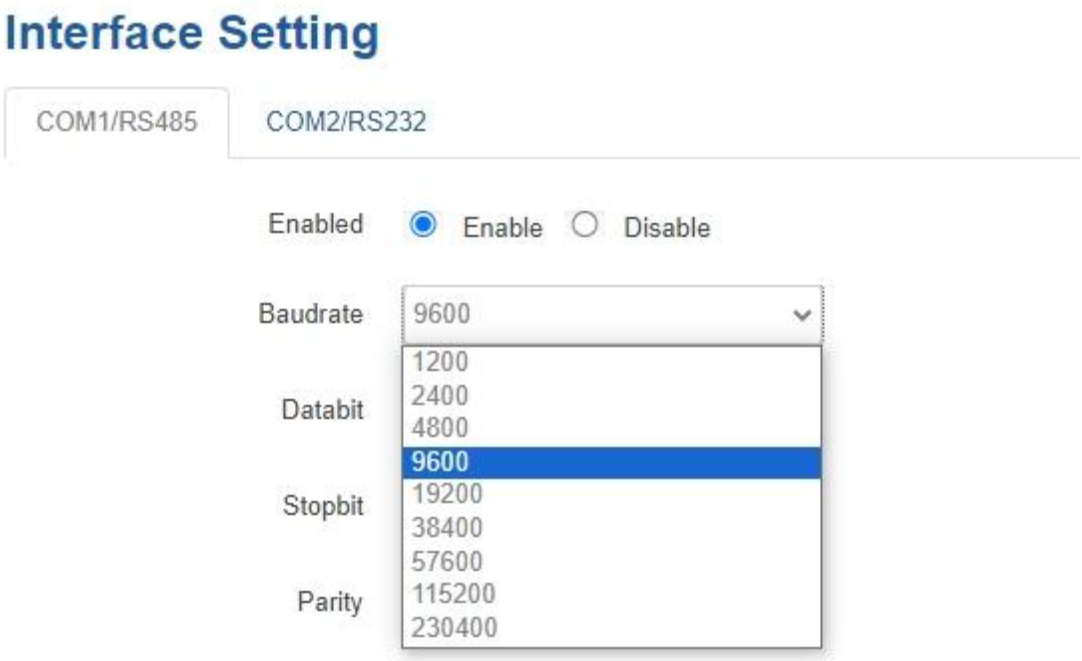
1.1, the serial port contains RS485 and RS232, default support ModbusRTU protocol acquisition



Baud rate: need to be consistent with the lower computer, the default is 9600, currently supported baud rates are:

9600 frame interval is recommended to use 200；

Default serial port supports Modbus RTU protocol acquisition. If the gateway actively collects, then select Modbus.



Data Bit: There are two choices for data bit: 8 bits and 7 bits, and the default is 8 bits.

Stop Bit: There are two choices for stop bit: 2-bit and 1-bit, the default is 1-bit.

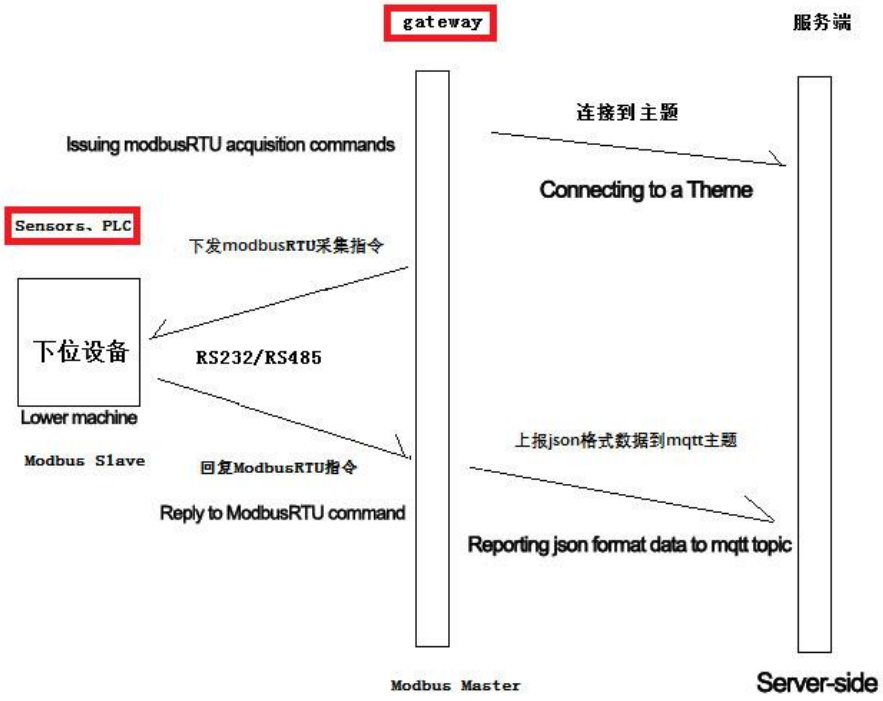
Parity Bit: Parity has no parity, odd parity, even parity, the default is no parity.

Frame Interval: Set the appropriate frame interval according to the baud rate, **the recommended frame interval is 200 for 9600.**

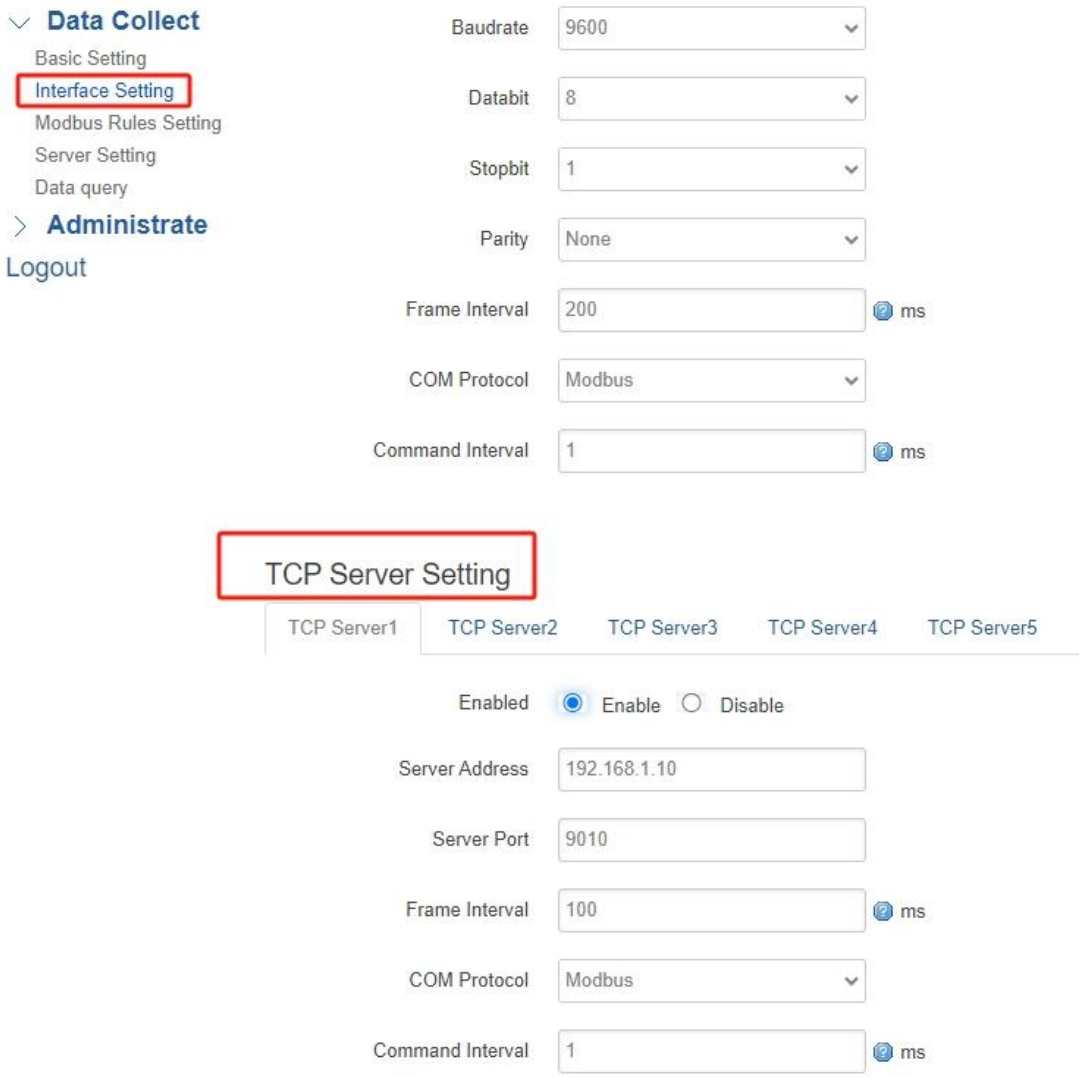
Communication protocol: the transmission protocol of serial port data, currently supports ModbusRTU protocol acquisition and pass-through.

Note: under the transmission protocol, the server side encapsulation type should also choose transmission, so that the transmission function can be used normally.

Reporting Center: Select the corresponding reporting center number when transmitting, the gateway can configure 5 centers by default.



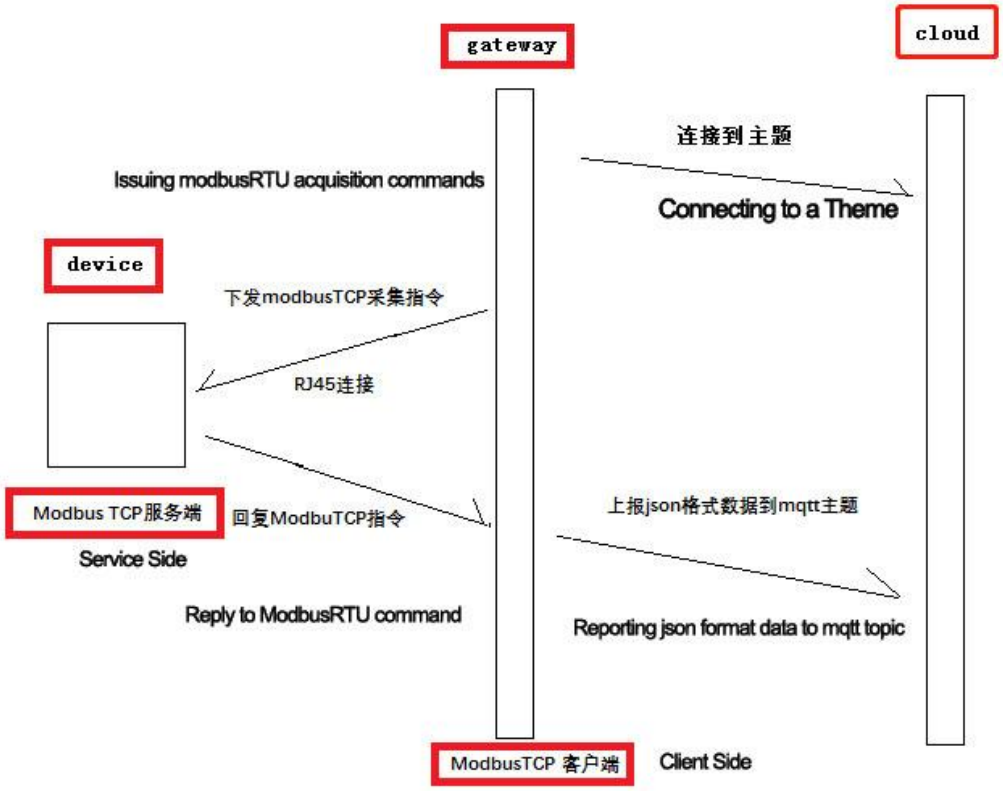
1.2、Network port directly connected to the modbus TCP protocol of the host computer, the gateway default TCP client, the host computer IP and port can be configured



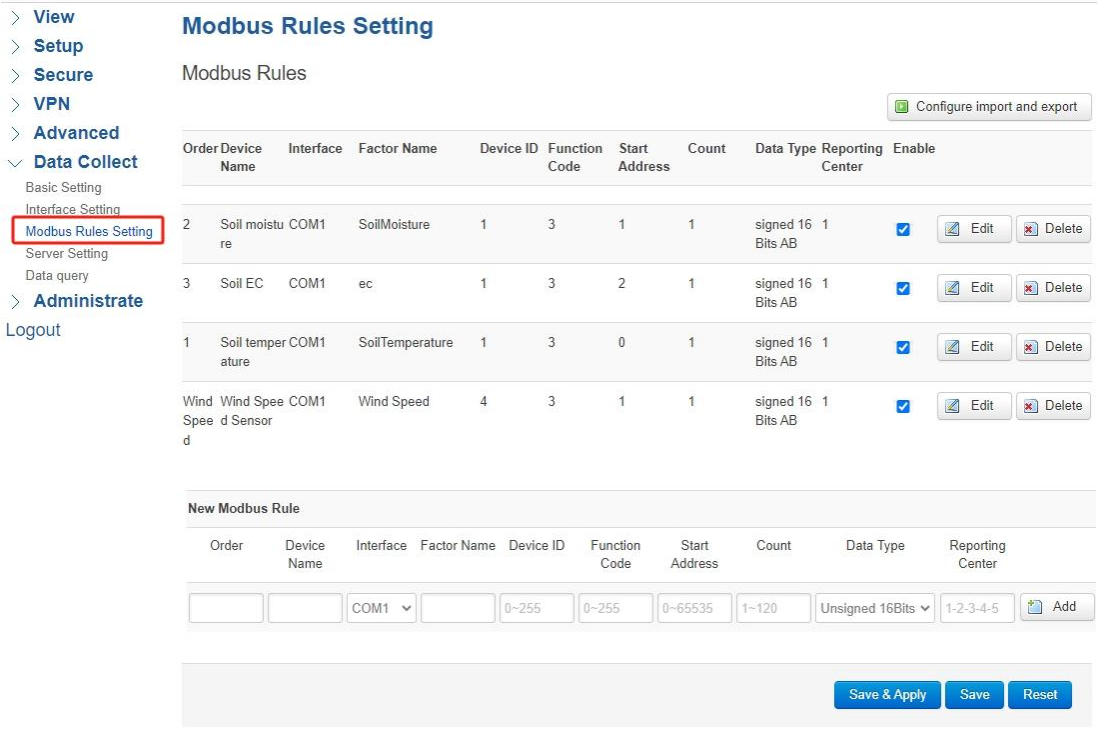
Server address: ip address of ModbusTCP server (lower machine)

Server port: port of ModbusTCP server.

Protocol: If you choose Modbus, it supports modbusTCP protocol, and you need to fill in the number of the center when you choose pass-through.



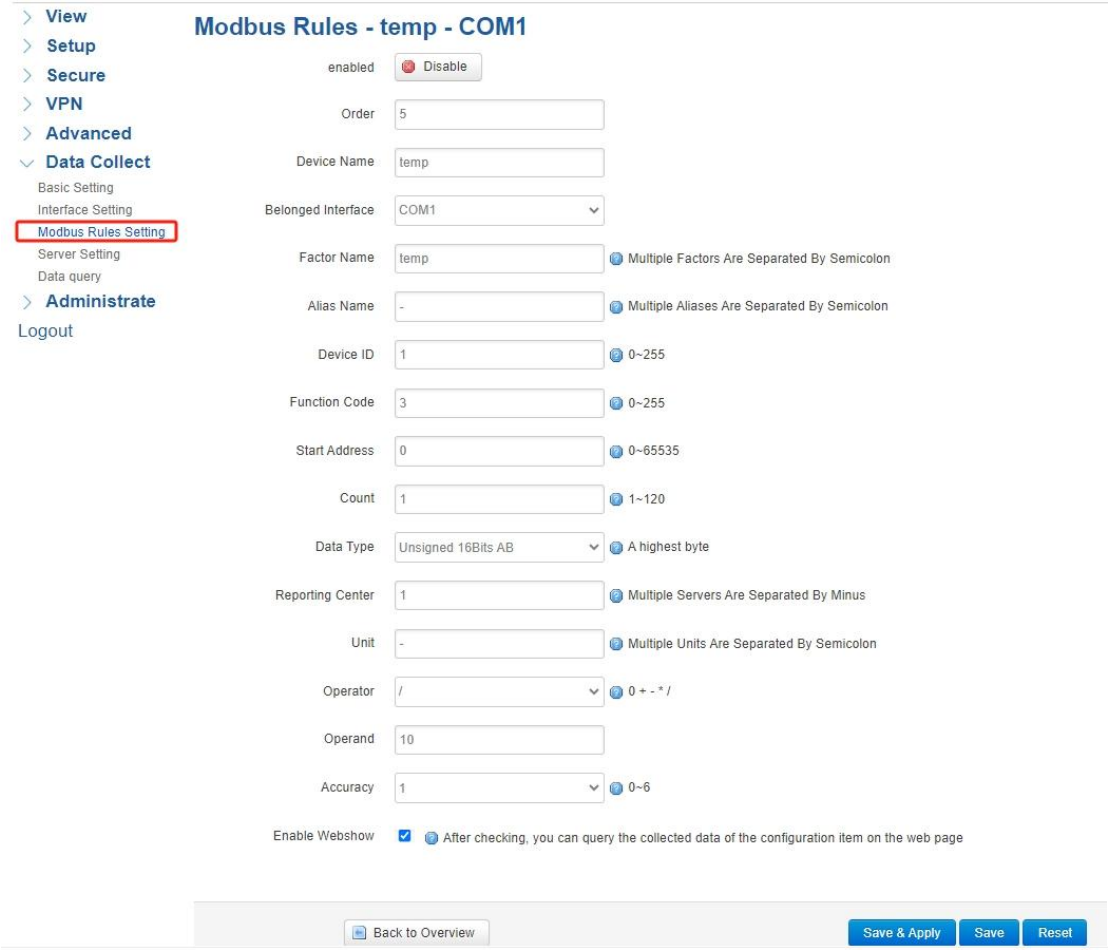
II、 Collection rules



Device Name ： Customizable

Interface ： Serial port or modbusTCP interface
Factor Name ： English code, required field
Reporting Center：Corresponding to the server side of the center

Suppose we want to read the 40001 register data from the thermometer by 01 03 00 00 00 01 84 0A and then divide the data by 10, keeping one decimal place, and pass it to the variable temp, then first add a rule according to the following configuration.



Serial number: collection rule number
Device Name: the name of the collected device can be filled in, which can be used for remarks, generally only use alphanumeric combination naming.Belonging Interface: the corresponding interface settings of the collection, select the interface that has been opened, and the interface that has not been opened will not be displayed.
Factor Name: mandatory, indicates the name of the collected and reported factor (key,

value key inside the key-value pairs), refer to the environmental protection protocol code or customized code, such as: a01001, if a rule collects more than one factor (not more than 60), separated by a semicolon in English.

Alias: Remark information of factor name, can be left blank.

Device ID: Modbus device ID, 0-255 (decimal).

Function Code: Generally 03 function code, read register data, 1-255 (decimal).

Starting Address: register starting address, the offset address is used here, 40001 corresponds to 0, the default configurable range is 0-65535 (decimal).

Number: the number of register data, a factor of 16-bit type occupies one register, 32-bit or float type occupies two registers, N factors are multiplied by N according to the data type, and the configurable range is 0-120 (decimal).

Data type: select the corresponding data type according to the actual situation, the same acquisition rule, the data type is consistent.

Unit: the unit of the collection factor is just a remark parameter, and the unit is usually not carried when the data is reported.

Operator: One operation can be performed on the raw collected data.

Precision: the number of decimal places retained by the data, rounded by default.

Example:

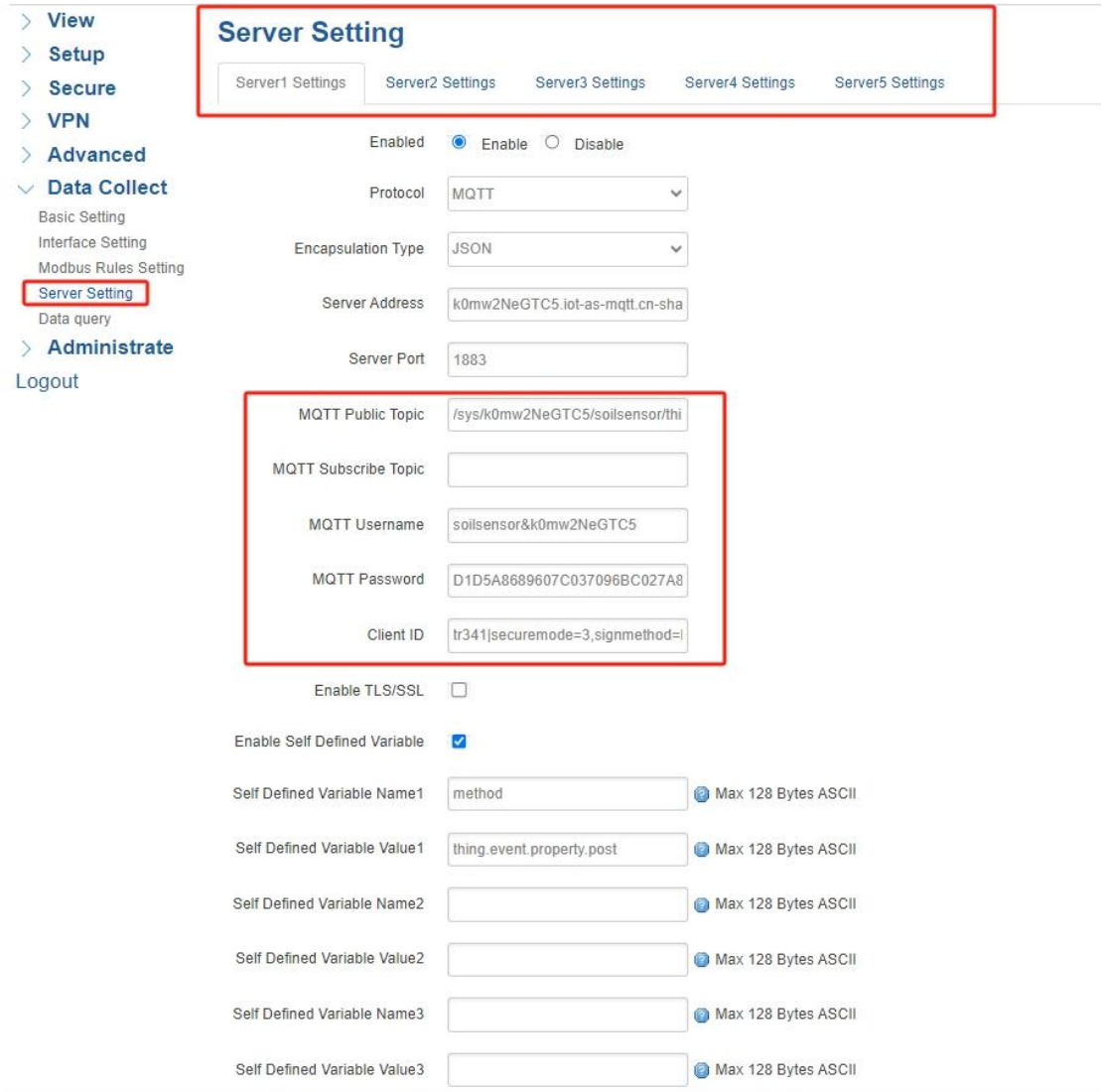
Case: / stands for Divide by.

Operand: 10 stands for collected data divided by 10

III、Input/Output Configuration

Corresponding to the gateway's ADC interface, DI interface, relay interface data acquisition, if you can not use these interfaces, you can not configure.

IV、Server-side configuration



(The data in the picture is for demonstration purposes.)

4.1 Support TCP, UDP client, MQTT client and http client to connect to the center.
Note: Mqtt protocol reporting, data is reported to the platform through the release of the subject, the platform issued control instructions are issued through the registration of the subject, in addition to connecting to the same MQTT broker, the clientid parameter must not be repeated.

4.2, The data reporting protocol can support transmission (serial port settings over there protocols need to choose transmission), JSON, Transparent

4.3, Json format reporting, reporting format default (can be customized according to the requirements of field use format):

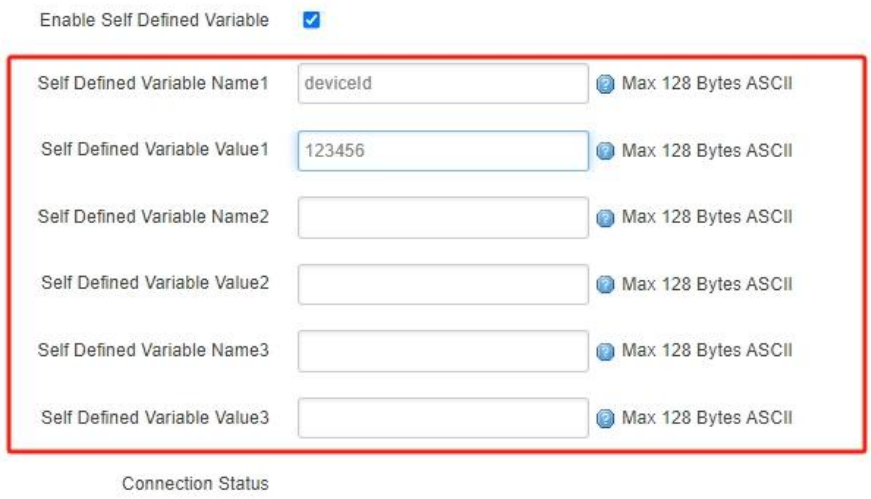
{

“deviceId”:”Device number, the attribute name deviceid can be filled in arbitrarily.”,
“ts”:Timestamps are accurate to millisecond values,
“params”:{
“key”:”value”,
”key”:”value”
}
}

Example data for test acquisition：

```
{
    "deviceId": "12345678",
    "ts": 1583723667895,
    “params”: {
        "temp": 0.21
        }
    }
```

Example of the corresponding meaning of the indicator key
temp Temperature
The parameter deviceid corresponds to the “custom variable name” and “custom variable value” options, which are not configured by default, and three can be configured.



V、Remote telemetry function

Support platform through the MQTT registration theme (or tcp server) to send down the json format data, to achieve the reverse write register operation (support for two json format, multi-factor, reverse operation (reported is done to add, subtract, multiply

and divide, write the time will be reversed operation))

Format 1：

```
{
    "method":"sendTelemeter",
    "params":{
        "A":12,
        "B":34,
        "C":56
    }
}
```

Format 1 notes:

A,B,C denotes the factor name, 12,34,56 denotes the value to be modified for the corresponding factor

Format 2：

```
{
    "method":"sendTelemeter",
    "params":[
    {
        "A":111,
        "tcp_num":1,
        "deviceID":1
    },{
        "B":222,
        "com_num":1,
        "deviceID":1
    }
    ]
}
```

Format 2 Notes:

“A":111, A means the factor name, 111 means the value of the corresponding factor to be modified

“tcp_num":1, tcp_num means the interface is a tcp server, 1 means the number of the interface ‘deviceID’:1 deviceID means the device ID, 1 means the device ID number

“com_num":1, com_num means the interface is a com port, 1

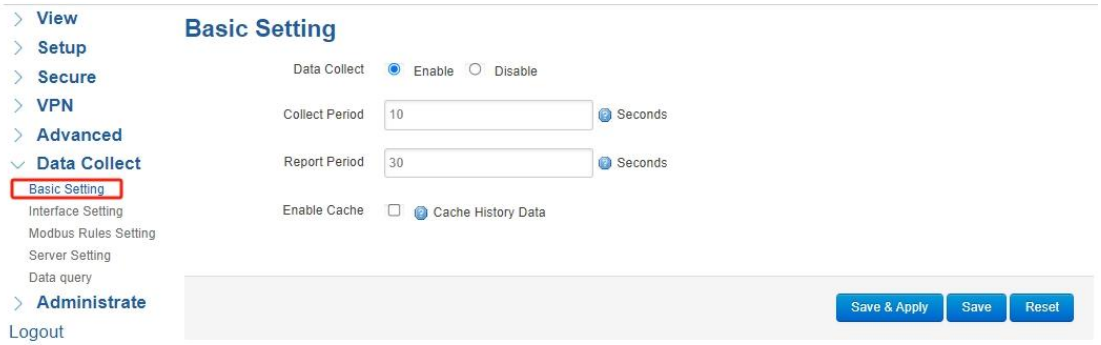
means the number of the interface

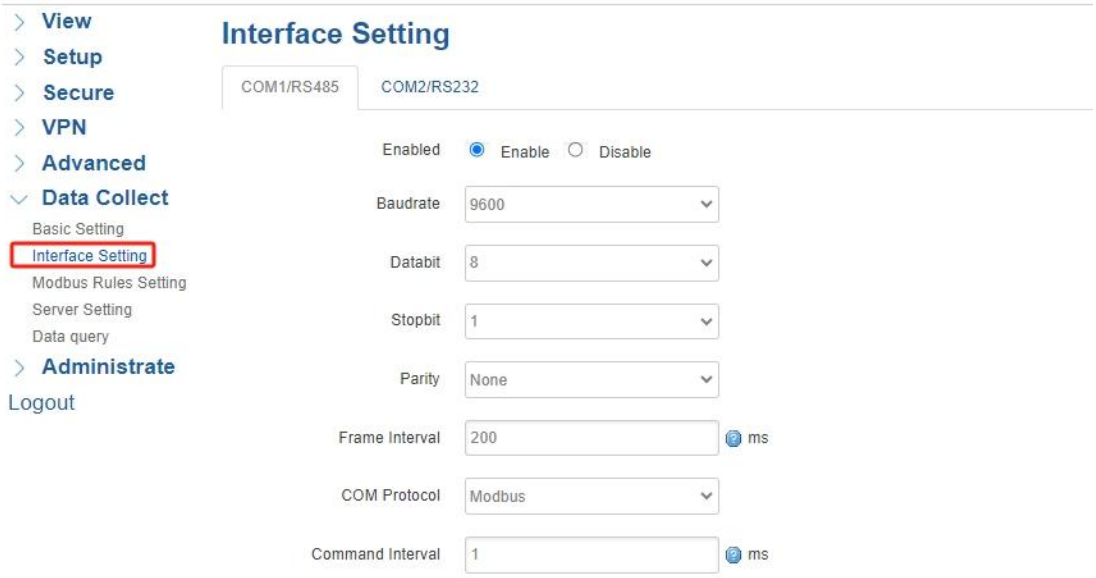
VI、TEST 1（ModbusRTU+TCP+JSON）

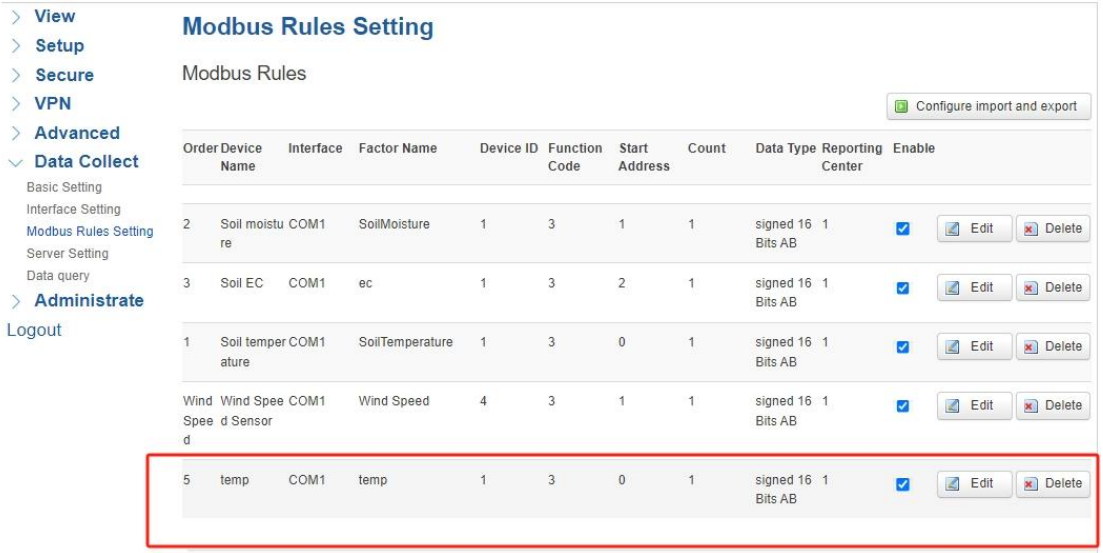
6.1、List of equipment

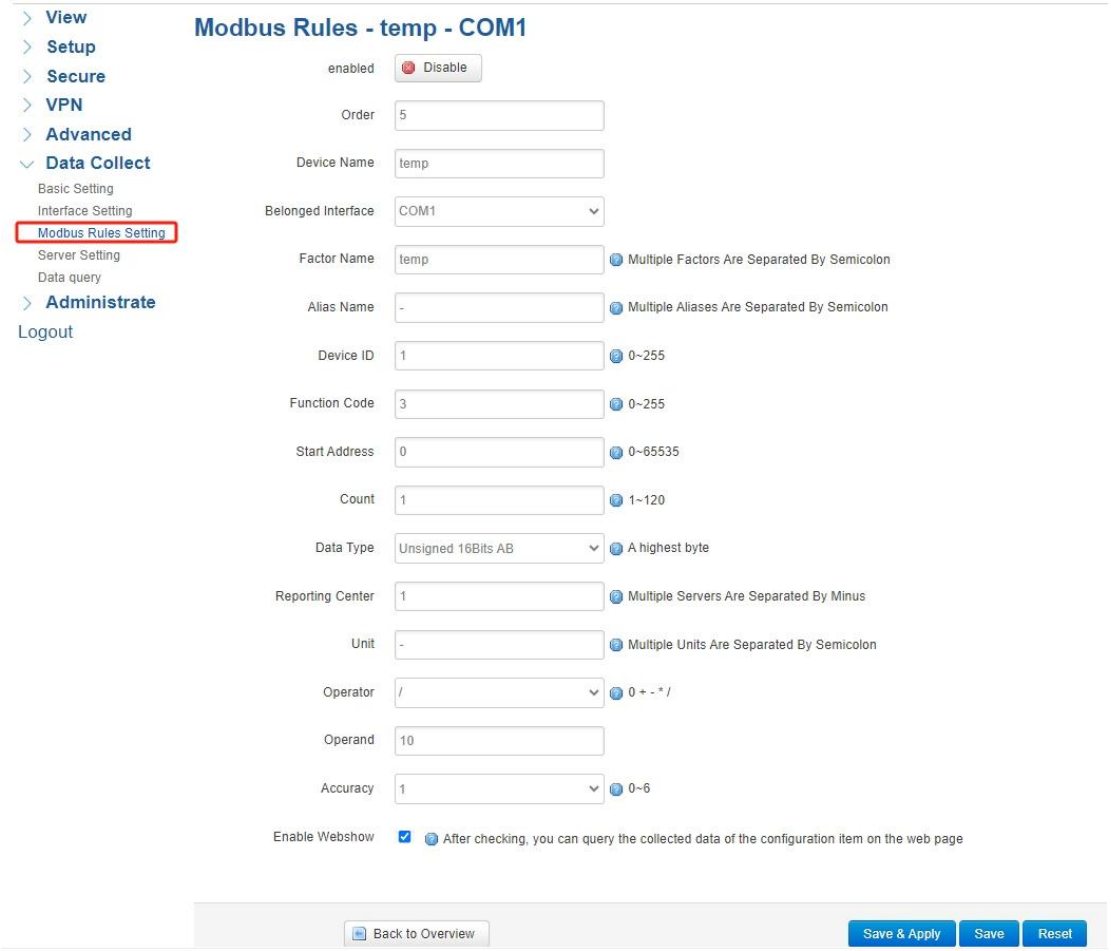
NO.	Name	Remarks
1	Gateway	
2	USB to 485/232, network cable	Connect to computer
3	Network debugging assistant, MQTT platform and client tools	Network debugging assistant can simulate TCP server, MQTT platform used to receive data
4	Modbus Slave	Simulate the lower device

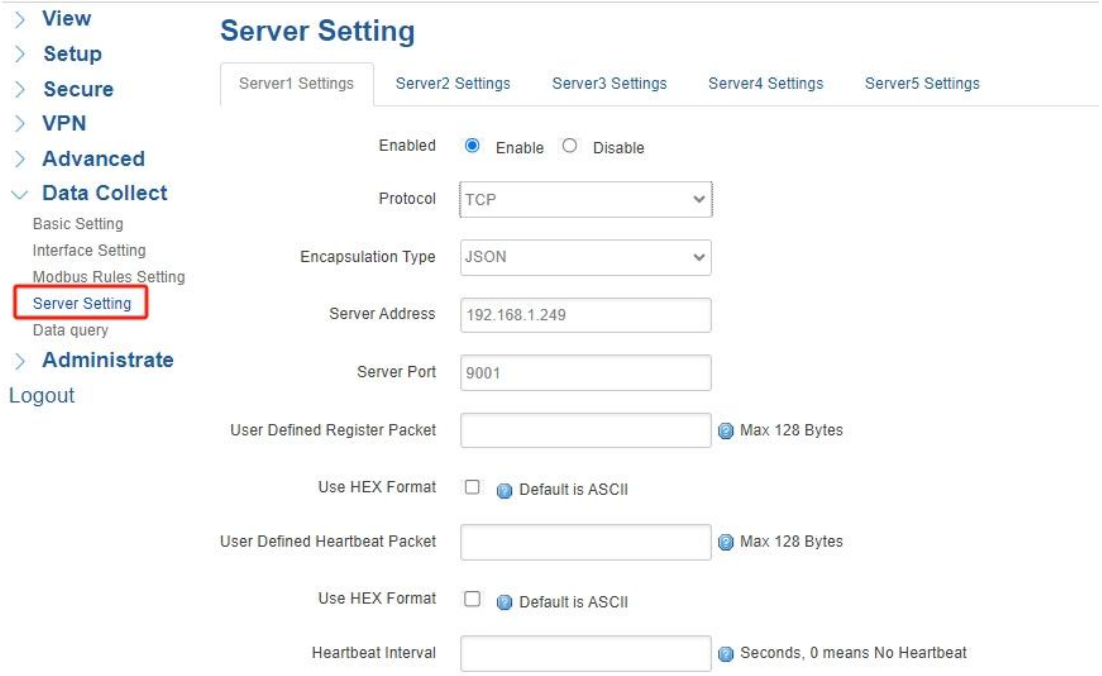
6.2、Gateway Configuration（ModbusRTU+TCP+JSON）



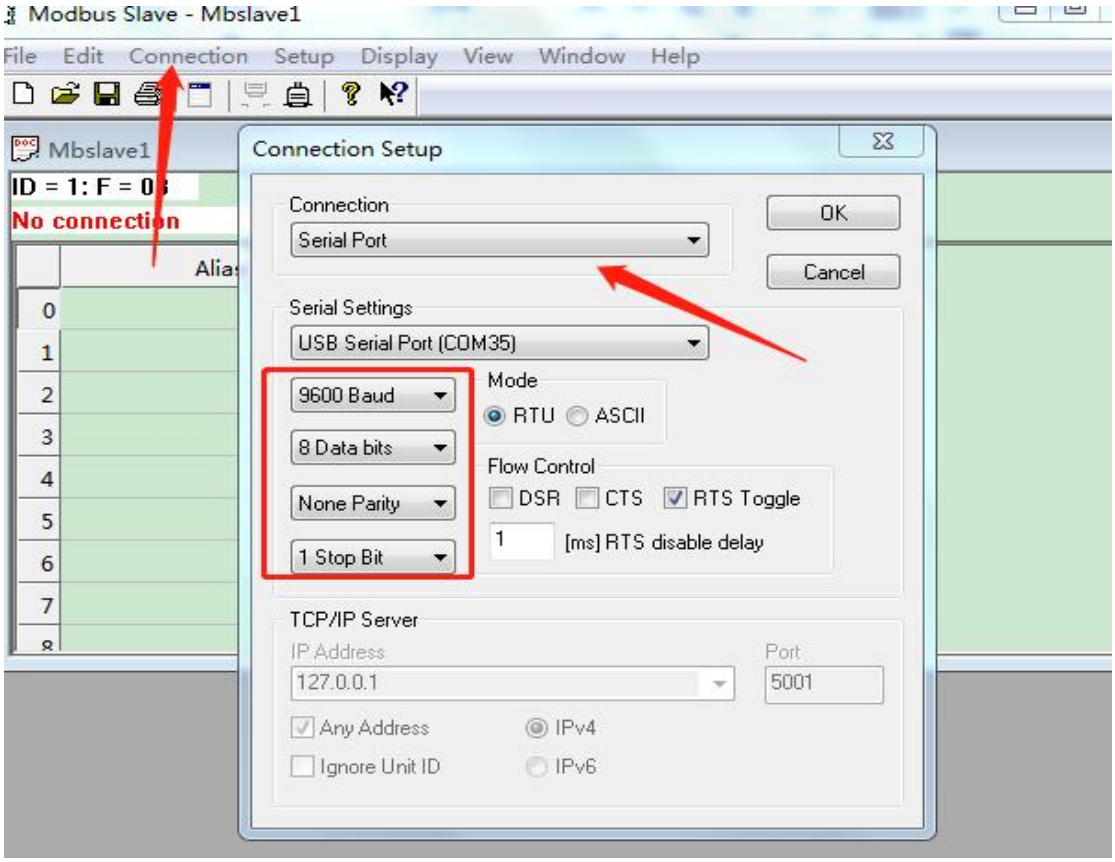

View
Setup
Secure
VPN
Advanced
Data Collect
Basic Setting
Interface Setting
Modbus Rules Setting
Server Setting
Data query
Administrate
Logout
Interface Setting
COM1/RS485
COM2/RS232
Enabled
Enable
Disable
Baudrate
9600
Databit
8
Stopbit
1
Parity
None
Frame Interval
200
ms
COM Protocol
Modbus
Command Interval
1
ms


View
Setup
Secure
VPN
Advanced
Data Collect
Basic Setting
Interface Setting
Modbus Rules Setting
Server Setting
Data query
Administrate
Logout
Modbus Rules Setting
Modbus Rules
Configure import and export
Order
Device Name
Interface
Factor Name
Device ID
Function Code
Start Address
Count
Data Type
Reporting Center
Enable
2 Soil moisture COM1 SoilMoisture 1 3 1 1 signed 16 Bits AB 1 Edit Delete
3 Soil EC COM1 ec 1 3 2 1 signed 16 Bits AB 1 Edit Delete
1 Soil temperature COM1 SoilTemperature 1 3 0 1 signed 16 Bits AB 1 Edit Delete
Wind Speed Wind Speed Sensor COM1 Wind Speed 4 3 1 1 signed 16 Bits AB 1 Edit Delete
5 temp COM1 temp 1 3 0 1 signed 16 Bits AB 1 Edit Delete

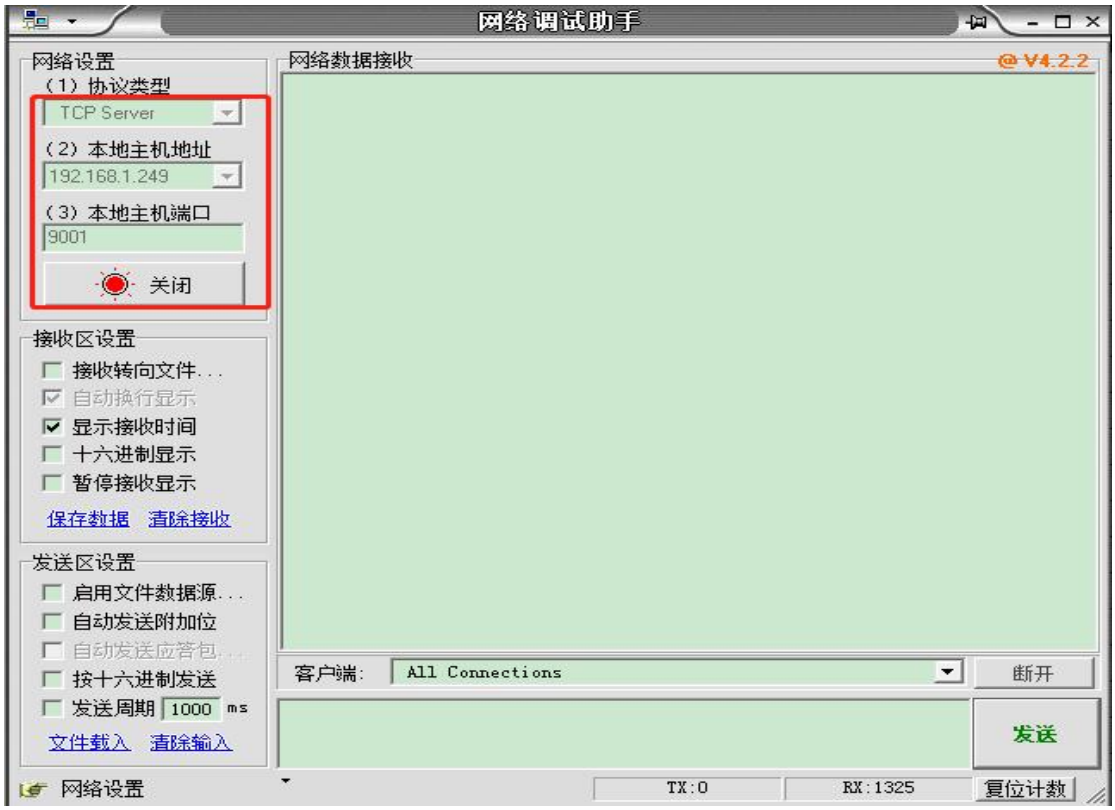




6.3、modbus slave configuration

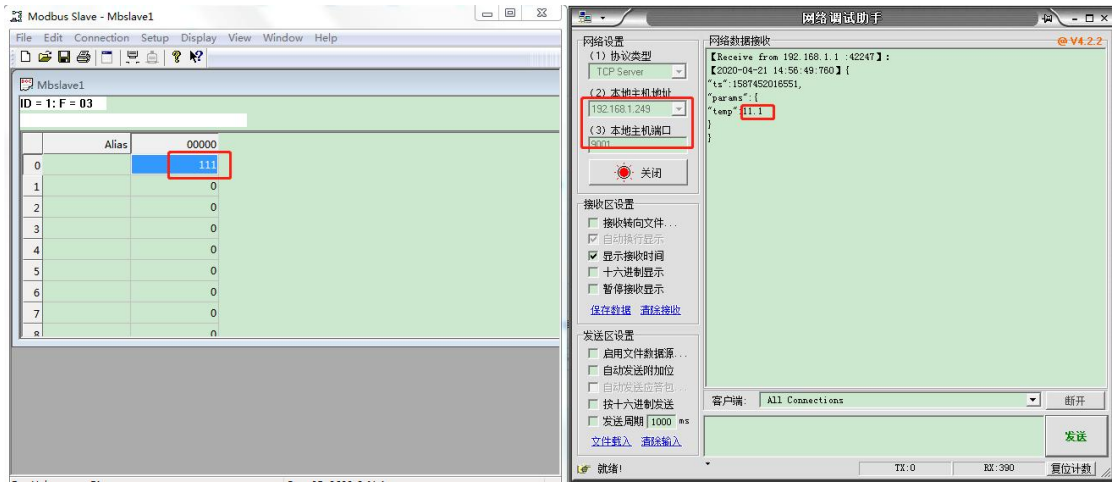


6.4、Network Debugging Assistant Configuration



Note: Network debugging assistant to open the server function when the computer firewall function should be turned off !

6.5、Results

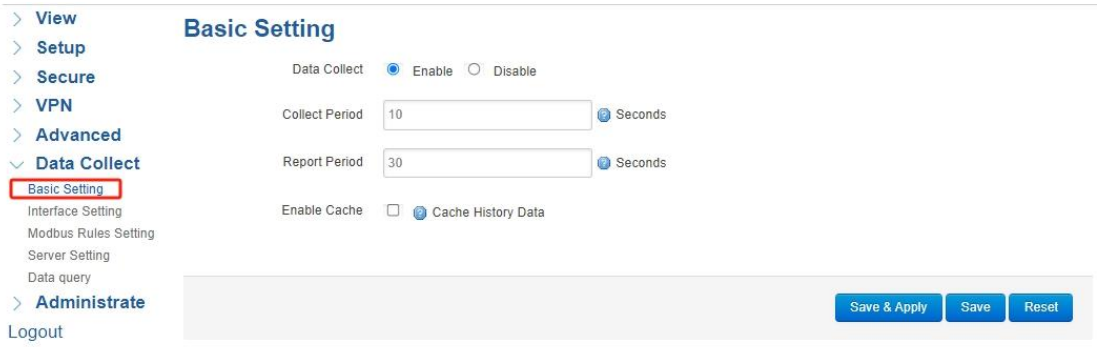

Modbus Slave - Mbslave1
File Edit Connection Setup Display View Window Help
Mbslave1
ID = 1: F = 03
Alias
00000
111
网络调试助手
网络设置
(1) 协议类型
TCP Server
(2) 本地主机地址
192.168.1.249
(3) 本地主机端口
9001
关闭
网络数据接收
@V4.2.2
【Receive from 192.168.1.1 :42247】:
【2020-04-21 14:56:49:760】:
"ts":1587452016551,
"params":{
"temp":11.1
}
}
接收区设置
接收转向文件...
自动换行显示
显示接收时间
十六进制显示
暂停接收显示
保存数据 清除接收
发送区设置
启用文件数据源...
自动发送附加位
自动发送应答包...
按十六进制发送
发送周期 1000 ms
文件载入 清除输入
客户端: All Connections
断开
发送
就绪!
TX:0
RX:390
复位计数

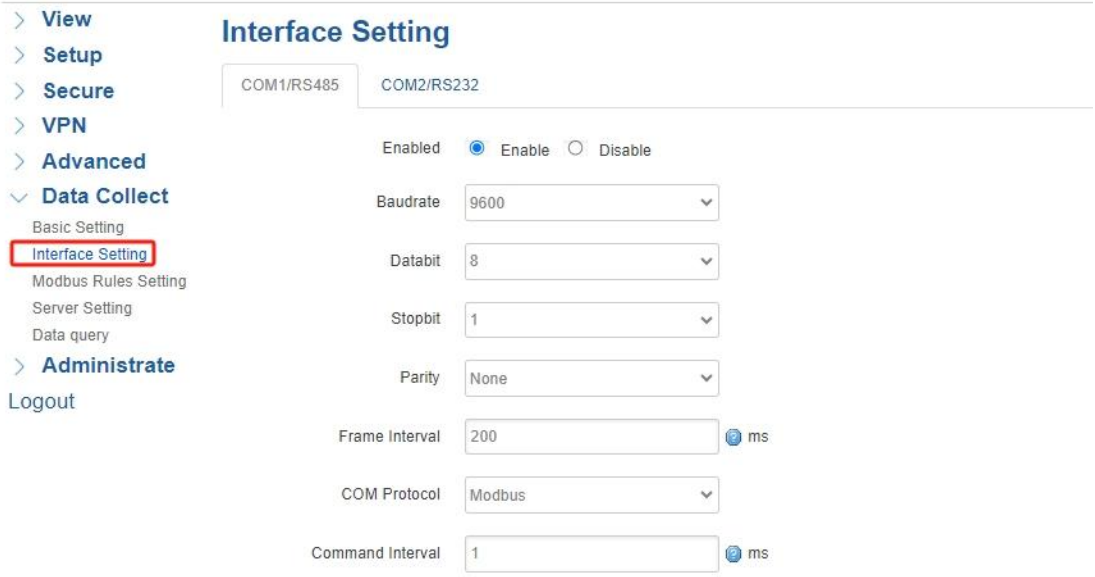
VII、Test 2（ModbusRTU+MQTT+JSON）

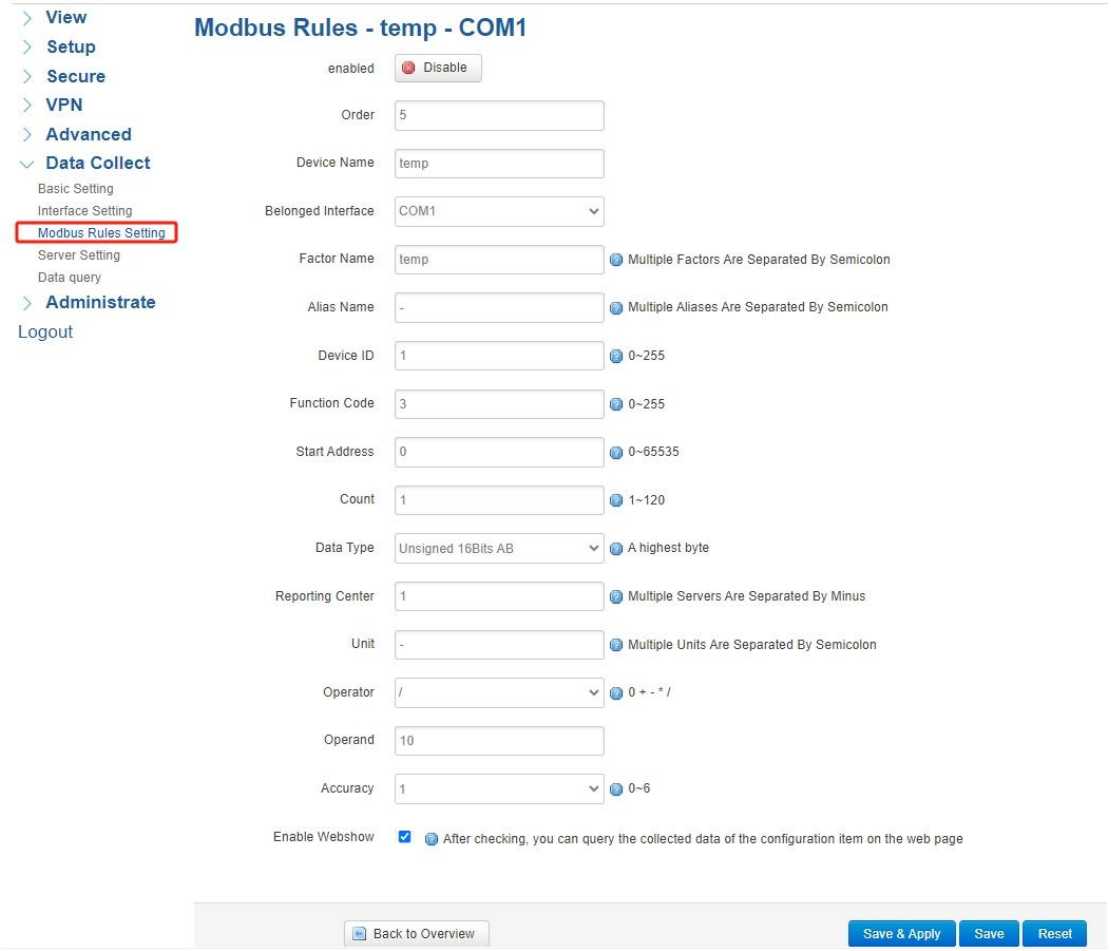
7.1、List of equipment

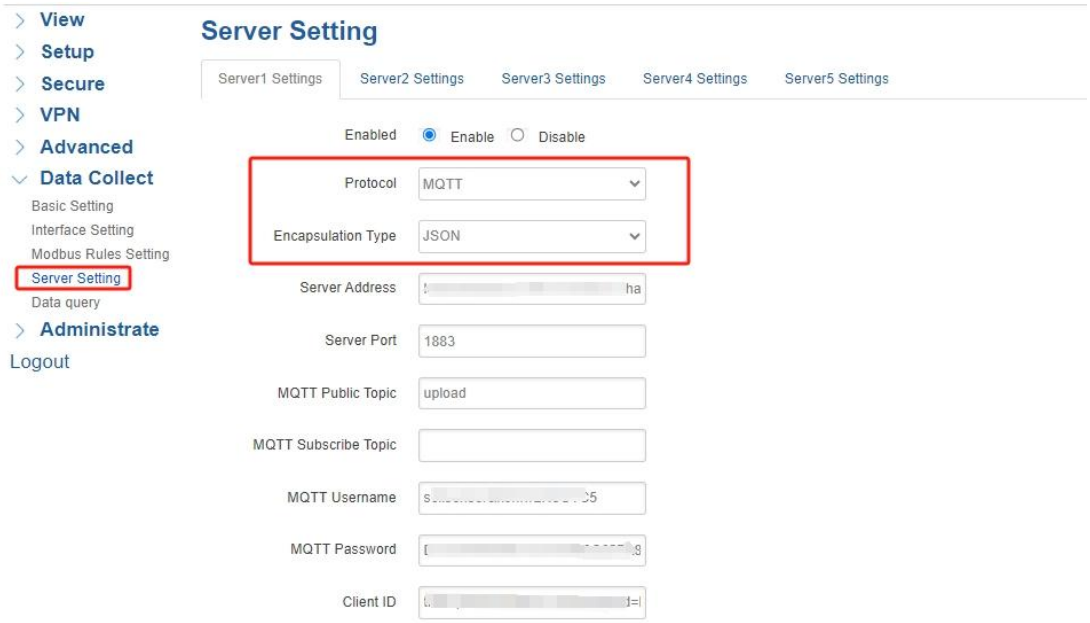
NO.	Name	Remarks
1	Gateway	
2	USB to 485/232, network cable	Connect to computer
3	MQTT platform and client tools	MQTT platform to receive data
4	Modbus Slave	Simulate the lower device

7.2、Gateway Configuration（Modbus+MQTT+JSON）

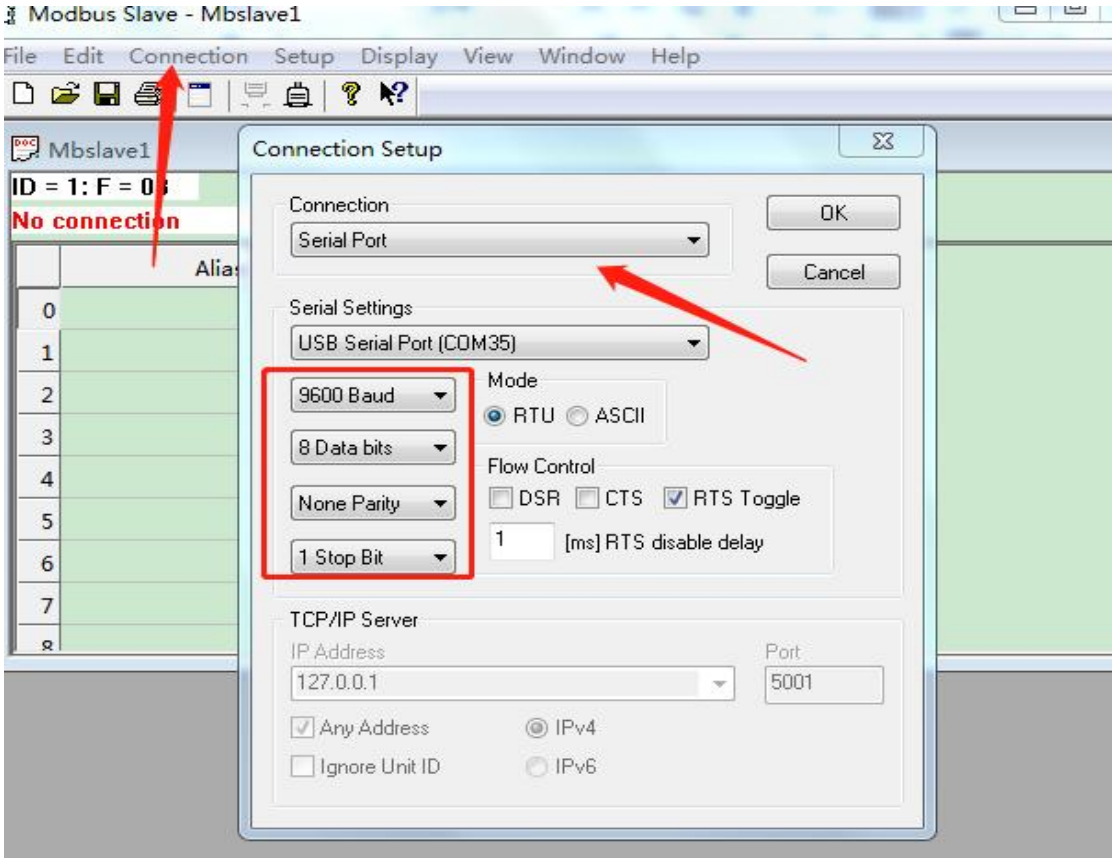




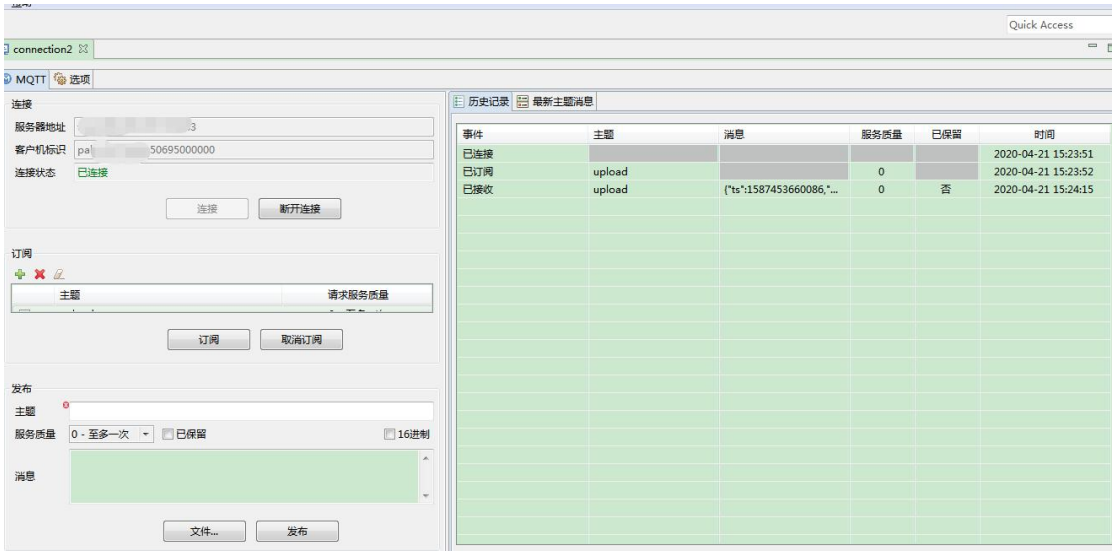




7.3、modbus slave configuration



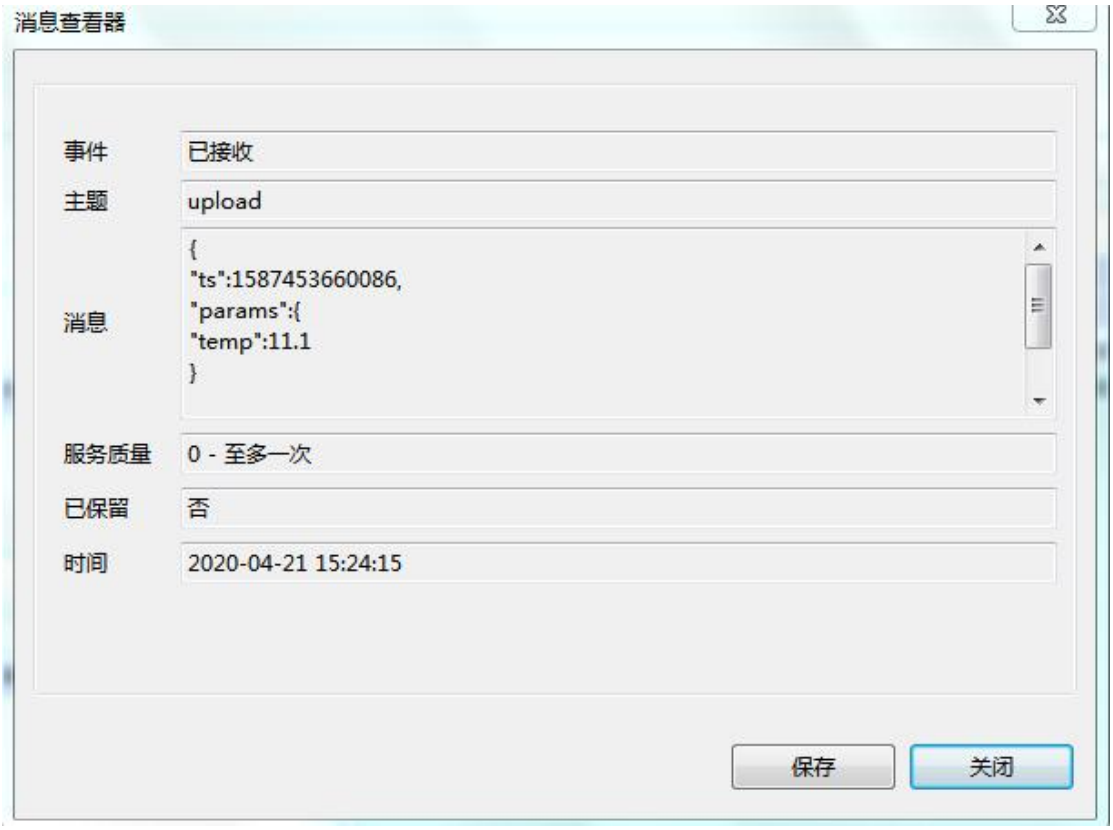
7.4、MQTT Client Tools Subscription Gateway Publishing Topics



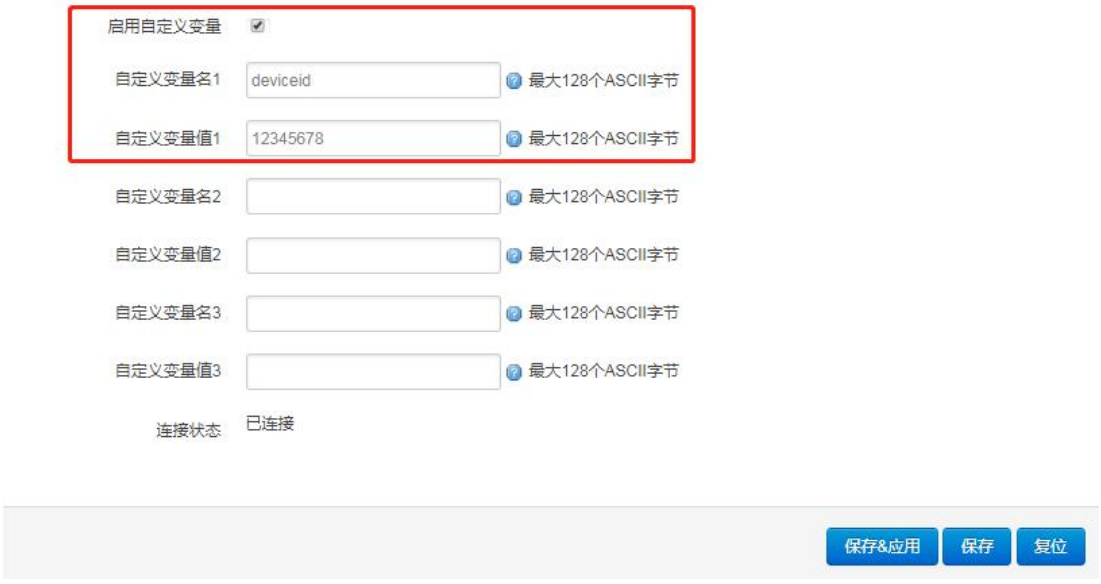
7.5、Results

Receive data from the gateway：

{
"ts":1587454290671,
"params":{
"temp":11.1
}



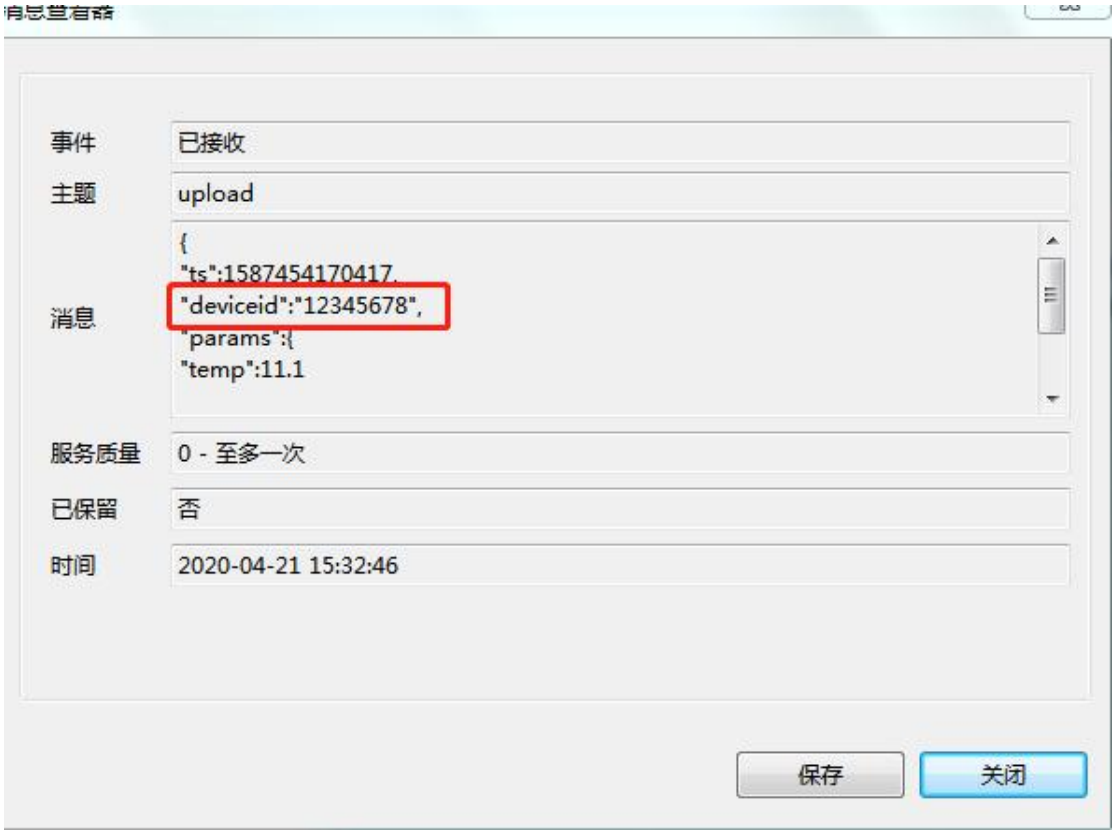
If you want to add a deviceid parameter to the reported data, please set the custom parameter name and value in the Netnifty server settings.



Saved and applied, the reported data becomes：

{
"ts":1587454170417,
"deviceid":"12345678",
"params":{
"temp":11.1
}

}


事件
已接收
主题
upload
消息
{
"ts":1587454170417,
"deviceid":"12345678",
"params":{
"temp":11.1
服务质量
0 - 至多一次
已保留
否
时间
2020-04-21 15:32:46
保存
关闭