IOT Relay User Manual

V1.9.4

1 Product Overview....3
1.1 Overview....3
1.2 Technical Parameters....4
2 Image and Size....5
3 Interface Description....6
3.1 LED....6
3.2 Relay Contact....6
3.3 Reset To Factory....7
3.4 External input/Button control....8
3.5 Add Spark killer and contractor....9
4 Ethernet Web Page....10
4.1 Login....10
4.2 Setting Network....11
4.3 Relay Connect....12
4.4 Relay CGI Test....14
4.5 Relay Task....15
4.6 Input....15
4.7 Input Link Relay....16
4.8 IP WatchDog....16
4.9 Reset User....17
4.10 To Factory....17
4.11 Reboot....18
5 WIFI web Page....18
5.1 Login....18
5.2 Setting WIFI....18
5.3 Setting Relay Connect....20
5.4 Relay CGI Test....21
5.5 Relay Task....22
5.6 Input....22
5.7 Input Link Relay....23
5.8 IP WatchDog....23
5.9 Reset User....24
5.10 To Factory....24
6 IP Finder....25
6.1 Search Device....25
6.2 Change Static IP....26
Appendix I How to Test Command....27
step 1: download SDK....27

step 2: Change NetAssist language 28
step 3: Control relay via NetAssist network tool by wifi module 28
step 4: open UDP listen. 30
step 5: control relay via wifi module 31
Appendix II How to use Domoticz 32
step 1: install Dingtian plugin to Domoticz 32
1 Stop Domoticz 32
2 Copy Domoticz_plugins\dingtian to Domoticz plugin dir 32
step 2: config Dingtian Relay board 32
Domoticz Ethernet 33
Domoticz WIFI 33
step 3: Add Dingtian Relay to Domoticz 34
1 Install Python 3.8.2 34
2 Run to Domoticz 34
3 Add Dingtian Relay to Domoticz 35
4 Control Dingtian Relay with Domoticz 40
step 4: Domoticz mobile application 41
1 Set the Location, User name and password on PC Domoticz 41
2 Install Domoticz 42
3 Set Domoticz Server parameter 42
Appendix III How to MQTT 43
step 1: Install and config Broker 47
step 2: Install MQTT PC client 47
step 3: MQTTBox Add Client 47
step 4: MQTTBox Publish topic to relay board and subcribe topic 50
Appendix IV How to CoAP 51
step 1: compile libcoap 51
step 2: CoAP Get relay status 51
step 3: CoAP Control relay(simple) 51
step 4: CoAP Control relay 52

1 Product Overview

1.1 Overview

Support multiple channel relay, On/OFF/Jogging/Delay.
Support multiple interface RJ45/RS485/CAN/WIFI
Support HTTP GET CGI/UDP/TCP Server/TCP Client
10/100Mbps ethernet, Auto-MDIX,DHCP ip,Static IP
Local Button control(SelfLock/Jogging/Delay)
WEB config and control
Support password.
Support Modbus-RTU/ASCII/TCP/UDP/WIFI
Support Modbus-RTU Over TCP/UDP/WIFI
Support Modbus-ASCII Over TCP/UDP/WIFI
Support MQTT(Ethernet and WIFI)
Support CoAP
Support Domoticz

Home Automation System Support:

Name	How to
Domoticz	Appendix II How to use Domoticz https://github.com/dtlzp/Domoticz-Dingtian-Relay-Plugin(Software version <=V2.16.xx, please use V1.1 for github; software version V2.17.xx or more, please use V1.2 for github)

Noted: when using Domoticz, please close your firewall or let your firewall allow the domoticz server port

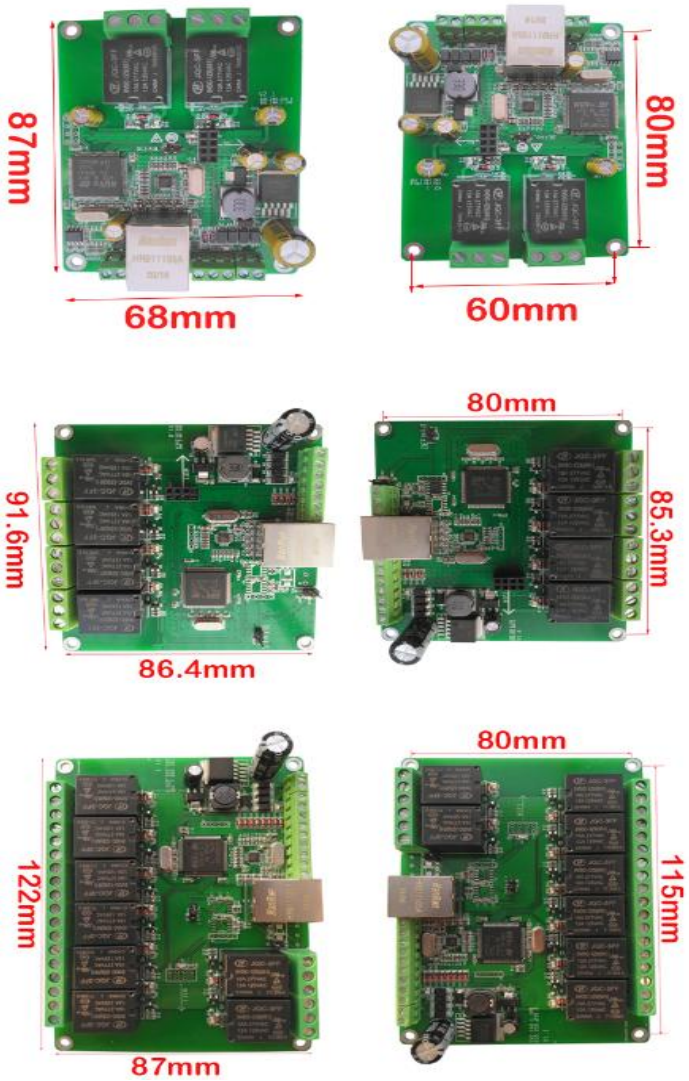
SDK download address:
ftp://ftp.dingtian-tech.com/relay_sdk.zip

1.2 Technical Parameters

Network	Interface	RJ45/ RS485/CAN/WIFI
	Baudrate	100M/115200bps/125kbps/150Mbps
	Protocol	TCP server/client, UDP HTTP GET CGI, Modbus-RTU/ASCII/TCP/UDP/WIFI Modbus-RTU Over TCP/UDP/WIFI Modbus-ASCII Over TCP/UDP/WIFI MQTT(Ethernet and WIFI) CoAP
Output	Relay Power	AC 250V/10A,DC 30V/10A
	Contacts	Normally Close(NC) Normally Open(NO)
	Delay	1~65535 seconds
	Momentary	Pull in 0.5 seconds, automatically release
Working environment	Operating temperature	0~+85°C
Power	Power Specifications	12/24VDC 12/24VAC
	Current	2 channel: 0.15A/12V(recommend 1A/12V) 4 channel: 0.25A/12V(recommend 1A/12V) 8 channel: 0.5A/12V(recommend 2A/12V)
	Power consumption	2 channel: 2W 4 channel: 3W 8 channel: 5W

2 Image and Size

Hole size: 3.5mm



3 Interface Description

3.1 LED

wifi led	on: Connect WIFI successfully off: Disconnect WIFI
CH1-CH8 led	on: relay on off: relay off

3.2 Relay Contact

Each set of relay outputs has three terminals: normally open contact, common terminal and normally closed contact. The contact capacity is AC 250V10A, DC 30V10A, and the output of controlling higher power requires external contactor.

• Normally open contact:

When the relay is released (or the module is powered off), the common terminal is disconnected from the normally open contact. After the suction is closed, the two contacts are closed.

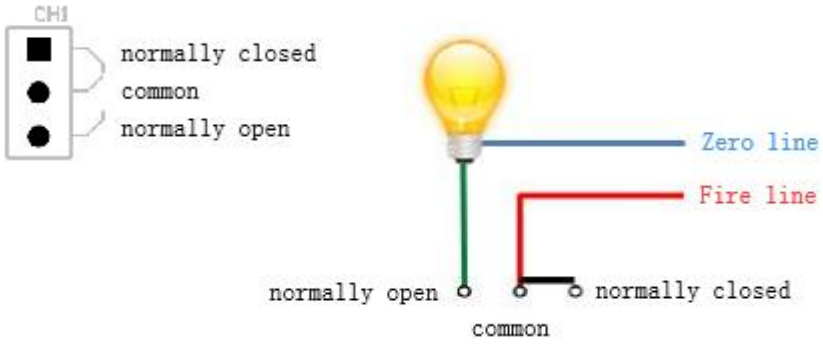
• Common:

Controlled power input

• Normally closed contact:

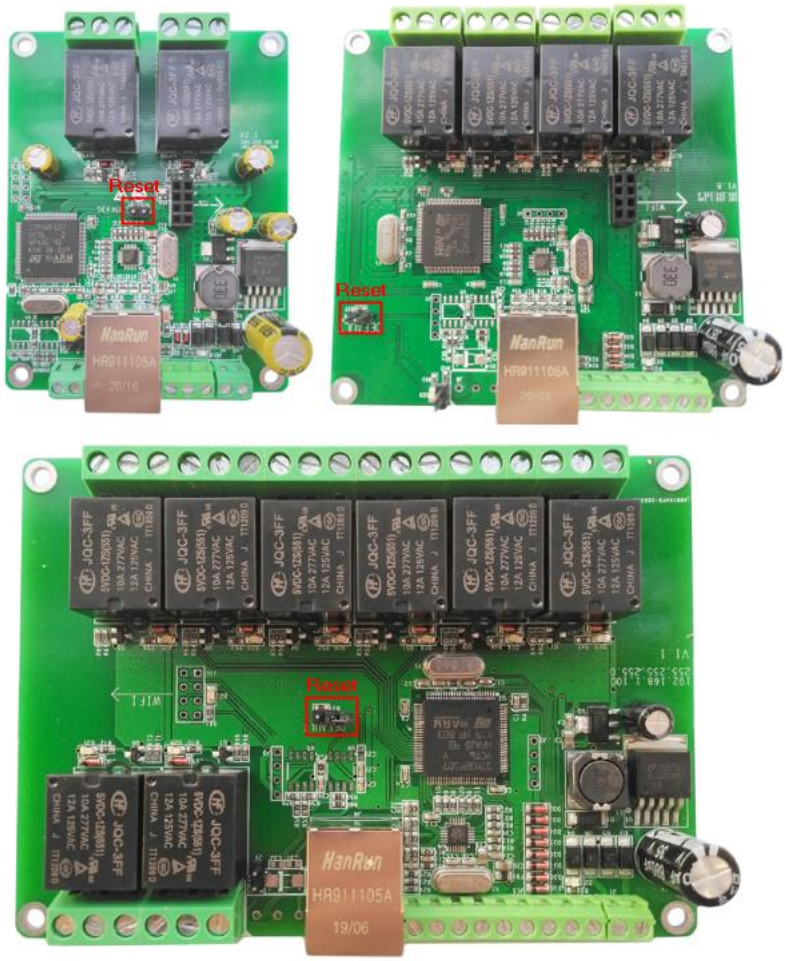
When the relay is released (or the module is powered down), the common and normally closed contacts are closed. After the pull-in, the two contacts are disconnected.

Connection example



3.3 Reset To Factory

1. Short-circuit the 2 pin headers under the Default assembly with a jumper cap



2 Power off the relay board

3 Power on the relay board

4 Pull out the Default jumper cap

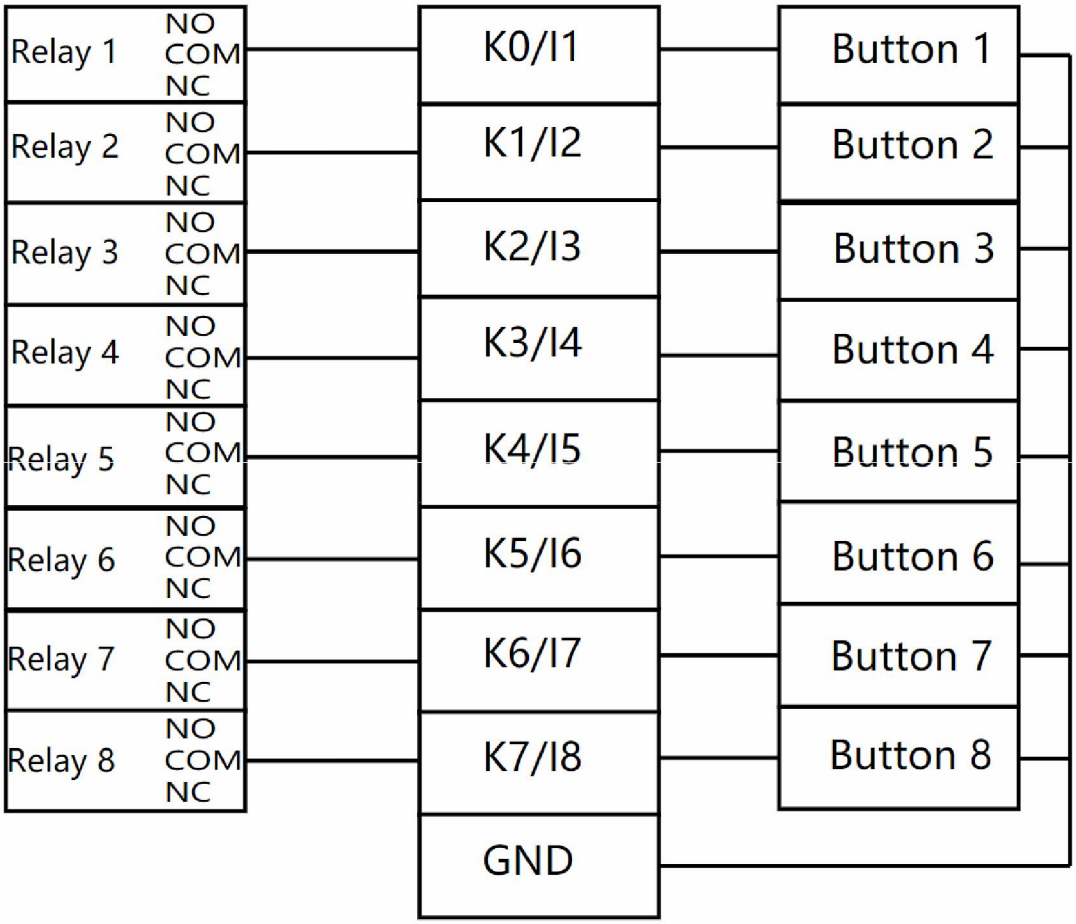
3.4 External input/Button control

K0~K7 Control Relay1~8

0V Relay On

3.3V Relay Off (Hardware Version < V1.8)

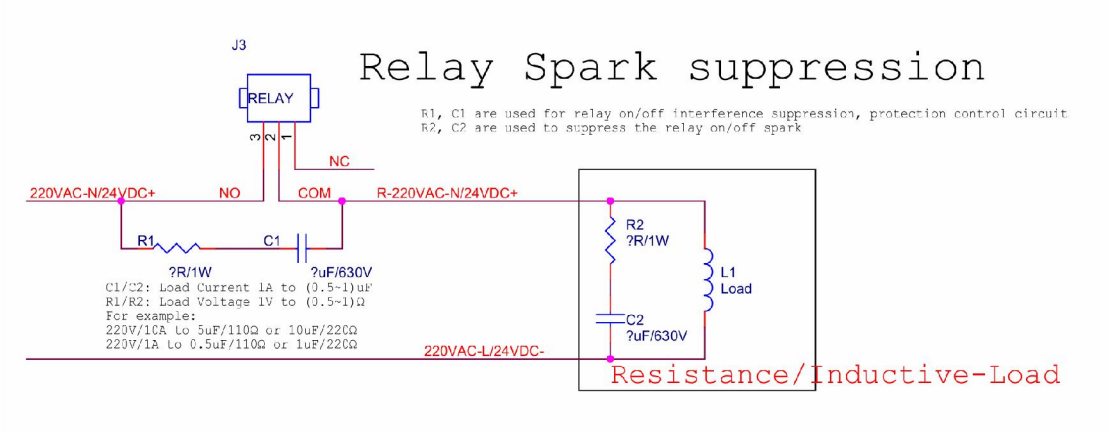
3.3V/5V/12V/24V Relay Off (Hardware Version >= V1.8)



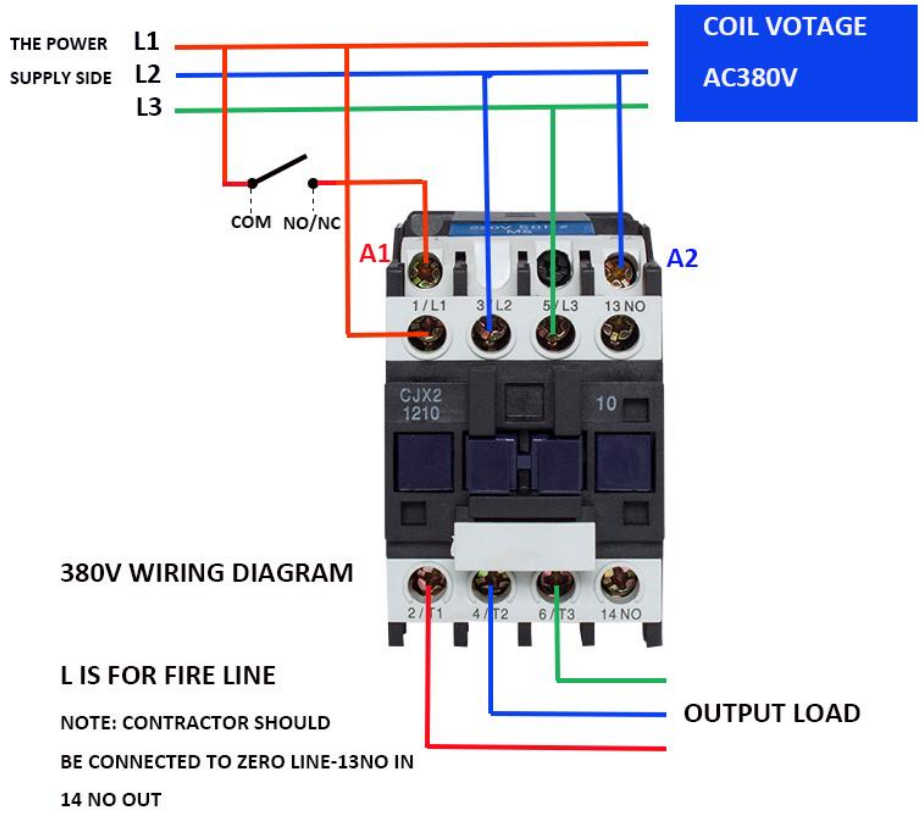
3.5 Add Spark killer and contractor

R1,C1 are used for relay on/off interference suppression, protection control circuit

R2,C2 are used to suppress the relay on/off spark

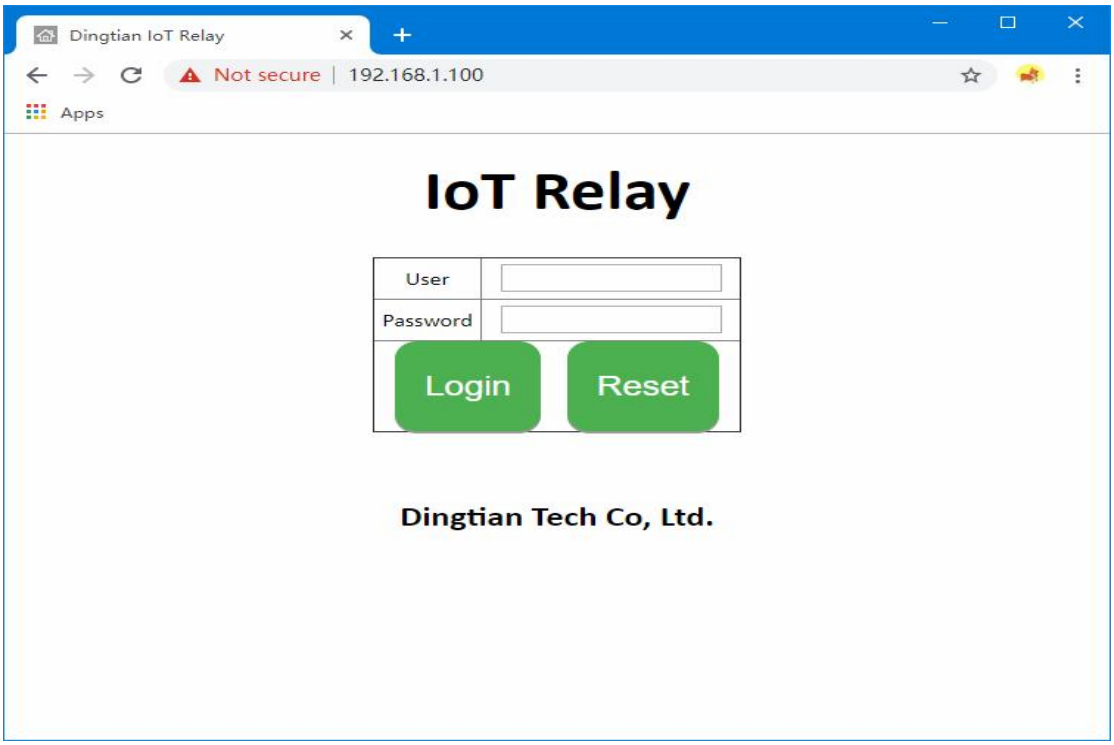


Our max current is 10A, if the current of your device is too big, suggest add a contractor



4 Ethernet Web Page

IE is not support, please use firefox and chrome

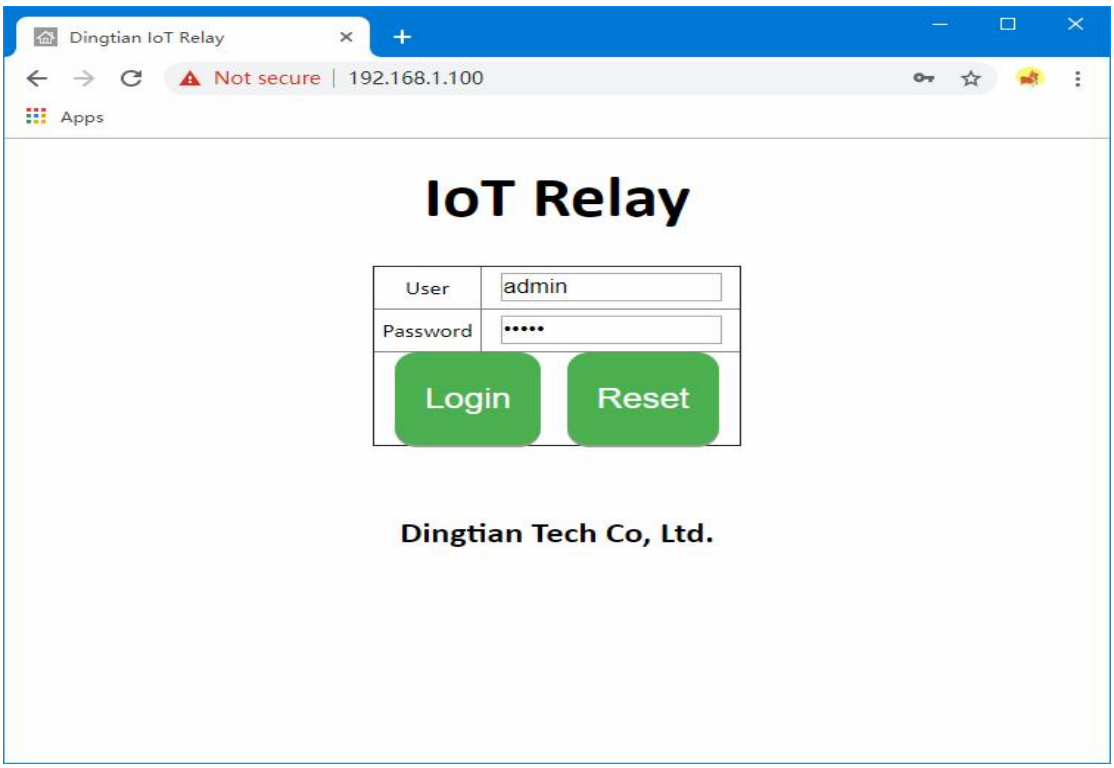


4.1 Login

Default IP: 192.168.1.100

user: admin

password: admin



4.2 Setting Network

Set network information, NTP Server on Relay setting page
after click “Save” button, device well reboot

Parameter:

Software Version: Relay board firmware version

Model:

2CH is Dingtian IOT RELAY-2

4CH is Dingtian IOT RELAY-4

8CH is Dingtian IOT RELAY-8

Serial Number: Relay board Serial Number

Date Time: current date and time(Need internet because of NTP)

NTP Server: NTP server get time from, suggest use pool.ntp.org

DHCP: Ethernet IP DHCP or Static

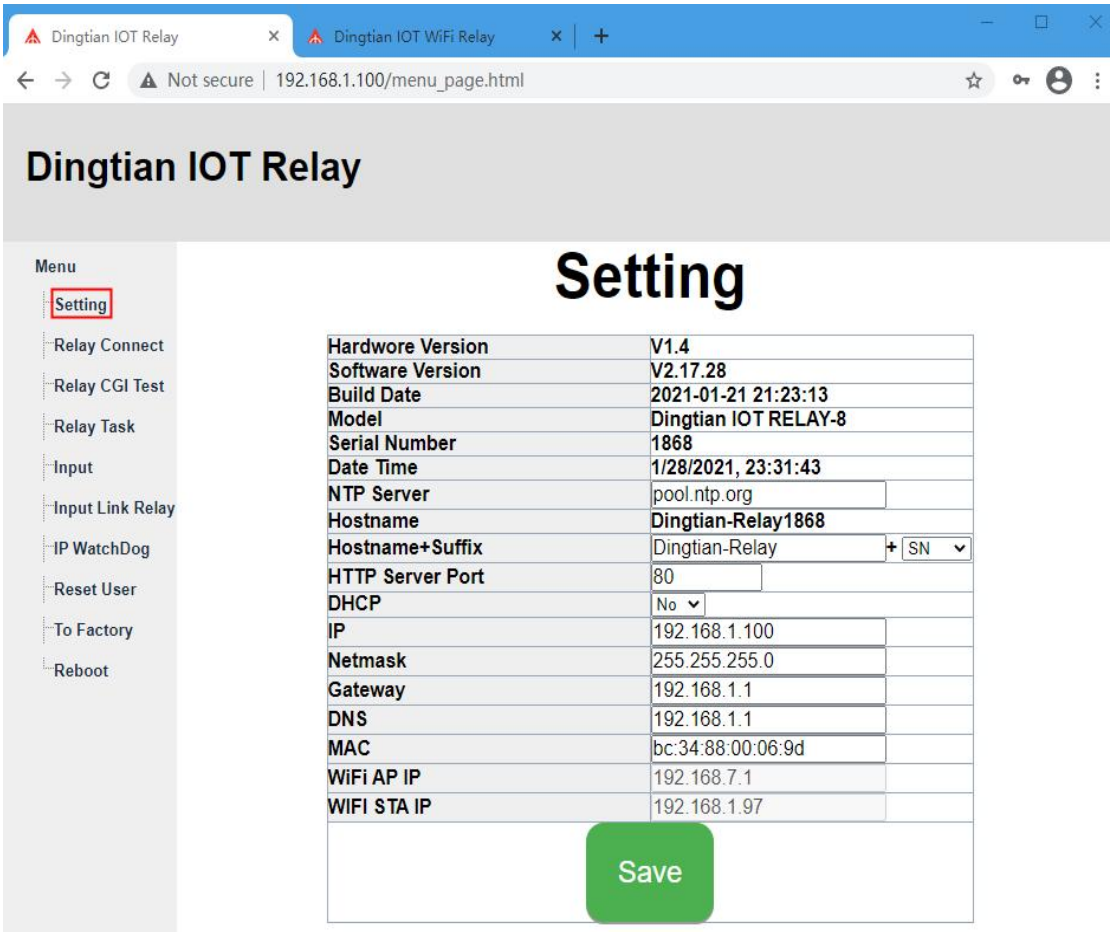
IP: Ethernet current IP Address

Netmask: Ethernet current Netmask

Gateway: Ethernet current Gateway

DNS: Ethernet current DNS Server

MAC: Ethernet current MAC address



4.3 Relay Connect

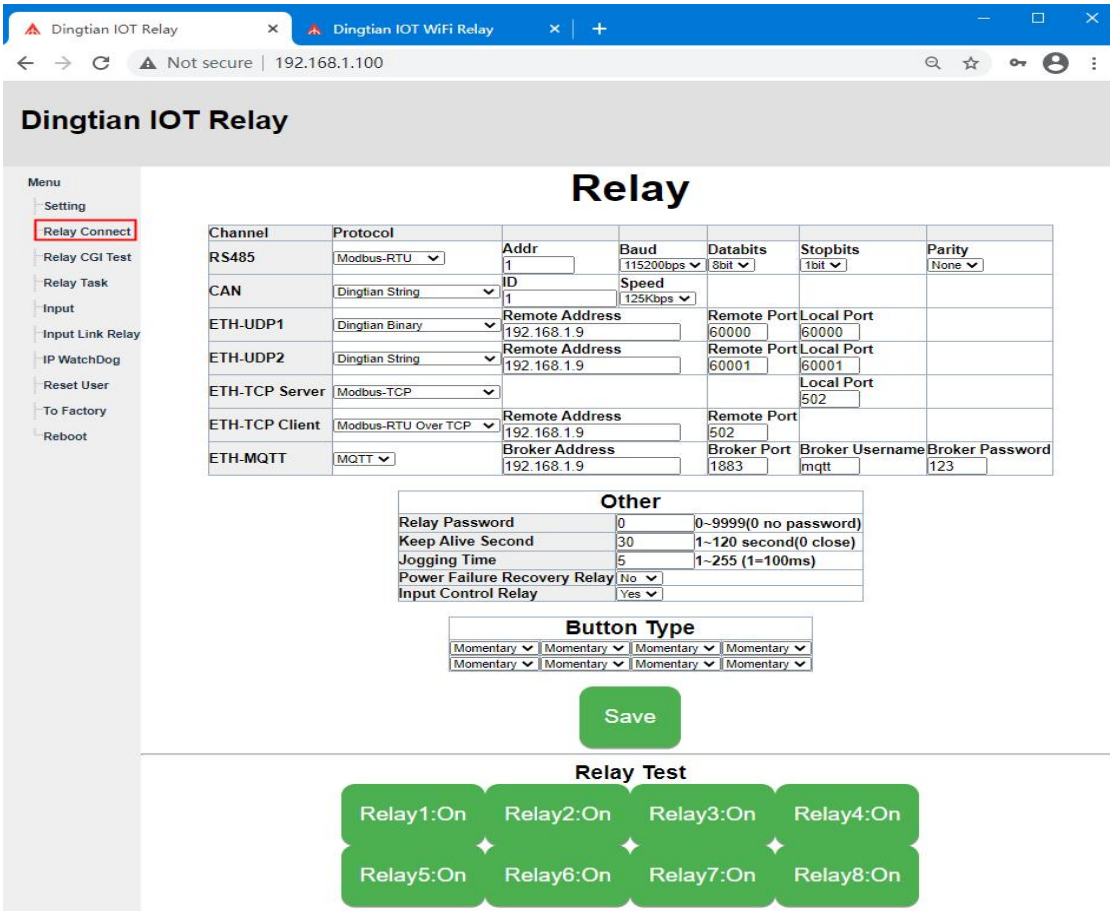
Set control interface parameter of relay board on the Relay connect page and test relay
After click “Save” button, device will reboot
Protocol refers to programming manual_en.pdf

Channel Parameter:
RS485: RS485 protocol, addr, baudrate, databits, stopbits, parity config
Protocol:
Dingtian String
Dingtian Binary
Modbus-RTU
Modbus-ASCII
Baudrate:
1200bps,2400bps,4800bps,9600bps,19200bps,38400bps,57600bps,115200bps
CAN: CAN protocol, ID, Speed config
Protocol:
Dingtian String
Dingtian Binary
Modbus-RTU(0x03,0x06),only support Read/Write single register once time
Speed:
5Kbps,10Kbps,20Kbps,25Kbps,50Kbps,100Kbps,125Kbps,200Kbps,250Kbps,500Kbps,800Kbps,888Kbps,1Mbps
ETH-UDP1: Ethernet UDP1 protocol, Remote Server Address,Remote Server Port,Local Port config
Protocol:
Dingtian String
Dingtian Binary
Modbus-RTU Over UDP
Modbus-ASCII Over UDP
Modbus-UDP
CoAP(need change port to 5683)
Input Mutual Control
ETH-UDP2: Ethernet UDP2 protocol, Remote Server Address,Remote Server Port,Local Port config
Protocol:
Dingtian String
Dingtian Binary
Modbus-RTU Over UDP(use RS485 addr)
Modbus-ASCII Over UDP(use RS485 addr)
Modbus-UDP
CoAP(we suggest enable CoAP at ETH/WiFi-UDP2)
Input Mutual Control
ETH-TCP Server: Ethernet TCP Server protocol, Local Port config
Protocol:
Dingtian String

Dingtian Binary
Modbus-RTU Over TCP(use RS485 addr)
Modbus-ASCII Over TCP(use RS485 addr)
Modbus-TCP
ETH-TCP Client: Ethernet TCP Client protocol, Remote Server Address,Remote Server Port config
Protocol:
Dingtian String
Dingtian Binary
Modbus-RTU Over TCP(use RS485 addr)
Modbus-ASCII Over TCP(use RS485 addr)
Modbus-TCP
ETH-MQTT: Ethernet MQTT protocol, Broker Address, Broker Port, Broker Username, Broker Password config
Protocol:
MQTT(without tls)

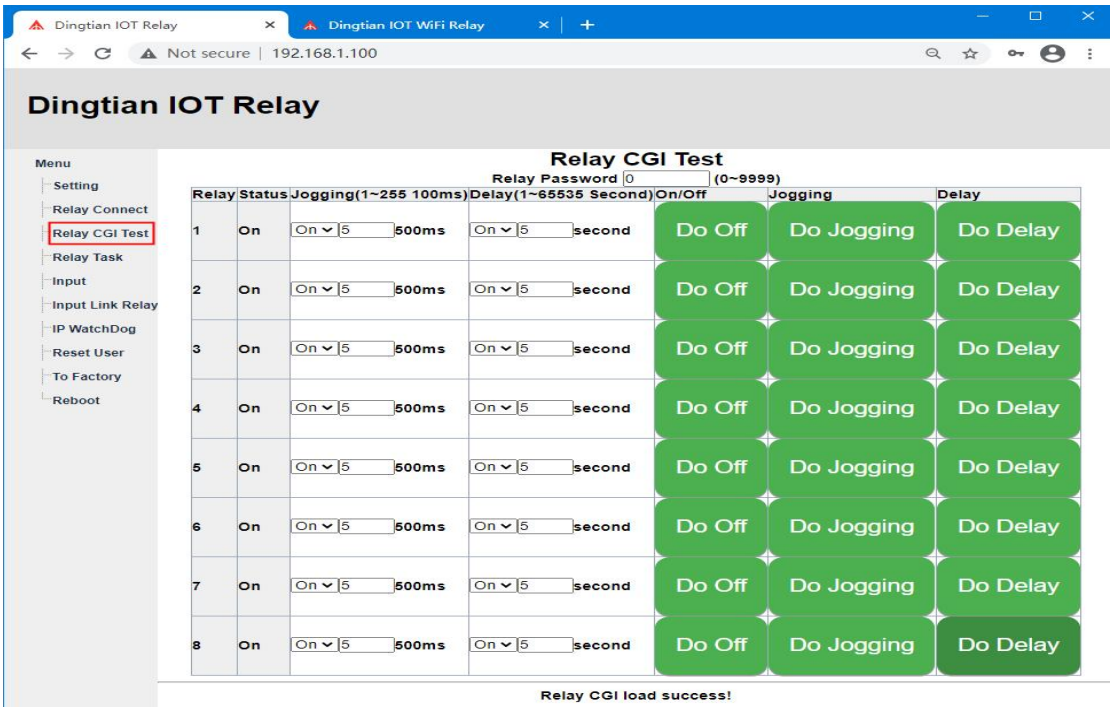
Other Parameter:
Relay Password: use for checking control is valid, only correct password control relay board
Keep Alive Second: send relay status to server with every "Keep Alive Second", only protocol Dingtian String and Dingtian binary have Keep Alive Second
Jogging Time: Jogging time, default is 500ms,1=100ms
what is Jogging: ON then delay 500ms OFF,or OFF then delay 500ms ON,
Power Failure Recovery Relay: relay status will restore after re-power
Input Control Relay: Input link relay output

Button Type Parameter:
Selflock: Connect Selflock Button,
press button relay ON,release button relay OFF
Jogging: Connect Momentary Button,
press and release button relay Jogging(ON and delay 500ms OFF)
Momentary: Connect Momentary Button,
press and release button relay ON,press and release button relay OFF
How to Connect button please move to 3.4 External input/Button control



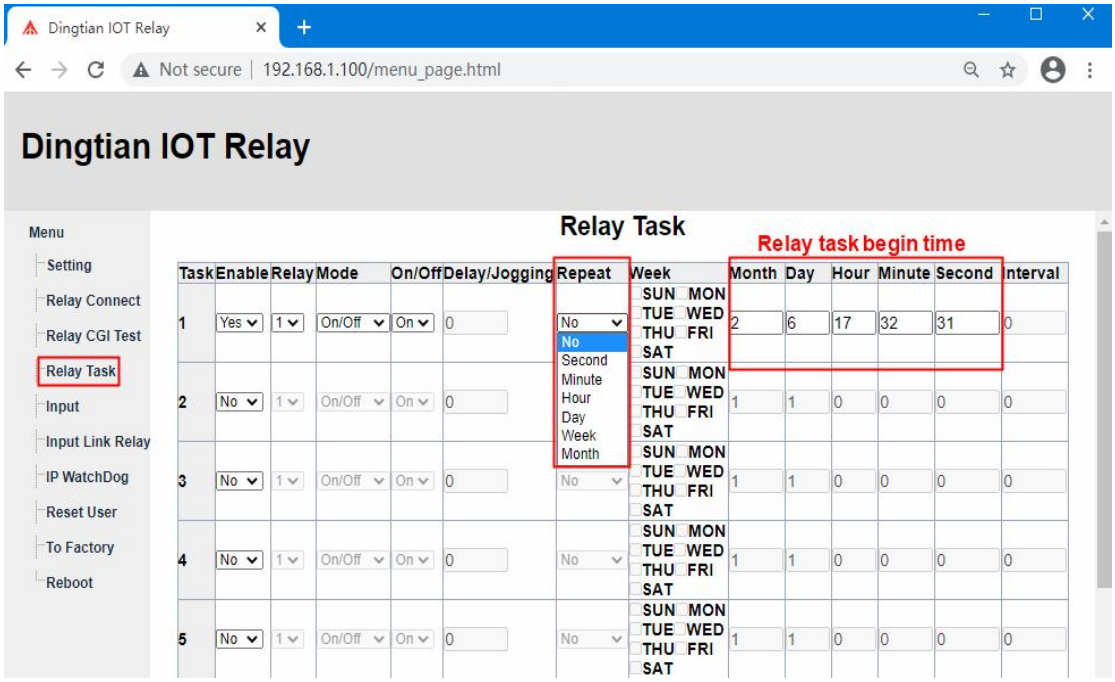
4.4 Relay CGI Test

relay CGI test

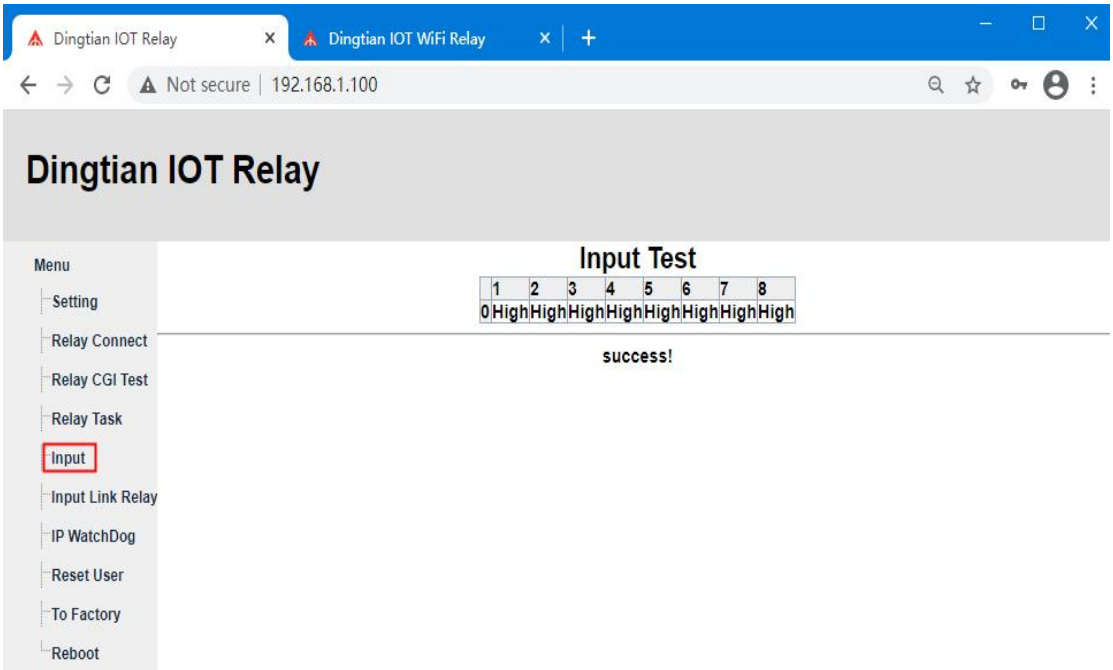


4.5 Relay Task

Choose “Repeat”, you can ask repeat by second/minute/hour/day/week/month

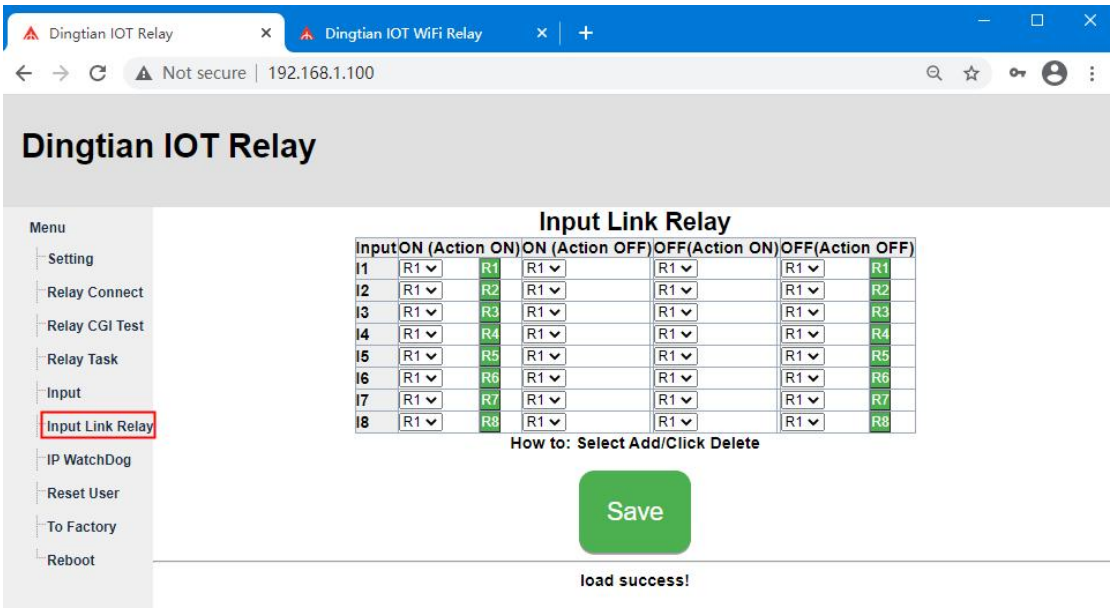


4.6 Input



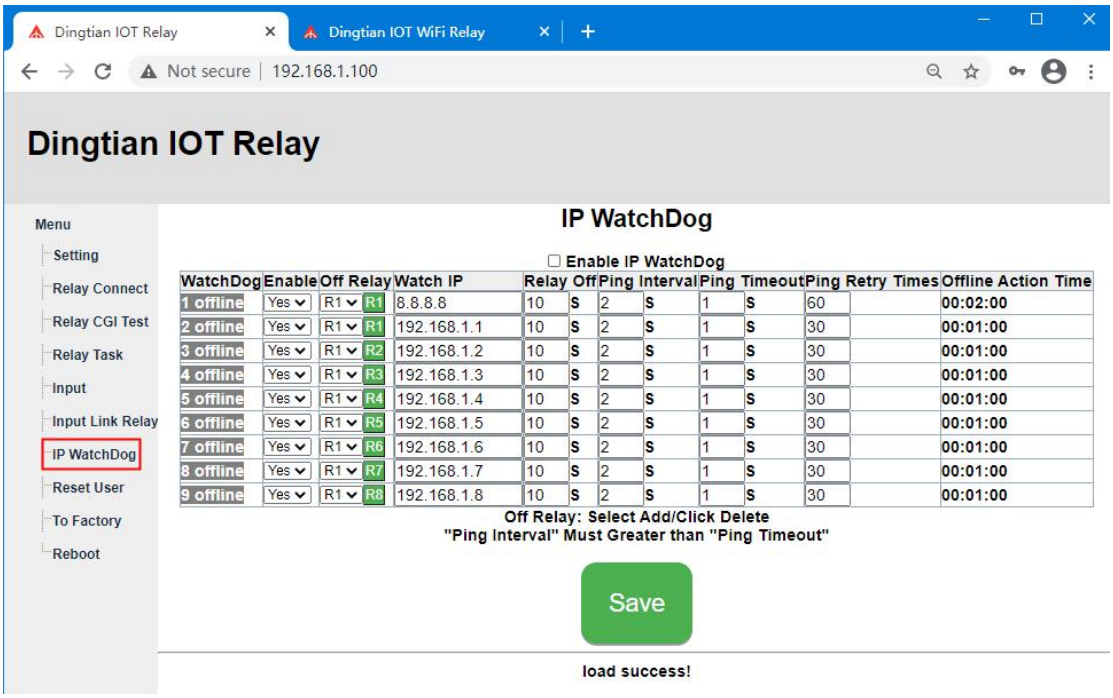
4.7 Input Link Relay

Select R1~R8, means you add the relay to link with Input, Click the green button R1~R8 means delete relay

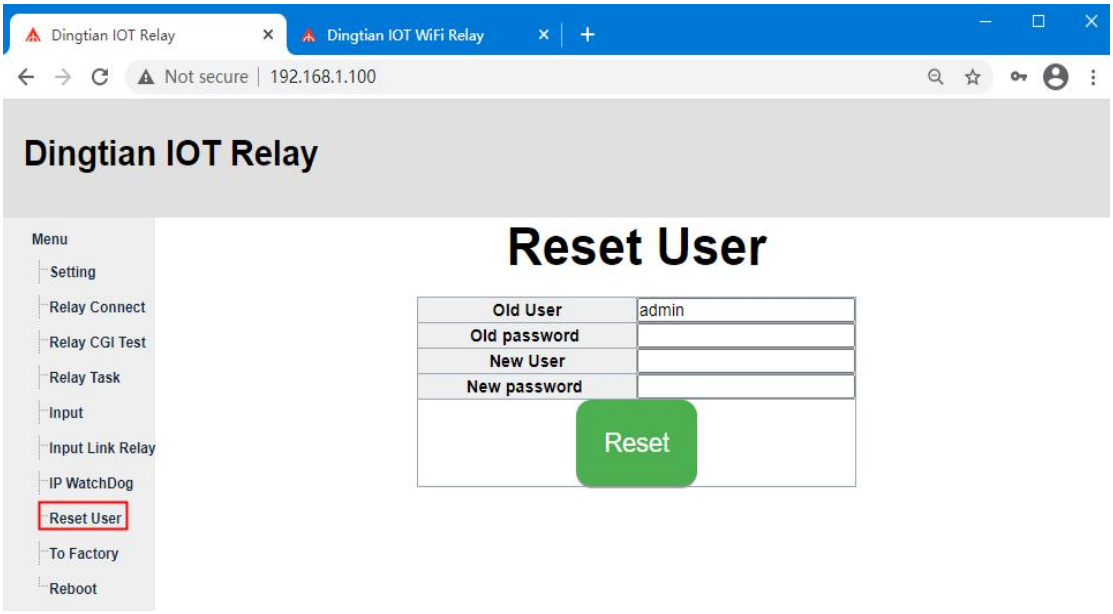


4.8 IP WatchDog

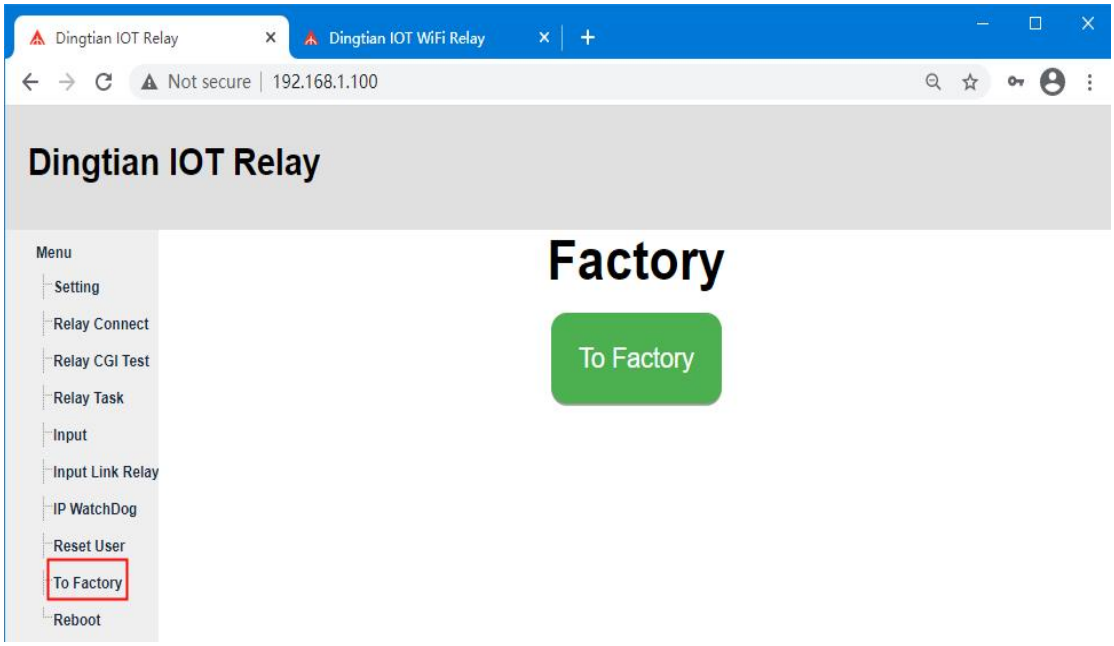
When Enable IP WatchDog function, all relay ON, when the “Watch IP” offline, relay OFF, after seconds, the relay ON automatically, “Ping Interval” must be bigger than “Ping Timeout”



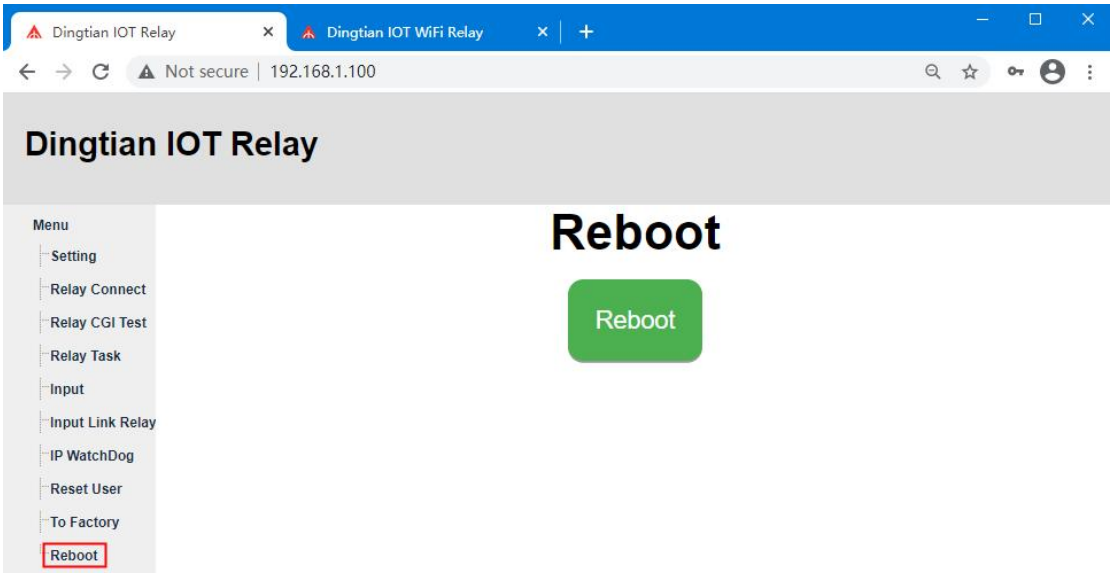
4.9 Reset User



4.10 To Factory



4.11 Reboot



5 WIFI web Page

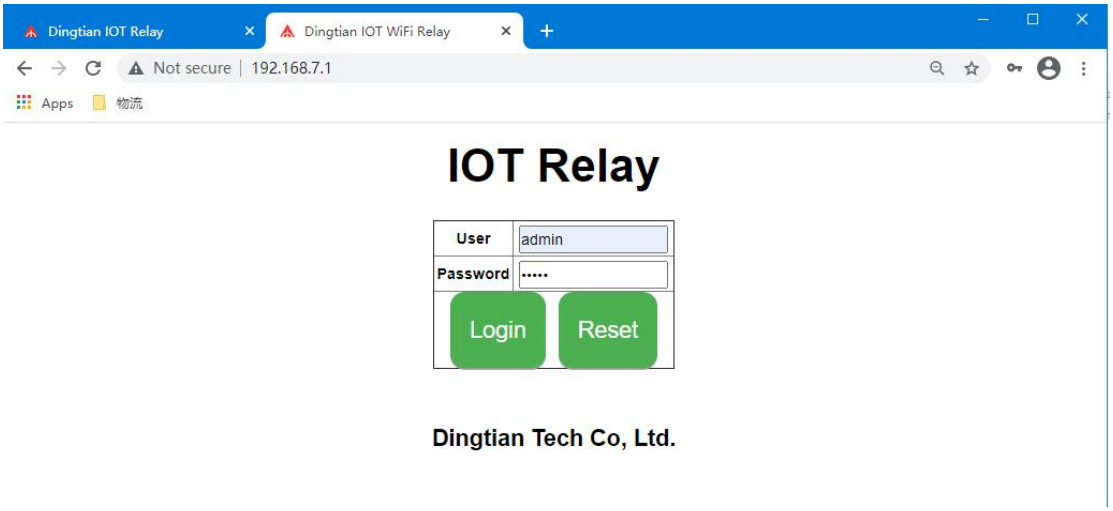
IE is not support, please use firefox and chrome

5.1 Login

Default IP: 192.168.7.1

user:admin

password:admin



5.2 Setting WIFI

Set WIFI information, NTP Server and STA WIFI SSID and password on WIFI Relay setting page

After click “Save” button, device will reboot

Parameter:

Software Version: Relay board firmware version

Model:

2CH is Dingtian IOT WRELAY-2

4CH is Dingtian IOT WRELAY-4

8CH is Dingtian IOT WRELAY-8

Serial Number: Relay board Serial Number

Date Time: current date and time(Need internet because of NTP)

NTP Server: NTP server get time from, suggest use pool.ntp.org

STA WiFi SSID: Your Router WiFi Name,Relay board will access to your router

STA WiFi Password: Your Router WiFi Password, Relay board will access to your router

STA IP: Relay board get IP from your Router

Netmask: WIFI Netmask

Gateway: WIFI Gateway

DNS: WIFI DNS Server

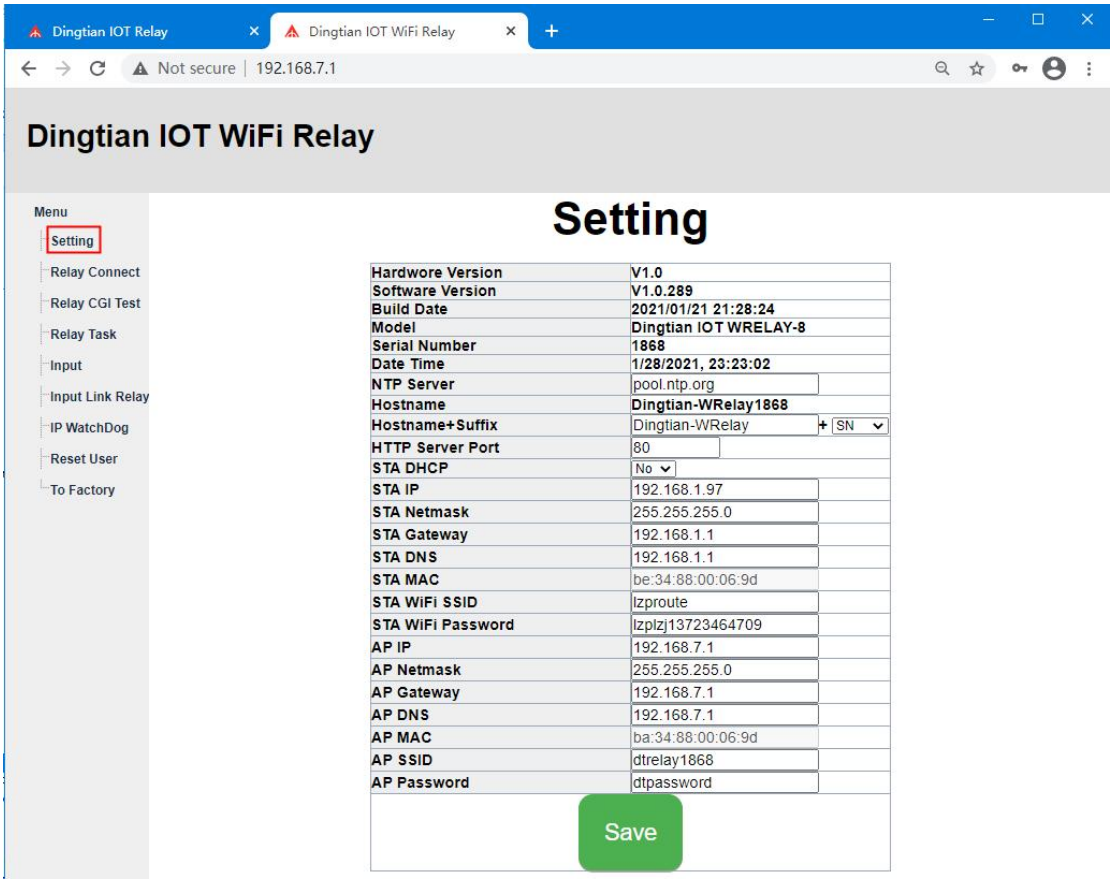
MAC: WIFI MAC address

AP IP: WIFI default address

AP SSID: WIFI default name, as a router, we need to connect the WIFI with your computer firstly and access the wifi web

AP Password: WIFI default Password

we can use STA IP or AP IP to control relay board via WIFI, only accept to use one browser(Firefox or Chrome) to access.

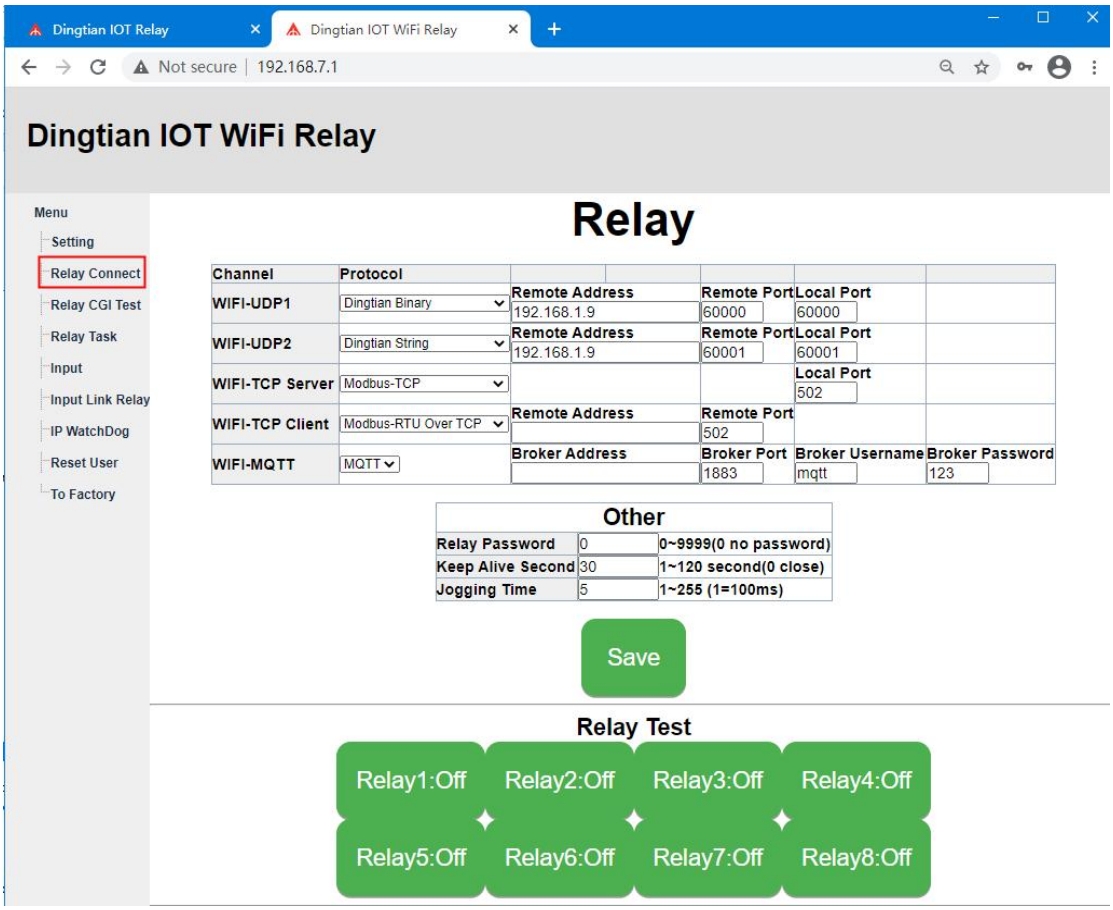


5.3 Setting Relay Connect

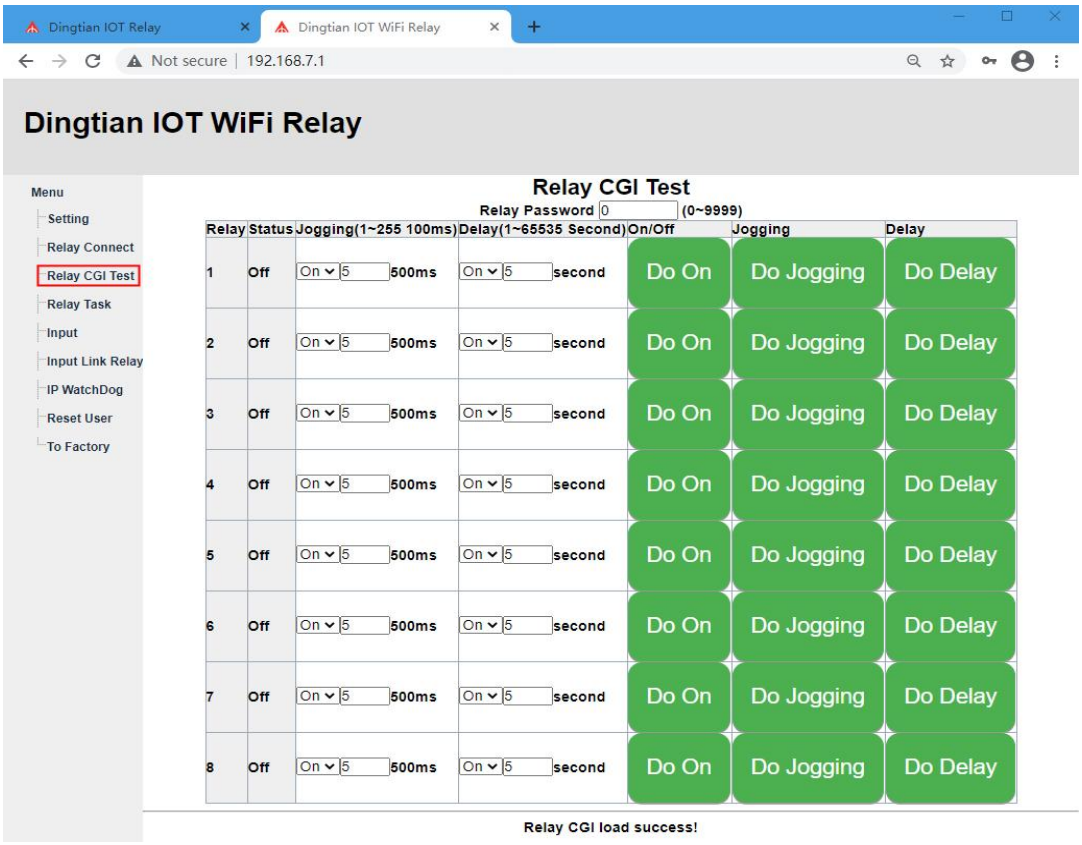
WIFI-UDP1: WIFI UDP1 protocol, Remote Server Address,Remote Server Port,Local Port config
Protocol:
Dingtian String
Dingtian Binary
Modbus-RTU Over UDP(use RS485 addr)
Modbus-ASCII Over UDP(use RS485 addr)
Modbus-UDP
CoAP(need change port to 5683)
Input Mutual Control
WIFI-UDP2: WIFI UDP2 protocol, Remote Server Address,Remote Server Port,Local Port config
Protocol:
Dingtian String
Dingtian Binary
Modbus-RTU Over UDP(use RS485 addr)
Modbus-ASCII Over UDP(use RS485 addr)
Modbus-UDP
CoAP(we suggest enable CoAP at ETH/WiFi-UDP2)
Input Mutual Control
WIFI-TCP Server: WIFI TCP Server protocol, Local Port config
Protocol:
Dingtian String
Dingtian Binary
Modbus-RTU Over TCP(use RS485 addr)
Modbus-ASCII Over TCP(use RS485 addr)
Modbus-TCP
WIFI-TCP Client: WIFI TCP Client protocol, Remote Server Address,Remote Server Port config
Protocol:
Dingtian String
Dingtian Binary
Modbus-RTU Over TCP(use RS485 addr)
Modbus-ASCII Over TCP(use RS485 addr)
Modbus-TCP
WIFI-MQTT: WIFI MQTT protocol, Broker Address, Broker Port, Broker Username, Broker Password config
Protocol:
MQTT(without tls)
Other Parameter:
Relay Password: use for checking control is valid, only correct password control relay board
Keep Alive Second: send relay status to server with every "Keep Alive Second", only protocol Dingtian String and Dingtian binary have Keep Alive Second

Jogging Time: Jogging time, default is 500ms,1=100ms

what is Jogging: ON then delay 500ms OFF,or OFF then delay 500ms ON

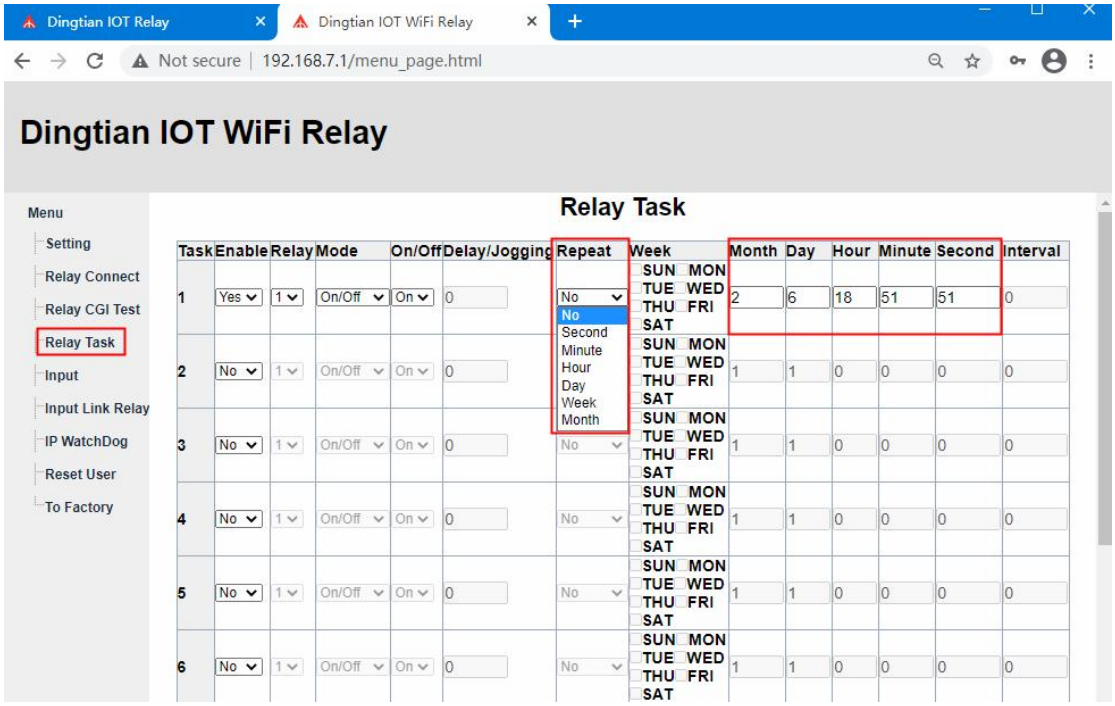


5.4 Relay CGI Test

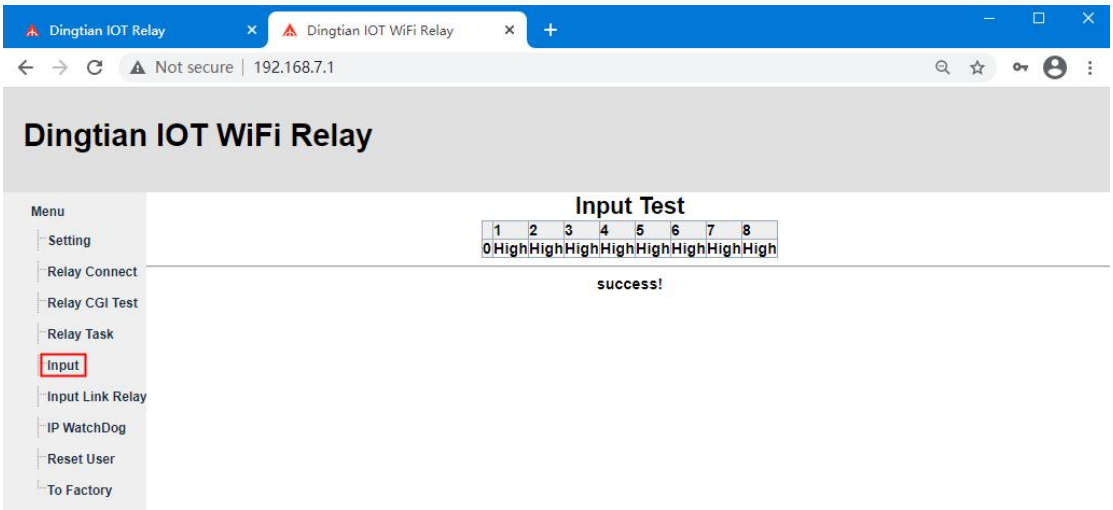


5.5 Relay Task

Choose “Repeat”, you can ask repeat by second/minute/hour/day/week/month

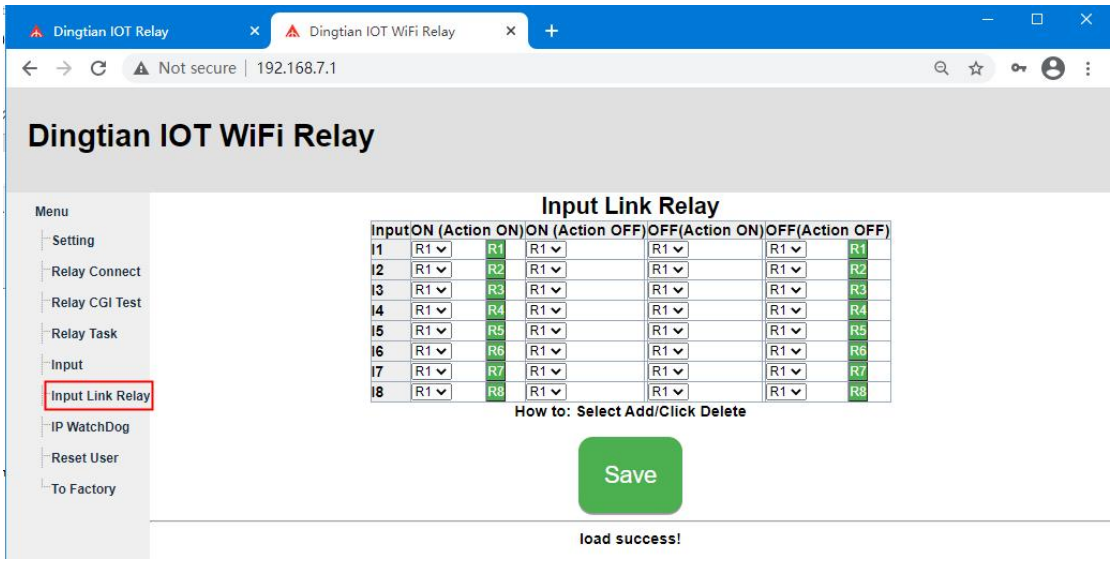


5.6 Input



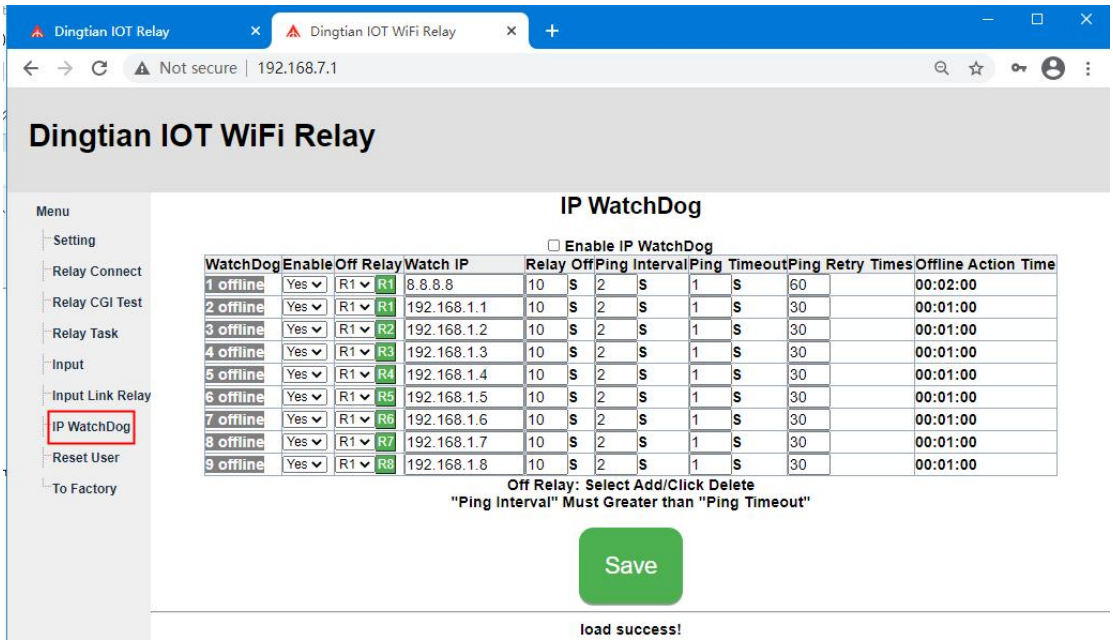
5.7 Input Link Relay

Select R1~R8, means you add the relay to link with Input, Click the green button R1~R8 means delete relay

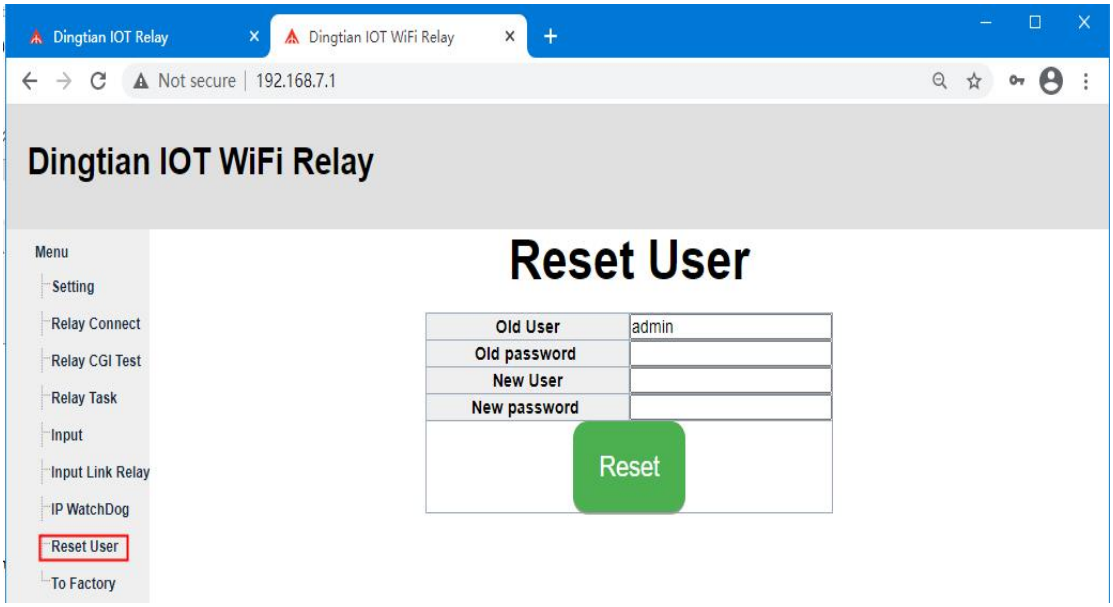


5.8 IP WatchDog

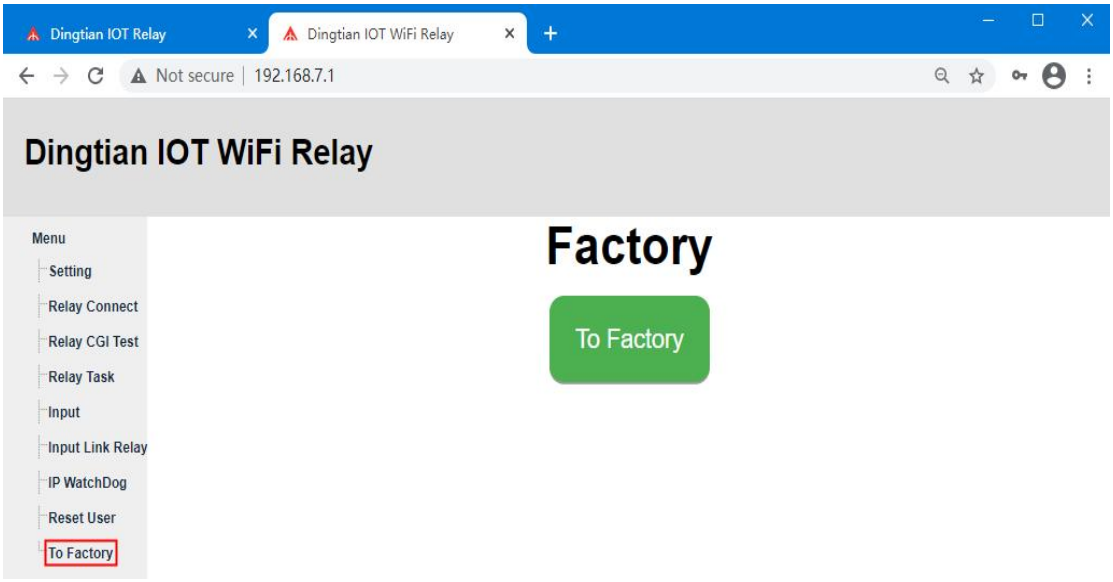
When Enable IP WatchDog function, all relay ON, when the “Watch IP” offline, relay OFF, after seconds, the relay ON automatically, “Ping Interval” must be bigger than “Ping Timeout”



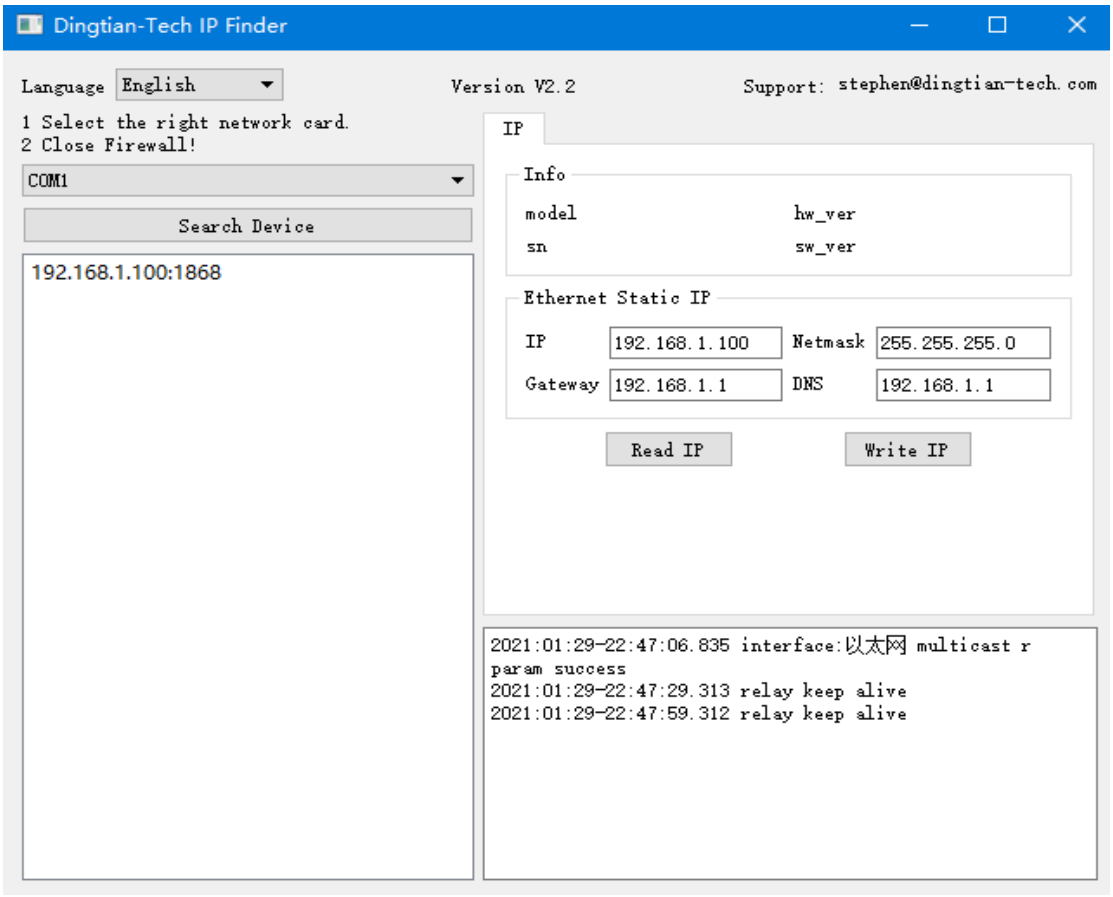
5.9 Reset User



5.10 To Factory

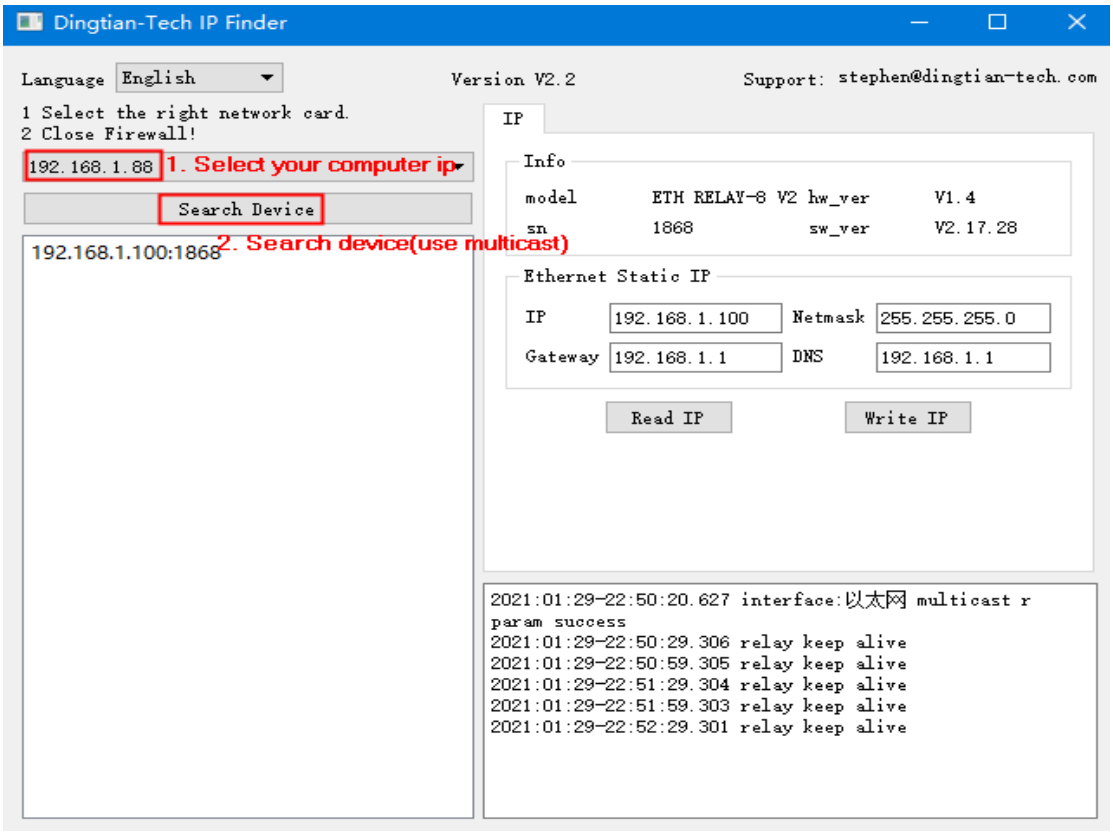


6 IP Finder



6.1 Search Device

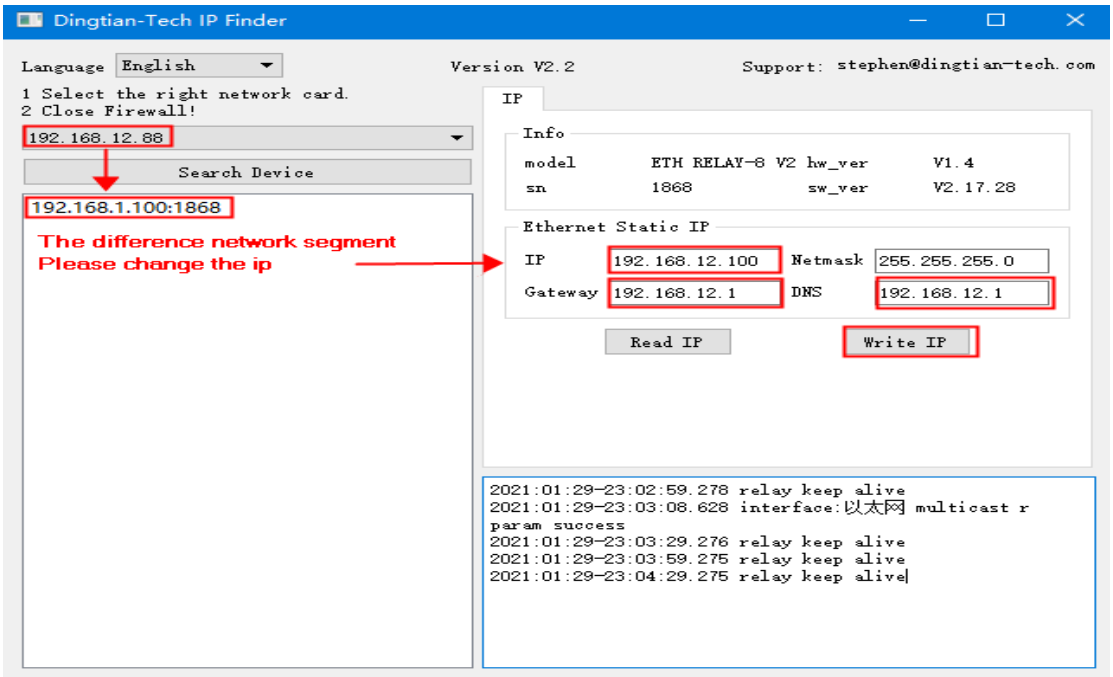
Note: When you use IP Finder to check your relay board ip, please keep your computer just connect with one relay board and the communication of relay board just has one(only Ethernet or WIFI)



Then we can find computer ip is 192.168.1.88, relay board ip is 192.168.1.100

If your computer ip is not the same network segment as relay board, you can change the IP in Ethernet Static IP

6.2 Change Static IP



Change Static IP and Click"Write IP", then your relay board ip is 192.168.12.100

Appendix I How to Test Command

step 1: download SDK

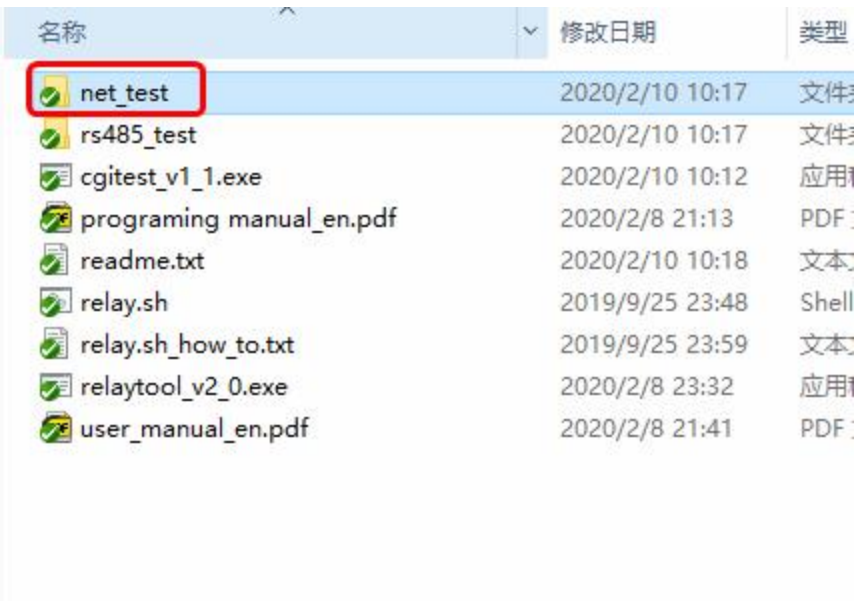
we can find network tool in SDK

ftp://ftp.dingtian-tech.com/relay_sdk.zip

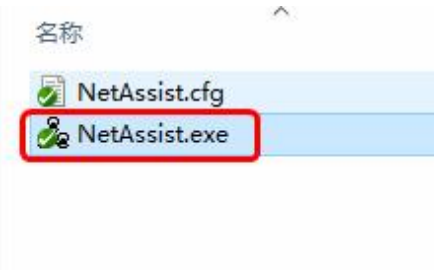
unzip relay_sdk.zip

network tool name is net_test

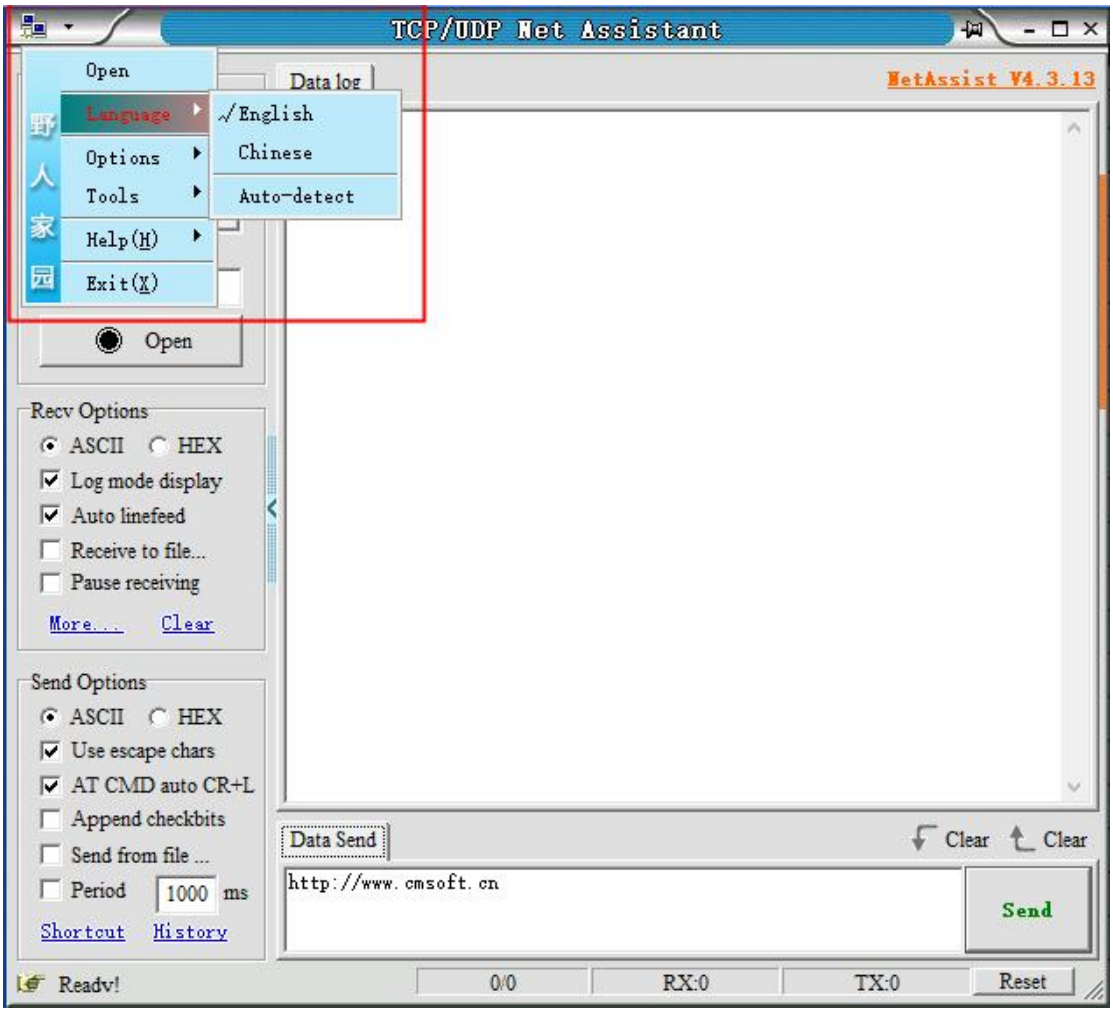
rs485 tool name is rs485_test



Access directory “net_test”



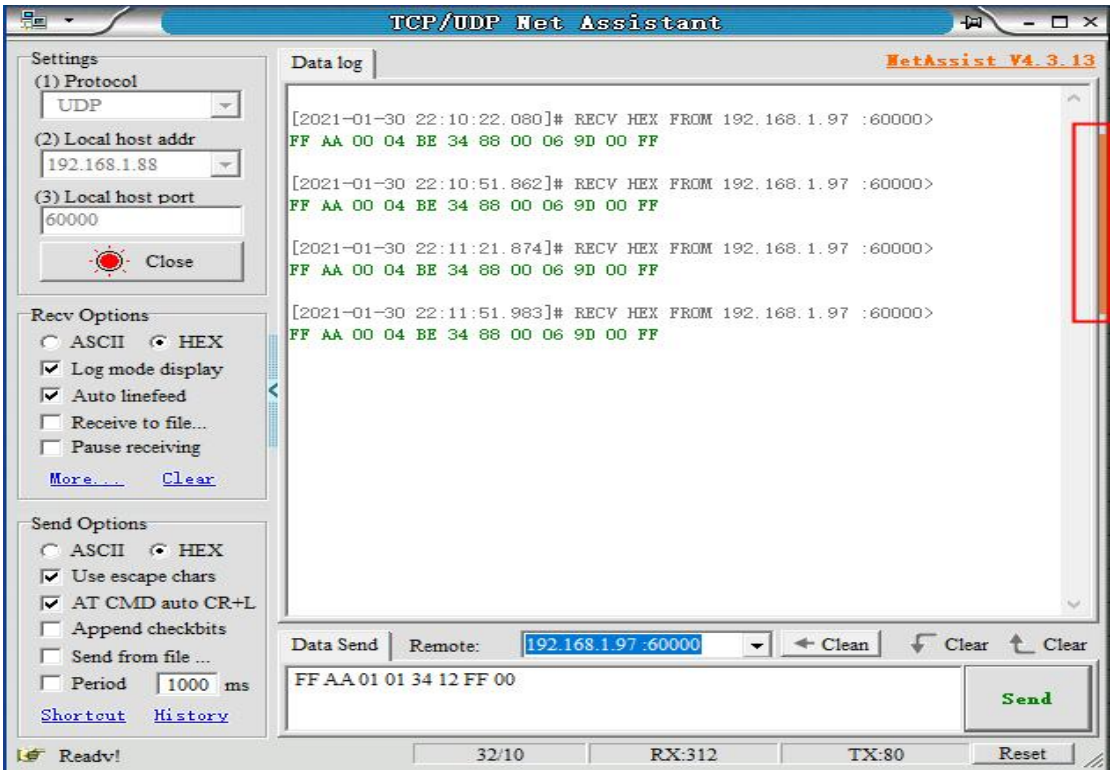
step 2: Change NetAssist language

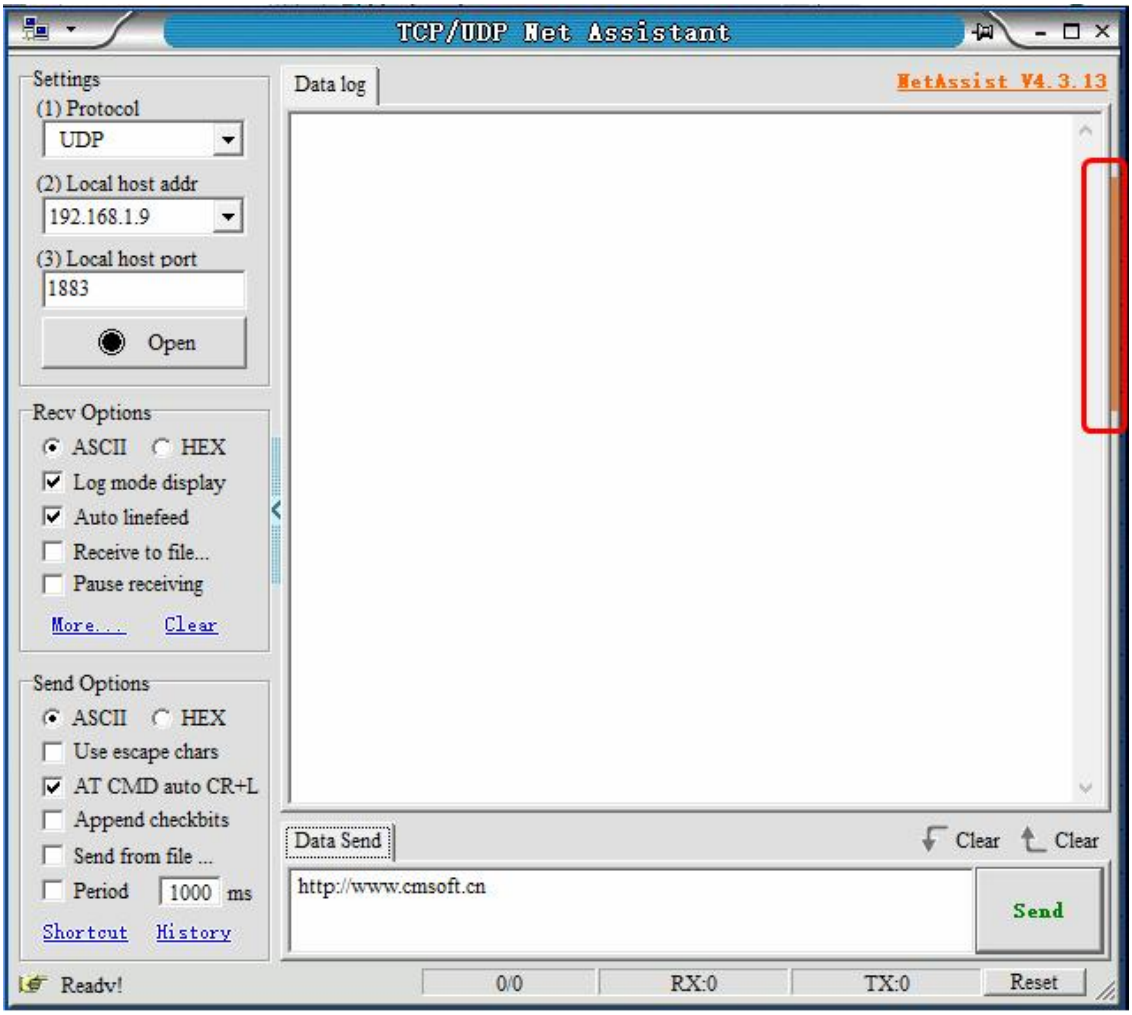


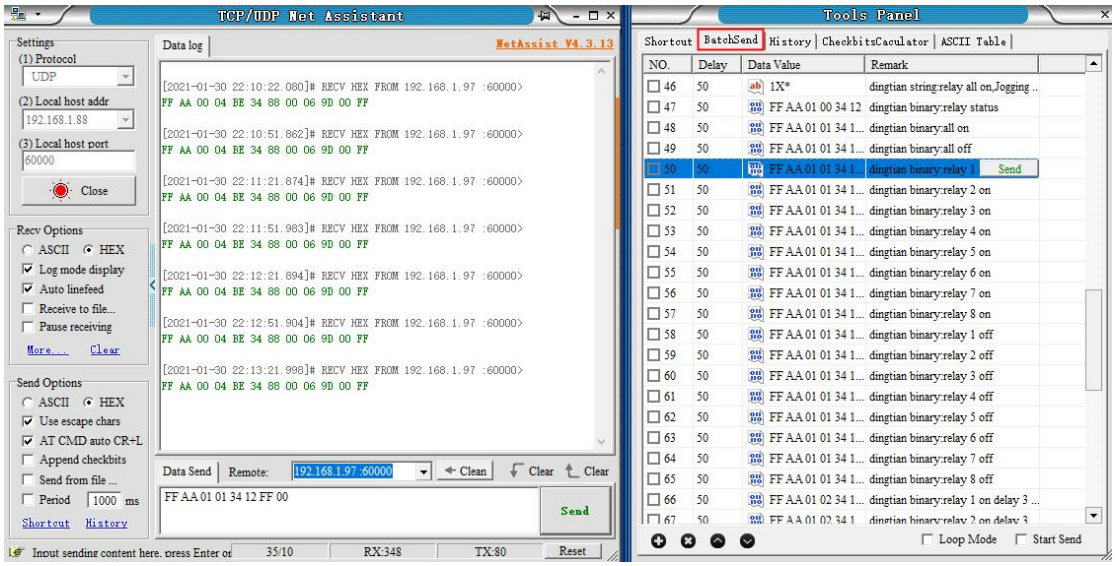
step 3: Control relay via NetAssist network tool by wifi module

open NetAssist.exe

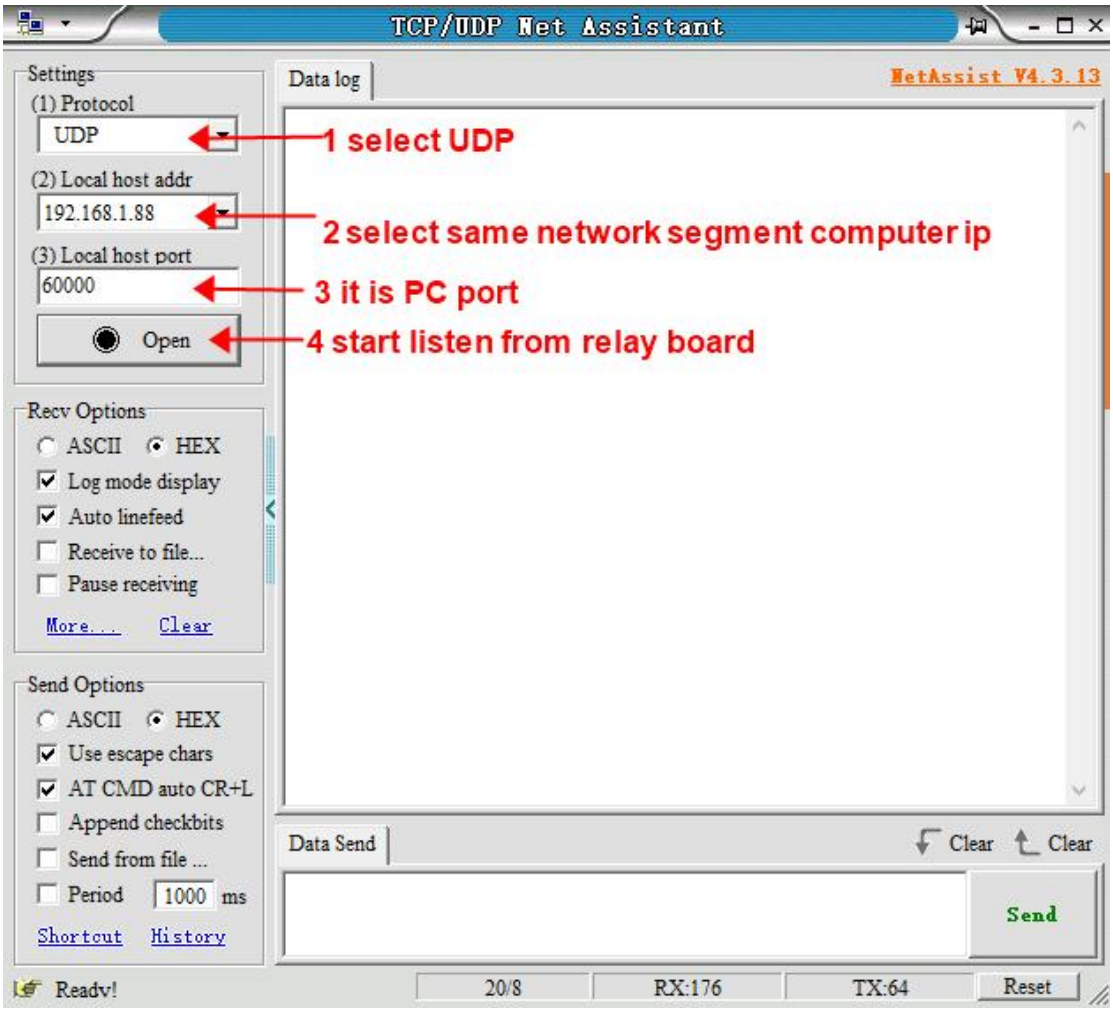
Shown in red box, open expansion panel


TCP/UDP Net Assistant
Settings
(1) Protocol
UDP
(2) Local host addr
192.168.1.88
(3) Local host port
60000
Close
Recv Options
ASCII
HEX
Log mode display
Auto linefeed
Receive to file...
Pause receiving
More...
Clear
Send Options
ASCII
HEX
Use escape chars
AT CMD auto CR+L
Append checkbits
Send from file ...
Period
1000
ms
Shortcut
History
Data log
NetAssist V4.3.13
[2021-01-30 22:10:22.080]# RECV HEX FROM 192.168.1.97 :60000>
FF AA 00 04 BE 34 88 00 06 9D 00 FF
[2021-01-30 22:10:51.862]# RECV HEX FROM 192.168.1.97 :60000>
FF AA 00 04 BE 34 88 00 06 9D 00 FF
[2021-01-30 22:11:21.874]# RECV HEX FROM 192.168.1.97 :60000>
FF AA 00 04 BE 34 88 00 06 9D 00 FF
[2021-01-30 22:11:51.983]# RECV HEX FROM 192.168.1.97 :60000>
FF AA 00 04 BE 34 88 00 06 9D 00 FF
Data Send
Remote:
192.168.1.97 :60000
Clean
Clear
Clear
FF AA 01 01 34 12 FF 00
Send
Ready!
32/10
RX:312
TX:80
Reset

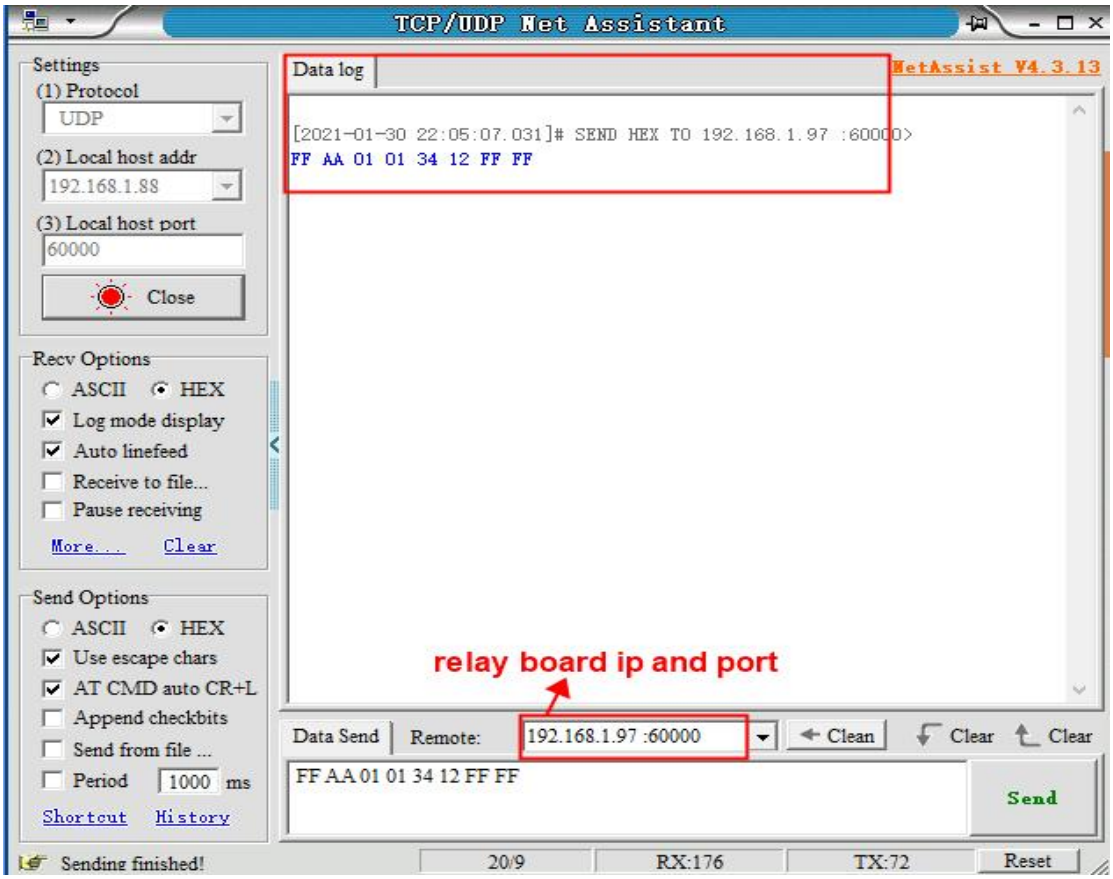

TCP/UDP Net Assistant
Settings
(1) Protocol
UDP
(2) Local host addr
192.168.1.9
(3) Local host port
1883
Open
Recv Options
ASCII
HEX
Log mode display
Auto linefeed
Receive to file...
Pause receiving
More...
Clear
Send Options
ASCII
HEX
Use escape chars
AT CMD auto CR+L
Append checkbits
Send from file ...
Period
1000
ms
Shortcut
History
Data log
NetAssist V4.3.13
Data Send
Clear
Clear
http://www.cmsoft.cn
Send
Ready!
0/0
RX:0
TX:0
Reset



step 4: open UDP listen.



now relay board send relay status to pc via wifi module

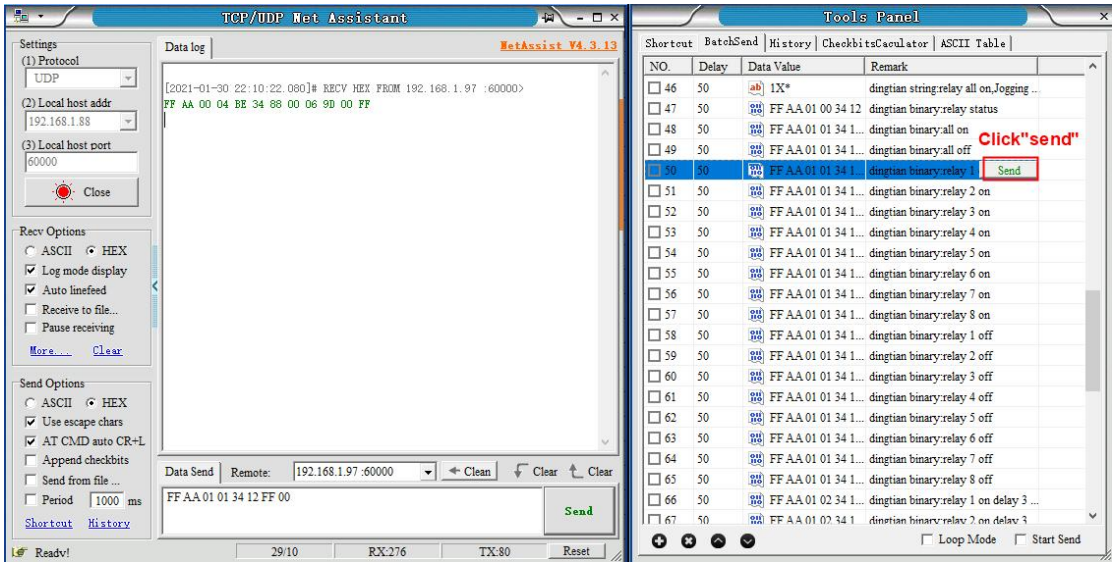


step 5: control relay via wifi module

NetAssist tool saved preset command

we only need send to relay board via netAssist

like below set relay 1 on



Appendix II How to use Domoticz

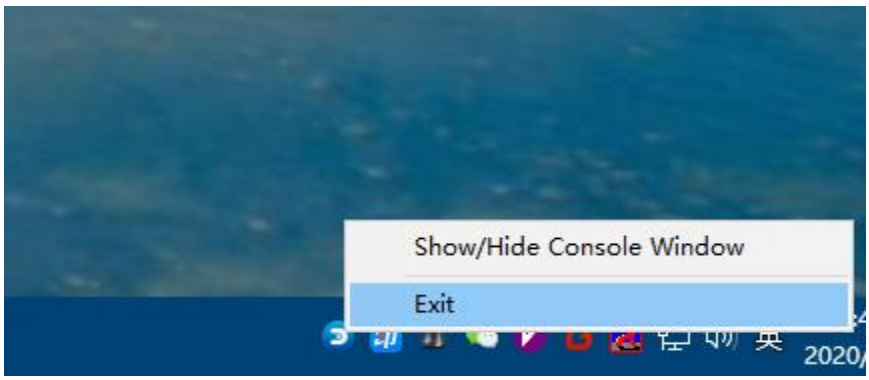
step 1: install Dingtian plugin to Domoticz

Dingtian plugin find in SDK or github

ftp://ftp.dingtian-tech.com/relay_sdk.zip

https://github.com/dtlzp/Domoticz-Dingtian-Relay-Plugin

1 Stop Domoticz



2 Copy Domoticz_plugins\dingtian to Domoticz plugin dir

to Domoticz install dir

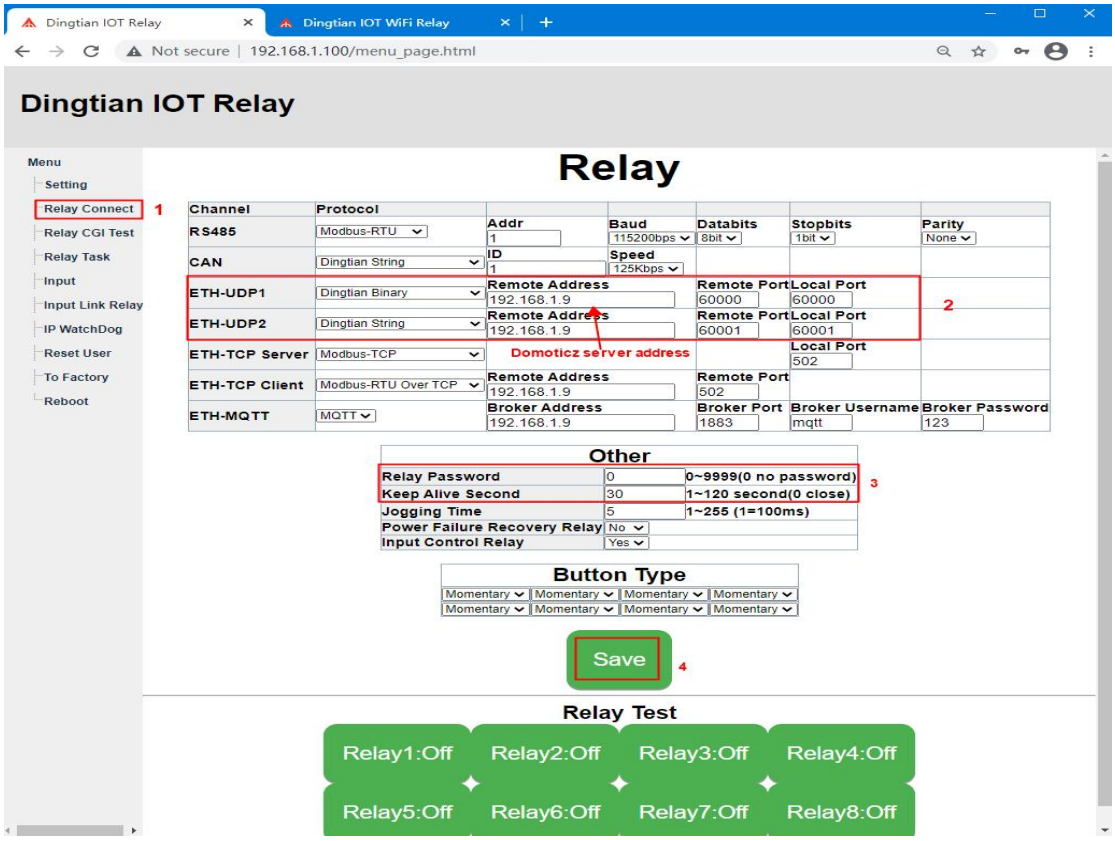
now Dingtian Relay plugin install to Domoticz successfully.

step 2: config Dingtian Relay board

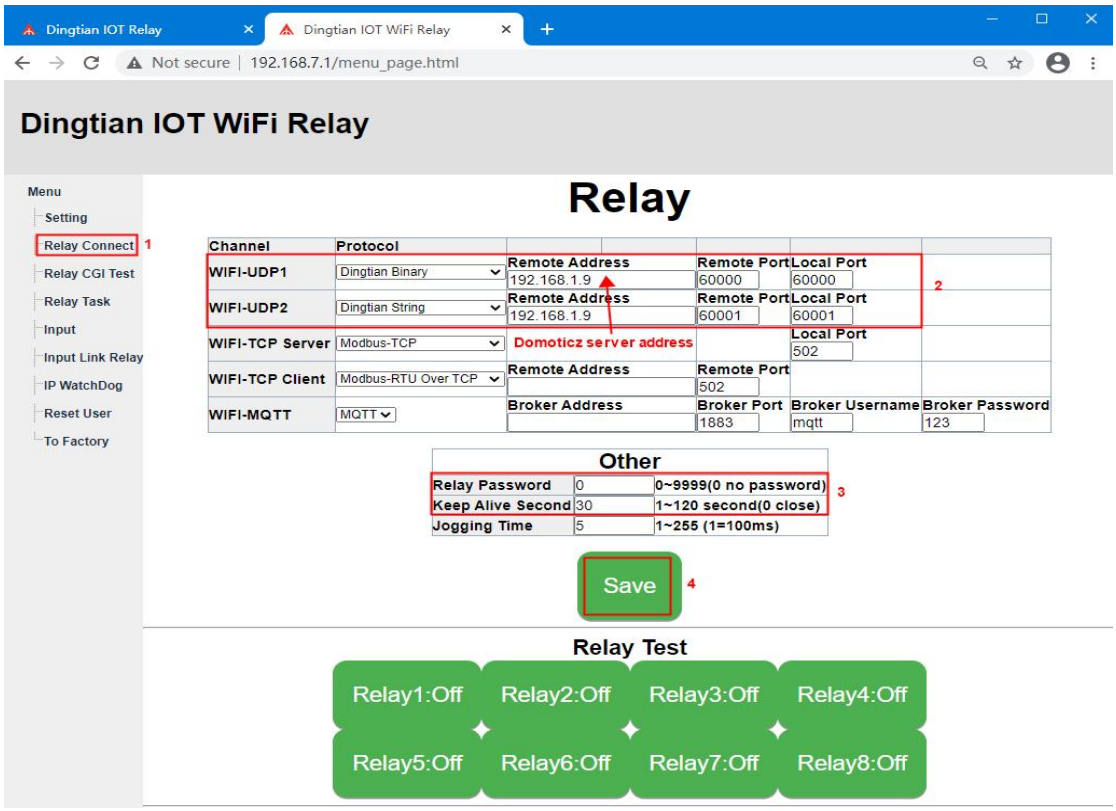
1 config relay board UDP Server,Remote Port,Local Port,Keep Alive Second and Relay Password (firmware version <= 2.16.xx)

2 config relay board UDP Server, Remote Port,Local Port and Relay Password (firmware version is 2.17.xx)

Domoticz Ethernet



Domoticz WIFI



Dingtian Relay board web page **Relay Connect**

set UDP Server, Remote Port,Local Port,Relay Password and Keep Alive Second(donot need to set for firmware 2.17.xx)

Notice: UDP Server set to Domoticz Server IP

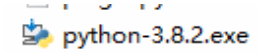
Save config

step 3: Add Dingtian Relay to Domoticz

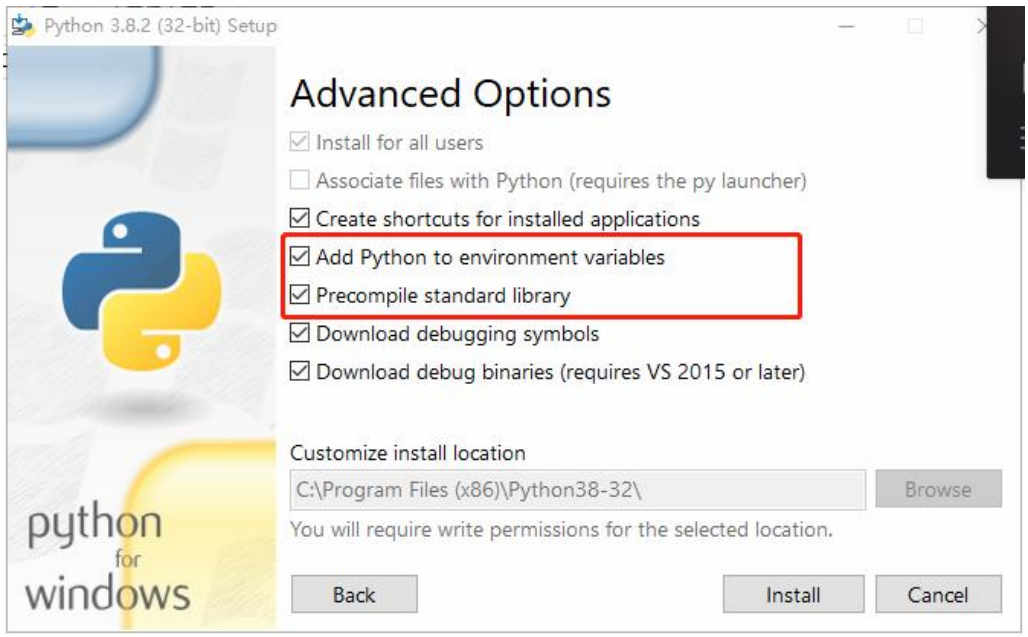
1 Install Python 3.8.2

download address:
https://www.python.org/ftp/python/3.8.2/python-3.8.2.exe

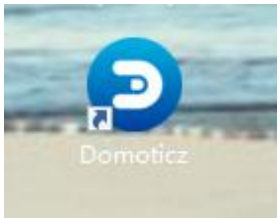
after download,install it



Add Python to environment

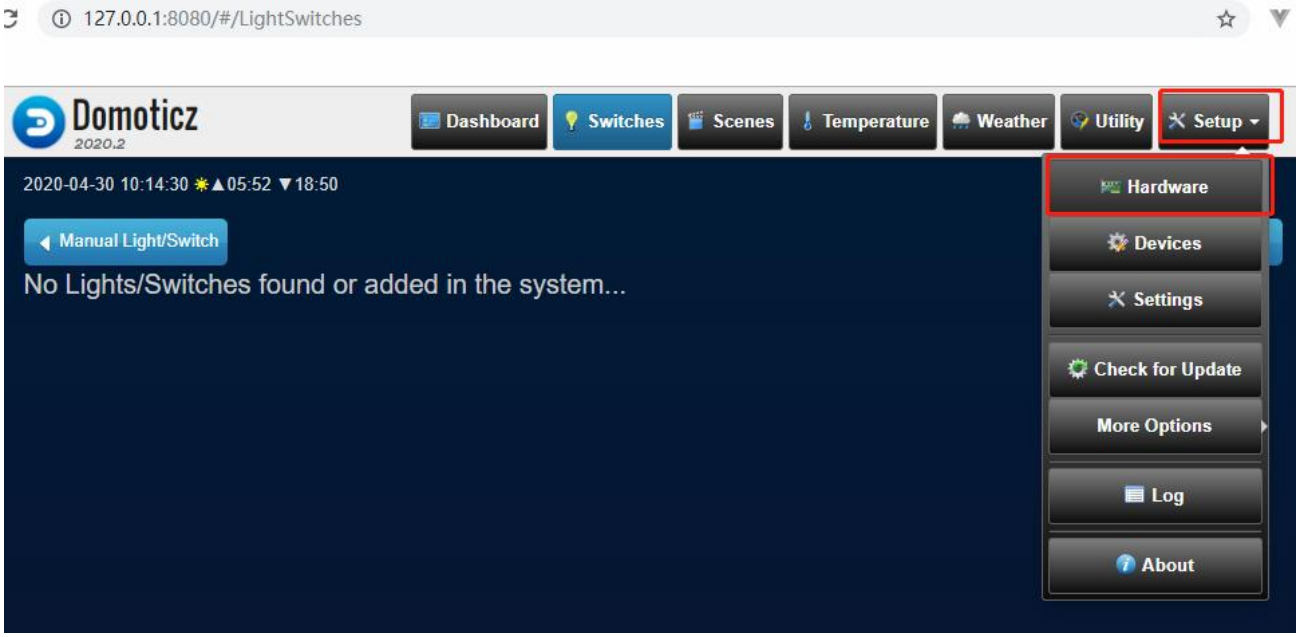


2 Run to Domoticz

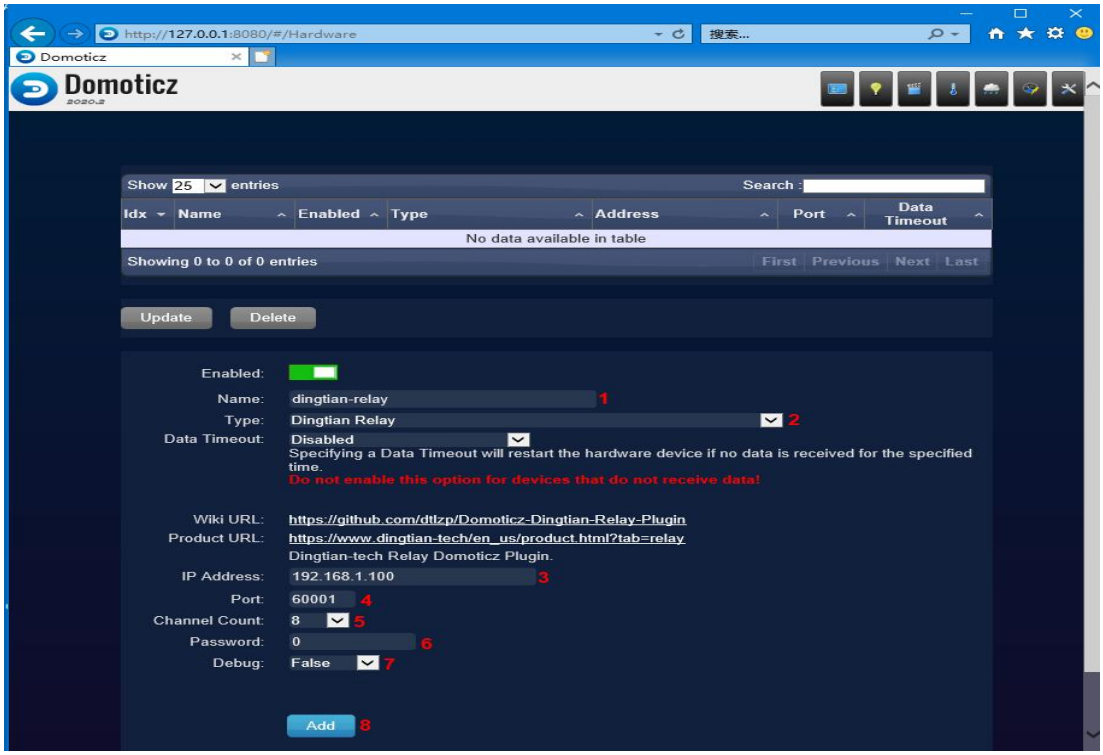


3 Add Dingtian Relay to Domoticz

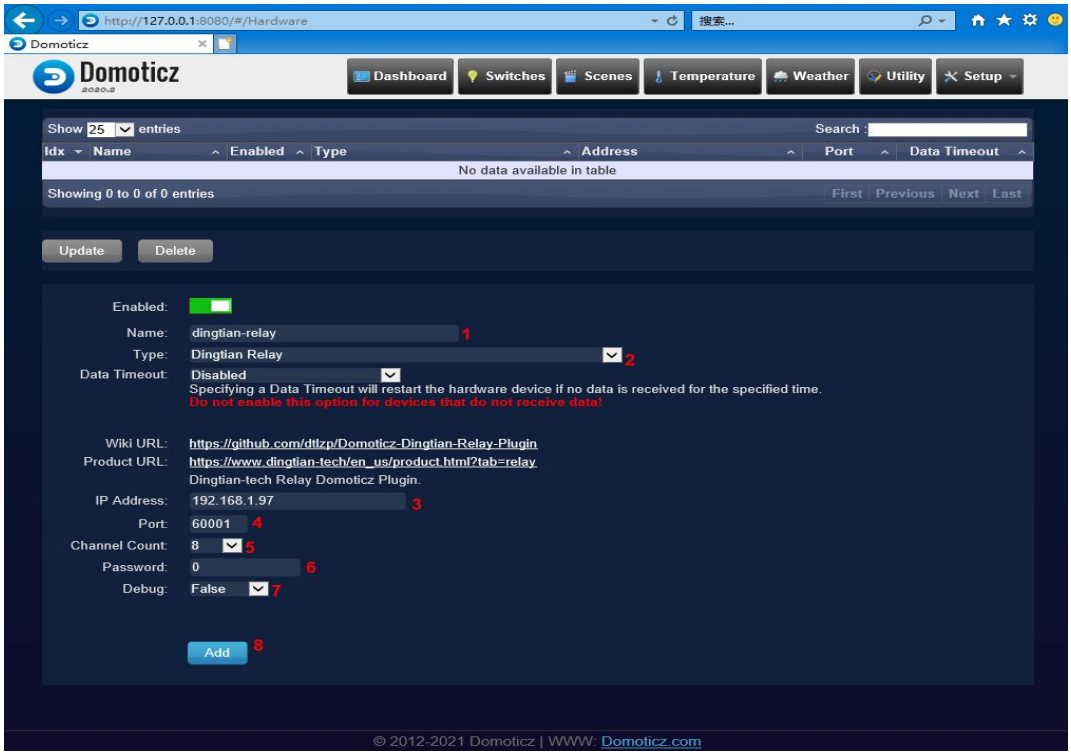
1 Find Hardware Menu



2 Input Dingtian Relay config(Ethernet)



3.Input Dingtian Relay config(WIFI)



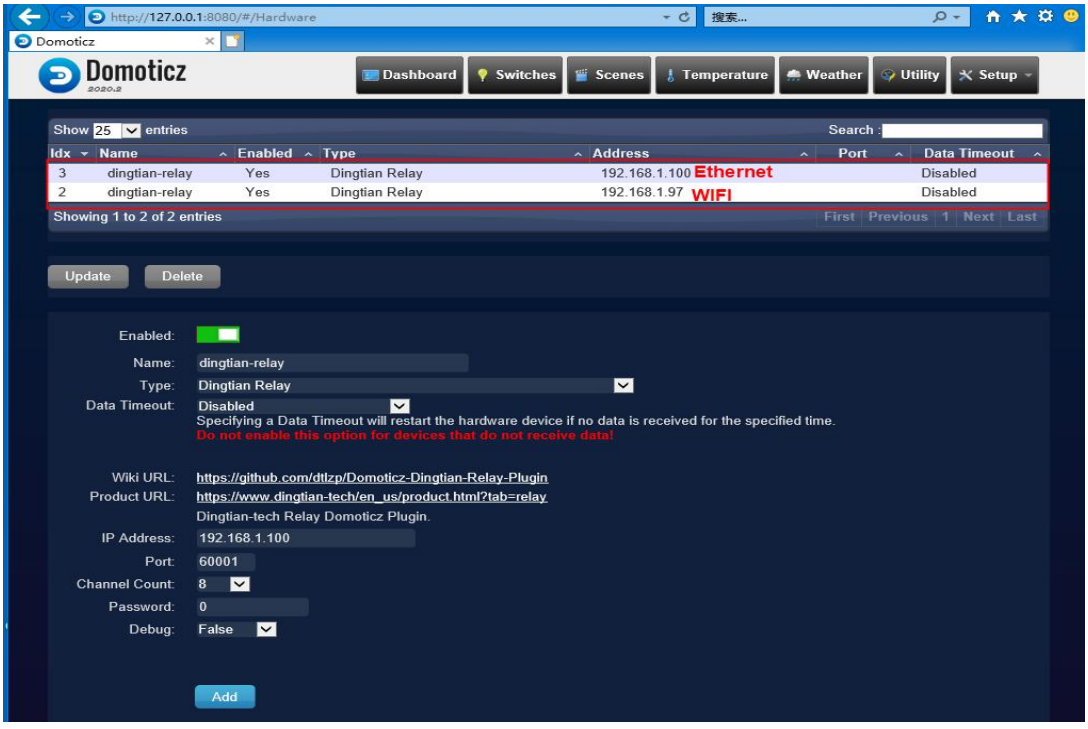
Type,IP Address,Port,Channel Count,Password must correct,

Password is 1 config relay board UDP Server,Remote Port,Local Port,Keep Alive Second and Relay Password

now check parameters is ok,

click "**Add**" to save

Now your can find Hardware and Relay



4 Multiple Relay board Add to Domoticz

Domoticz Need 2 UDP port for each Relay board

default is:60000 and 60001

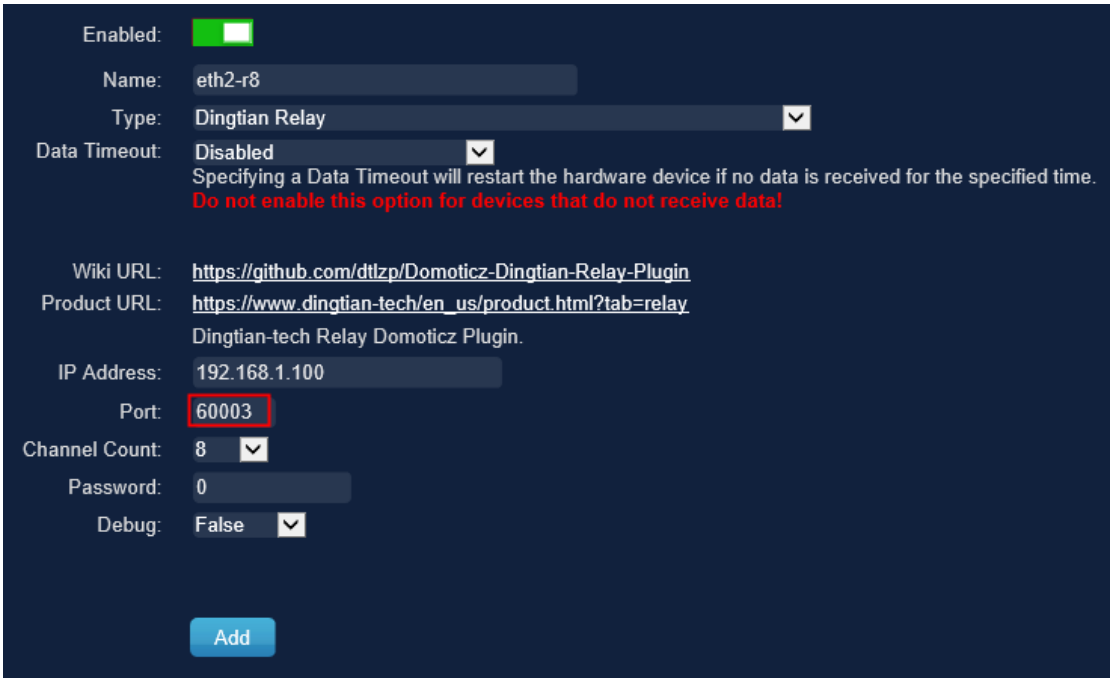
you can add mutiple with difference UDP port like:

60002 and 60003

60004 and 60005

60006 and 60007

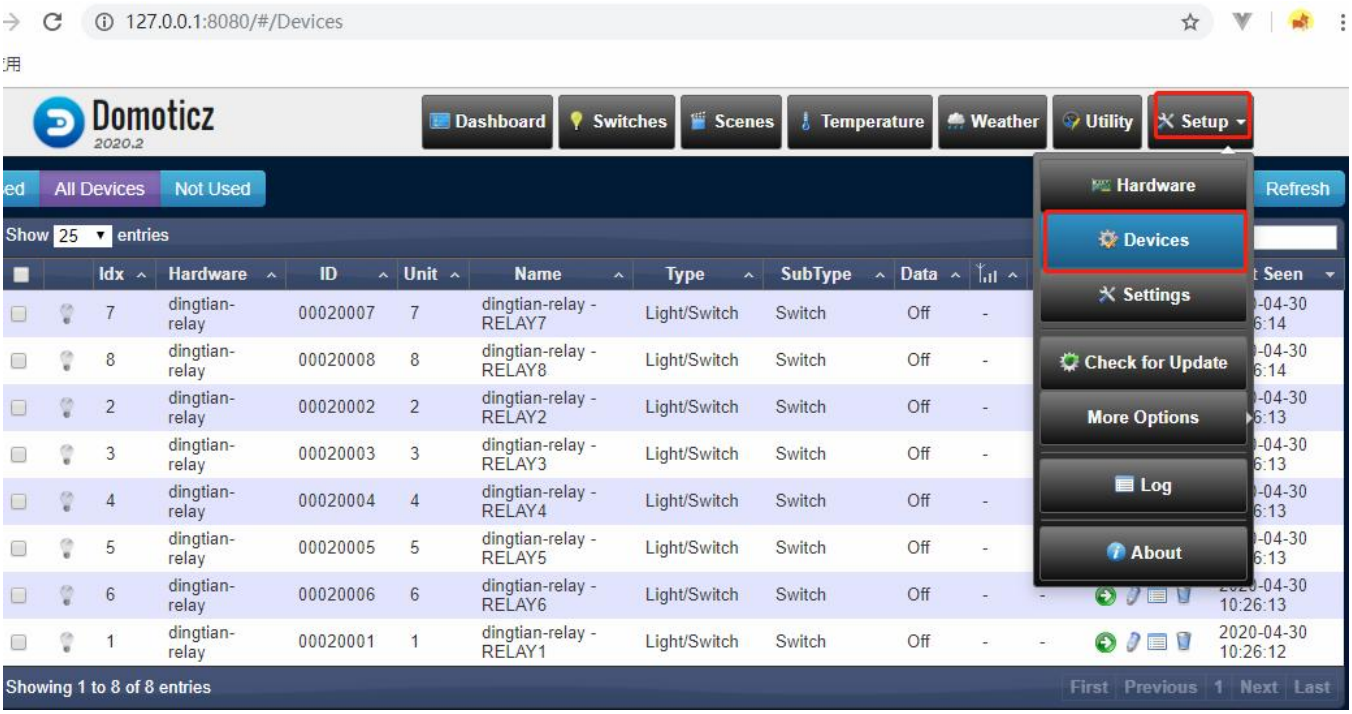
below is example 60002 and 60003



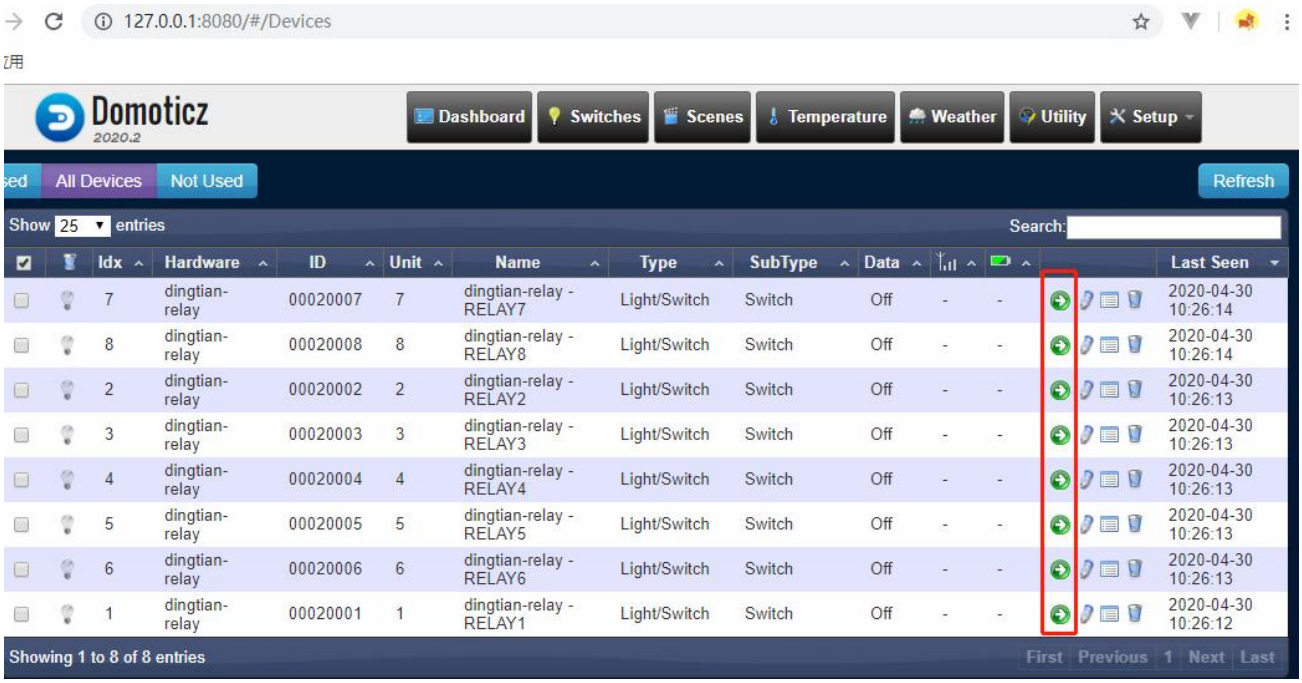
Relay

Channel	Protocol					
RS485	Modbus-RTU	Addr 1	Baud 115200bps	Databits 8bit	Stopbits 1bit	Parity None
CAN	Dingtian String	ID 1	Speed 125Kbps			
ETH-UDP1	Dingtian Binary	Remote Address 192.168.1.88		Remote Port 60002	Local Port 60002	
ETH-UDP2	Dingtian String	Remote Address 192.168.1.88		Remote Port 60003	Local Port 60003	
ETH-TCP Server	Modbus-TCP				Local Port 502	
ETH-TCP Client	Modbus-RTU Over TCP	Remote Address 192.168.1.9		Remote Port 502		
ETH-MQTT	MQTT	Broker Address 192.168.1.88		Broker Port 1883	Broker Username mqtt	Broker Password 123

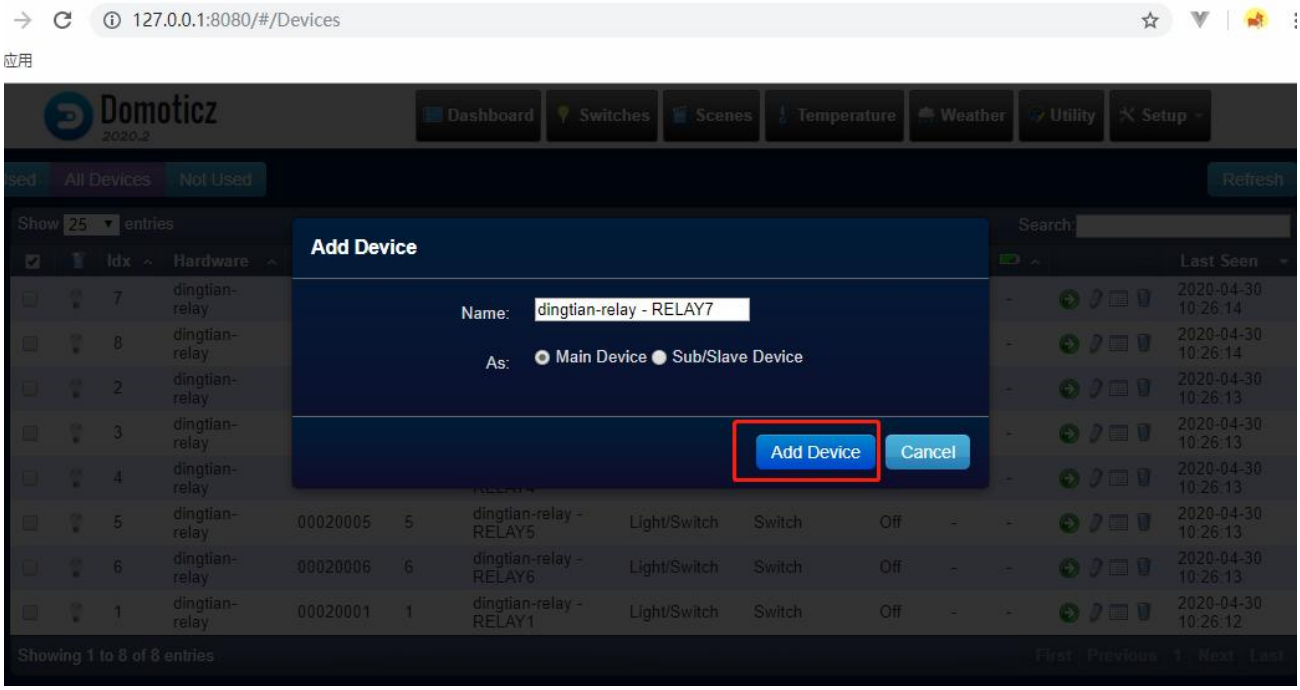
5 Add Relay to Switches Page



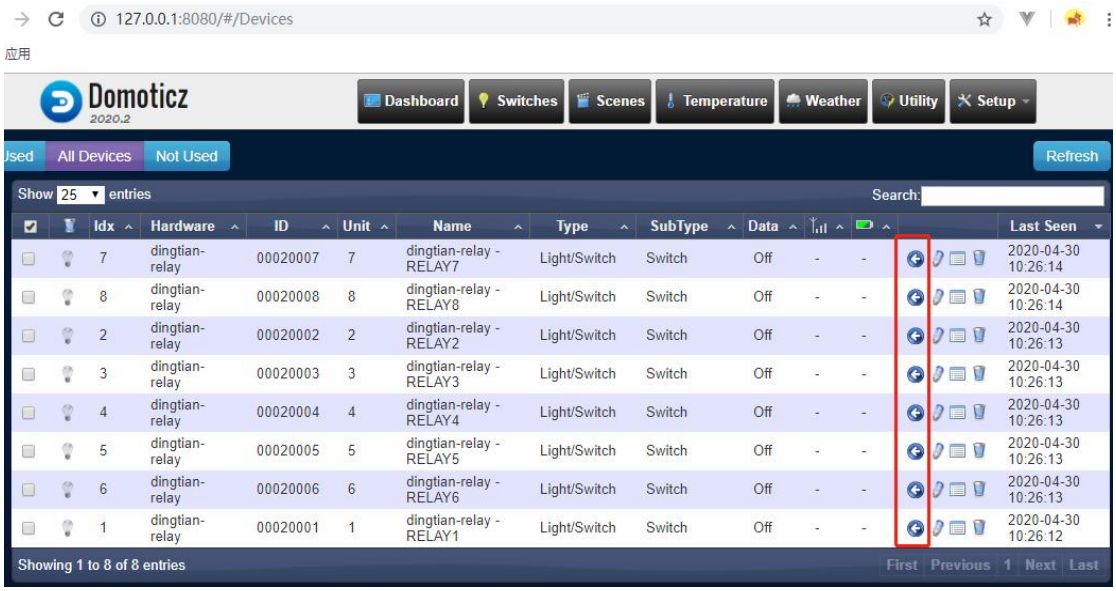
Click Add Device to use Relay



Click Add Device to confirm

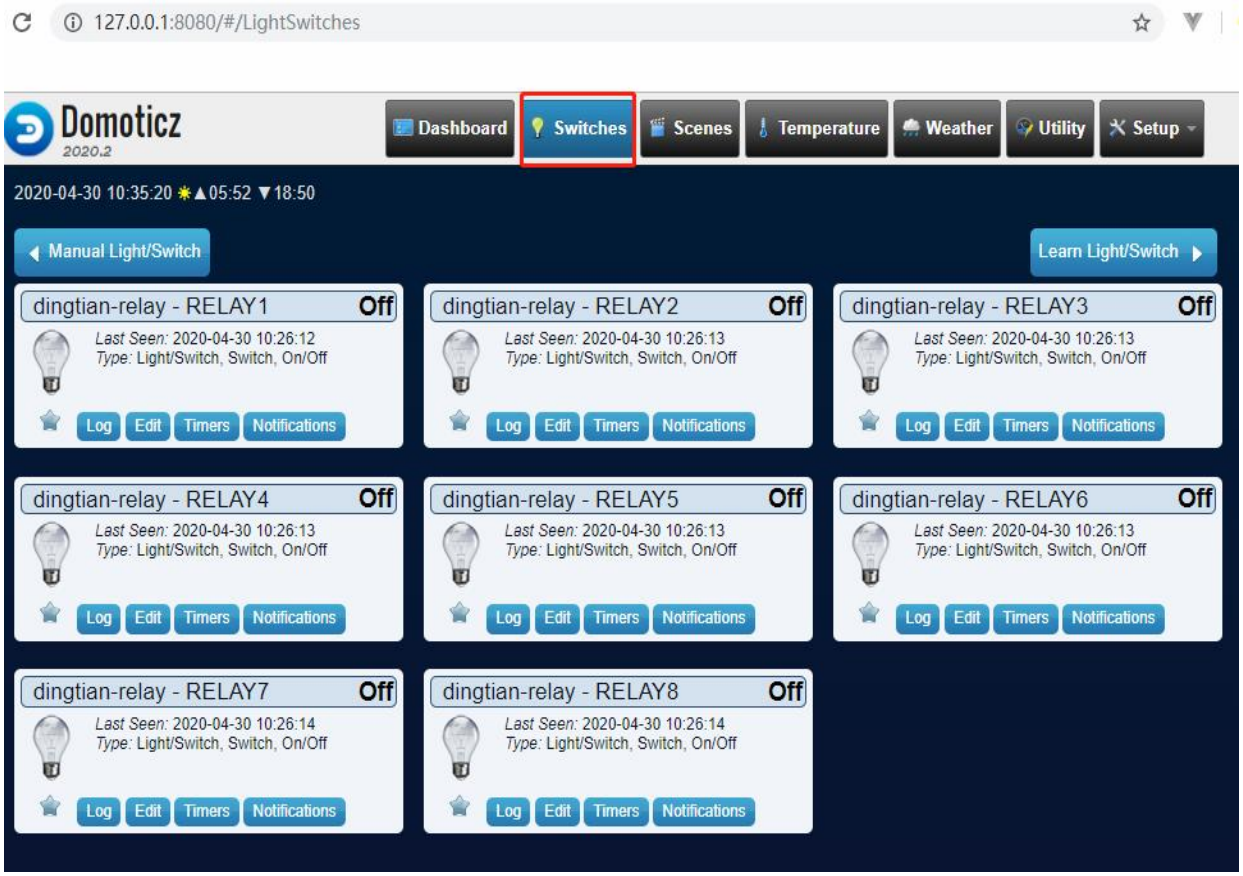


result

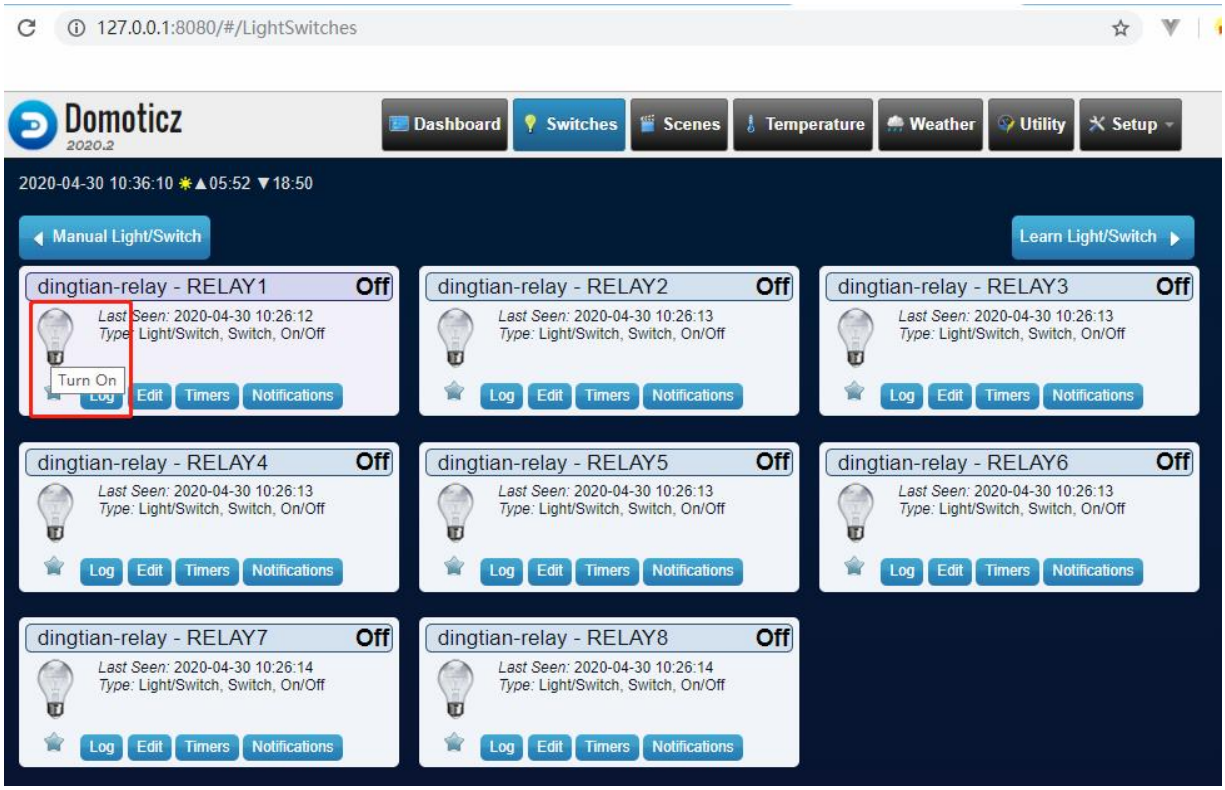


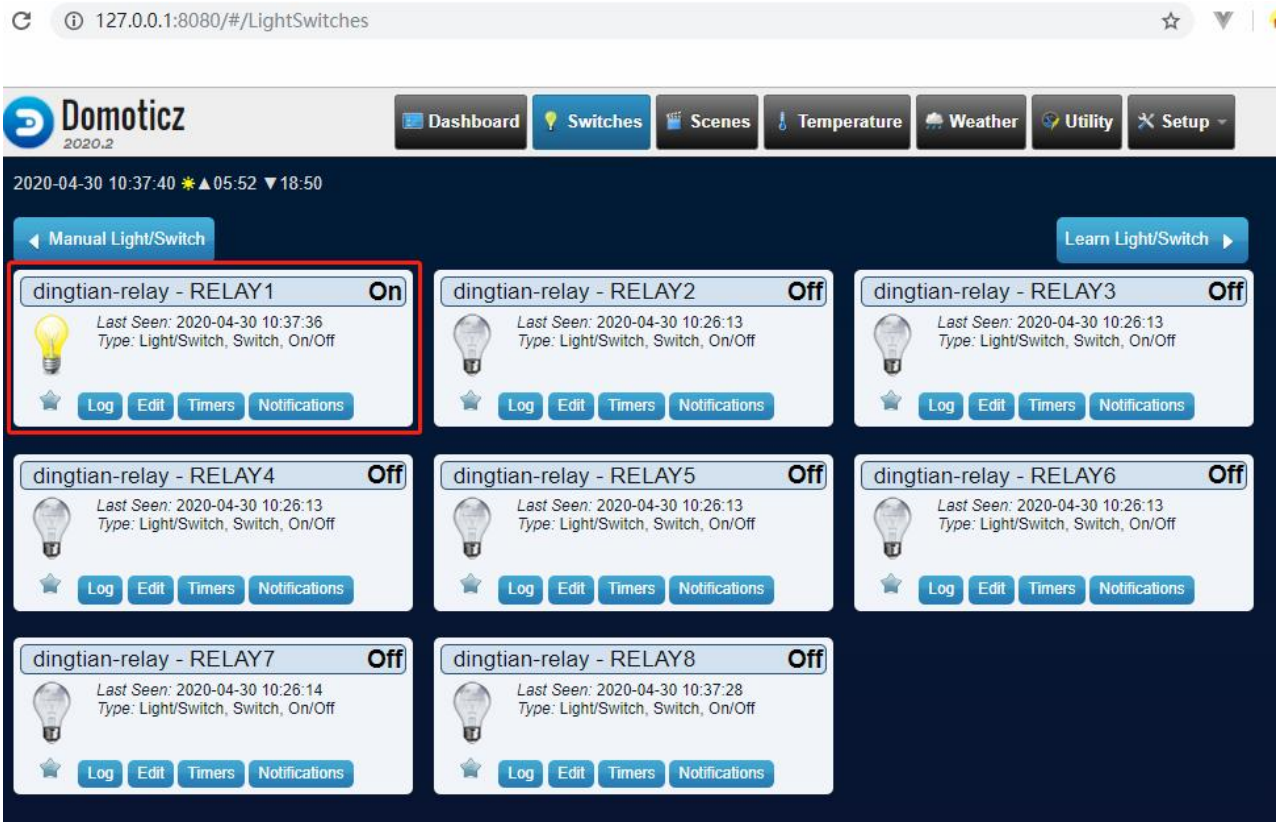
4 Control Dingtian Relay with Domoticz

Switch “Switches” page



Click light icon to control relay

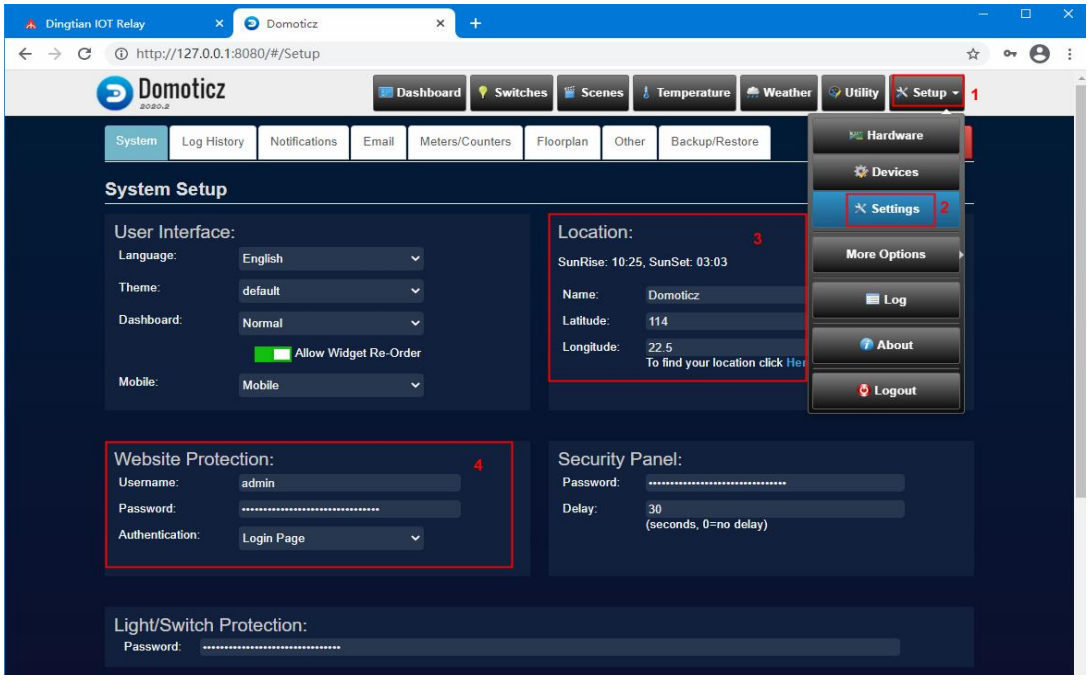




step 4: Domoticz mobile application

Please follow up step 1/2/3 firstly to confirm PC Domoticz connect

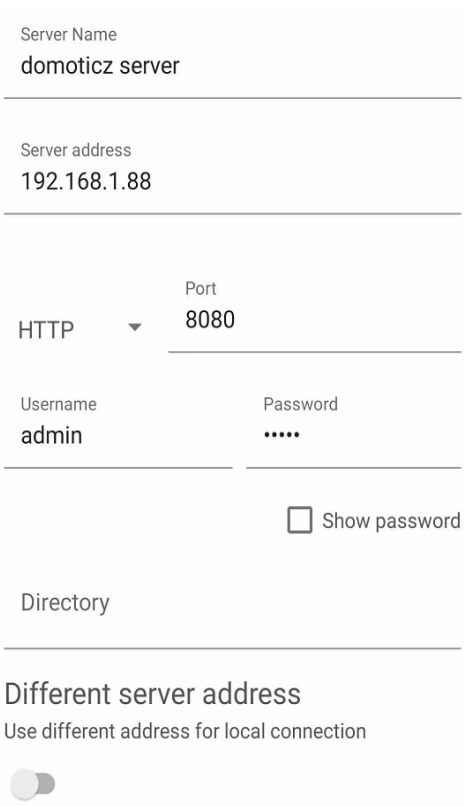
1 Set the Location, User name and password on PC Domoticz

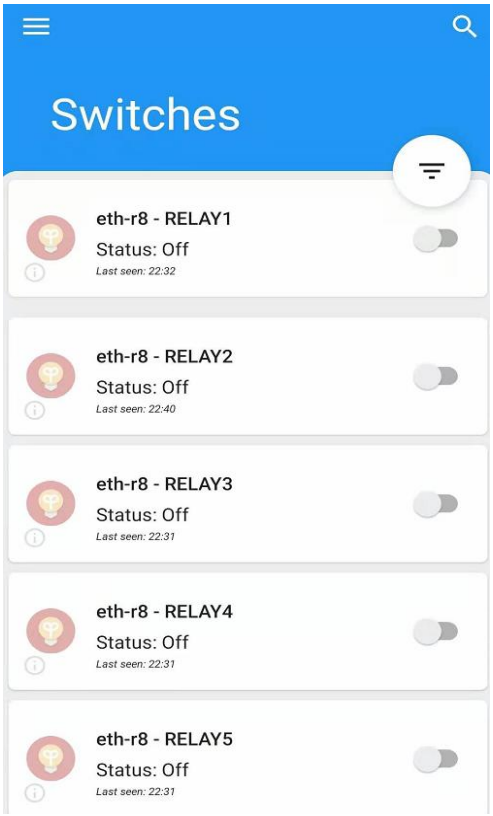


2 Install Domoticz

Android google play “Domoticz Home Automation Lite”, which is free of charge and cannot refresh automatically. So please refresh by manual after do it

3 Set Domoticz Server parameter

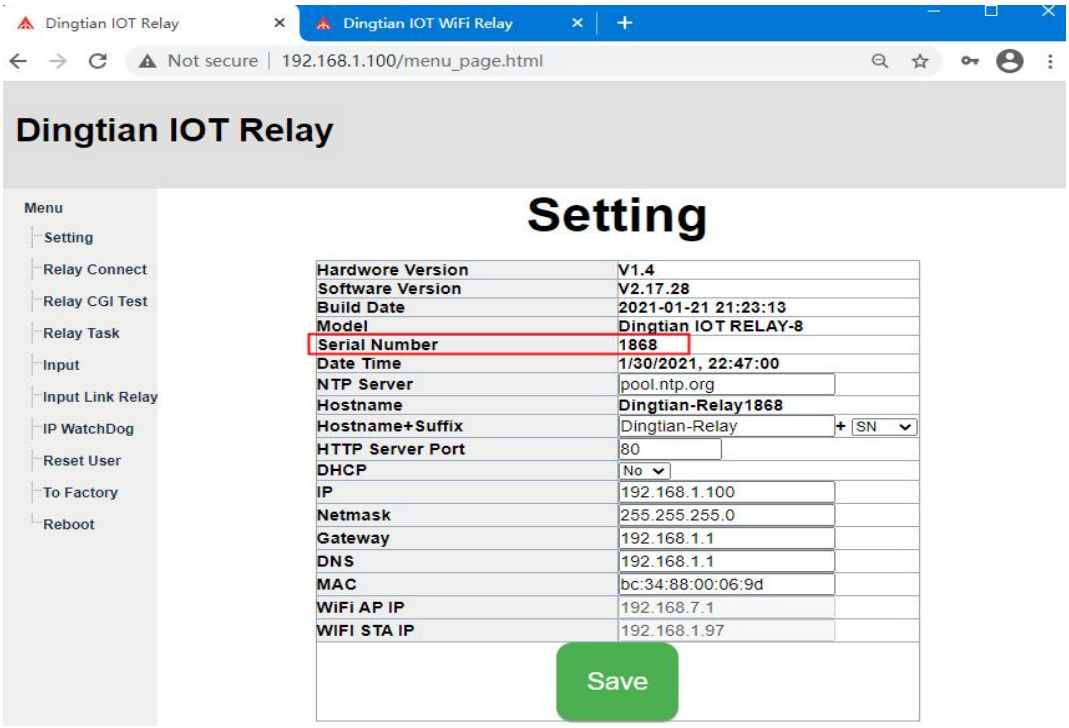




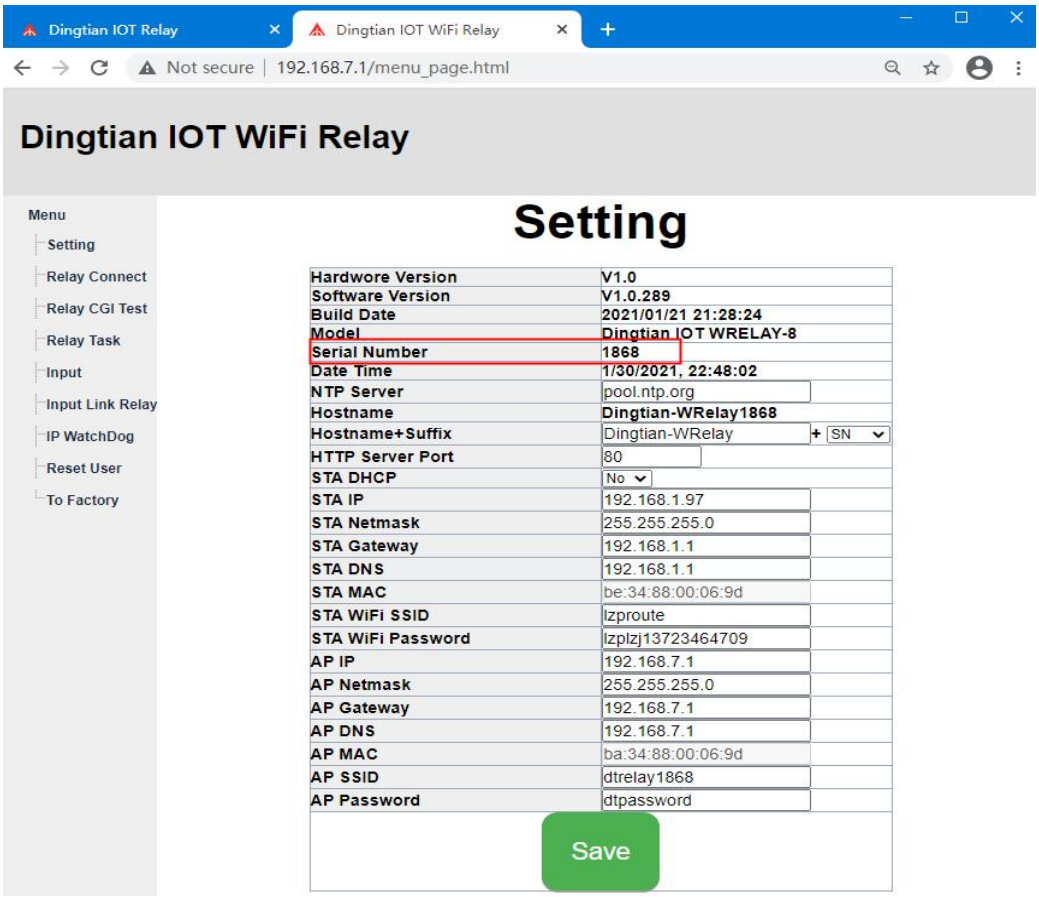
Domoticz mobile connect successfully, then you can control the switch by mobile phone

Appendix III How to MQTT

MQTT Ethernet



MQTT WIFI



Relay board Ethernet MQTT Client Id
dingtian-relay+SN
Relay board WiFi MQTT Client Id
dingtian-wrelay+SN

example:
below relay board “Serial Number” is 1868
so ETH MQTT client id is:dingtian-relay1868
so WiFI MQTT client id is:dingtian-wrelay1868
Relay board MQTT Topic and Publish format:
below V2.15.869
/dingtian/relay/in/control
/dingtian/relay/out/relayX
above V2.15.869
/dingtian/relaySN/in/control
/dingtian/relaySN/out/relayX
above V2.17.xx
ETH
/dingtian/relaySN/in/control
/dingtian/relaySN/in/rX
/dingtian/relaySN/out/rX
/dingtian/relaySN/out/iX
/dingtian/relaySN/out/relayX
/dingtian/relaySN/out/inputX
/dingtian/relaySN/out/ip
/dingtian/relaySN/out/sn
/dingtian/relaySN/out/mac
/dingtian/relaySN/out/input_cnt
/dingtian/relaySN/out/relay_cnt

WiFi
/dingtian/wrelaySN/in/control
/dingtian/wrelaySN/in/rX
/dingtian/wrelaySN/out/rX
/dingtian/wrelaySN/out/iX
/dingtian/wrelaySN/out/relayX
/dingtian/wrelaySN/out/inputX
/dingtian/wrelaySN/out/ip
/dingtian/wrelaySN/out/sn
/dingtian/wrelaySN/out/mac
/dingtian/wrelaySN/out/input_cnt
/dingtian/wrelaySN/out/relay_cnt

example:

below V2.15.869

/dingtian/relay/in/control

/dingtian/relay/out/relay1

/dingtian/relay/out/relay2

/dingtian/relay/out/relay3

/dingtian/relay/out/relay4

/dingtian/relay/out/relay5

/dingtian/relay/out/relay6

/dingtian/relay/out/relay7

/dingtian/relay/out/relay8

above V2.15.869

/dingtian/relay1868/in/control

/dingtian/relay1868/out/relay1

/dingtian/relay1868/out/relay2

/dingtian/relay1868/out/relay3

/dingtian/relay1868/out/relay4

/dingtian/relay1868/out/relay5

/dingtian/relay1868/out/relay6

/dingtian/relay1868/out/relay7

/dingtian/relay1868/out/relay8

above V2.17.xx

ETH

/dingtian/relay1868/in/control

/dingtian/relay1868/in/r1~8

/dingtian/relay1868/out/r1~8

/dingtian/relay1868/out/i1~8

/dingtian/relay1868/out/relay1~8

/dingtian/relay1868/out/input1~8

/dingtian/relay1868/out/ip

/dingtian/relay1868/out/sn

/dingtian/relay1868/out/mac

/dingtian/relay1868/out/input_cnt

/dingtian/relay1868/out/relay_cnt

WIFI

/dingtian/wrelay1868/in/control

/dingtian/wrelay1868/in/r1~8

/dingtian/wrelay1868/out/r1~8

/dingtian/wrelay1868/out/i1~8

/dingtian/wrelay1868/out/relay1~8

/dingtian/wrelay1868/out/input1~8
/dingtian/wrelay1868/out/ip
/dingtian/wrelay1868/out/sn
/dingtian/wrelay1868/out/mac
/dingtian/wrelay1868/out/input_cnt
/dingtian/wrelay1868/out/relay_cnt

Relay board MQTT Topic to subscribe:
/dingtian/relay/in/control
or
/dingtian/relay1868/in/control

type:ON/OFF,DELAY,JOGGING
idx:1~8
status:ON,OFF
time: (ON/OFF)0,(DELAY)1~65535second,(JOGGING)1~255*100ms
pass:0~9999

example:
{"type":"ON/OFF",'idx':'1',"status":"ON","time":"0","pass":"0"}
{"type":"DELAY",'idx':'2',"status":"ON","time":"5","pass":"0"}
{"type":"JOGGING",'idx':'3',"status":"ON","time":"5","pass":"0"}
{"type":"ON/OFF",'idx':'4',"status":"OFF","time":"0","pass":"0"}

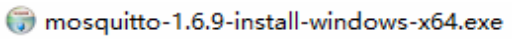
Relay board MQTT Topic to publish:
/dingtian/relay/out/relay1
/dingtian/relay/out/relay2
/dingtian/relay/out/relay3
/dingtian/relay/out/relay4
/dingtian/relay/out/relay5
/dingtian/relay/out/relay6
/dingtian/relay/out/relay7
/dingtian/relay/out/relay8
or
/dingtian/relay1868/out/relay1
/dingtian/relay1868/out/relay2
/dingtian/relay1868/out/relay3
/dingtian/relay1868/out/relay4
/dingtian/relay1868/out/relay5
/dingtian/relay1868/out/relay6
/dingtian/relay1868/out/relay7
/dingtian/relay1868/out/relay8
or
/dingtian/relay1868/out/r1~8

/dingtian/relay1868/out/i1~8
/dingtian/relay1868/out/relay1~8
/dingtian/relay1868/out/input1~8
/dingtian/relay1868/out/ip
/dingtian/relay1868/out/sn
/dingtian/relay1868/out/mac
/dingtian/relay1868/out/input_cnt
/dingtian/relay1868/out/relay_cnt

idx:1~8
status:ON,OFF

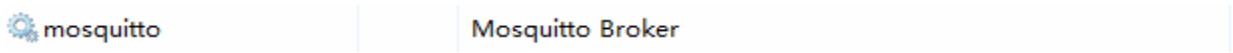
example:
{“idx”:”1”,”status”:”OFF”}

step 1: Install and config Broker

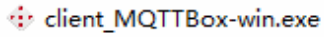


1 config “mosquitto.conf”
bind_address 0.0.0.0
port 1883

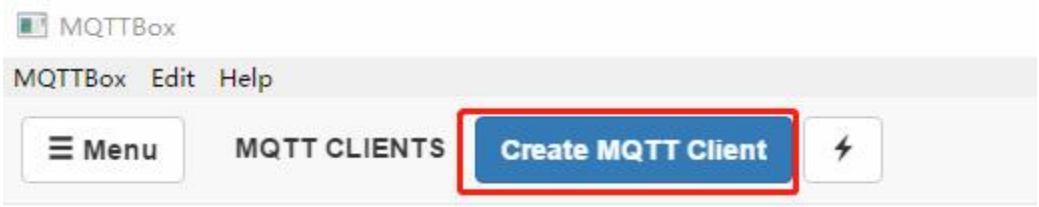
2 start windows Service “mosquitto”



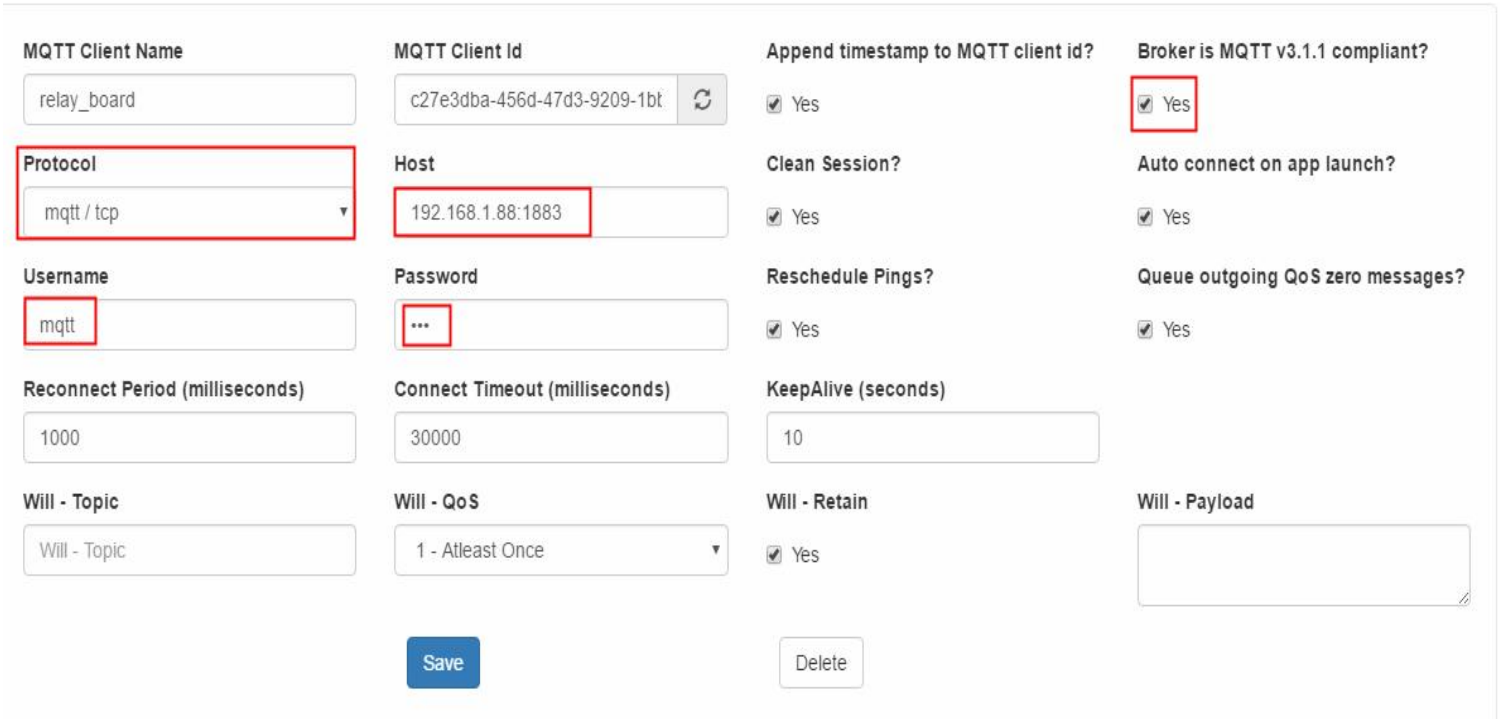
step 2: Install MQTT PC client

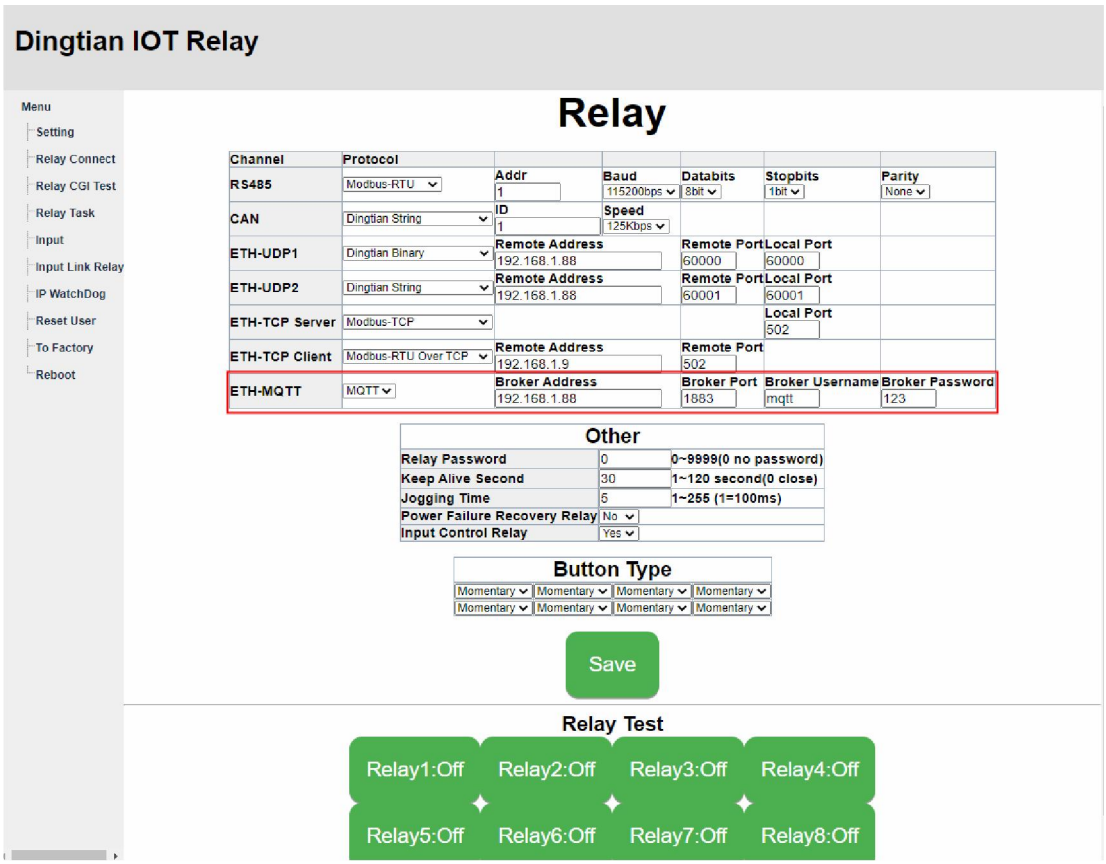


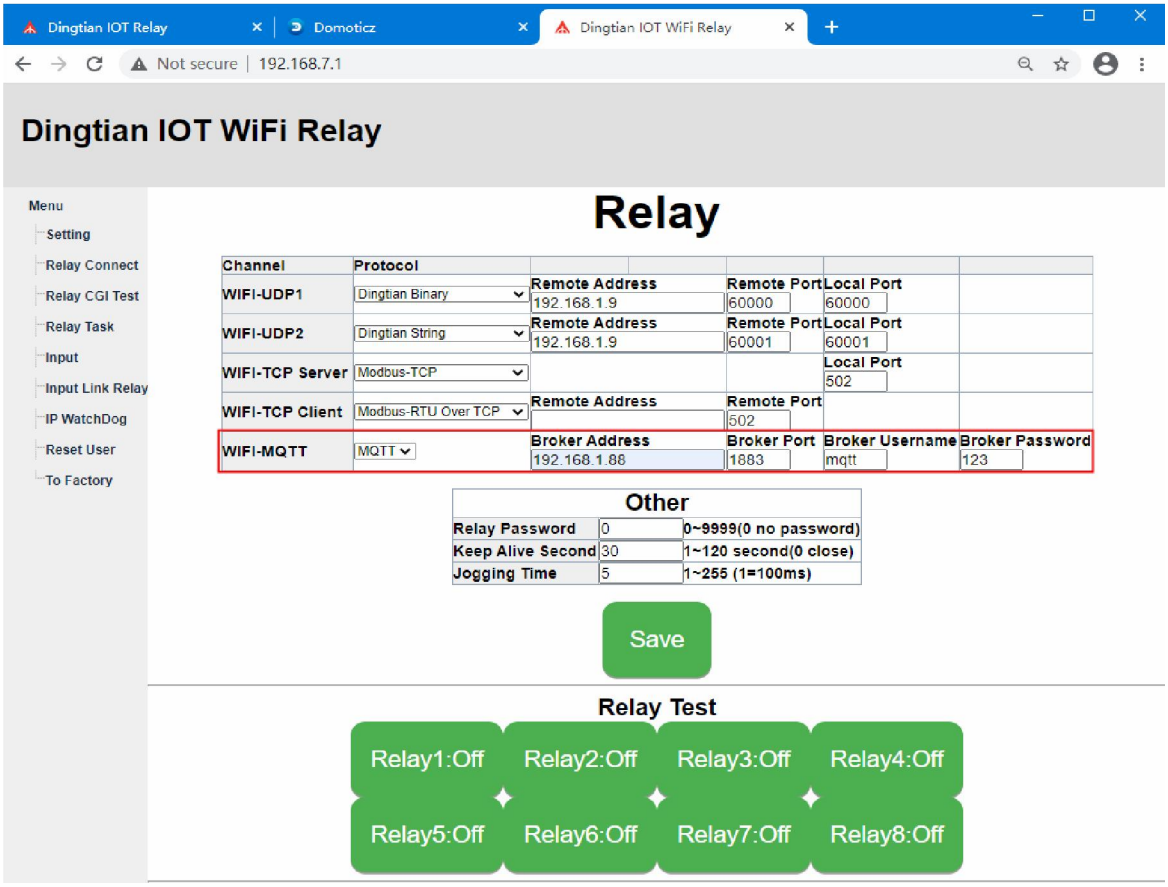
step 3: MQTTBox Add Client



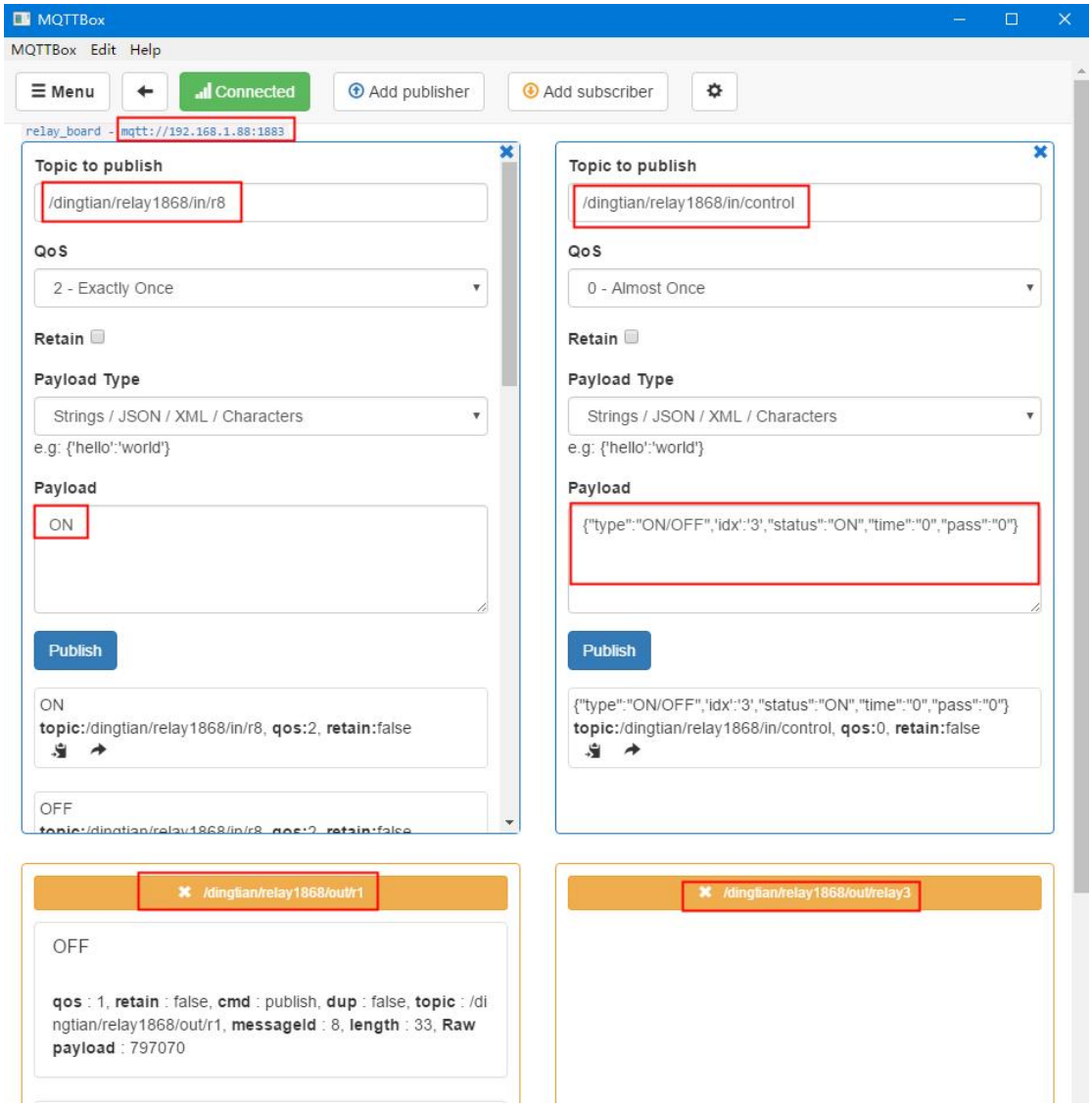
Protocol:mqtt/tcp
Host:192.168.1.88:1883(Broker server ip and port)
Username:mqtt
Password:123
Broker MQTT V3.1.1 compliant


MQTT Client Name
relay_board
MQTT Client Id
c27e3dba-456d-47d3-9209-1bt
Append timestamp to MQTT client id?
Yes
Broker is MQTT v3.1.1 compliant?
Yes
Protocol
mqtt / tcp
Host
192.168.1.88:1883
Clean Session?
Yes
Auto connect on app launch?
Yes
Username
mqtt
Password
•••
Reschedule Pings?
Yes
Queue outgoing QoS zero messages?
Yes
Reconnect Period (milliseconds)
1000
Connect Timeout (milliseconds)
30000
KeepAlive (seconds)
10
Will - Topic
Will - Topic
Will - QoS
1 - Atleast Once
Will - Retain
Yes
Will - Payload
Save
Delete


Dingtian IOT Relay
Menu
Setting
Relay Connect
Relay CGI Test
Relay Task
Input
Input Link Relay
IP WatchDog
Reset User
To Factory
Reboot
Relay
Channel
Protocol
RS485
Modbus-RTU
Addr
1
Baud
115200bps
Databits
8bit
Stopbits
1bit
Parity
None
CAN
Dingtian String
ID
1
Speed
125Kbps
ETH-UDP1
Dingtian Binary
Remote Address
192.168.1.88
Remote Port
60000
Local Port
60000
ETH-UDP2
Dingtian String
Remote Address
192.168.1.88
Remote Port
60001
Local Port
60001
ETH-TCP Server
Modbus-TCP
Local Port
502
ETH-TCP Client
Modbus-RTU Over TCP
Remote Address
192.168.1.9
Remote Port
502
ETH-MQTT
MQTT
Broker Address
192.168.1.88
Broker Port
1883
Broker Username
mqtt
Broker Password
123
Other
Relay Password
0
0~9999(0 no password)
Keep Alive Second
30
1~120 second(0 close)
Jogging Time
5
1~255 (1=100ms)
Power Failure Recovery Relay
No
Input Control Relay
Yes
Button Type
Momentary
Save
Relay Test
Relay1:Off
Relay2:Off
Relay3:Off
Relay4:Off
Relay5:Off
Relay6:Off
Relay7:Off
Relay8:Off


Dingtian IOT Relay
Domoticz
Dingtian IOT WiFi Relay
Not secure | 192.168.7.1
Dingtian IOT WiFi Relay
Menu
Setting
Relay Connect
Relay CGI Test
Relay Task
Input
Input Link Relay
IP WatchDog
Reset User
To Factory
Relay
Channel
Protocol
WIFI-UDP1
Dingtian Binary
Remote Address
192.168.1.9
Remote Port
60000
Local Port
60000
WIFI-UDP2
Dingtian String
Remote Address
192.168.1.9
Remote Port
60001
Local Port
60001
WIFI-TCP Server
Modbus-TCP
Local Port
502
WIFI-TCP Client
Modbus-RTU Over TCP
Remote Address
Remote Port
502
WIFI-MQTT
MQTT
Broker Address
192.168.1.88
Broker Port
1883
Broker Username
mqtt
Broker Password
123
Other
Relay Password
0
0~9999(0 no password)
Keep Alive Second
30
1~120 second(0 close)
Jogging Time
5
1~255 (1=100ms)
Save
Relay Test
Relay1:Off
Relay2:Off
Relay3:Off
Relay4:Off
Relay5:Off
Relay6:Off
Relay7:Off
Relay8:Off

step 4: MQTTBox Publish topic to relay board and subcribe topic



Appendix IV How to CoAP

you need linux system

step 1: compile libcoap

git clone --recurse-submodules https://github.com/obgm/libcoap
./autogen.sh
./configure --disable-manpages --enable-examples --enable-tests
make

step 2: CoAP Get relay status

Relay Status(1:ON, 0:OFF)
./coap-client -m get coap://192.168.1.100/dingtian/r1
./coap-client -m get coap://192.168.1.100/dingtian/r2
./coap-client -m get coap://192.168.1.100/dingtian/r3
./coap-client -m get coap://192.168.1.100/dingtian/r4
./coap-client -m get coap://192.168.1.100/dingtian/r5
./coap-client -m get coap://192.168.1.100/dingtian/r6
./coap-client -m get coap://192.168.1.100/dingtian/r7
./coap-client -m get coap://192.168.1.100/dingtian/r8

Input Status(1:High, 0:Low)
./coap-client -m get coap://192.168.1.100/dingtian/i1
./coap-client -m get coap://192.168.1.100/dingtian/i2
./coap-client -m get coap://192.168.1.100/dingtian/i3
./coap-client -m get coap://192.168.1.100/dingtian/i4
./coap-client -m get coap://192.168.1.100/dingtian/i5
./coap-client -m get coap://192.168.1.100/dingtian/i6
./coap-client -m get coap://192.168.1.100/dingtian/i7
./coap-client -m get coap://192.168.1.100/dingtian/i8

step 3: CoAP Control relay(simple)

./coap-client -e "1" -m put coap://192.168.1.100/dingtian/r1 # relay1 ON
./coap-client -e "0" -m put coap://192.168.1.100/dingtian/r1 # relay1 OFF
./coap-client -e "1" -m put coap://192.168.1.100/dingtian/r2 # relay2 ON
./coap-client -e "0" -m put coap://192.168.1.100/dingtian/r2 # relay2 OFF
./coap-client -e "1" -m put coap://192.168.1.100/dingtian/r3 # relay3 ON
./coap-client -e "0" -m put coap://192.168.1.100/dingtian/r3 # relay3 OFF
./coap-client -e "1" -m put coap://192.168.1.100/dingtian/r4 # relay4 ON
./coap-client -e "0" -m put coap://192.168.1.100/dingtian/r4 # relay4 OFF
./coap-client -e "1" -m put coap://192.168.1.100/dingtian/r5 # relay5 ON
./coap-client -e "0" -m put coap://192.168.1.100/dingtian/r5 # relay5 OFF
./coap-client -e "1" -m put coap://192.168.1.100/dingtian/r6 # relay6 ON
./coap-client -e "0" -m put coap://192.168.1.100/dingtian/r6 # relay6 OFF

./coap-client -e "1" -m put coap://192.168.1.100/dingtian/r7 # relay7 ON
./coap-client -e "0" -m put coap://192.168.1.100/dingtian/r7 # relay7 OFF
./coap-client -e "1" -m put coap://192.168.1.100/dingtian/r8 # relay8 ON
./coap-client -e "0" -m put coap://192.168.1.100/dingtian/r8 # relay8 OFF

step 4: CoAP Control relay

format:
status:type:time:password
status:0,1
type:ON/OFF,DELAY,JOGGING
time:(ON/OFF)0,(DELAY)1~65535second,(JOGGING)1~255*100ms
password:0~9999

example:
1:ON/OFF:0:4660
status:1
type:ON/OFF
time:0
password:4660

ON/OFF example:
./coap-client -e "1:ON/OFF:0:4660" -m put coap://192.168.1.100/dingtian/r1
./coap-client -e "1:ON/OFF:0:4660" -m put coap://192.168.1.100/dingtian/r2
./coap-client -e "1:ON/OFF:0:4660" -m put coap://192.168.1.100/dingtian/r3
./coap-client -e "1:ON/OFF:0:4660" -m put coap://192.168.1.100/dingtian/r4
./coap-client -e "1:ON/OFF:0:4660" -m put coap://192.168.1.100/dingtian/r5
./coap-client -e "1:ON/OFF:0:4660" -m put coap://192.168.1.100/dingtian/r6
./coap-client -e "1:ON/OFF:0:4660" -m put coap://192.168.1.100/dingtian/r7
./coap-client -e "1:ON/OFF:0:4660" -m put coap://192.168.1.100/dingtian/r8
./coap-client -e "0:ON/OFF:0:4660" -m put coap://192.168.1.100/dingtian/r1
./coap-client -e "0:ON/OFF:0:4660" -m put coap://192.168.1.100/dingtian/r2
./coap-client -e "0:ON/OFF:0:4660" -m put coap://192.168.1.100/dingtian/r3
./coap-client -e "0:ON/OFF:0:4660" -m put coap://192.168.1.100/dingtian/r4
./coap-client -e "0:ON/OFF:0:4660" -m put coap://192.168.1.100/dingtian/r5
./coap-client -e "0:ON/OFF:0:4660" -m put coap://192.168.1.100/dingtian/r6
./coap-client -e "0:ON/OFF:0:4660" -m put coap://192.168.1.100/dingtian/r7
./coap-client -e "0:ON/OFF:0:4660" -m put coap://192.168.1.100/dingtian/r8

DELAY example:
./coap-client -e "1:DELAY:5:4660" -m put coap://192.168.1.100/dingtian/r1
./coap-client -e "1:DELAY:5:4660" -m put coap://192.168.1.100/dingtian/r2
./coap-client -e "1:DELAY:5:4660" -m put coap://192.168.1.100/dingtian/r3
./coap-client -e "1:DELAY:5:4660" -m put coap://192.168.1.100/dingtian/r4
./coap-client -e "1:DELAY:5:4660" -m put coap://192.168.1.100/dingtian/r5

./coap-client -e "1:DELAY:5:4660" -m put coap://192.168.1.100/dingtian/r6
./coap-client -e "1:DELAY:5:4660" -m put coap://192.168.1.100/dingtian/r7
./coap-client -e "1:DELAY:5:4660" -m put coap://192.168.1.100/dingtian/r8
./coap-client -e "0:DELAY:5:4660" -m put coap://192.168.1.100/dingtian/r1
./coap-client -e "0:DELAY:5:4660" -m put coap://192.168.1.100/dingtian/r2
./coap-client -e "0:DELAY:5:4660" -m put coap://192.168.1.100/dingtian/r3
./coap-client -e "0:DELAY:5:4660" -m put coap://192.168.1.100/dingtian/r4
./coap-client -e "0:DELAY:5:4660" -m put coap://192.168.1.100/dingtian/r5
./coap-client -e "0:DELAY:5:4660" -m put coap://192.168.1.100/dingtian/r6
./coap-client -e "0:DELAY:5:4660" -m put coap://192.168.1.100/dingtian/r7
./coap-client -e "0:DELAY:5:4660" -m put coap://192.168.1.100/dingtian/r8

JOGGING example:
./coap-client -e "1:JOGGING:5:4660" -m put coap://192.168.1.100/dingtian/r1
./coap-client -e "1:JOGGING:5:4660" -m put coap://192.168.1.100/dingtian/r2
./coap-client -e "1:JOGGING:5:4660" -m put coap://192.168.1.100/dingtian/r3
./coap-client -e "1:JOGGING:5:4660" -m put coap://192.168.1.100/dingtian/r4
./coap-client -e "1:JOGGING:5:4660" -m put coap://192.168.1.100/dingtian/r5
./coap-client -e "1:JOGGING:5:4660" -m put coap://192.168.1.100/dingtian/r6
./coap-client -e "1:JOGGING:5:4660" -m put coap://192.168.1.100/dingtian/r7
./coap-client -e "1:JOGGING:5:4660" -m put coap://192.168.1.100/dingtian/r8
./coap-client -e "0:JOGGING:5:4660" -m put coap://192.168.1.100/dingtian/r1
./coap-client -e "0:JOGGING:5:4660" -m put coap://192.168.1.100/dingtian/r2
./coap-client -e "0:JOGGING:5:4660" -m put coap://192.168.1.100/dingtian/r3
./coap-client -e "0:JOGGING:5:4660" -m put coap://192.168.1.100/dingtian/r4
./coap-client -e "0:JOGGING:5:4660" -m put coap://192.168.1.100/dingtian/r5
./coap-client -e "0:JOGGING:5:4660" -m put coap://192.168.1.100/dingtian/r6
./coap-client -e "0:JOGGING:5:4660" -m put coap://192.168.1.100/dingtian/r7
./coap-client -e "0:JOGGING:5:4660" -m put coap://192.168.1.100/dingtian/r8