



IOT Relay User Manual

V1.9.8.1

1 Product Overview.....	4
1.1 Overview.....	4
1.2 Technical Parameters.....	5
2 Image and Size.....	6
2.1 Hardware version <3.x.x.....	6
2.2 Hardware version >=V3.x.x.....	7
2.3 Case.....	8
3 Interface Description.....	9
3.1 Power Supply.....	9
3.2 Funcation.....	10
3.3 Relay Contact.....	11
3.4 Reset To Factory.....	12
3.4.1 Hardware Version <V3.x.x.....	12
3.4.2 Hardware Version >=V3.x.x.....	13
3.5 Input Output and Power wiring diagram.....	14
3.6 Add Spark killer and contractor.....	15
4 Ethernet Web Page.....	16
4.1 Login.....	17
4.2 Setting Network.....	17
4.3 Relay Connect.....	18
4.4 Relay CGI Test.....	21
4.5 Relay Task.....	21
4.6 Input.....	22
4.7 Input Link Relay.....	23
4.8 IP WatchDog.....	23
4.9 Reset User.....	24
4.10 To Factory.....	24
4.11 Reboot.....	25
5 WIFI web Page.....	26
5.1 Login.....	26
5.2 Setting WIFI.....	26
5.3 Setting Relay Connect.....	27
5.4 Relay CGI Test.....	30
5.5 Relay Task.....	31
5.6 Input.....	31
5.7 Input Link Relay.....	32
5.8 IP WatchDog.....	32
5.9 Reset User.....	33
5.10 To Factory.....	33
6 IP Finder.....	34

6.1 Search Device.....	35
6.2 Change Static IP.....	36
Appendix I How to Test Command.....	37
step 1: download SDK.....	37
step 2: Change NetAssist language.....	38
step 3: Control relay via NetAssist network tool by wifi module.....	39
step 4: open UDP listen.....	41
step 5: control relay via wifi module.....	42
Appendix II How to use Domoticz.....	43
step 1: install Dingtian plugin to Domoticz.....	43
1 Stop Domoticz.....	43
2 Copy Domoticz_plugins\dingtian to Domoticz plugin dir.....	43
step 2: config Dingtian Relay board.....	44
Domoticz Ethernet.....	44
Domoticz WIFI.....	45
step 3: Add Dingtian Relay to Domoticz.....	46
1 Install Python 3.8.2.....	46
2 Run to Domoticz.....	46
3 Add Dingtian Relay to Domoticz.....	47
4 Control Dingtian Relay with Domoticz.....	52
step 4: Domoticz mobile application.....	54
1 Set the Location, User name and password on PC Domoticz.....	54
2 Install Domoticz.....	54
3 Set Domoticz Server parameter.....	55
Appendix III How to MQTT.....	56
step 1: Install and config Broker.....	61
step 2: Install MQTT PC client.....	61
step 3: MQTTBox Add Client.....	61
step 4: MQTTBox Publish topic to relay board and subscribe topic.....	63
Appendix IV How to CoAP.....	64
step 1: compile libcoap.....	64
step 2: CoAP Get relay status.....	64
step 3: CoAP Control relay(simple).....	64
step 4: CoAP Control relay.....	65
Appendix V How to “input mutual control”.....	67
Appendix VI How to Home Assistant.....	69
Step 1 config Relay board.....	69
Step 2 Install MQTT Broker.....	70
Step 3 Install Home Assistant.....	70
1 install python.....	70
2 install Home Assistant.....	70
3 Add relay board Switch and input to Home Assistant.....	70
4 Home Assistant config MQTT Broker.....	72
Appendix VII How to openHAB.....	76

Step 1 config Relay board.....	76
Step 2 Install MQTT Broker.....	77
Step 3 install JDK and openHAB.....	77
1 Download.....	77
2 install.....	78
3 Add jdk directory to “start.bat”.....	79
4 First time init openHAB.....	80
Step 4 Add Dingian Relay board to openHAB.....	83
1 Change json MQTT broker host, username,password.....	83
2 Change json SN(example SN 7920) to you relay board SN.....	83
3 Cover openHAB json.....	87
4 Control relay board with openHAB.....	87

1 Product Overview

1.1 Overview

Support Ethernet, WiFi, RS485, CAN
10/100Mbps ethernet, Auto-MDIX,DHCP ip,Static IP
WiFi 802.11 b/g/n, MAX 150Mbps
Digital input, can be Local Button control(SelfLock/Jogging/Delay)
Support RELAY On/OFF/Jogging/Delay.
Support HTTP GET CGI, UDP, TCP Server, TCP Client
Support Modbus-RTU/ASCII/TCP/UDP/WIFI
Support Modbus-RTU Over TCP/UDP/WIFI
Support Modbus-ASCII Over TCP/UDP/WIFI
Support WEB control
Support MQTT, CoAP
Support NTP, IP Watchdog, Task timer
Support Domoticz, Home Assistant, openHAB

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, please use V1.2 for github
Home Assistant	Appendix VI How to Home Assistant
openHAB	Appendix VII How to openHAB

Notice:

- 1 Close your firewall
- 2 All command and script run as root/administrator

SDK download link:

http://www.dingtian-tech.com/sdk/relay_sdk.zip

1.2 Technical Parameters

Function	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 CoAP
	Home Automation System	Domoticz Home Assistant openHAB
	Others	NTP IP Watchdog Task timer
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
Temperature and Humidity	Storage temperature	-40°C to +70°C
	Operating temperature	-20°C to +70°C
	Relative humidity (during operation)	25°C @ ≤95%, no condensation
Power	Power Specifications	12/24VDC(recommend) 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

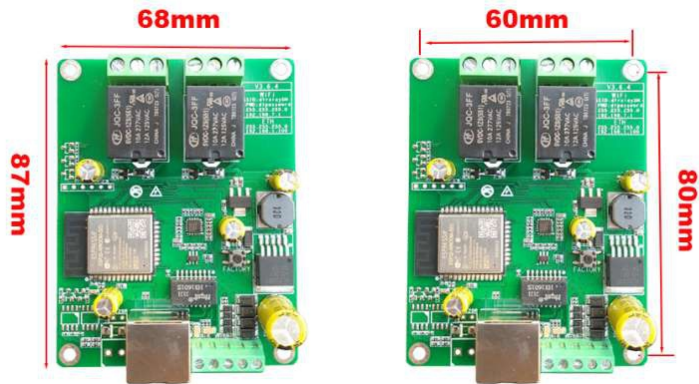
2.1 Hardware version <3.x.x

Hole size: 3.5mm



2.2 Hardware version \geq V3.x.x

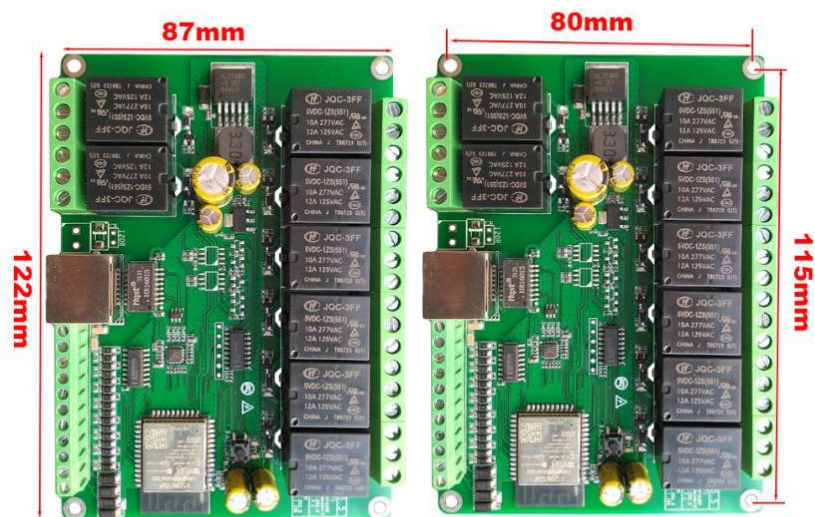
Hole size: 3.5mm



2CH relay board
Size of relay: 87*68mm
Distance of hole: 80*60mm



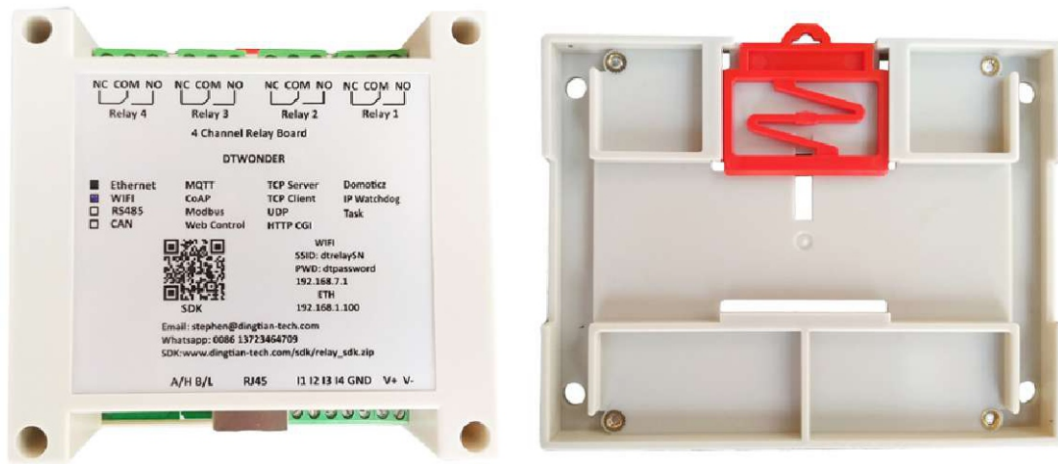
4CH relay board
Size of relay: 91.6*86.4mm
Distance of hole: 85.3*80mm



8CH relay board
Size of relay: 122*87mm
Distance of hole: 115*80mm

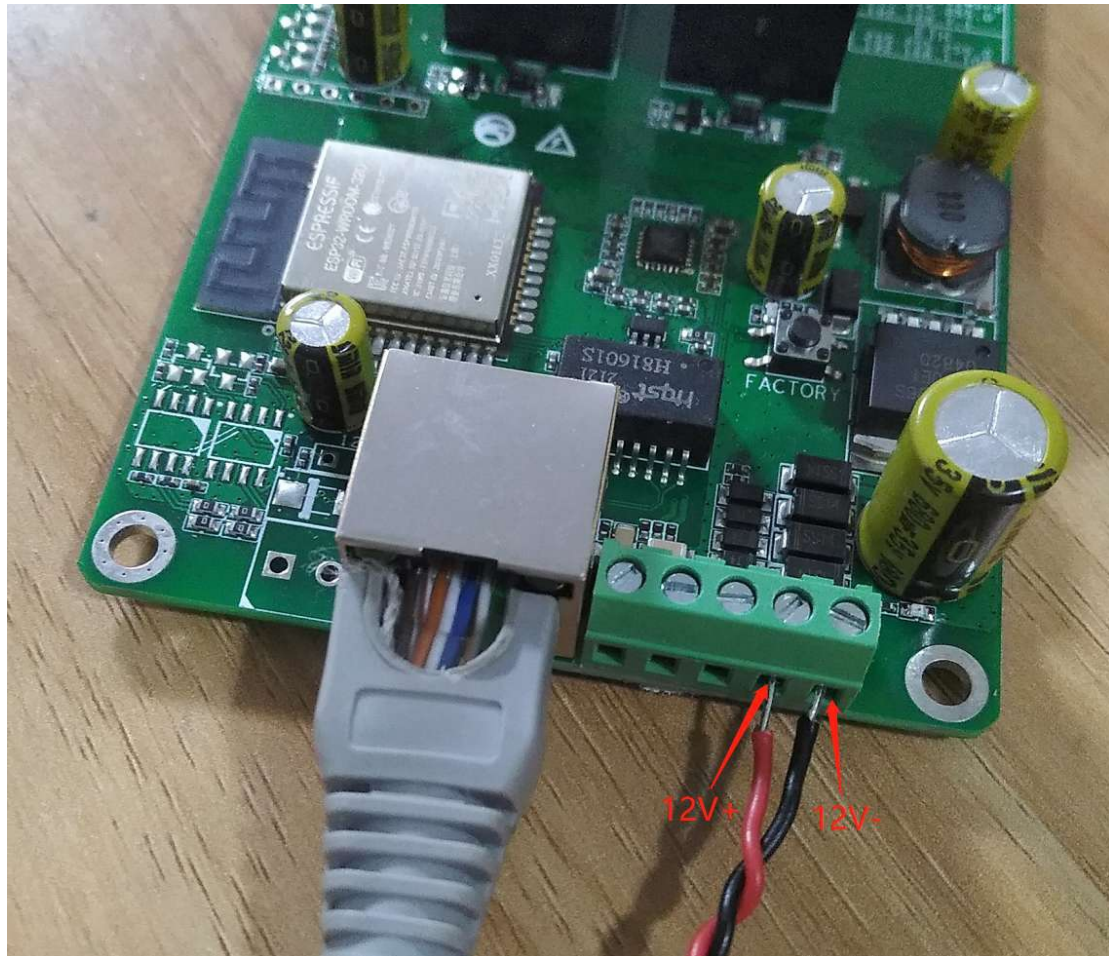
2.3 Case

The 2CH,4CH,8CH Case is ABS material, Standard DIN35 rail installation

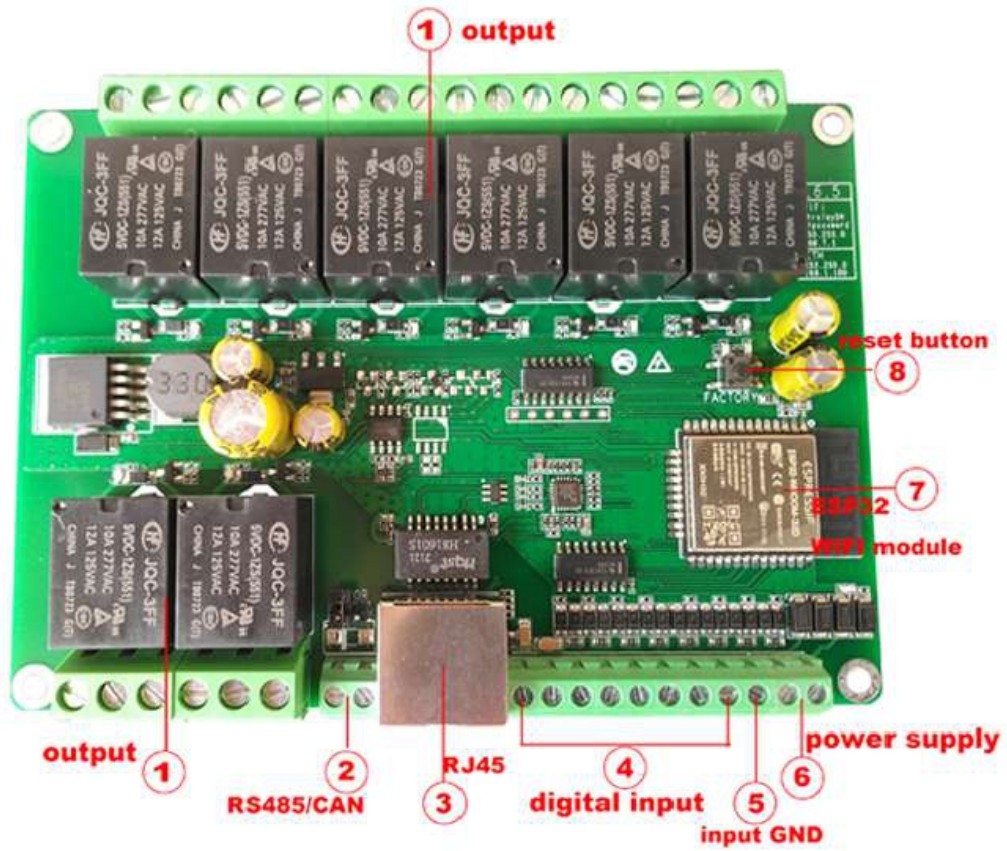


3 Interface Description

3.1 Power Supply

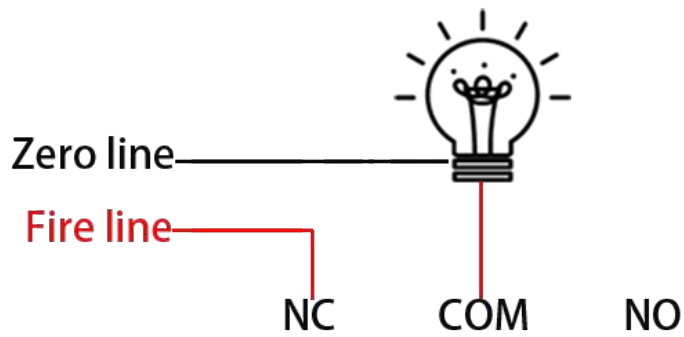


3.2 Function

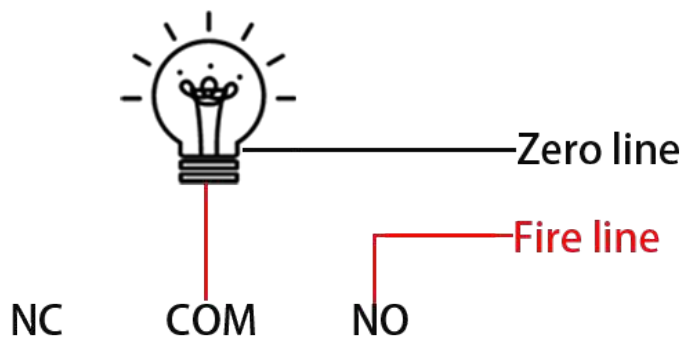


3.3 Relay Contact

Connect Example:



Normal Close Example

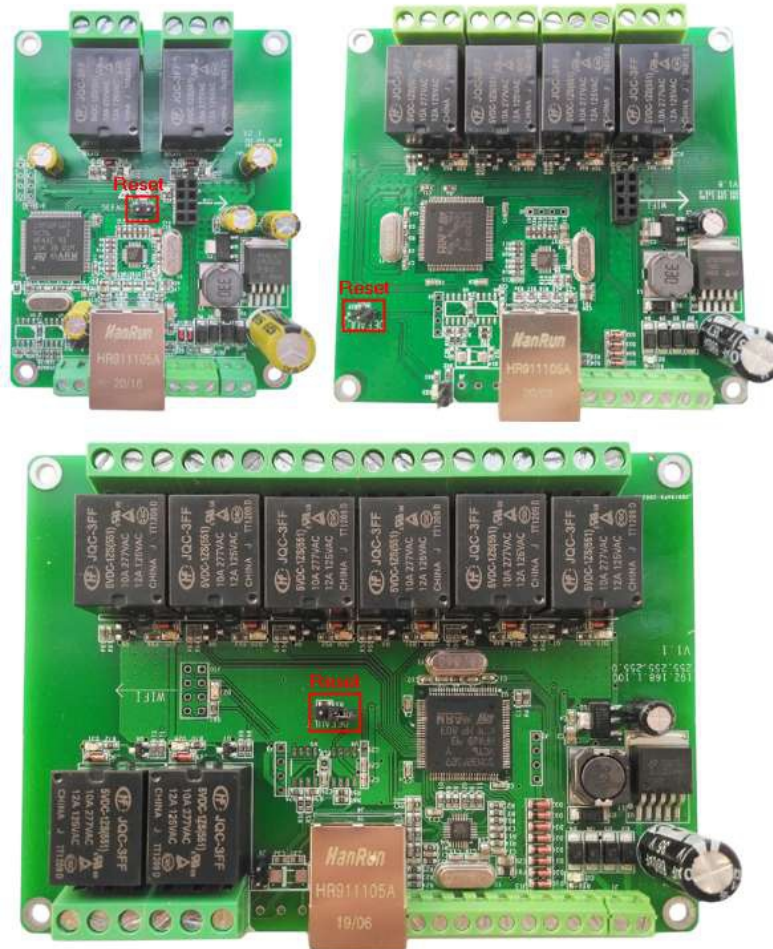


Normal Open Example

3.4 Reset To Factory

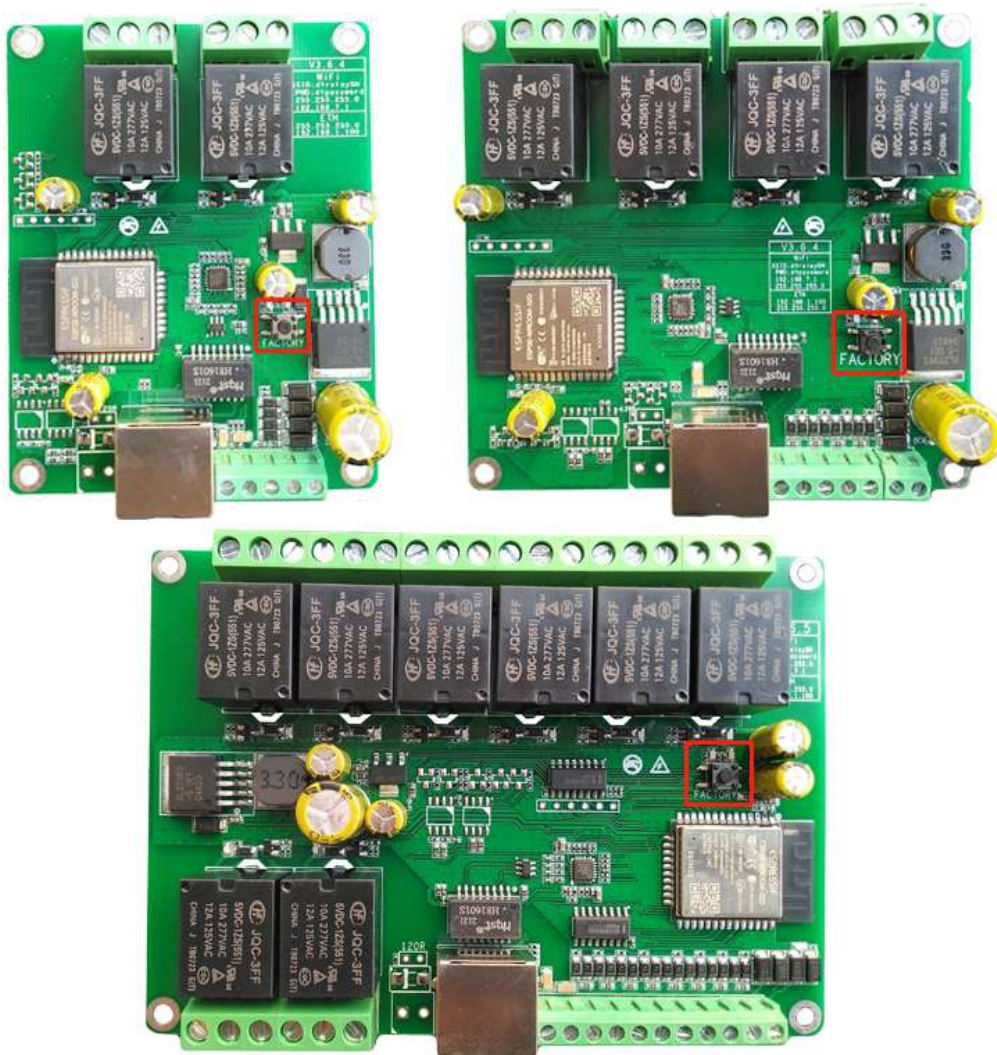
3.4.1 Hardware Version <V3.x.x

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

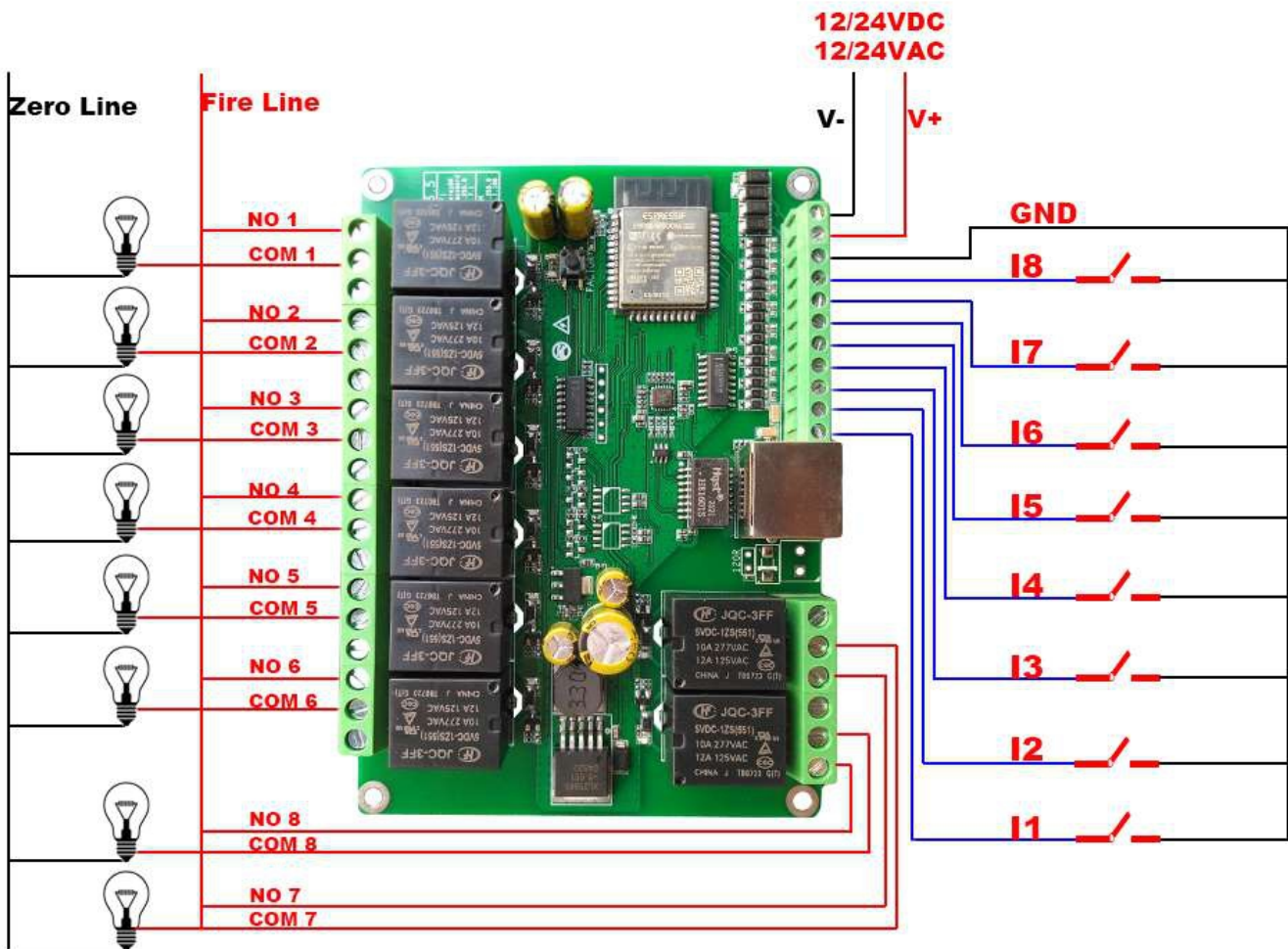
3.4.2 Hardware Version >=V3.x.x



- 1 power on relay board,wait 10 sec ond
- 2 press "FACTORY" button(left light will ON)
- 3 wait 5 sec ond(right light will ON)
- 4 release "FACTORY" button
- 5 relay board will reset all parameter to factory.

3.5 Input Output and Power wiring diagram

	LOW	HIGH
Hardware Version < V1.8	0V	3.3V
Hardware Version >= V1.8	0V	3.3V~24V

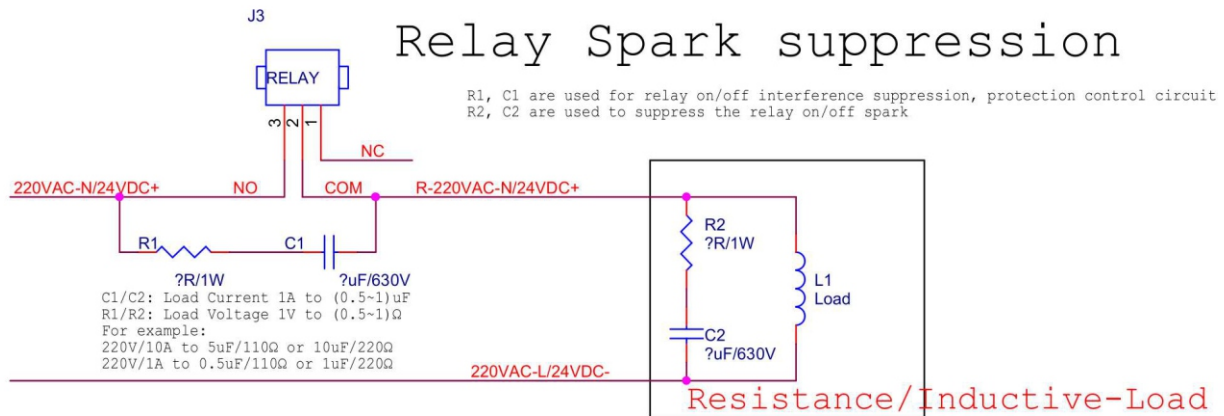


3.6 Add Spark killer and contractor

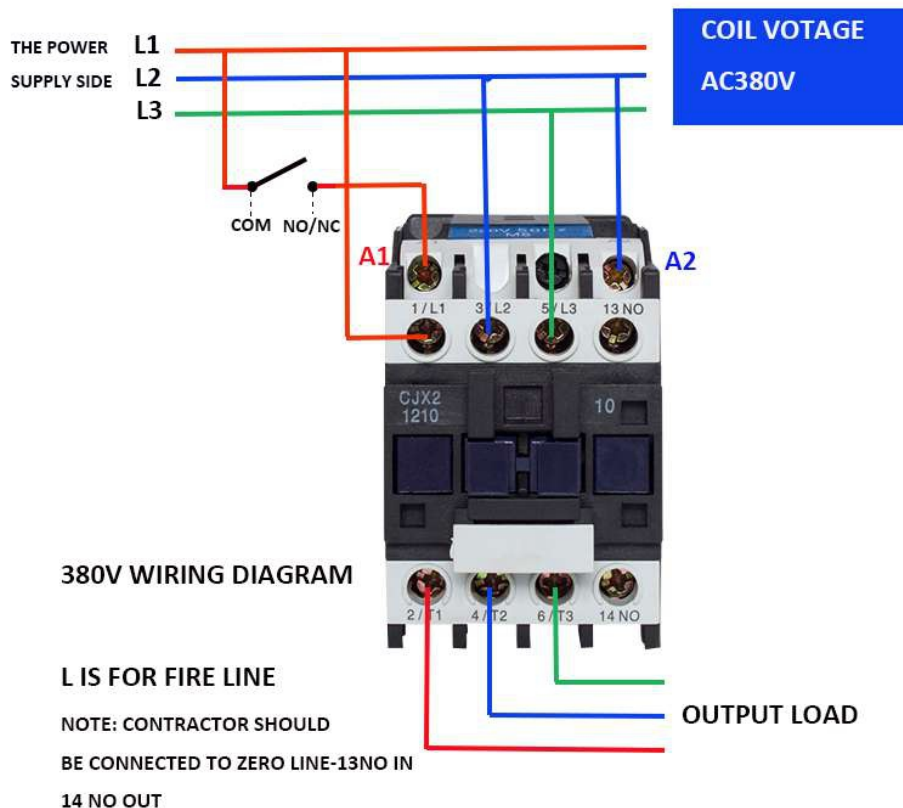
R1,C1 are used for relay on/off interference suppression, protection control circuit

R2,C2 are used to suppress the Load spark and noise when relay ON/OFF

Most of time the Load comes with the best R2+C2,so we don't need care R2 and C2

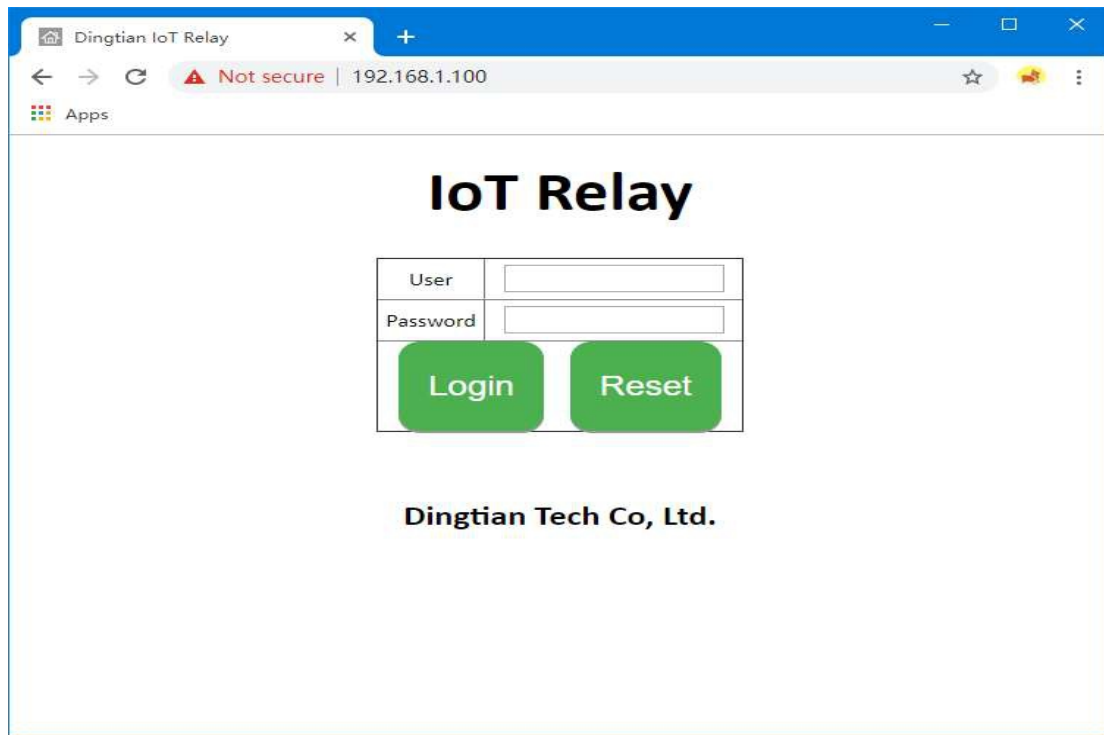


Our max current is 10A, if the current of your device is too big, suggest add a contractor



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 will 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

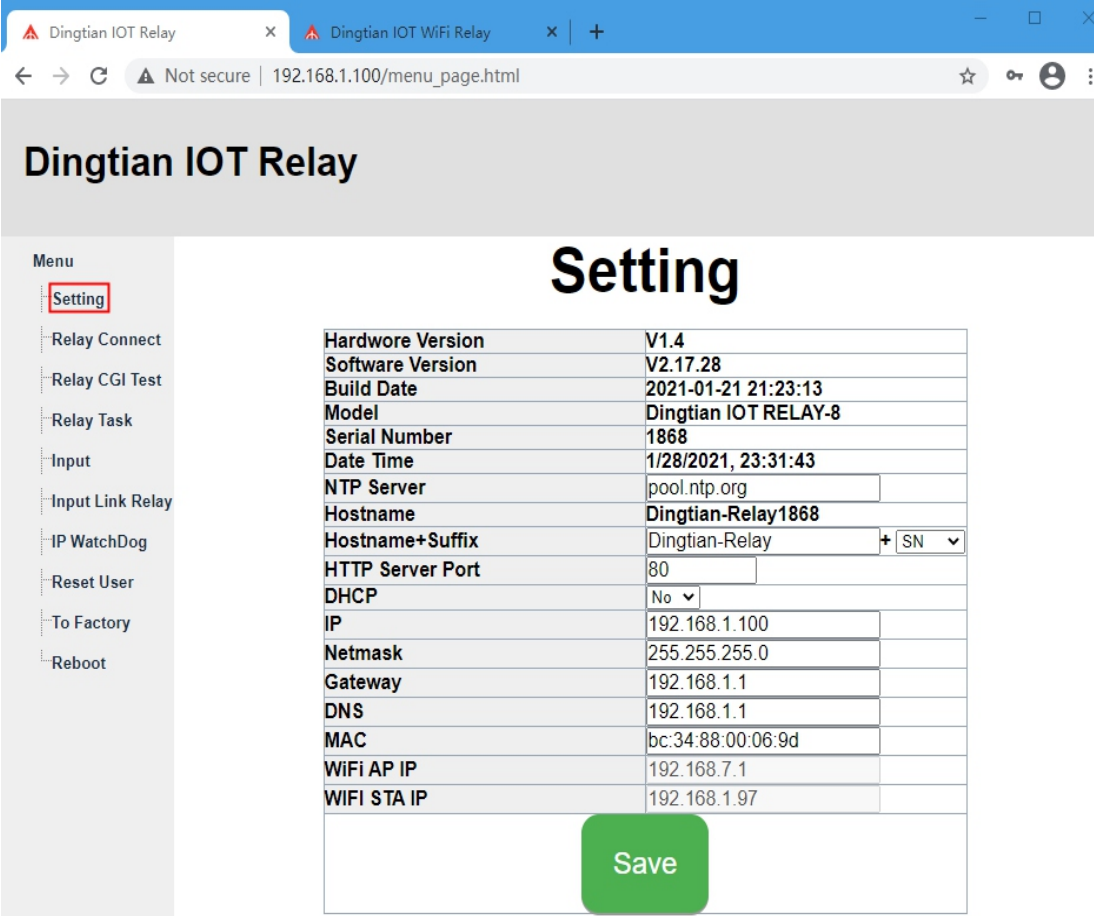
IP: Ethernet current IP Address

Netmask: Ethernet current Netmask

Gateway: Ethernet current Gateway

DNS: Ethernet current DNS Server

MAC: Ethernet current MAC address



Dingtian IOT Relay

Menu

- Setting
- Relay Connect
- Relay CGI Test
- Relay Task
- Input
- Input Link Relay
- IP WatchDog
- Reset User
- To Factory
- Reboot

Setting

Hardware Version	V1.4
Software Version	V2.17.28
Build Date	2021-01-21 21:23:13
Model	Dingtian IOT RELAY-8
Serial Number	1868
Date Time	1/28/2021, 23:31:43
NTP Server	pool.ntp.org
Hostname	Dingtian-Relay1868
Hostname+Suffix	Dingtian-Relay + [SN ▼]
HTTP Server Port	80
DHCP	No ▼
IP	192.168.1.100
Netmask	255.255.255.0
Gateway	192.168.1.1
DNS	192.168.1.1
MAC	bc:34:88:00:06:9d
WiFi AP IP	192.168.7.1
WiFi STA IP	192.168.1.97

Save

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 3.5

Dingtian IOT Relay

Relay

Channel	Protocol	Addr	Baud	Datubits	Stopbits	Parity
RS485	Modbus-RTU	ID	115200bps	8bit	1bit	None
CAN	Dinglian String	ID	Speed			
		1	125Kbps			
ETH-UDP1	Dinglian Binary	Remote Address		Remote Port	Local Port	
		192.168.1.9		60000	60000	
ETH-UDP2	Dinglian String	Remote Address		Remote Port	Local Port	
		192.168.1.9		60001	60001	
ETH-TCP Server	Modbus-TCP				Local Port	
					502	
ETH-TCP Client	Modbus-RTU Over TCP	Remote Address		Remote Port		
		192.168.1.9		502		
ETH-MQTT	MQTT	Broker Address		Broker Port	Broker Username	Broker Password
		192.168.1.9		1883	mqtt	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	Momentary	Momentary	Momentary
Momentary	Momentary	Momentary	Momentary

Save

Relay Test

Relay1:On Relay2:On Relay3:On Relay4:On

Relay5:On Relay6:On Relay7:On Relay8:On

4.4 Relay CG I Test

relay CGI test

Relay CGI Test

Relay Password 0 (0~9999)

Relay	Status	Jogging(1~255 100ms)	Delay(1~65535 Second)	On/Off	Jogging	Delay	
1	On	On 5 500ms	On 5 second		Do Off	Do Jogging	Do Delay
2	On	On 5 500ms	On 5 second		Do Off	Do Jogging	Do Delay
3	On	On 5 500ms	On 5 second		Do Off	Do Jogging	Do Delay
4	On	On 5 500ms	On 5 second		Do Off	Do Jogging	Do Delay
5	On	On 5 500ms	On 5 second		Do Off	Do Jogging	Do Delay
6	On	On 5 500ms	On 5 second		Do Off	Do Jogging	Do Delay
7	On	On 5 500ms	On 5 second		Do Off	Do Jogging	Do Delay
8	On	On 5 500ms	On 5 second		Do Off	Do Jogging	Do Delay

Relay CGI load success!

4.5 Relay Task

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

Relay Task

Relay task begin time

Task	Enable	Relay Mode	On/Off	Delay/Jogging	Repeat	Week	Month	Day	Hour	Minute	Second	Interval	
1	Yes	1	On/Off	On	0	No	SUN MON TUE WED THU FRI SAT	2	6	17	32	31	0
2	No	1	On/Off	On	0	No	SUN MON TUE WED THU FRI SAT	1	1	0	0	0	0
3	No	1	On/Off	On	0	No	SUN MON TUE WED THU FRI SAT	1	1	0	0	0	0
4	No	1	On/Off	On	0	No	SUN MON TUE WED THU FRI SAT	1	1	0	0	0	0
5	No	1	On/Off	On	0	No	SUN MON TUE WED THU FRI SAT	1	1	0	0	0	0

4.6 Input

The screenshot shows a web browser window with two tabs: "Dingtian IOT Relay" and "Dingtian IOT WiFi Relay". The address bar shows "Not secure | 192.168.1.100". The main content area is titled "Dingtian IOT Relay" and features a sidebar menu on the left with the following items: Setting, Relay Connect, Relay CGI Test, Relay Task, **Input** (highlighted with a red box), Input Link Relay, IP WatchDog, Reset User, To Factory, and Reboot. The main content area displays "Input Test" with a table of 8 columns and 2 rows. The first row contains the numbers 1 through 8. The second row contains the text "0HighHighHighHighHighHighHighHigh". Below the table, the text "success!" is displayed.

1	2	3	4	5	6	7	8
0	High	High	High	High	High	High	High

success!

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

Input Link Relay

Input	ON (Action ON)	ON (Action OFF)	OFF (Action ON)	OFF (Action OFF)
I1	R1	R1	R1	R1
I2	R1	R2	R1	R1
I3	R1	R3	R1	R1
I4	R1	R4	R1	R1
I5	R1	R5	R1	R1
I6	R1	R6	R1	R1
I7	R1	R7	R1	R1
I8	R1	R8	R1	R1

How to: Select Add/Click Delete

Save

load success!

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"

IP WatchDog

Enable IP WatchDog

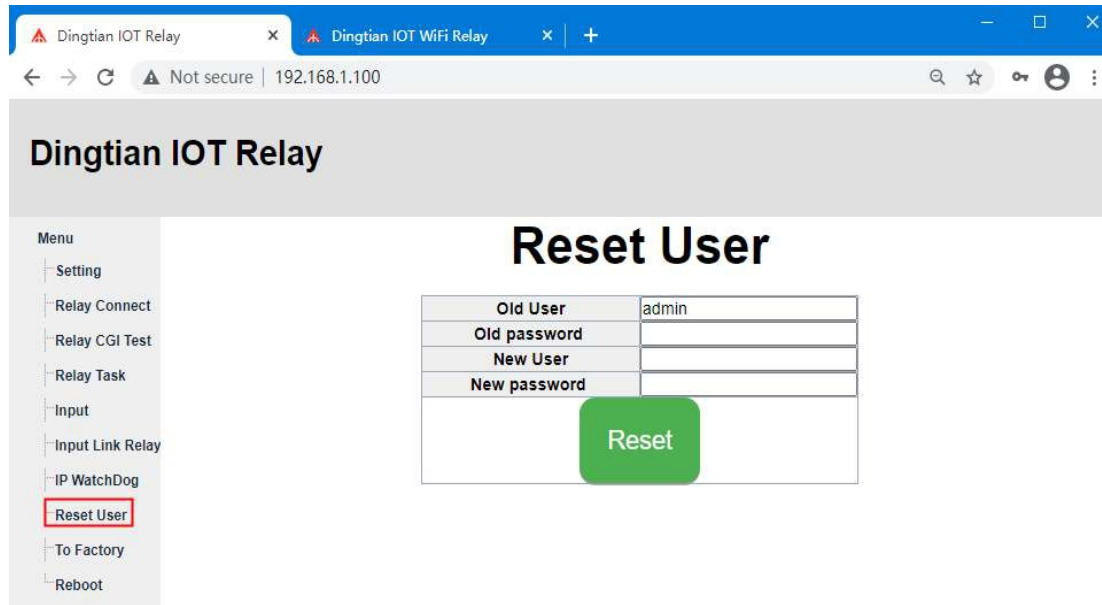
WatchDog	Enable	Off Relay	Watch IP	Relay Off	Ping Interval	Ping Timeout	Ping Retry Times	Offline Action Time
1 offline	Yes	R1	8.8.8.8	10	2	1	60	00:02:00
2 offline	Yes	R1	192.168.1.1	10	2	1	30	00:01:00
3 offline	Yes	R1	192.168.1.2	10	2	1	30	00:01:00
4 offline	Yes	R1	192.168.1.3	10	2	1	30	00:01:00
5 offline	Yes	R1	192.168.1.4	10	2	1	30	00:01:00
6 offline	Yes	R1	192.168.1.5	10	2	1	30	00:01:00
7 offline	Yes	R1	192.168.1.6	10	2	1	30	00:01:00
8 offline	Yes	R1	192.168.1.7	10	2	1	30	00:01:00
9 offline	Yes	R1	192.168.1.8	10	2	1	30	00:01:00

Off Relay: Select Add/Click Delete
"Ping Interval" Must Greater than "Ping Timeout"

Save

load success!

4.9 Reset User

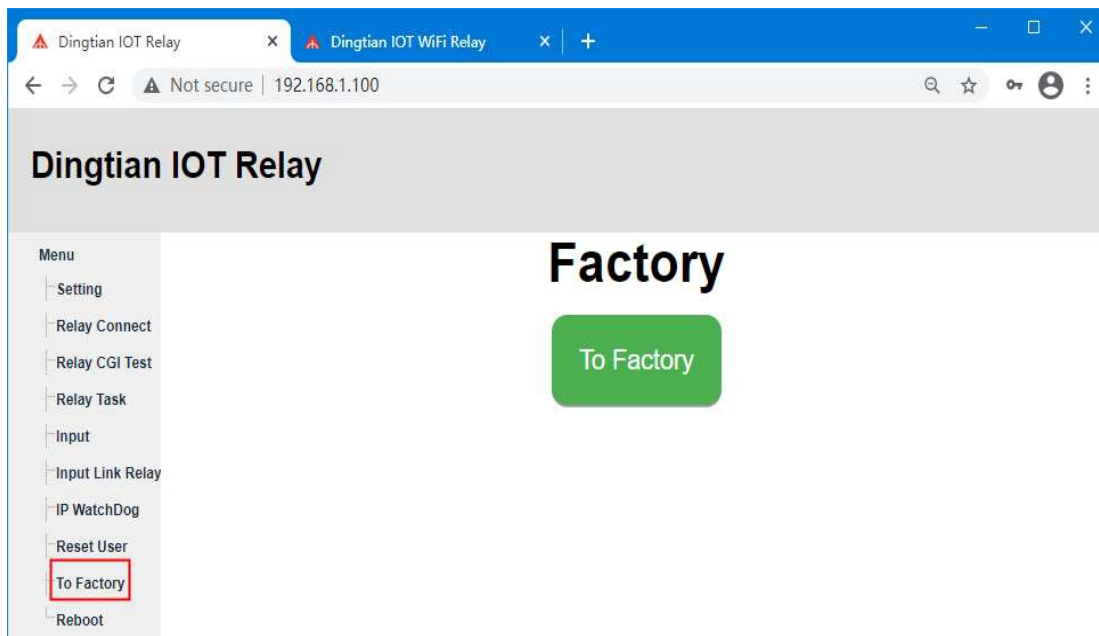


The screenshot shows a web browser window with two tabs: 'Dingtian IOT Relay' and 'Dingtian IOT WiFi Relay'. The address bar shows 'Not secure | 192.168.1.100'. The page title is 'Dingtian IOT Relay'. On the left, a 'Menu' sidebar lists various options, with 'Reset User' highlighted in a red box. The main content area is titled 'Reset User' and contains a form with the following fields:

Old User	admin
Old password	
New User	
New password	

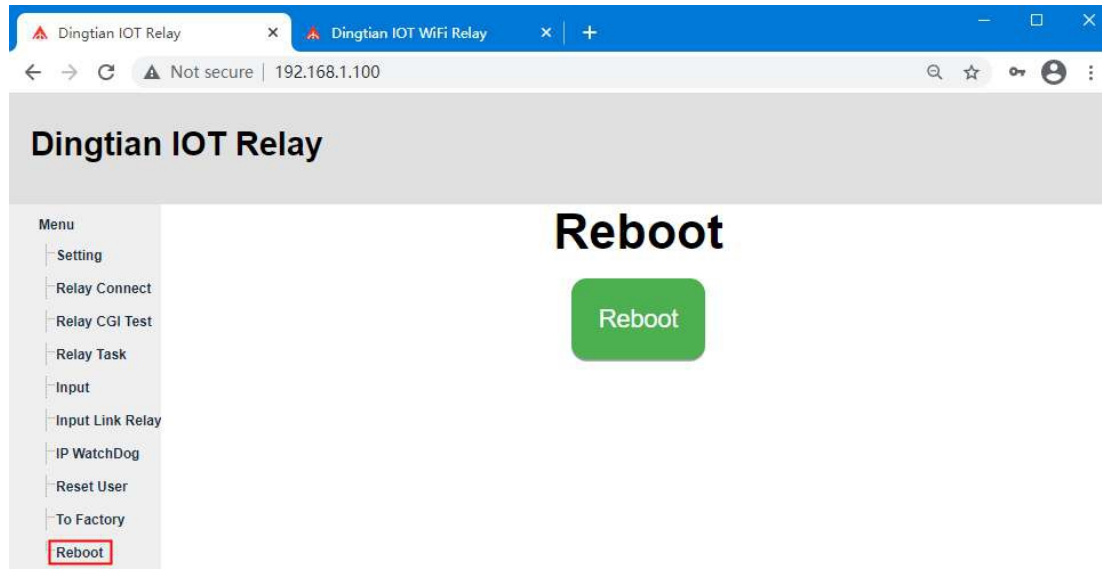
Below the form is a green button labeled 'Reset'.

4.10 To Factory



The screenshot shows the same web browser window as in the previous image. The page title is 'Dingtian IOT Relay'. In the 'Menu' sidebar, 'To Factory' is highlighted in a red box. The main content area is titled 'Factory' and features a large green button labeled 'To Factory'.

4.11 Reboot



5 WIFI web Page

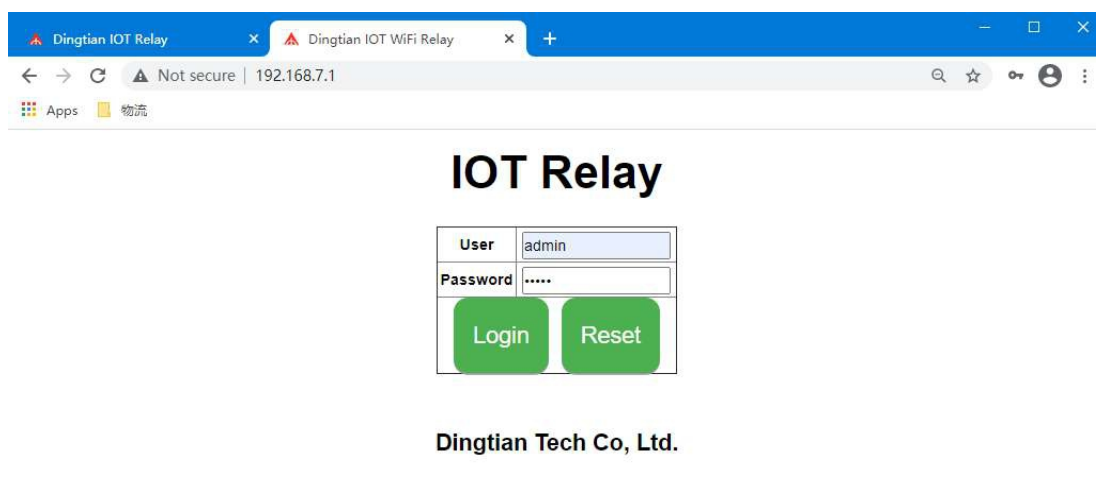
IE is not support, please use firefox and chrome

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

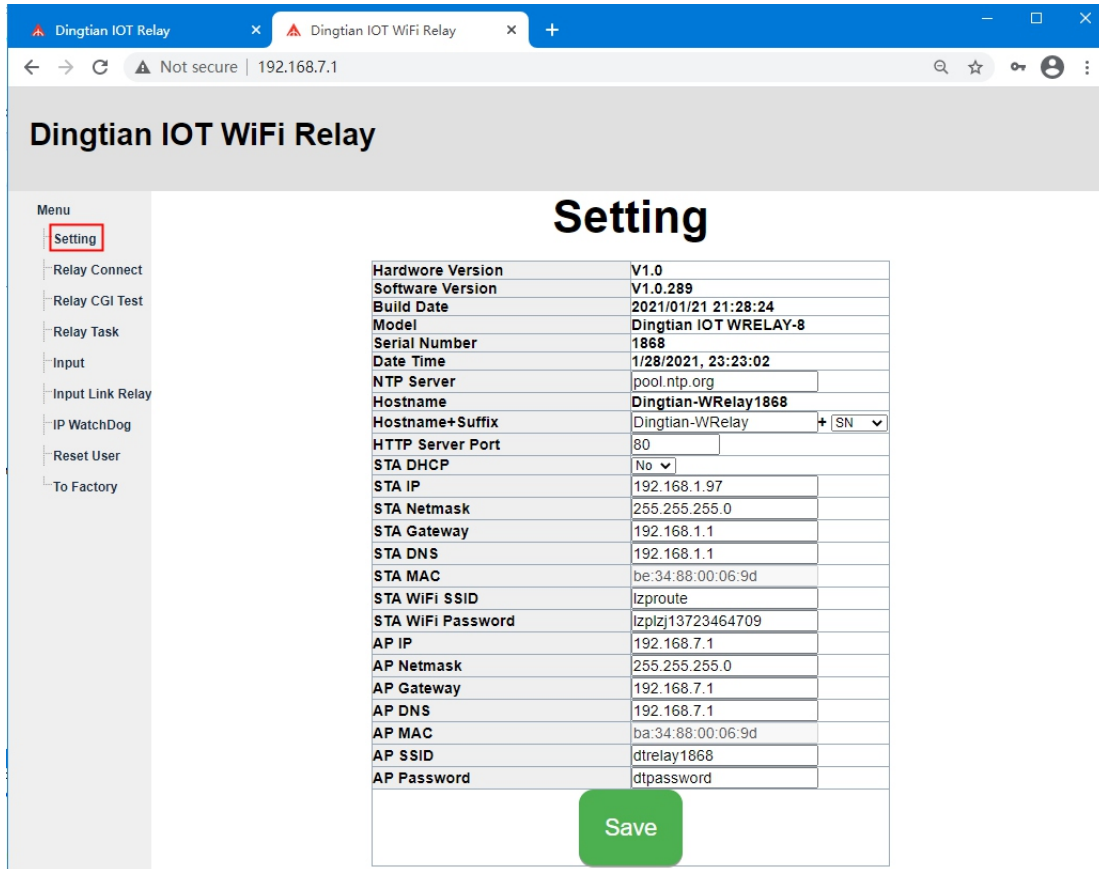
MAC: WIFI MAC address

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

Dingtian IOT WiFi Relay

Relay

Menu

- Setting
- Relay Connect**
- Relay CGI Test
- Relay Task
- Input
- Input Link Relay
- IP WatchDog
- Reset User
- To Factory

Channel	Protocol	Remote Address	Remote Port	Local Port
WIFI-UDP1	Dingtian Binary	192.168.1.9	60000	60000
WIFI-UDP2	Dingtian String	192.168.1.9	60001	60001
WIFI-TCP Server	Modbus-TCP			502
WIFI-TCP Client	Modbus-RTU Over TCP		502	
WIFI-MQTT	MQTT	Broker Address	Broker Port	Broker Username
			1883	mqtt
				123

Other	
Relay Password	0 ~ 9999 (0 no password)
Keep Alive Second	30 ~ 120 second (0 close)
Jogging Time	5 ~ 255 (1=100ms)

Save

Relay Test

Relay1:Off

Relay2:Off

Relay3:Off

Relay4:Off

Relay5:Off

Relay6:Off

Relay7:Off

Relay8:Off

5.4 Relay CG I Test

Dingtian IOT WiFi Relay

Menu

- Setting
- Relay Connect
- Relay CGI Test**
- Relay Task
- Input
- Input Link Relay
- IP WatchDog
- Reset User
- To Factory

Relay CGI Test

Relay Password (0~9999)

Relay	Status	Jogging(1~255 100ms)	Delay(1~65535 Second)	On/Off	Jogging	Delay
1	Off	<input type="text" value="5"/> 500ms	<input type="text" value="5"/> second	Do On	Do Jogging	Do Delay
2	Off	<input type="text" value="5"/> 500ms	<input type="text" value="5"/> second	Do On	Do Jogging	Do Delay
3	Off	<input type="text" value="5"/> 500ms	<input type="text" value="5"/> second	Do On	Do Jogging	Do Delay
4	Off	<input type="text" value="5"/> 500ms	<input type="text" value="5"/> second	Do On	Do Jogging	Do Delay
5	Off	<input type="text" value="5"/> 500ms	<input type="text" value="5"/> second	Do On	Do Jogging	Do Delay
6	Off	<input type="text" value="5"/> 500ms	<input type="text" value="5"/> second	Do On	Do Jogging	Do Delay
7	Off	<input type="text" value="5"/> 500ms	<input type="text" value="5"/> second	Do On	Do Jogging	Do Delay
8	Off	<input type="text" value="5"/> 500ms	<input type="text" value="5"/> second	Do On	Do Jogging	Do Delay

Relay CGI load success!

5.5 Relay Task

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

Dingtian IOT WiFi Relay

Relay Task

Task	Enable	Relay	Mode	On/Off	Delay/Jogging	Repeat	Week	Month	Day	Hour	Minute	Second	Interval
1	Yes	1	On/Off	On	0	No	SUN MON TUE WED THU FRI SAT	2	6	18	51	51	0
2	No	1	On/Off	On	0	No	SUN MON TUE WED THU FRI SAT	1	1	0	0	0	0
3	No	1	On/Off	On	0	No	SUN MON TUE WED THU FRI SAT	1	1	0	0	0	0
4	No	1	On/Off	On	0	No	SUN MON TUE WED THU FRI SAT	1	1	0	0	0	0
5	No	1	On/Off	On	0	No	SUN MON TUE WED THU FRI SAT	1	1	0	0	0	0
6	No	1	On/Off	On	0	No	SUN MON TUE WED THU FRI SAT	1	1	0	0	0	0

5.6 Input

Dingtian IOT WiFi Relay

Input Test

1	2	3	4	5	6	7	8
0	High	High	High	High	High	High	High

success!

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

Dingtian IOT WiFi Relay

Menu

- Setting
- Relay Connect
- Relay CGI Test
- Relay Task
- Input
- Input Link Relay**
- IP WatchDog
- Reset User
- To Factory

Input Link Relay

Input	ON (Action ON)	ON (Action OFF)	OFF (Action ON)	OFF (Action OFF)
I1	R1	R1	R1	R1
I2	R1	R2	R1	R2
I3	R1	R3	R1	R3
I4	R1	R4	R1	R4
I5	R1	R5	R1	R5
I6	R1	R6	R1	R6
I7	R1	R7	R1	R7
I8	R1	R8	R1	R8

How to: Select Add/Click Delete

Save

load success!

5.8 IP WatchDog

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

Dingtian IOT WiFi Relay

Menu

- Setting
- Relay Connect
- Relay CGI Test
- Relay Task
- Input
- Input Link Relay
- IP WatchDog**
- Reset User
- To Factory

IP WatchDog

Enable IP WatchDog

WatchDog	Enable	Off Relay	Watch IP	Relay Off	Ping Interval	Ping Timeout	Ping Retry Times	Offline Action Time
1 offline	Yes	R1	R1	8.8.8.8	10 S	2 S	1 S	60
2 offline	Yes	R1	R1	192.168.1.1	10 S	2 S	1 S	30
3 offline	Yes	R1	R2	192.168.1.2	10 S	2 S	1 S	30
4 offline	Yes	R1	R3	192.168.1.3	10 S	2 S	1 S	30
5 offline	Yes	R1	R4	192.168.1.4	10 S	2 S	1 S	30
6 offline	Yes	R1	R5	192.168.1.5	10 S	2 S	1 S	30
7 offline	Yes	R1	R6	192.168.1.6	10 S	2 S	1 S	30
8 offline	Yes	R1	R7	192.168.1.7	10 S	2 S	1 S	30
9 offline	Yes	R1	R8	192.168.1.8	10 S	2 S	1 S	30

Off Relay: Select Add/Click Delete
"Ping Interval" Must Greater than "Ping Timeout"

Save

load success!

5.9 Reset User

The screenshot shows a web browser window with two tabs: 'Dingtian IOT Relay' and 'Dingtian IOT WiFi Relay'. The address bar shows 'Not secure | 192.168.7.1'. The page title is 'Dingtian IOT WiFi Relay'. On the left, a menu is visible with 'Reset User' highlighted in red. The main content area displays 'Reset User' in large text. Below it is a form with the following fields:

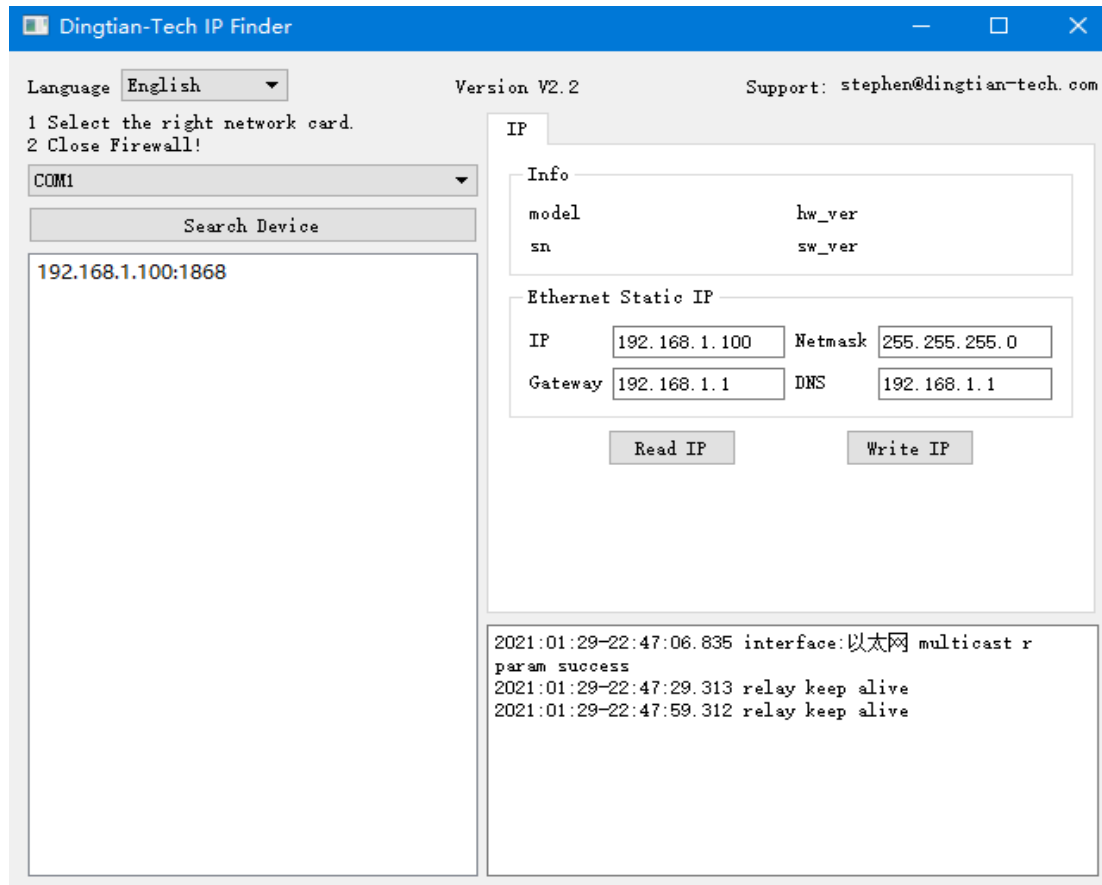
Old User	admin
Old password	
New User	
New password	

Below the form is a green button labeled 'Reset'.

5.10 To Factory

The screenshot shows the same web browser window as above. The page title is 'Dingtian IOT WiFi Relay'. The menu on the left has 'To Factory' highlighted in red. The main content area displays 'Factory' in large text. Below it is a green button labeled 'To Factory'.

6 IP Finder

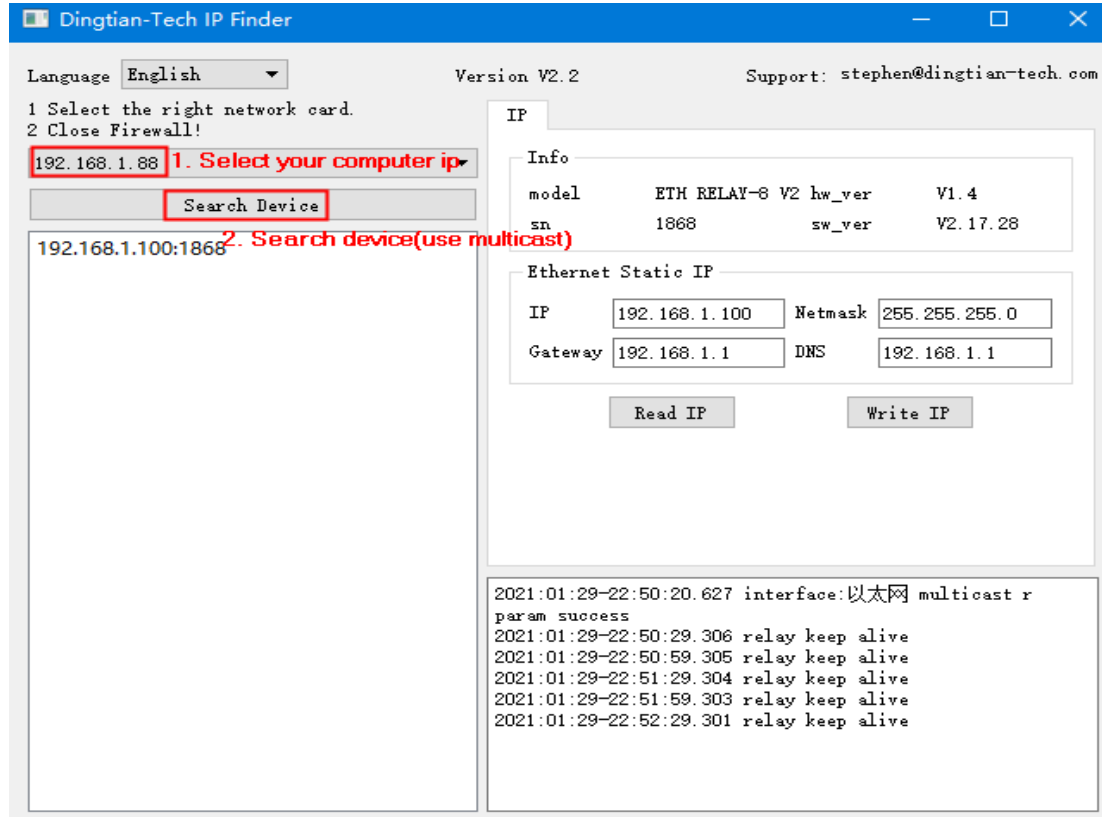


Notice:

please close all firewall, security software (windows defender/firewall also must close) otherwise nothing will be found

6.1 Search Device

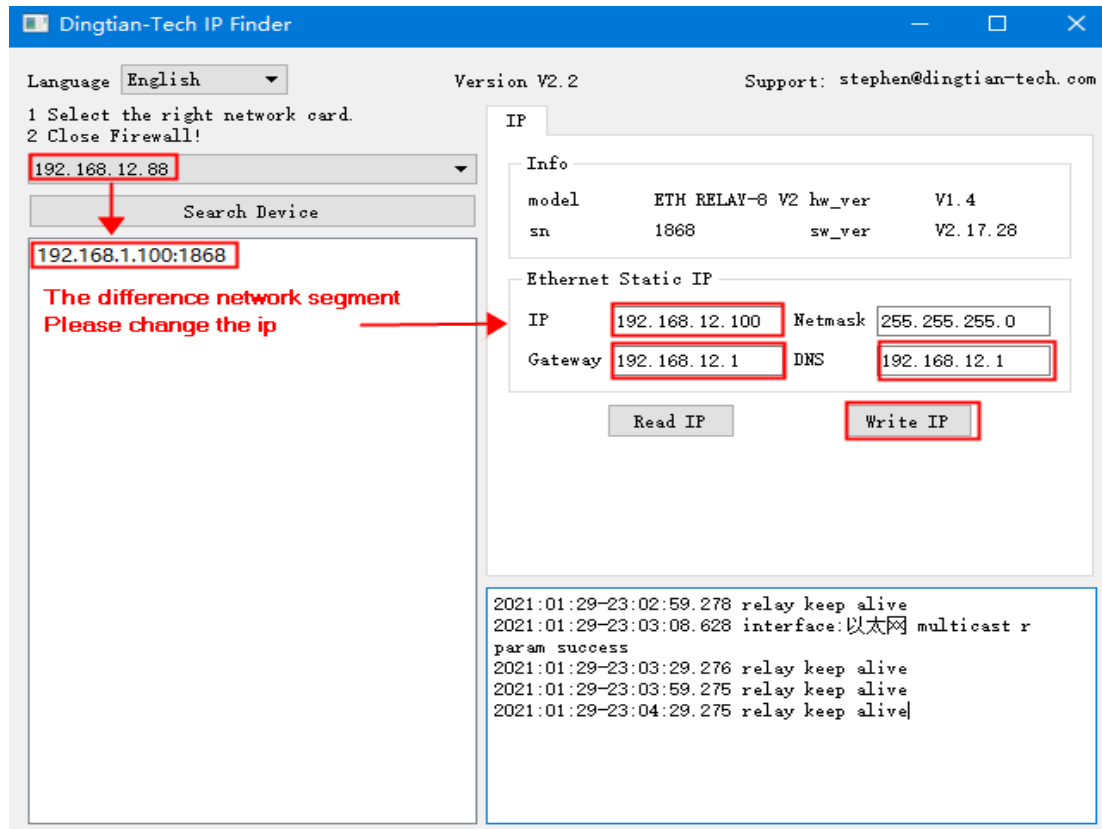
Note: When you use IP Finder to check your relay board ip, please keep your computer just connect with one relay board and the communication of relay board just has one(only Ethernet or WIFI)



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

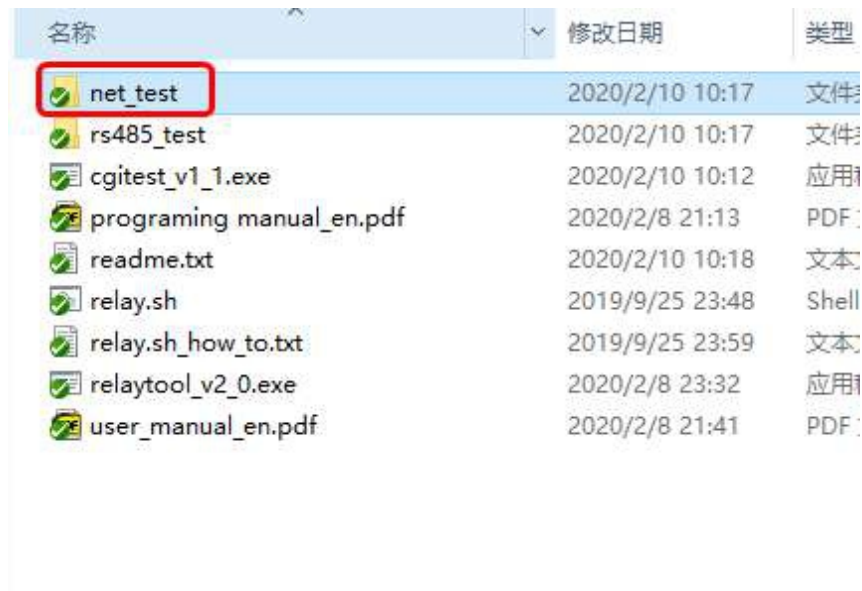
we can find network tool in SDK

http://www.dingtian-tech.com/sdk/relay_sdk.zip

unzip relay_sdk.zip

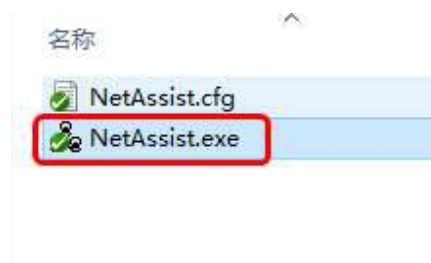
network tool name is net_test

rs485 tool name is rs485_test



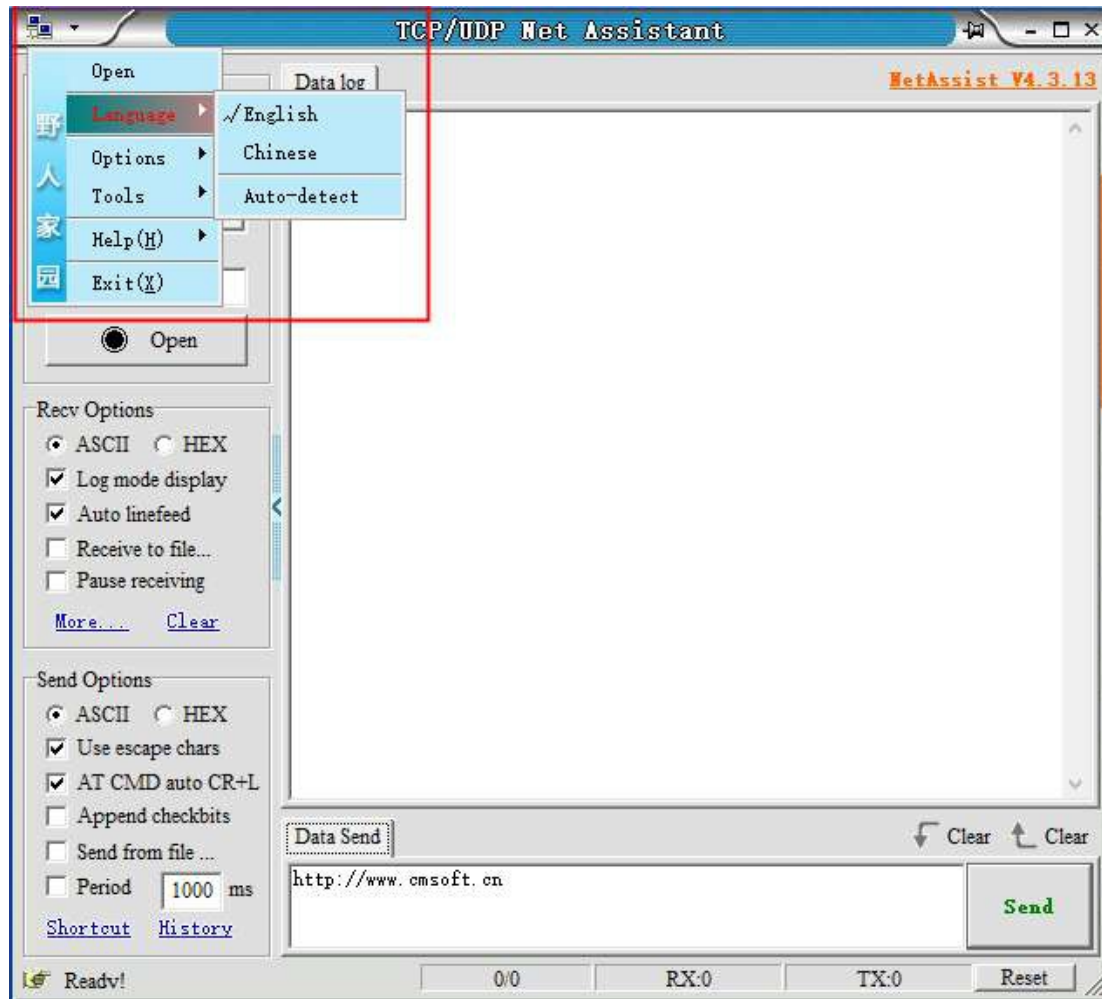
名称	修改日期	类型
net_test	2020/2/10 10:17	文件
rs485_test	2020/2/10 10:17	文件
cgitest_v1_1.exe	2020/2/10 10:12	应用
programming manual_en.pdf	2020/2/8 21:13	PDF
readme.txt	2020/2/10 10:18	文本
relay.sh	2019/9/25 23:48	Shell
relay.sh_how_to.txt	2019/9/25 23:59	文本
relaytool_v2_0.exe	2020/2/8 23:32	应用
user_manual_en.pdf	2020/2/8 21:41	PDF

Access directory "net_test"



名称
NetAssist.cfg
NetAssist.exe

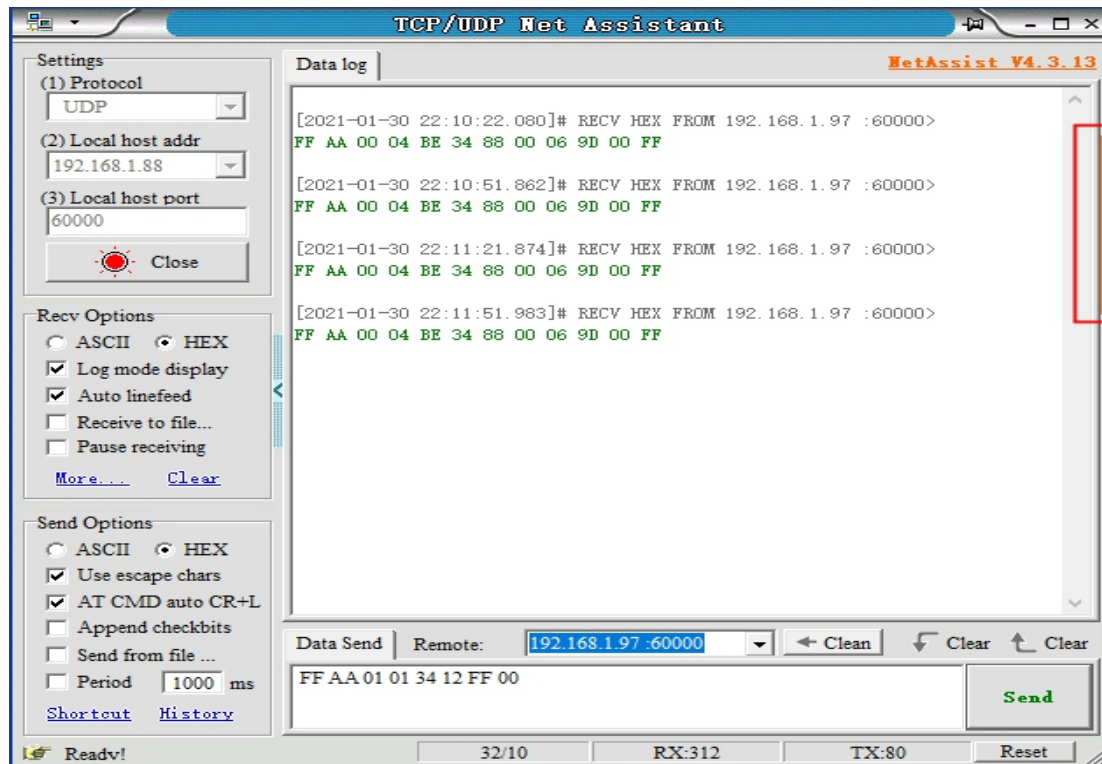
step 2: Change NetAssist language

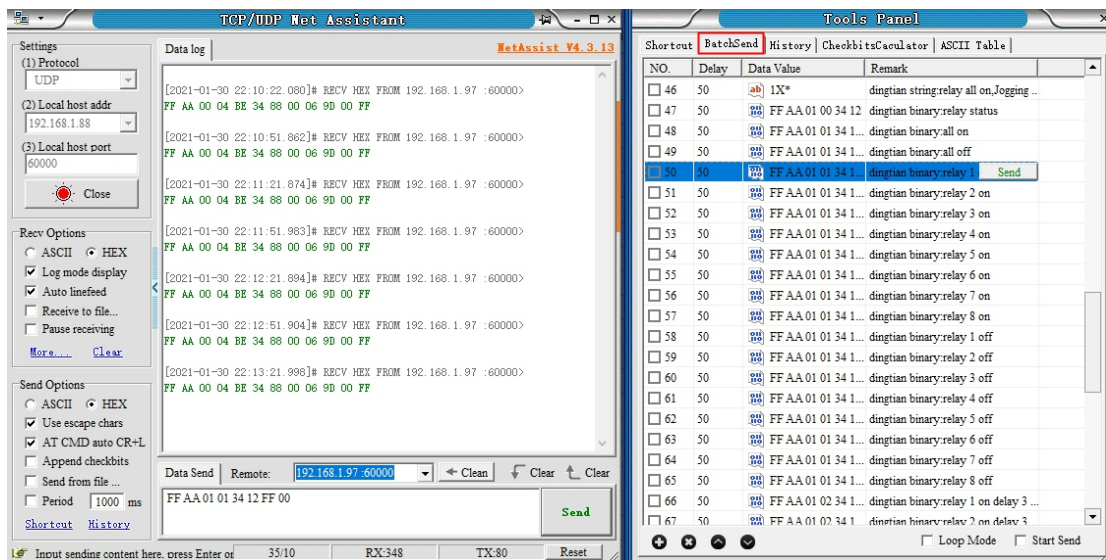
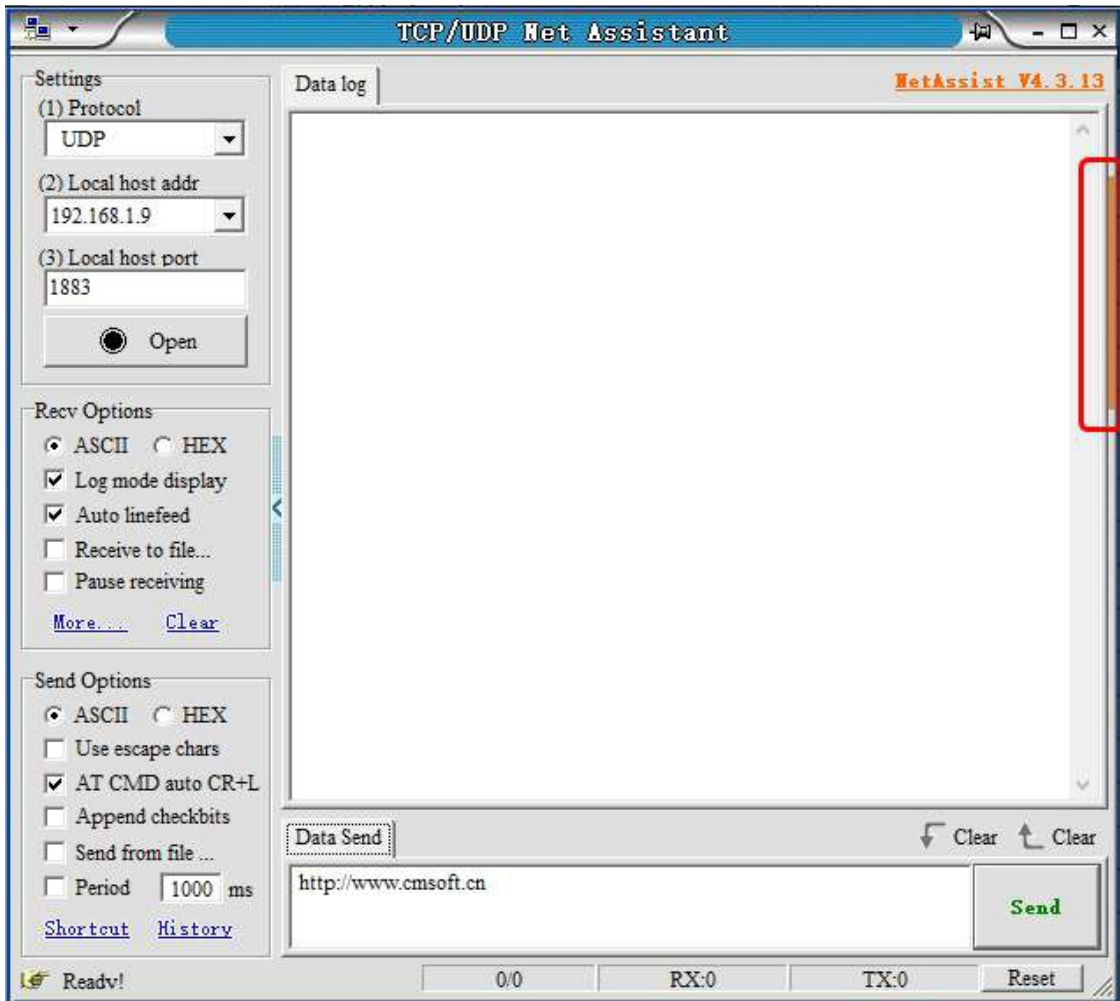


step 3: Control relay via NetAssist network tool by wifi module

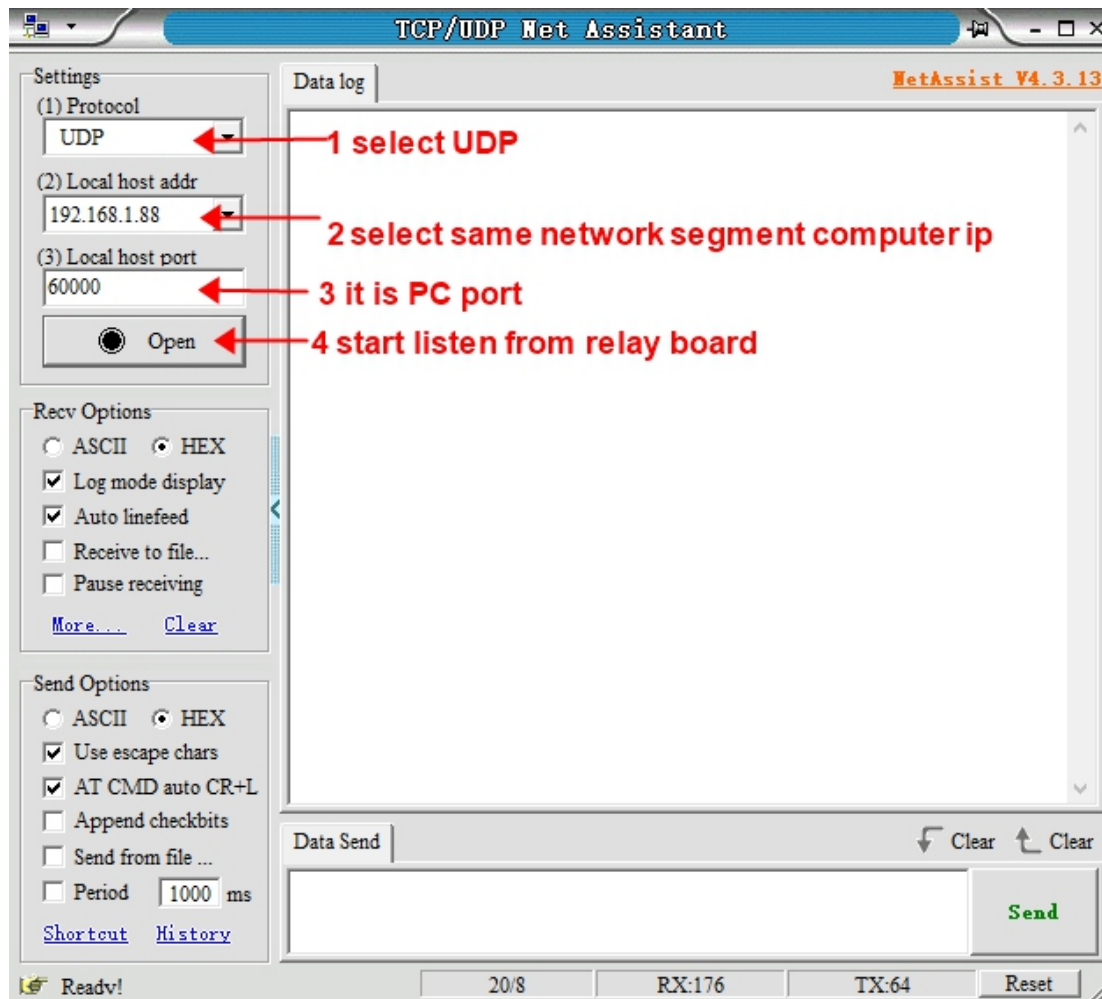
open NetAssist.exe

Shown in red box, open expansion panel

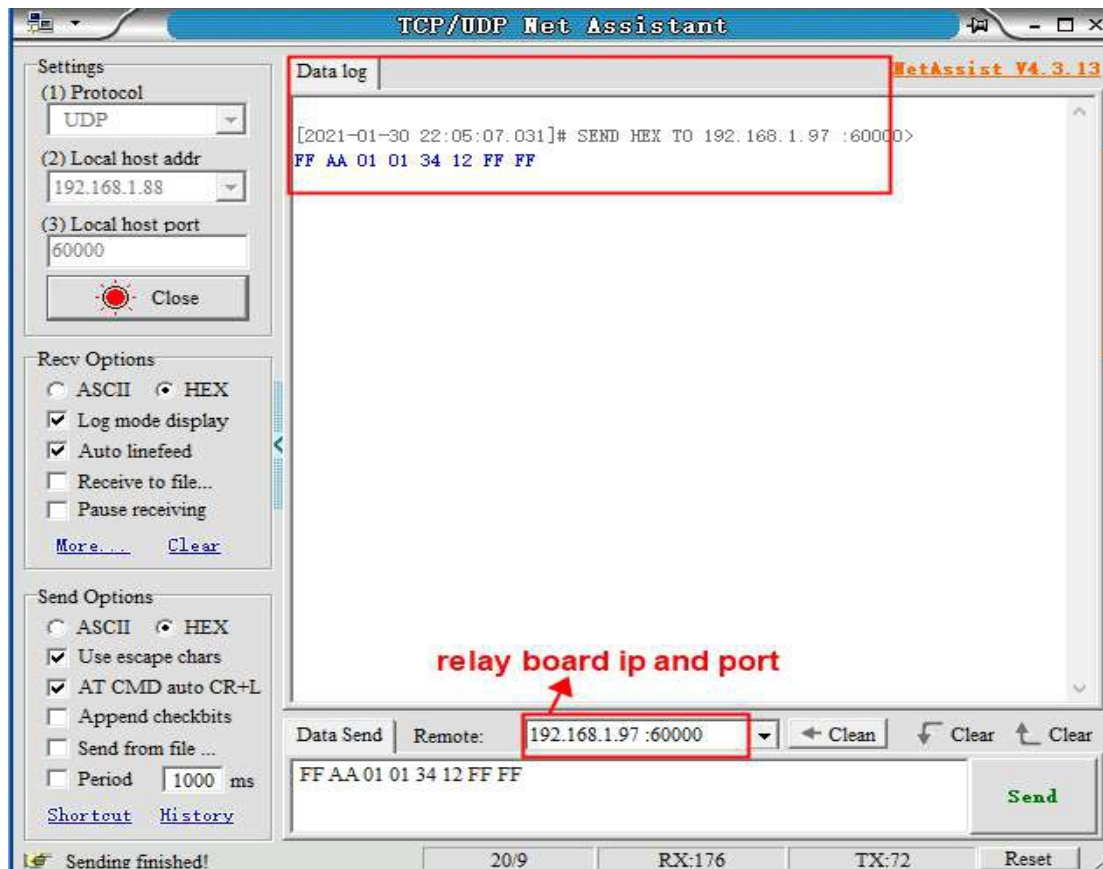




step 4: open UDP listen.



now relay board send relay status to pc via wifi module

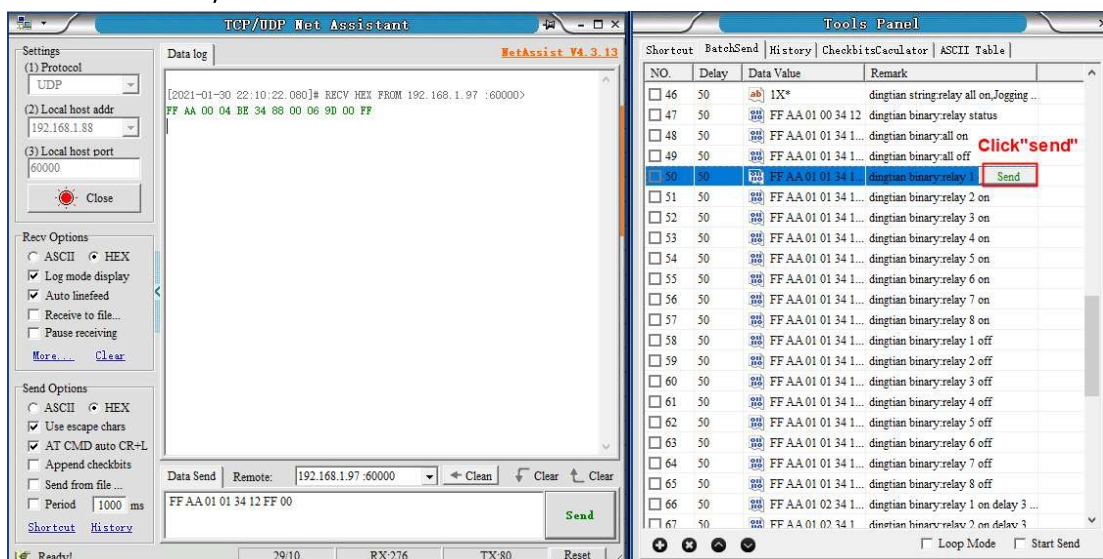


step 5: control relay via wifi module

NetAssist tool saved preset c ommand

we only need send to relay board via netAssist

like below set relay 1 on



Appendix II How to use Domoticz

Notice:

- 1 Close your firewall
- 2 All c command and script run as root/administrator
- 3 please step by step

Please install domotiz first

https://releases.domoticz.com/releases/release/domoticz_windows_x86.zip

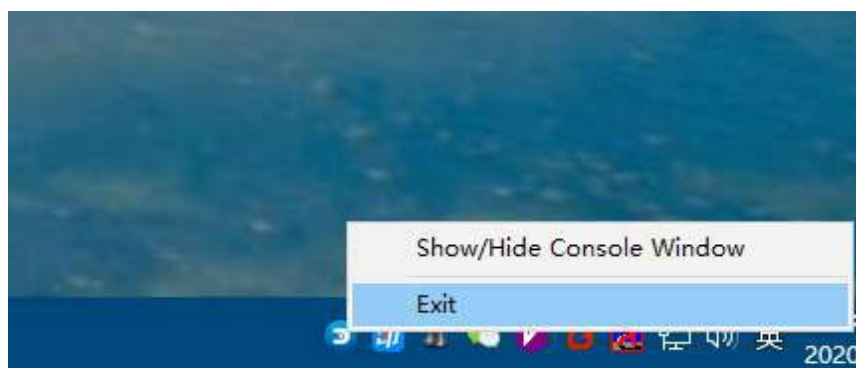
step 1: install Dingtian plugin to Domoticz

Dingtian plugin find in SDK or github

http://www.dingtian-tech.com/sdk/relay_sdk.zip

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

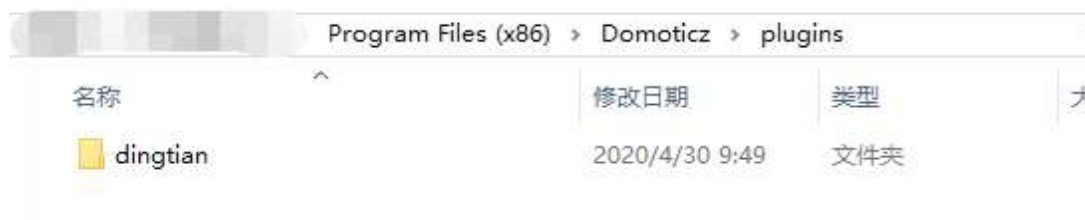
1 Stop Domoticz



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

Dingtian IOT Relay

Menu

- Setting
- Relay Connect** 1
- Relay CGI Test
- Relay Task
- Input
- Input Link Relay
- IP WatchDog
- Reset User
- To Factory
- Reboot

Relay

Channel	Protocol	Addr	Baud	Databits	Stopbits	Parity
RS485	Modbus-RTU	1	115200bps	8bit	1bit	None
CAN	Dingtian String	ID	Speed			
		1	125Kbps			
ETH-UDP1	Dingtian Binary	Remote Address	Remote Port	Local Port		
		192.168.1.9	60000	60000		2
ETH-UDP2	Dingtian String	Remote Address	Remote Port	Local Port		
		192.168.1.9	60001	60001		
ETH-TCP Server	Modbus-TCP	Domoticz server address	Local Port			
			502			
ETH-TCP Client	Modbus-RTU Over TCP	Remote Address	Remote Port			
		192.168.1.9	502			
ETH-MQTT	MQTT	Broker Address	Broker Port	Broker Username	Broker Password	
		192.168.1.9	1883	mqtt	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	Momentary	Momentary	Momentary
Momentary	Momentary	Momentary	Momentary

Save 4

Relay Test

Relay1:Off Relay2:Off Relay3:Off Relay4:Off

Relay5:Off Relay6:Off Relay7:Off Relay8:Off

Domoticz WIFI

Dingtian IOT WiFi Relay

Menu

- Setting
- Relay Connect** 1
- Relay C.GI Test
- Relay Task
- Input
- Input Link Relay
- IP WatchDog
- Reset User
- To Factory

Relay

Channel	Protocol	Remote Address	Remote Port	Local Port	
WIFI-UDP1	Dingtian Binary	192.168.1.9	60000	60000	2
WIFI-UDP2	Dingtian String	192.168.1.9	60001	60001	
WIFI-TCP Server	Modbus-TCP	Domoticz server address		Local Port 502	
WIFI-TCP Client	Modbus-RTU Over TCP	Remote Address	Remote Port 502		
WIFI-MQTT	MQTT	Broker Address	Broker Port 1883	Broker Username mqtt	Broker Password 123

Other	
Relay Password	0 0~9999(0 no password) 3
Keep Alive Second	30 1~120 second(0 close)
Jogging Time	5 1~255 (1=100ms)

Save 4

Relay Test

Relay1:Off Relay2:Off Relay3:Off Relay4:Off
Relay5:Off Relay6:Off Relay7:Off Relay8:Off

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

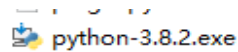
1 Install Python 3.8.2

download link:

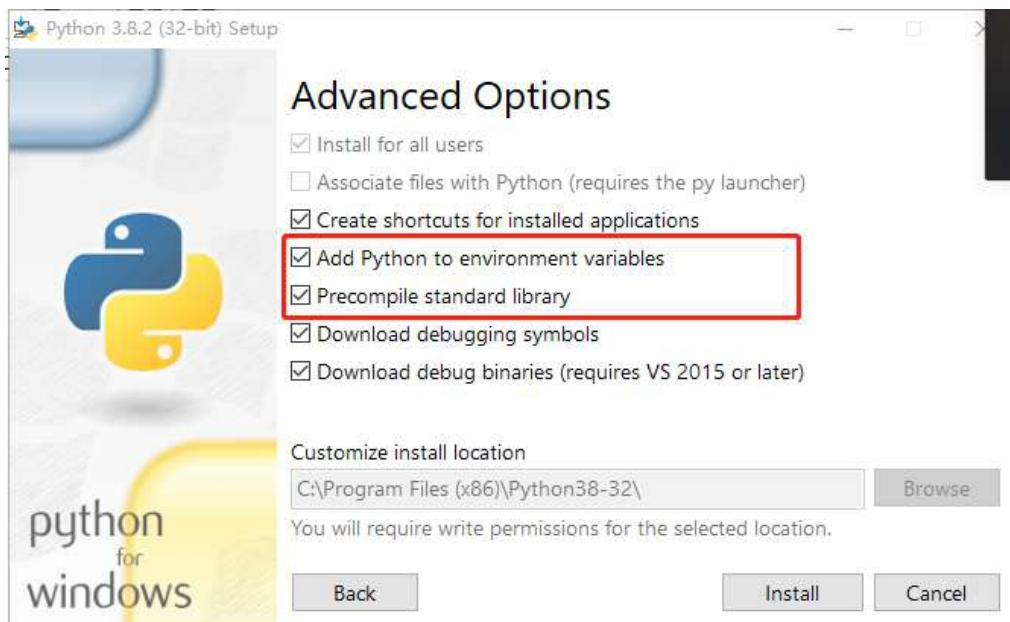
<https://www.python.org/ftp/python/3.8.2/python-3.8.2.exe>

Notice: Domoticz only support 32bit Python

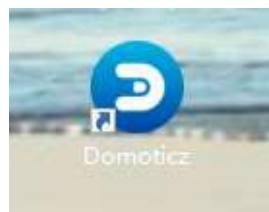
after download,install it



Add Python to environment

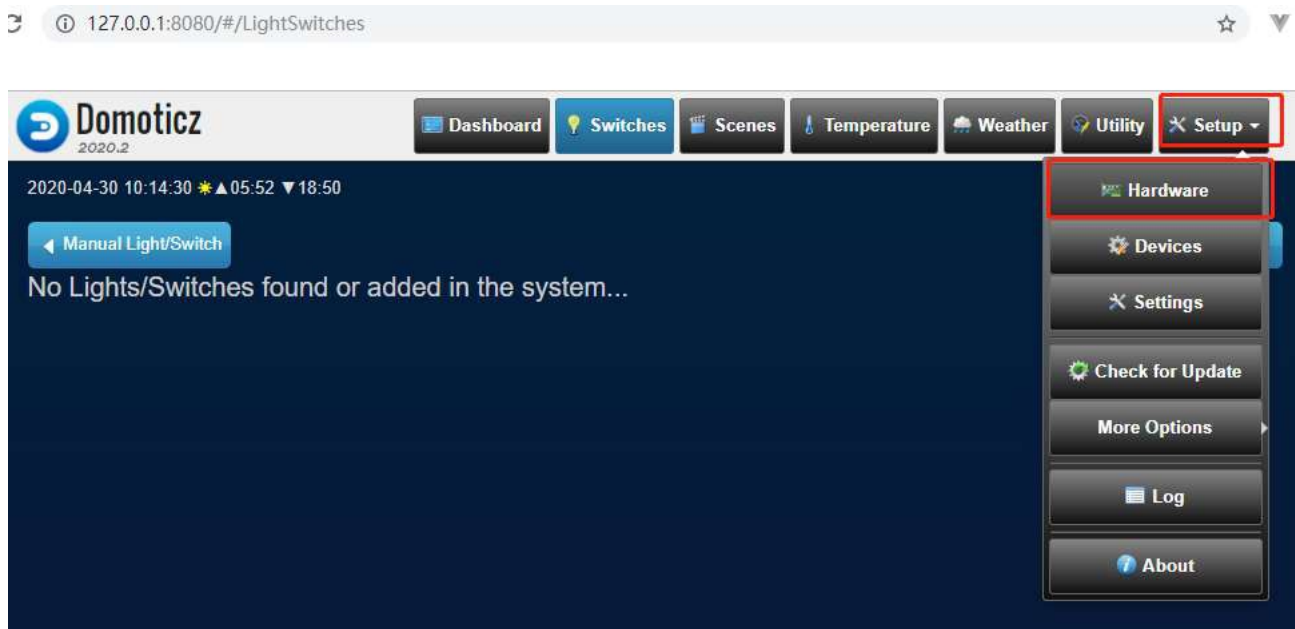


2 Run to Domoticz

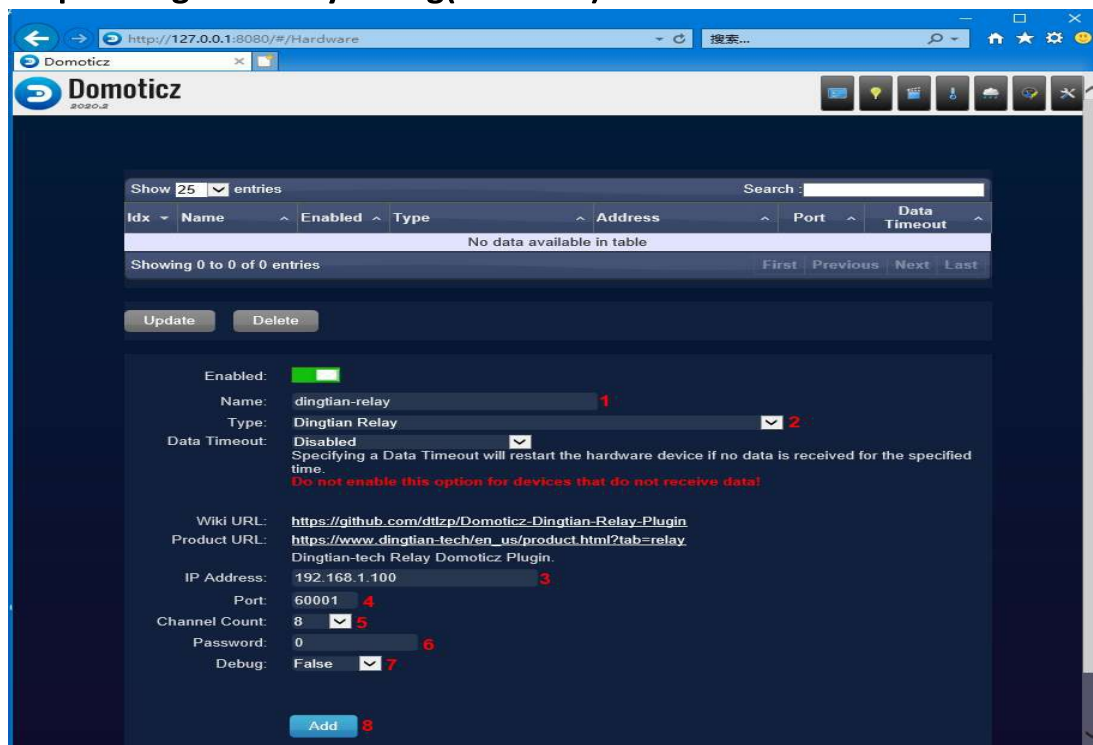


3 Add Dingtian Relay to Domoticz

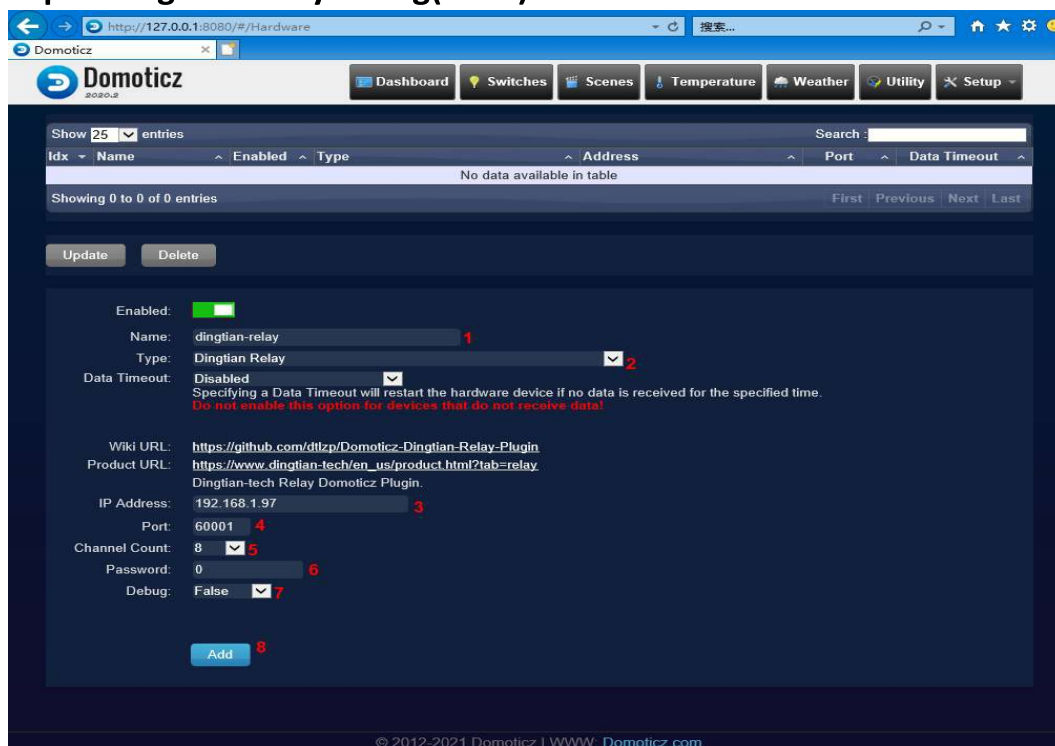
1 Find Hardware Menu



2 Input Dingtian Relay config(Ethernet)



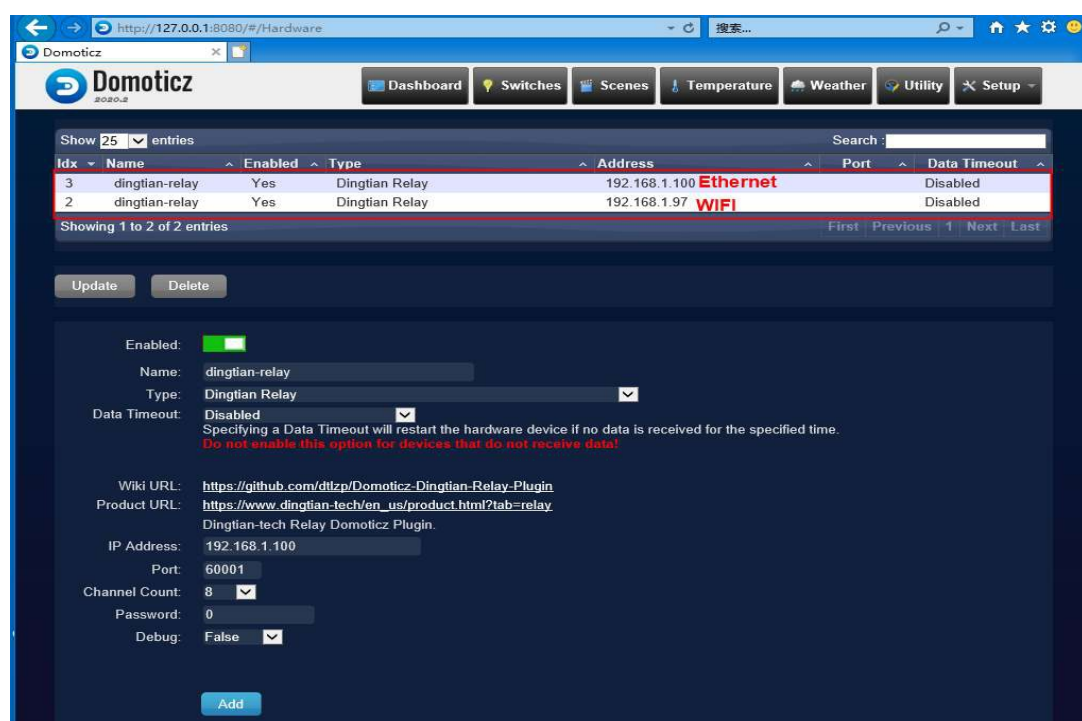
3. Input Dingtian Relay config(WIFI)



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 you 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 multiple with difference UDP port like:

60002 and 60003

60004 and 60005

60006 and 60007

below is example 60002 and 60003

Enabled:

Name: eth2-r8

Type: Dingtian Relay

Data Timeout: Disabled

Wiki URL: <https://github.com/dtlzp/Domoticz-Dingtian-Relay-Plugin>

Product URL: https://www.dingtian-tech/en_us/product.html?tab=relay

IP Address: 192.168.1.100

Port: 60003

Channel Count: 8

Password: 0

Debug: False

Add

Relay

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

5 Add Relay to Switches Page

→ 127.0.0.1:8080/#/Devices

Domoticz 2020.2

Dashboard Switches Scenes Temperature Weather Utility **Setup**

ed All Devices Not Used Refresh

Show 25 entries

Idx	Hardware	ID	Unit	Name	Type	SubType	Data	Last Seen
7	dingtian-relay	00020007	7	dingtian-relay - RELAY7	Light/Switch	Switch	Off	2020-04-30 10:26:14
8	dingtian-relay	00020008	8	dingtian-relay - RELAY8	Light/Switch	Switch	Off	2020-04-30 10:26:14
2	dingtian-relay	00020002	2	dingtian-relay - RELAY2	Light/Switch	Switch	Off	2020-04-30 10:26:13
3	dingtian-relay	00020003	3	dingtian-relay - RELAY3	Light/Switch	Switch	Off	2020-04-30 10:26:13
4	dingtian-relay	00020004	4	dingtian-relay - RELAY4	Light/Switch	Switch	Off	2020-04-30 10:26:13
5	dingtian-relay	00020005	5	dingtian-relay - RELAY5	Light/Switch	Switch	Off	2020-04-30 10:26:13
6	dingtian-relay	00020006	6	dingtian-relay - RELAY6	Light/Switch	Switch	Off	2020-04-30 10:26:13
1	dingtian-relay	00020001	1	dingtian-relay - RELAY1	Light/Switch	Switch	Off	2020-04-30 10:26:12

Showing 1 to 8 of 8 entries

First Previous 1 Next Last

Hardware Devices Settings Check for Update More Options Log About

Click Add Device to use Relay

→ 127.0.0.1:8080/#/Devices

Domoticz 2020.2

Dashboard Switches Scenes Temperature Weather Utility Setup

ed All Devices Not Used Refresh

Show 25 entries Search:

Idx	Hardware	ID	Unit	Name	Type	SubType	Data	Last Seen
7	dingtian-relay	00020007	7	dingtian-relay - RELAY7	Light/Switch	Switch	Off	2020-04-30 10:26:14
8	dingtian-relay	00020008	8	dingtian-relay - RELAY8	Light/Switch	Switch	Off	2020-04-30 10:26:14
2	dingtian-relay	00020002	2	dingtian-relay - RELAY2	Light/Switch	Switch	Off	2020-04-30 10:26:13
3	dingtian-relay	00020003	3	dingtian-relay - RELAY3	Light/Switch	Switch	Off	2020-04-30 10:26:13
4	dingtian-relay	00020004	4	dingtian-relay - RELAY4	Light/Switch	Switch	Off	2020-04-30 10:26:13
5	dingtian-relay	00020005	5	dingtian-relay - RELAY5	Light/Switch	Switch	Off	2020-04-30 10:26:13
6	dingtian-relay	00020006	6	dingtian-relay - RELAY6	Light/Switch	Switch	Off	2020-04-30 10:26:13
1	dingtian-relay	00020001	1	dingtian-relay - RELAY1	Light/Switch	Switch	Off	2020-04-30 10:26:12

Showing 1 to 8 of 8 entries

First Previous 1 Next Last

Click Add Device to confirm

→ 127.0.0.1:8080/#/Devices

应用

Add Device

Name: dingtian-relay - RELAY7

As: Main Device Sub/Slave Device

Add Device Cancel

Idx	Hardware	ID	Unit	Name	Type	SubType	Data	Last Seen
7	dingtian-relay	00020007	7	dingtian-relay - RELAY7	Light/Switch	Switch	Off	2020-04-30 10:26:14
8	dingtian-relay	00020008	8	dingtian-relay - RELAY8	Light/Switch	Switch	Off	2020-04-30 10:26:14
2	dingtian-relay	00020002	2	dingtian-relay - RELAY2	Light/Switch	Switch	Off	2020-04-30 10:26:13
3	dingtian-relay	00020003	3	dingtian-relay - RELAY3	Light/Switch	Switch	Off	2020-04-30 10:26:13
4	dingtian-relay	00020004	4	dingtian-relay - RELAY4	Light/Switch	Switch	Off	2020-04-30 10:26:13
5	dingtian-relay	00020005	5	dingtian-relay - RELAY5	Light/Switch	Switch	Off	2020-04-30 10:26:13
6	dingtian-relay	00020006	6	dingtian-relay - RELAY6	Light/Switch	Switch	Off	2020-04-30 10:26:13
1	dingtian-relay	00020001	1	dingtian-relay - RELAY1	Light/Switch	Switch	Off	2020-04-30 10:26:12

Showing 1 to 8 of 8 entries

result

→ 127.0.0.1:8080/#/Devices

应用

All Devices Refresh

Idx	Hardware	ID	Unit	Name	Type	SubType	Data	Last Seen
7	dingtian-relay	00020007	7	dingtian-relay - RELAY7	Light/Switch	Switch	Off	2020-04-30 10:26:14
8	dingtian-relay	00020008	8	dingtian-relay - RELAY8	Light/Switch	Switch	Off	2020-04-30 10:26:14
2	dingtian-relay	00020002	2	dingtian-relay - RELAY2	Light/Switch	Switch	Off	2020-04-30 10:26:13
3	dingtian-relay	00020003	3	dingtian-relay - RELAY3	Light/Switch	Switch	Off	2020-04-30 10:26:13
4	dingtian-relay	00020004	4	dingtian-relay - RELAY4	Light/Switch	Switch	Off	2020-04-30 10:26:13
5	dingtian-relay	00020005	5	dingtian-relay - RELAY5	Light/Switch	Switch	Off	2020-04-30 10:26:13
6	dingtian-relay	00020006	6	dingtian-relay - RELAY6	Light/Switch	Switch	Off	2020-04-30 10:26:13
1	dingtian-relay	00020001	1	dingtian-relay - RELAY1	Light/Switch	Switch	Off	2020-04-30 10:26:12

Showing 1 to 8 of 8 entries

4 Control Dingtian Relay with Domoticz

Switch "Switches" page

2020-04-30 10:35:20 🌞▲05:52 ▼18:50

Manual Light/Switch Learn Light/Switch ▶



dingtian-relay - RELAY1 Off Last Seen: 2020-04-30 10:26:12 Type: Light/Switch, Switch, On/Off ★ Log Edit Timers Notifications	dingtian-relay - RELAY2 Off Last Seen: 2020-04-30 10:26:13 Type: Light/Switch, Switch, On/Off ★ Log Edit Timers Notifications	dingtian-relay - RELAY3 Off Last Seen: 2020-04-30 10:26:13 Type: Light/Switch, Switch, On/Off ★ Log Edit Timers Notifications
dingtian-relay - RELAY4 Off Last Seen: 2020-04-30 10:26:13 Type: Light/Switch, Switch, On/Off ★ Log Edit Timers Notifications	dingtian-relay - RELAY5 Off Last Seen: 2020-04-30 10:26:13 Type: Light/Switch, Switch, On/Off ★ Log Edit Timers Notifications	dingtian-relay - RELAY6 Off Last Seen: 2020-04-30 10:26:13 Type: Light/Switch, Switch, On/Off ★ Log Edit Timers Notifications
dingtian-relay - RELAY7 Off Last Seen: 2020-04-30 10:26:14 Type: Light/Switch, Switch, On/Off ★ Log Edit Timers Notifications	dingtian-relay - RELAY8 Off Last Seen: 2020-04-30 10:26:14 Type: Light/Switch, Switch, On/Off ★ Log Edit Timers Notifications	

Click light icon on to control relay

2020-04-30 10:36:10 🌞▲05:52 ▼18:50

Manual Light/Switch Learn Light/Switch ▶

dingtian-relay - RELAY1 Off Last Seen: 2020-04-30 10:26:12 Type: Light/Switch, Switch, On/Off ★ Turn On Log Edit Timers Notifications	dingtian-relay - RELAY2 Off Last Seen: 2020-04-30 10:26:13 Type: Light/Switch, Switch, On/Off ★ Log Edit Timers Notifications	dingtian-relay - RELAY3 Off Last Seen: 2020-04-30 10:26:13 Type: Light/Switch, Switch, On/Off ★ Log Edit Timers Notifications
dingtian-relay - RELAY4 Off Last Seen: 2020-04-30 10:26:13 Type: Light/Switch, Switch, On/Off ★ Log Edit Timers Notifications	dingtian-relay - RELAY5 Off Last Seen: 2020-04-30 10:26:13 Type: Light/Switch, Switch, On/Off ★ Log Edit Timers Notifications	dingtian-relay - RELAY6 Off Last Seen: 2020-04-30 10:26:13 Type: Light/Switch, Switch, On/Off ★ Log Edit Timers Notifications
dingtian-relay - RELAY7 Off Last Seen: 2020-04-30 10:26:14 Type: Light/Switch, Switch, On/Off ★ Log Edit Timers Notifications	dingtian-relay - RELAY8 Off Last Seen: 2020-04-30 10:26:14 Type: Light/Switch, Switch, On/Off ★ Log Edit Timers Notifications	

2020-04-30 10:37:40   05:52  18:50

Manual Light/Switch

[Learn Light/Switch](#)

dingtian-relay - RELAY1 On

 Last Seen: 2020-04-30 10:37:36
Type: Light/Switch, Switch, On/Off

 [Log](#) [Edit](#) [Timers](#) [Notifications](#)

dingtian-relay - RELAY2 Off

 Last Seen: 2020-04-30 10:26:13
Type: Light/Switch, Switch, On/Off

 [Log](#) [Edit](#) [Timers](#) [Notifications](#)

dingtian-relay - RELAY3 Off

 Last Seen: 2020-04-30 10:26:13
Type: Light/Switch, Switch, On/Off

 [Log](#) [Edit](#) [Timers](#) [Notifications](#)

dingtian-relay - RELAY4 Off

 Last Seen: 2020-04-30 10:26:13
Type: Light/Switch, Switch, On/Off

 [Log](#) [Edit](#) [Timers](#) [Notifications](#)

dingtian-relay - RELAY5 Off

 Last Seen: 2020-04-30 10:26:13
Type: Light/Switch, Switch, On/Off

 [Log](#) [Edit](#) [Timers](#) [Notifications](#)

dingtian-relay - RELAY6 Off

 Last Seen: 2020-04-30 10:26:13
Type: Light/Switch, Switch, On/Off

 [Log](#) [Edit](#) [Timers](#) [Notifications](#)

dingtian-relay - RELAY7 Off

 Last Seen: 2020-04-30 10:26:14
Type: Light/Switch, Switch, On/Off

 [Log](#) [Edit](#) [Timers](#) [Notifications](#)

dingtian-relay - RELAY8 Off

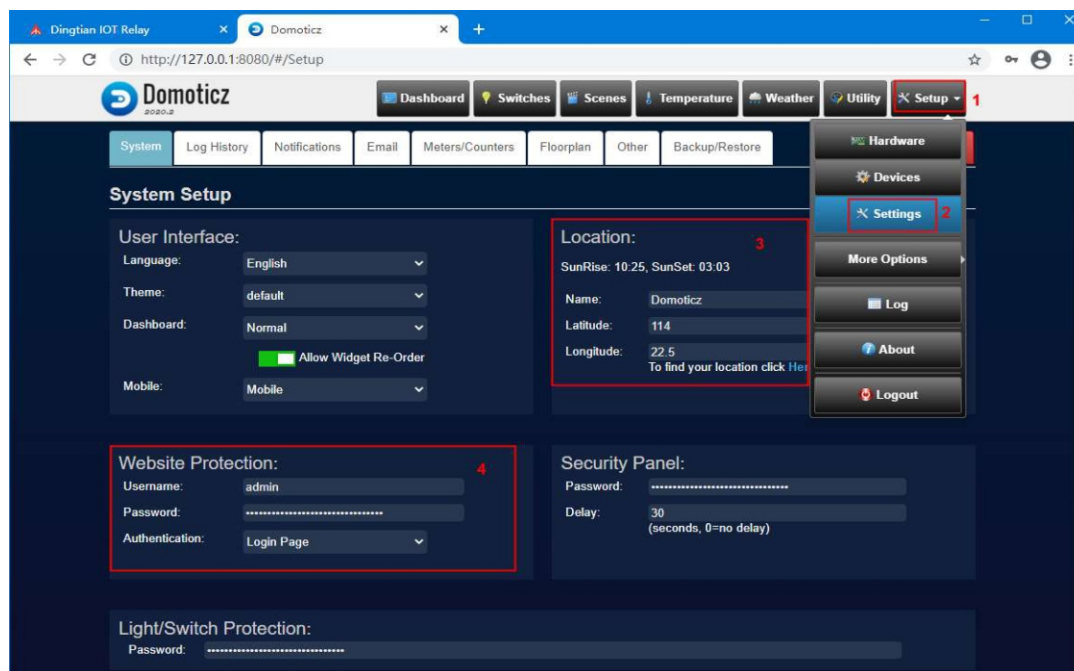
 Last Seen: 2020-04-30 10:37:28
Type: Light/Switch, Switch, On/Off

 [Log](#) [Edit](#) [Timers](#) [Notifications](#)

step 4: Domoticz mobile application

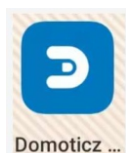
Please follow up step 1/2/3 firstly to confirm PC Domoticz connect

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

Server Name
domoticz server

Server address
192.168.1.88

Port
8080

HTTP ▼

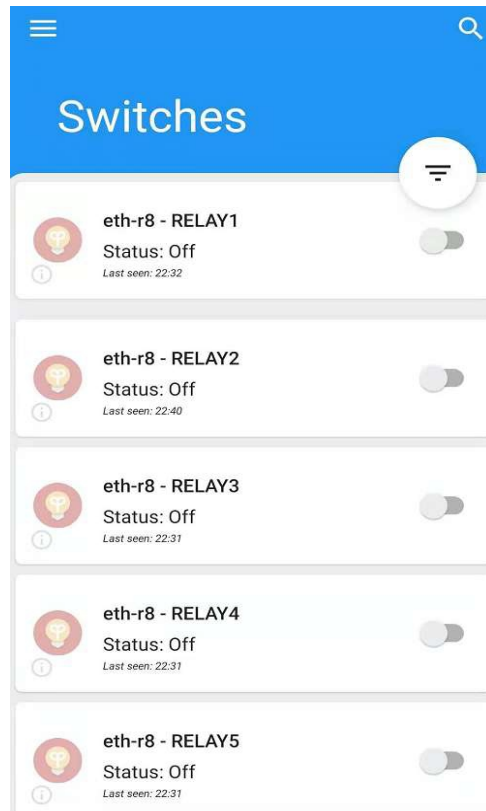
Username
admin

Password
.....

Show password

Directory

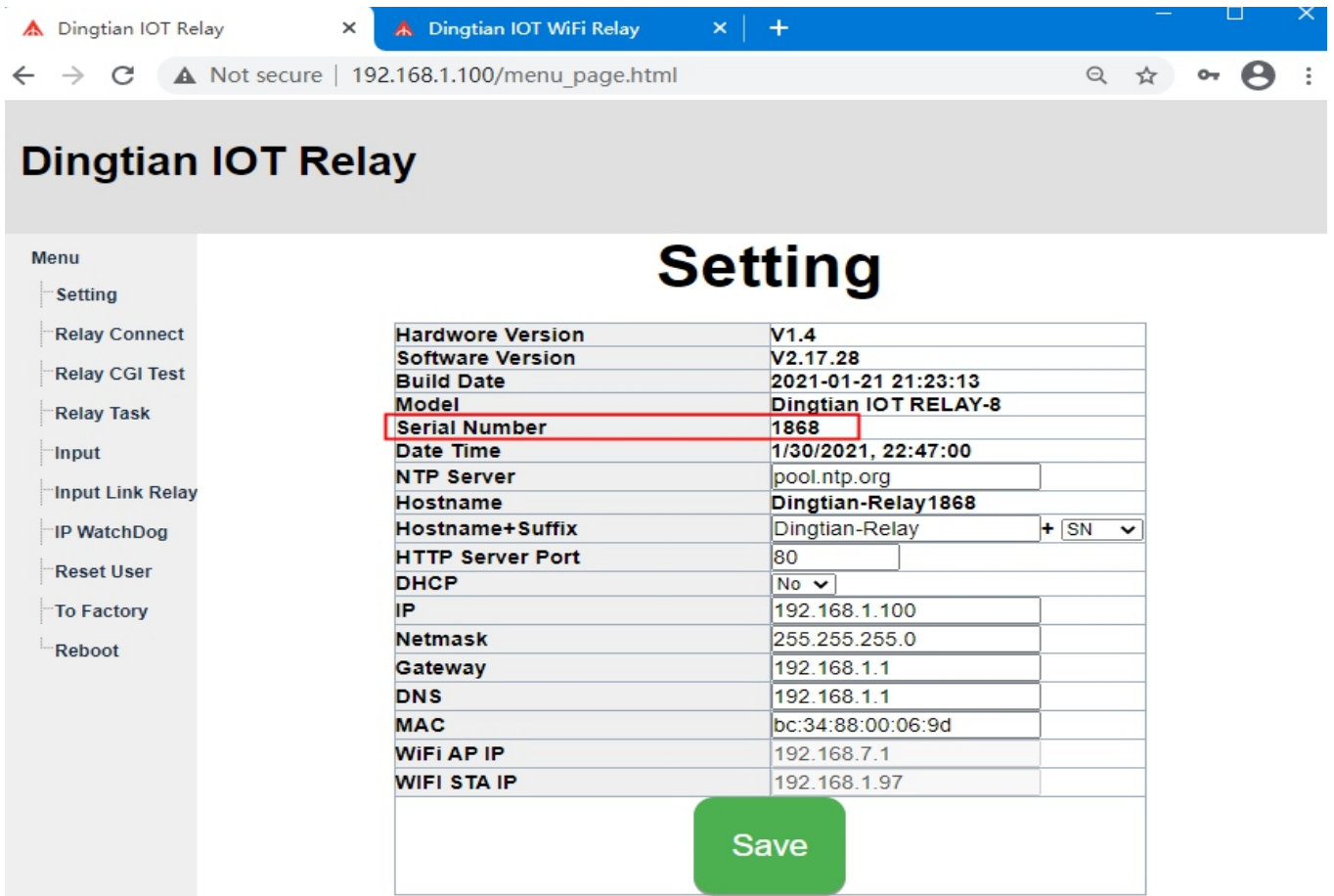
Different server address
Use different address for local connection



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

Appendix III How to MQTT

MQTT Ethernet



The screenshot shows a web browser window with two tabs: "Dingtian IOT Relay" and "Dingtian IOT WiFi Relay". The address bar shows "192.168.1.100/menu_page.html". The page title is "Dingtian IOT Relay". The main content area is titled "Setting" and contains a table of system information. The "Serial Number" field is highlighted with a red box.

Hardware Version	V1.4
Software Version	V2.17.28
Build Date	2021-01-21 21:23:13
Model	Dingtian IOT RELAY-8
Serial Number	1868
Date Time	1/30/2021, 22:47:00
NTP Server	pool.ntp.org
Hostname	Dingtian-Relay1868
Hostname+Suffix	Dingtian-Relay + SN
HTTP Server Port	80
DHCP	No
IP	192.168.1.100
Netmask	255.255.255.0
Gateway	192.168.1.1
DNS	192.168.1.1
MAC	bc:34:88:00:06:9d
WiFi AP IP	192.168.7.1
WiFi STA IP	192.168.1.97

Save

MQTT WIFI

Dingtian IOT Relay x Dingtian IOT WiFi Relay x +

← → ↻ ⚠ Not secure | 192.168.1.100/menu_page.html 🔍 ☆ ⚙ 👤 ⋮

Dingtian IOT Relay

Menu

- Setting
- Relay Connect
- Relay CGI Test
- Relay Task
- Input
- Input Link Relay
- IP WatchDog
- Reset User
- To Factory
- Reboot

Setting

Hardware Version	V1.4
Software Version	V2.17.28
Build Date	2021-01-21 21:23:13
Model	Dingtian IOT RELAY-8
Serial Number	1868
Date Time	1/30/2021, 22:47:00
NTP Server	pool.ntp.org
Hostname	Dingtian-Relay1868
Hostname+Suffix	Dingtian-Relay + SN
HTTP Server Port	80
DHCP	No
IP	192.168.1.100
Netmask	255.255.255.0
Gateway	192.168.1.1
DNS	192.168.1.1
MAC	bc:34:88:00:06:9d
WiFi AP IP	192.168.7.1
WiFi STA IP	192.168.1.97

Save

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_c nt
/dingtian/relay1868/out/relay_c nt
```

idx:1~8
status:ON,OFF


example:
{“idx”:“1”,“status”:“OFF”}

step 1: Install and config Broker


 mosquitto-1.6.9-install-windows-x64.exe

1 c onfig “mosquitto.c onf”
bind_address 0.0.0.0
port 1883

2 start windows Service “mosquitto”

 mosquitto | Mosquitto Broker

step 2: Install MQTT PC client

 client_MQTTBox-win.exe

step 3: MQTTBox Add Client



Protoc ol: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:

Config Relay board Web page MQTT parameter

Dingtian IOT Relay

Relay

Channel	Protocol	Addr	Baud	Datbits	Stopbits	Parity
RS485	Modbus-RTU	1	115200bps	8bit	1bit	None
CAN	Dingtian String	ID	Speed			
ETH-UDP1	Dingtian Binary	Remote Address	Remote Port	Local Port		
ETH-UDP2	Dingtian String	Remote Address	Remote Port	Local Port		
ETH-TCP Server	Modbus-TCP		Local Port			
ETH-TCP Client	Modbus-RTU Over TCP	Remote Address	Remote Port			
ETH-MQTT	MQTT	Broker Address	Broker Port	Broker Username	Broker Password	

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

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 subscribe topic

The screenshot shows the MQTTBox application interface. At the top, there is a status bar with 'Connected' and buttons for 'Add publisher' and 'Add subscriber'. Below this, there are two panels for publishing messages and two panels for subscriptions.

Left Publish Panel:

- Topic to publish: `/dingtian/relay1868/in/r8`
- QoS: 2 - Exactly Once
- Retain:
- Payload Type: Strings / JSON / XML / Characters
- Payload: `ON`
- Buttons: Publish
- Preview: `ON`
`topic:dingtian/relay1868/in/r8, qos:2, retain:false`

Right Publish Panel:

- Topic to publish: `/dingtian/relay1868/in/control`
- QoS: 0 - Almost Once
- Retain:
- Payload Type: Strings / JSON / XML / Characters
- Payload: `{"type":"ON/OFF","idx":"3","status":"ON","time":"0","pass":"0"}`
- Buttons: Publish
- Preview: `{"type":"ON/OFF","idx":"3","status":"ON","time":"0","pass":"0"}`
`topic:dingtian/relay1868/in/control, qos:0, retain:false`

Bottom Left Subscription Panel:

- Topic: `/dingtian/relay1868/out/r1`
- Message: `OFF`
- Metadata: `qos : 1, retain : false, cmd : publish, dup : false, topic : /dingtian/relay1868/out/r1, messageid : 8, length : 33, Raw payload : 797070`

Bottom Right Subscription Panel:

- Topic: `/dingtian/relay1868/out/relay3`
- Message: (Empty)

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

The screenshot displays the MQTTBox application interface. At the top, the status is 'Connected'. The main area is divided into four panels:

- Top Left Panel (Publish Configuration):** Topic to publish: `/dingtian/relay1868/in/r8`. QoS: 2 - Exactly Once. Retain: . Payload Type: Strings / JSON / XML / Characters. Payload: `ON`. A 'Publish' button is visible. Below the button, the output shows: `ON`, `topic:dingtian/relay1868/in/r8, qos:2, retain:false`.
- Top Right Panel (Publish Configuration):** Topic to publish: `/dingtian/relay1868/in/control`. QoS: 0 - Almost Once. Retain: . Payload Type: Strings / JSON / XML / Characters. Payload: `{"type":"ON/OFF","idx":"3","status":"ON","time":"0","pass":"0"}`. A 'Publish' button is visible. Below the button, the output shows: `{"type":"ON/OFF","idx":"3","status":"ON","time":"0","pass":"0"}`, `topic:dingtian/relay1868/in/control, qos:0, retain:false`.
- Bottom Left Panel (Subscription):** Topic: `/dingtian/relay1868/out/r1`. Status: OFF. Metadata: `qos : 1, retain : false, cmd : publish, dup : false, topic : /dingtian/relay1868/out/r1, messageid : 8, length : 33, Raw payload : 797070`.
- Bottom Right Panel (Subscription):** Topic: `/dingtian/relay1868/out/relay3`. Status: OFF.

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
```

Appendix V How to “input mutual control”

Example param:

DevA IP: 192.168.1.100

DevB IP: 192.168.1.101

web config “Input Control Relay”

“No”:input only control remote output

“Yes”:input control local output and remote output

DevA web config:

Relay

Channel	Protocol	Addr	Baud	Databits	Stopbits	Parity
RS485	Modbus-RTU	1	115200bps	8bit	1bit	None
CAN	Dingtian String	ID	Speed			
		1	125Kbps			
ETH-UDP1	Dingtian Binary	Remote Address	Remote Port	Local Port		
		192.168.1.9	60000	60000		
ETH-UDP2	Input Mutual Control	Other Relay Board IP	Remote Port	Local Port		
		192.168.1.101 DevB IP	60001	60001		
ETH-TCP Server	Modbus-TCP			Local Port		
				502		
ETH-TCP Client	Modbus-RTU Over TCP	Remote Address	Remote Port			
		192.168.1.9	502			
ETH-MQTT	MQTT	Broker Address	Broker Port	Broker Username	Broker Password	
		192.168.1.9	1883	mqtt	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	No	DevA input not control relay

Button Type

Momentary	Momentary	Momentary	Momentary
-----------	-----------	-----------	-----------

Save

DevB web config:

Menu

- Setting
- Relay Connect
- Relay CGI Test
- Relay Task
- Input
- Input Link Relay
- IP WatchDog
- Reset User
- To Factory
- Reboot

Relay

Channel	Protocol	Addr	Baud	Databits	Stopbits	Parity
RS485	Modbus-RTU	1	115200bps	8bit	1bit	None
CAN	Dinglian String	ID	Speed			
		1	125Kbps			
ETH-UDP1	Dinglian Binary	Remote Address	Remote Port	Local Port		
		192.168.1.9	60000	60000		
ETH-UDP2	Input Mutual Control	Other Relay Board IP	Remote Port	Local Port		
		192.168.1.100 DevA IP	60001	60001		
ETH-TCP Server	Modbus-TCP			Local Port		
				502		
ETH-TCP Client	Modbus-RTU Over TCP	Remote Address	Remote Port			
		192.168.1.9	502			
ETH-MQTT	MQTT	Broker Address	Broker Port	Broker Username	Broker Password	
		192.168.1.9	1883	mqtt	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	No	DevB input not control relay

Button Type

Momentary	Momentary	Momentary	Momentary
-----------	-----------	-----------	-----------

Save

Relay Test

Relay1:Off Relay2:Off Relay3:Off Relay4:Off

Appendix VI How to Home Assistant

Notice:

- 1 Close your firewall
- 2 All c command and script run as root/administrator
- 3 please step by step

Step 1 config Relay board

Dingtian IOT Relay

Menu

- Setting
- Relay Connect**
- Relay CGI Test
- Relay Task
- Input
- Input Link Relay
- IP WatchDog
- Reset User
- To Factory
- Upgrade
- Reboot

Relay

Channel	Protocol	Addr	Baud	Databits	Stopbits	Parity
RS485	Modbus-RTU	1	115200bps	8bit	1bit	None
CAN	Dingtian String	ID	Speed	Frame Type		
UDP1	Dingtian Binary	Remote Address	Remote Port	Local Port		
UDP2	Dingtian String	Remote Address	Remote Port	Local Port		
TCP Server	Modbus-TCP			Local Port		
TCP Client	Modbus-RTU Over TCP	Remote Address	Remote Port			
MQTT	MQTT	Broker Address	Broker Port	Broker Username	Broker Password	

Other

Relay Password: 0 (0-9999(0 no password))
Keep Alive Second: 30 (1-120 second(0 close))
Power Failure Recovery Relay: No

Save

Relay Test

Relay1:Off Relay2:Off

The "192.168.1.9" is MQTT broker IP

Step 2 Install MQTT Broker

Link step 1: Install and c onfig Broker for details how to install MQTT Broker

Step 3 Install Home Assistant

1 install python

Python download link:

<https://www.python.org/ftp/python/3.10.0/python-3.10.0.exe>

2 install Home Assistant

Windows install c ommand:

```
python -m pip install --upgrade homeassistant tzdata met
```

3 Add relay board Switch and input to Home Assistant

Home assistant default c onfig yaml path:

<C:\Users\Administrator\AppData\Roaming\.homeassistant\c onfiguration.yaml>

example is 2 c hannel relay board, SN is 100

when you use it please replac e with you relay board SN

SDK path:

MQTT\home_assistant_example.yaml

add below lines to [c onfiguration.yaml](#)

```
##### start #####
```

```
switch:
```

```
- platform: mqtt
  unique_id: dingtian100-r1
  name: "Dingtian Ethernet Switch1"
  state_topic: "/dingtian/relay100/out/r1"
  command_topic: "/dingtian/relay100/in/r1"
  availability:
    - topic: "/dingtian/relay100/out/lwt_availability"
      payload_available: "online"
      payload_not_available: "offline"
  payload_on: "ON"
  payload_off: "OFF"
  state_on: "ON"
  state_off: "OFF"
  optimistic: false
```

qos: 0
retain: false

- platform: mqtt
unique_id: dingtian100-r2
name: "Dingtian Ethernet Switch2"
state_topic: "/dingtian/relay100/out/r2"
command_topic: "/dingtian/relay100/in/r2"
availability:
- topic: "/dingtian/relay100/out/lwt_availability"
payload_available: "online"
payload_not_available: "offline"
payload_on: "ON"
payload_off: "OFF"
state_on: "ON"
state_off: "OFF"
optimistic: false
qos: 0
retain: false

binary_sensor:
- platform: mqtt
unique_id: dingtian100-i1
name: "Dingtian Ethernet Input1"
state_topic: "/dingtian/relay100/out/i1"
availability:
- topic: "/dingtian/relay100/out/lwt_availability"
payload_available: "online"
payload_not_available: "offline"
payload_on: "ON"
payload_off: "OFF"
qos: 0

- platform: mqtt
unique_id: dingtian100-i2
name: "Dingtian Ethernet Input2"
state_topic: "/dingtian/relay100/out/i2"
availability:
- topic: "/dingtian/relay100/out/lwt_availability"
payload_available: "online"
payload_not_available: "offline"
payload_on: "ON"
payload_off: "OFF"
qos: 0

end

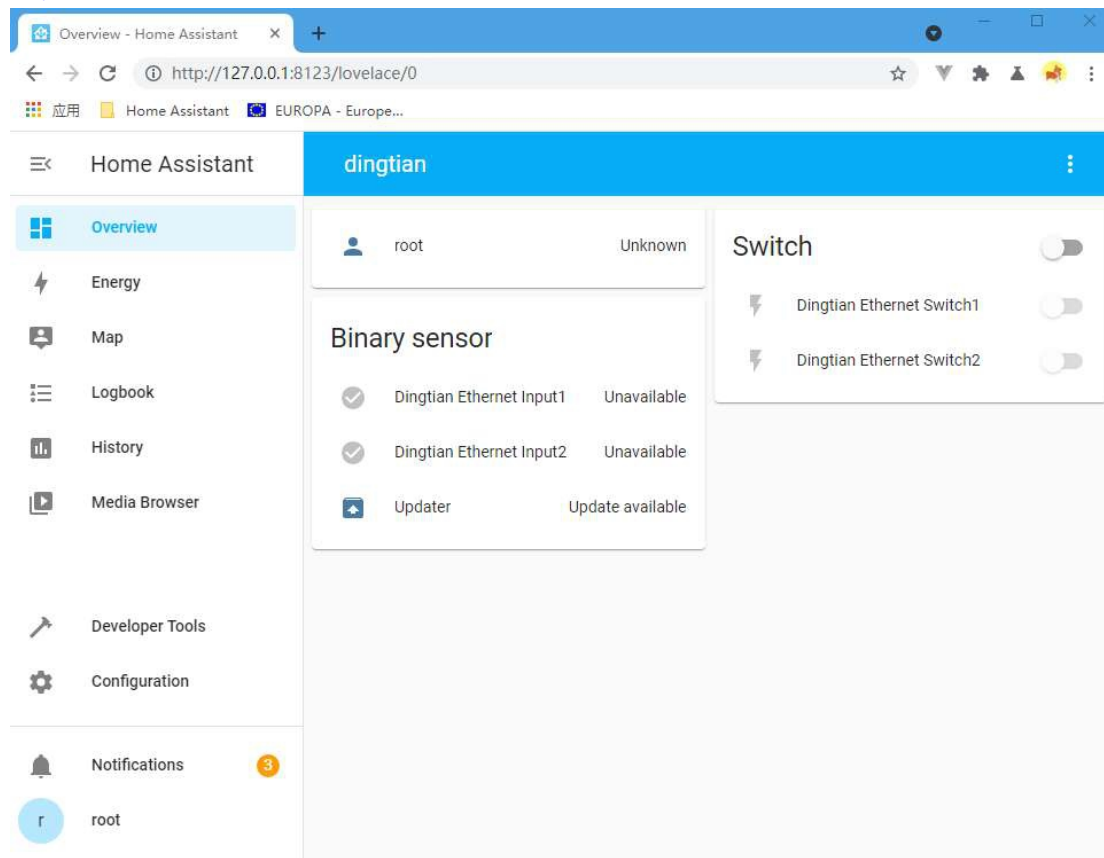
4 Home Assistant config MQTT Broker

Windows open Home Assistant c ommand:

`hass -open-ui`

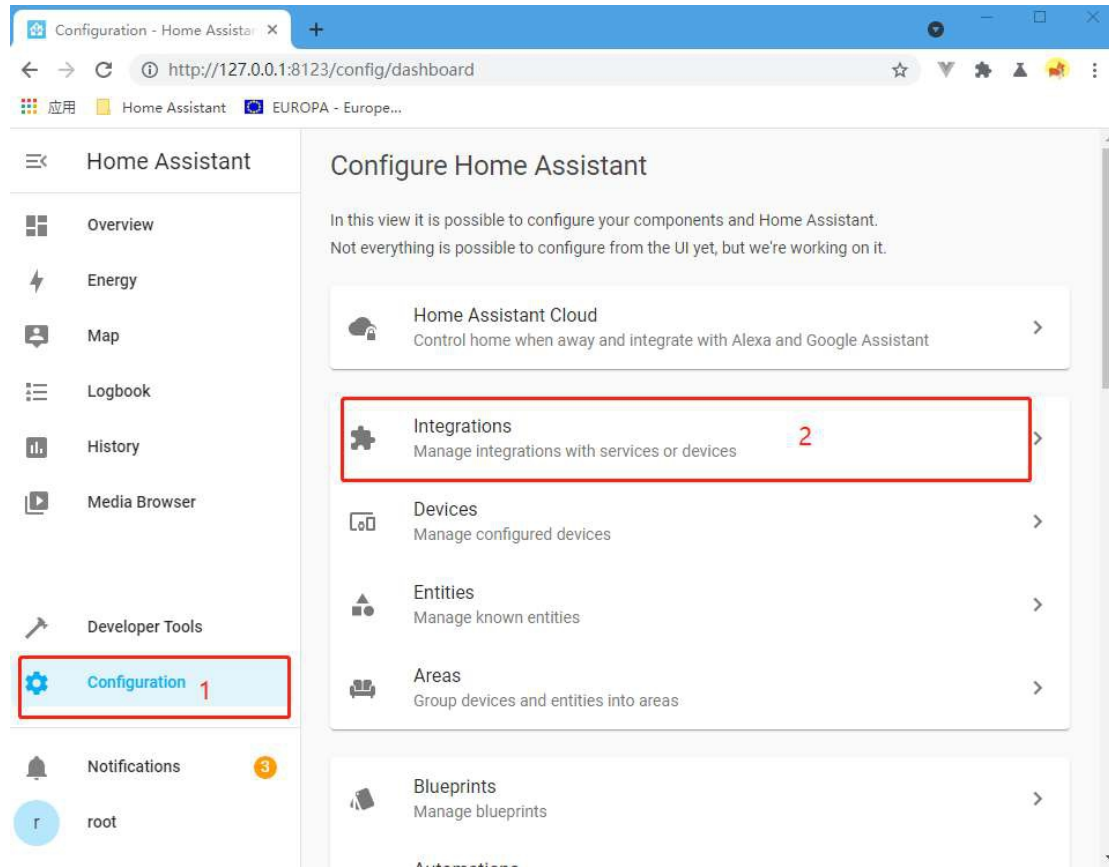
Home Assistant web link:

<http://127.0.0.1:8123/>

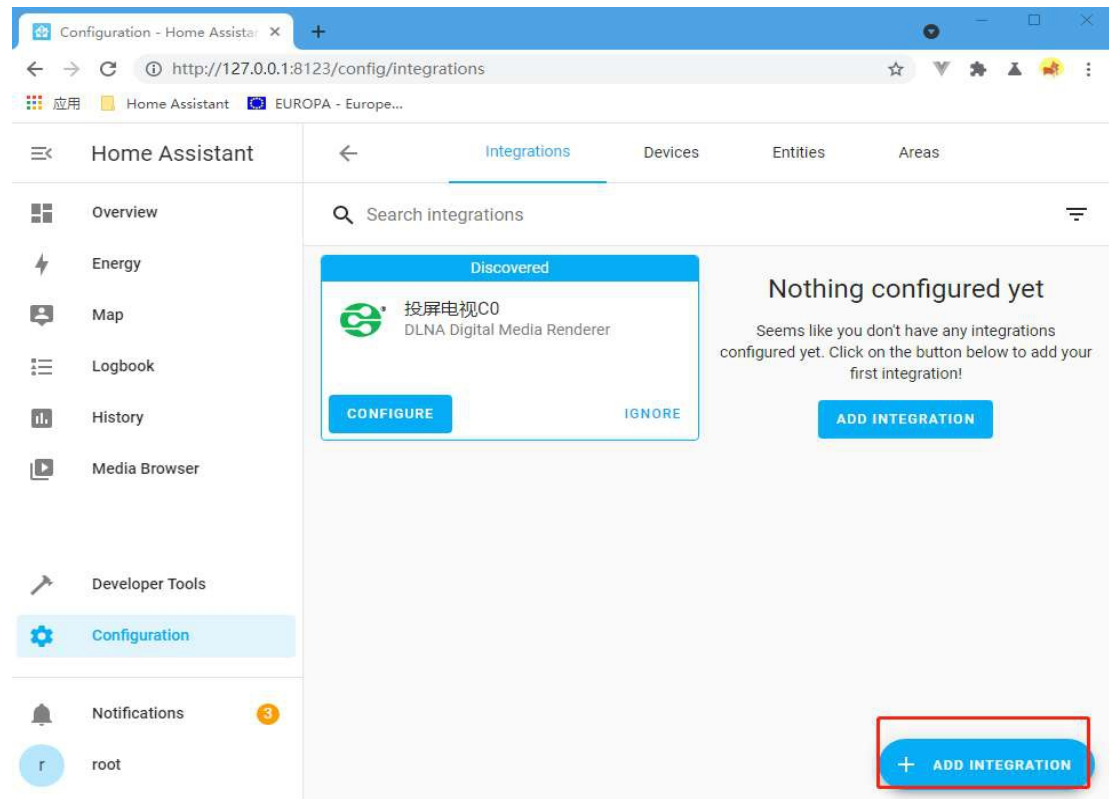


config MQTT Broker

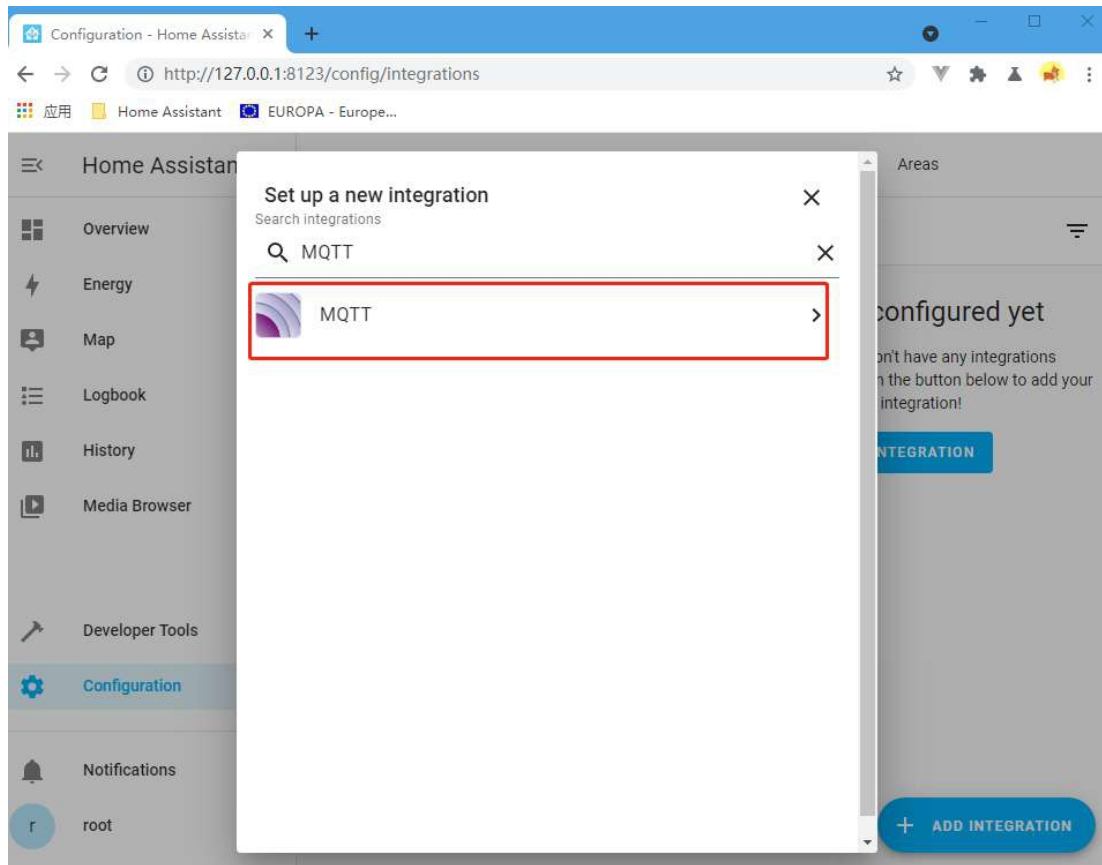
step 1



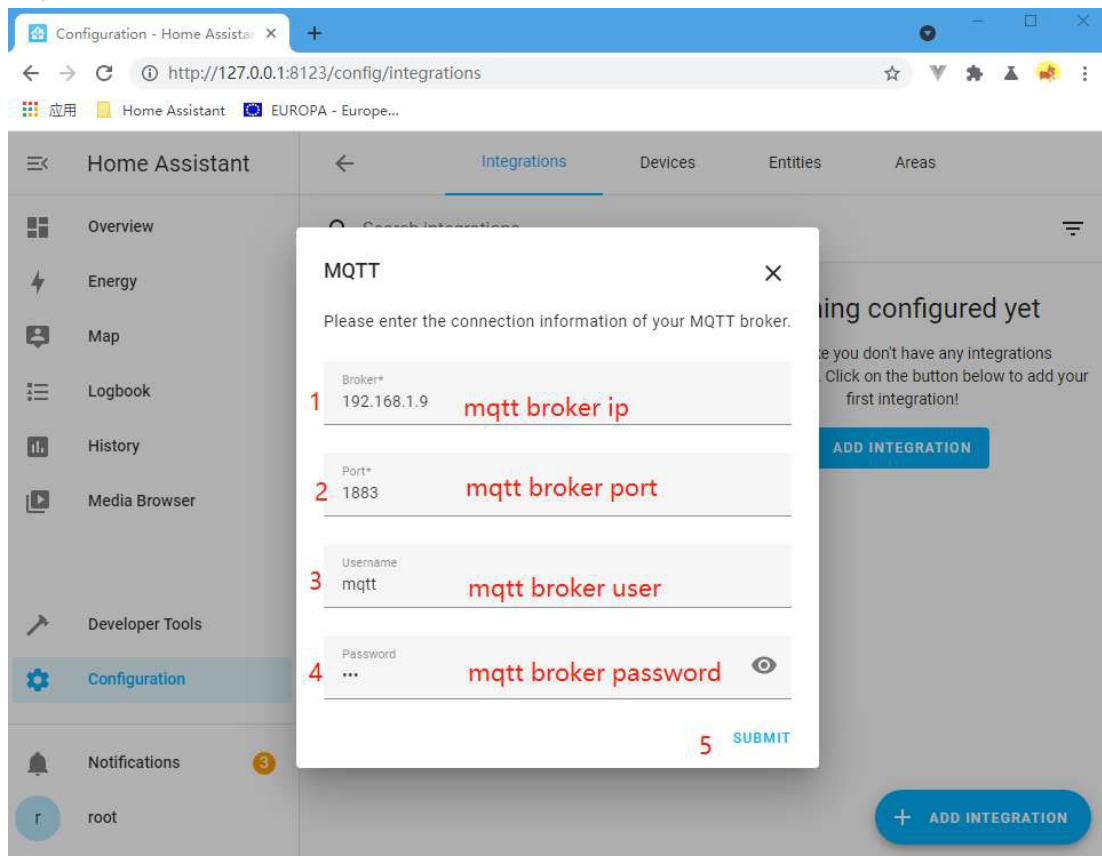
step 2



step 3



step 4



step 5

The screenshot shows the Home Assistant configuration interface in a web browser. A modal dialog titled "MQTT options" is open, displaying various settings for MQTT discovery and messaging. The dialog includes a close button (X) in the top right corner. The settings are as follows:

- Discovery**: A paragraph explaining that if enabled, Home Assistant will automatically discover devices. A checkbox labeled "Enable discovery" is checked.
- Birth message**: A paragraph explaining that the birth message is sent each time Home Assistant connects. A checkbox labeled "Enable birth message" is checked. Below this are three input fields: "Birth message topic" (homeassistant/status), "Birth message payload" (online), and "Birth message QoS" (dropdown menu).
- Will message**: A paragraph explaining that the will message is sent each time Home Assistant loses its connection. A checkbox labeled "Enable will message" is checked. Below this are three input fields: "Will message topic" (homeassistant/status), "Will message payload" (offline), and "Will message QoS" (dropdown menu).
- Will message retain**: A checkbox labeled "Will message retain" is checked.

A red box highlights the "SUBMIT" button at the bottom right of the dialog.

step 6

restart Home Assistant

Ctrl+C hot key to Stop Home Assistant

hass --open-ui to start Home Assistant

step 6

new Home Assistant can control relay and get input status

The screenshot shows the Home Assistant Lovelace interface in a browser window. The address bar displays `http://127.0.0.1:8123/lovelace/0`. The main content area features a card titled "dingtian" which is highlighted with a red border. This card is divided into two sections: "Binary sensor" and "Switch".

Binary sensor section:

Entity	Status
Dingtian Ethernet Input1	Off
Dingtian Ethernet Input2	Off
Updater	Update available

Switch section:

Entity	Status
Dingtian Ethernet Switch1	Off
Dingtian Ethernet Switch2	Off

The left sidebar contains navigation options: Overview (selected), Energy, Map, Logbook, History, Media Browser, Developer Tools, Configuration, and Notifications (with 2 notifications). The bottom status bar shows the user "root".

Appendix VII How to openHAB

Notice:

- 1 Close your firewall
- 2 All c command and script run as root/administrator
- 3 please step by step

Step 1 config Relay board

Dingtian IOT Relay

Menu

- Setting
- Relay Connect**
- Relay CGI Test
- Relay Task
- Input
- Input Link Relay
- IP WatchDog
- Reset User
- To Factory
- Upgrade
- Reboot

Relay

Channel	Protocol	Addr	Baud	Databits	Stopbits	Parity
RS485	Modbus-RTU	1	115200bps	8bit	1bit	None
CAN	Dingtian String	ID	Speed	Frame Type		
UDP1	Dingtian Binary	Remote Address	Remote Port	Local Port		
UDP2	Dingtian String	Remote Address	Remote Port	Local Port		
TCP Server	Modbus-TCP			Local Port		
TCP Client	Modbus-RTU Over TCP	Remote Address	Remote Port			
MQTT	MQTT	Broker Address	Broker Port	Broker Username	Broker Password	

Other

Relay Password: 0 (0-9999(0 no password))
Keep Alive Second: 30 (1-120 second(0 close))
Power Failure Recovery Relay: No

Save

Relay Test

Relay1:Off Relay2:Off

The "192.168.1.9" is MQTT broker IP

Step 2 Install MQTT Broker

Link step 1: Install and config Broker for details how to install MQTT Broker

Step 3 install JDK and openHAB

1 Download

JDK download link:

https://cdn.azul.com/zulu/bin/zulu11.54.25-ca-jdk11.0.14.1-win_x64.msi

OpenHAB download link:

<https://openhab.jfrog.io/artifactory/libs-release-local/org/openhab/distro/openhab/3.2.0/openhab-3.2.0.zip>

OpenHAB add-on download link:

<https://openhab.jfrog.io/artifactory/libs-release-local/org/openhab/distro/openhab-addons/3.2.0/openhab-addons-3.2.0.kar>

2 install

unpack zip directory tree as below image(Example install directory is "D:\tool\openHAB"):

Notice:

The openHAB install directory must **contain no spaces**

data (D:) > tool > openHAB

名称	修改日期	类型	大小
openhab-3.2.0	2022-03-30 15:43	文件夹	
zulu11.54.25-ca-jdk11.0.14.1-win_x64	2022-02-08 4:30	文件夹	

data (D:) > tool > openHAB > openhab-3.2.0

名称	修改日期	类型	大小
addons	2022-03-30 15:43	文件夹	
conf	2021-12-20 4:45	文件夹	
runtime	2021-12-20 4:45	文件夹	
userdata	2021-12-20 4:45	文件夹	
LICENSE.TXT	2021-12-20 4:45	文本文档	14 KB
start.bat	2021-12-20 4:27	Windows 批处理...	1 KB
start.sh	2021-12-20 4:27	Shell Script	1 KB
start_debug.bat	2021-12-20 4:27	Windows 批处理...	1 KB
start_debug.sh	2021-12-20 4:27	Shell Script	1 KB

data (D:) > tool > openHAB > openhab-3.2.0 > addons

名称	修改日期	类型	大小
openhab-addons-3.2.0.kar	2022-03-30 14:50	KAR 文件	276,869 KB
README	2021-12-20 4:45	文件	1 KB

jdk11.0.14.1-win_x64

data (D:) > tool > openHAB > zulu11.54.25-ca-jdk11.0.14.1-win_x64

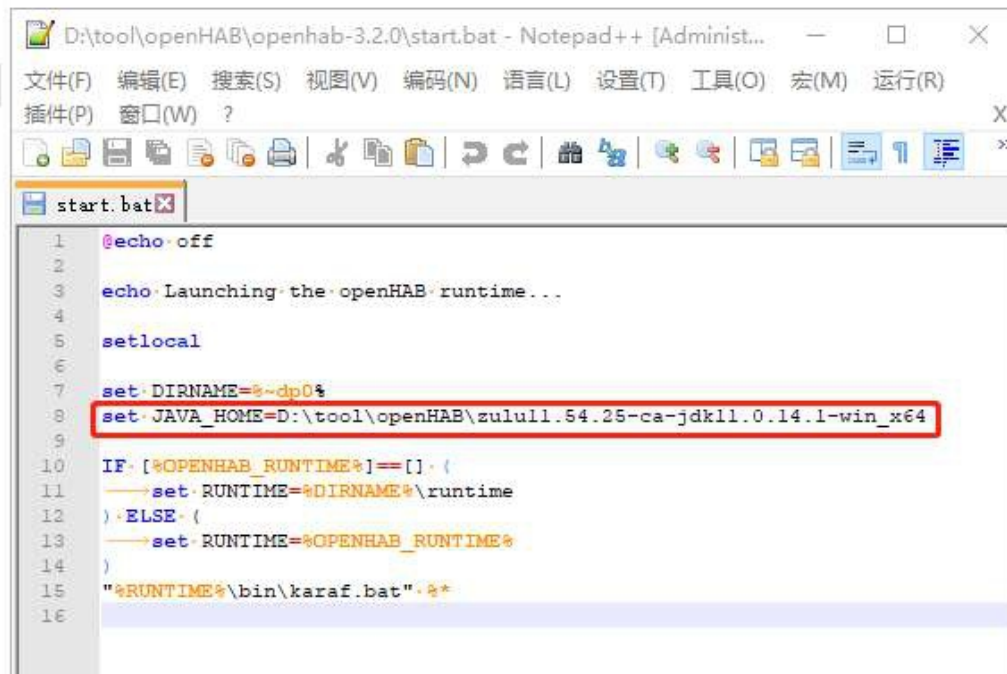
名称	修改日期	类型	大小
bin	2022-02-08 4:30	文件夹	
conf	2022-02-08 4:26	文件夹	
demo	2022-02-08 4:26	文件夹	
include	2022-02-08 4:26	文件夹	
jmods	2022-02-08 4:26	文件夹	
legal	2022-02-08 4:26	文件夹	
lib	2022-02-08 4:26	文件夹	
DISCLAIMER	2022-02-08 4:30	文件	3 KB
readme.txt	2022-02-08 4:30	文本文档	1 KB
release	2022-02-08 4:26	文件	2 KB
Welcome.html	2022-02-08 4:30	Chromium HTM...	2 KB

3 Add jdk directory to “start.bat”

Add “set JAVA_HOME=D:\tool\openHAB\zulu11.54.25-ca-jdk11.0.14.1-win_x64”
to file `start.bat` as below



名称	修改日期	类型	大小
addons	2022-03-30 15:43	文件夹	
conf	2021-12-20 4:45	文件夹	
runtime	2021-12-20 4:45	文件夹	
userdata	2021-12-20 4:45	文件夹	
LICENSE.TXT	2021-12-20 4:45	文本文档	14 KB
start.bat	2022-03-30 16:26	Windows 批处理...	1 KB
start.sh	2021-12-20 4:27	Shell Script	1 KB
start_debug.bat	2021-12-20 4:27	Windows 批处理...	1 KB
start_debug.sh	2021-12-20 4:27	Shell Script	1 KB



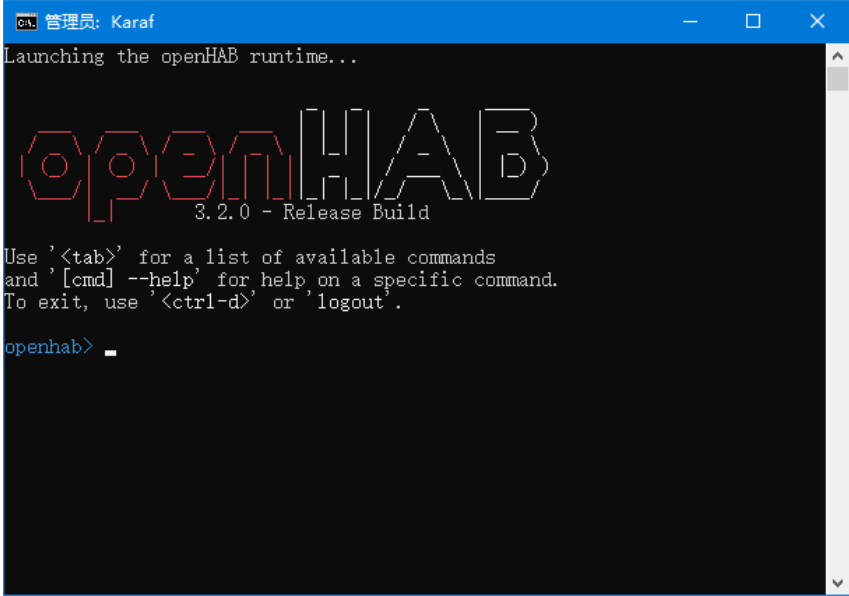
```
1 @echo off
2
3 echo Launching the openHAB runtime...
4
5 setlocal
6
7 set DIRNAME=%~dp0%
8 set JAVA_HOME=D:\tool\openHAB\zulu11.54.25-ca-jdk11.0.14.1-win_x64
9
10 IF [%OPENHAB_RUNTIME%]==[] {
11     set RUNTIME=%DIRNAME%\runtime
12 } ELSE {
13     set RUNTIME=%OPENHAB_RUNTIME%
14 }
15 "%RUNTIME%\bin\karaf.bat" %*
16
```

4 First time init openHAB

1 double click “start.bat”

data (D:) > tool > openHAB > openhab-3.2.0

名称	修改日期	类型	大小
addons	2022-03-31 21:05	文件夹	
conf	2022-03-31 21:06	文件夹	
runtime	2022-03-31 21:05	文件夹	
userdata	2022-04-01 16:28	文件夹	
LICENSE.TXT	2021-12-20 4:45	文本文档	14 KB
start.bat	2022-03-30 17:33	Windows 批处理...	1 KB
start.sh	2021-12-20 4:27	Shell Script	1 KB
start_debug.bat	2021-12-20 4:27	Windows 批处理...	1 KB
start_debug.sh	2021-12-20 4:27	Shell Script	1 KB



```
管理员: Karaf
Launching the openHAB runtime...

openHAB
3.2.0 - Release Build

Use '<tab>' for a list of available commands
and '[cmd] --help' for help on a specific command.
To exit, use '<ctrl-d>' or 'logout'.

openhab> _
```

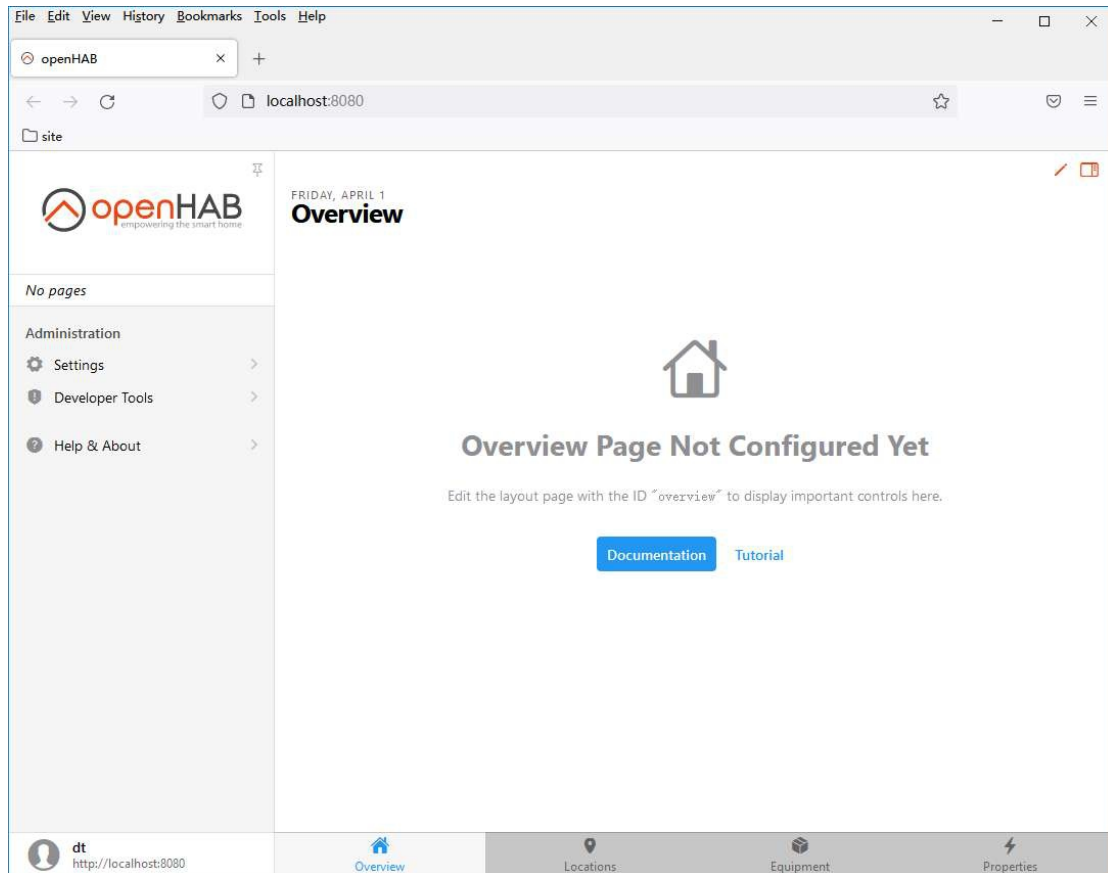
2 First time init openHAB

use Firefox open URL "<http://localhost:8080>" (my computer chromium can't open openHAB web page)

after first time config, you can get main web page like below

Notice:

please save username and password



3 install MQTT-binding



A screenshot of a terminal window titled "管理员: Karaf". The terminal shows the text "Launching the openHAB runtime..." followed by the openHAB logo and "3.2.0 - Release Build". Below this, instructions are provided: "Use '<tab>' for a list of available commands and '[cmd] --help' for help on a specific command. To exit, use '<ctrl-d>' or 'logout'." The command "feature:install openhab-binding-mqtt" is entered at the prompt.

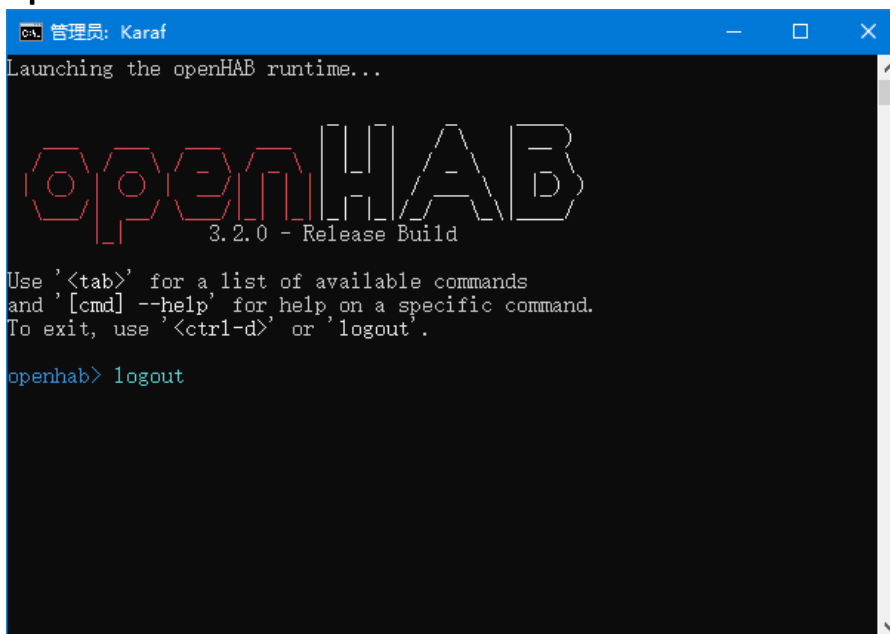
```
管理员: Karaf
Launching the openHAB runtime...

  O P E N H A B
    3.2.0 - Release Build

Use '<tab>' for a list of available commands
and '[cmd] --help' for help on a specific command.
To exit, use '<ctrl-d>' or 'logout'.

openhab> feature:install openhab-binding-mqtt
```

4 Stop openHAB



A screenshot of a terminal window titled "管理员: Karaf". The terminal shows the text "Launching the openHAB runtime..." followed by the openHAB logo and "3.2.0 - Release Build". Below this, instructions are provided: "Use '<tab>' for a list of available commands and '[cmd] --help' for help on a specific command. To exit, use '<ctrl-d>' or 'logout'." The command "logout" is entered at the prompt.

```
管理员: Karaf
Launching the openHAB runtime...

  O P E N H A B
    3.2.0 - Release Build

Use '<tab>' for a list of available commands
and '[cmd] --help' for help on a specific command.
To exit, use '<ctrl-d>' or 'logout'.

openhab> logout
```

Step 4 Add Dingtian Relay board to openHAB

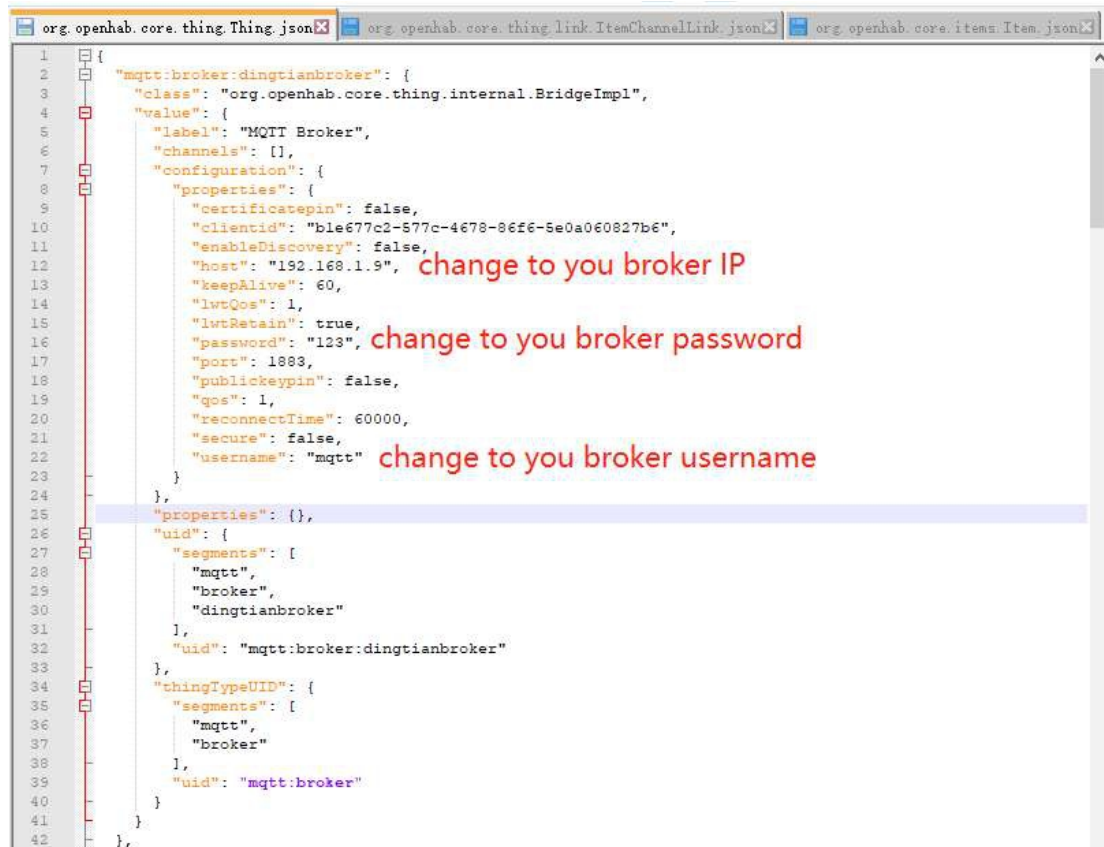
2ch_config for 2 channel relay board

4ch_config for 4 channel relay board

8ch_config for 8 channel relay board

1 Change json MQTT broker host, username,password

change file "org.openhab.core.thing.Thing.json"



```
1 {
2   "mqtt:broker:dingtianbroker": {
3     "class": "org.openhab.core.thing.internal.BridgeImpl",
4     "value": {
5       "label": "MQTT Broker",
6       "channels": [],
7       "configuration": {
8         "properties": {
9           "certificatepin": false,
10          "clientId": "ble677c2-577c-4678-86f6-5e0a060827b6",
11          "enableDiscovery": false,
12          "host": "192.168.1.9", change to you broker IP
13          "keepAlive": 60,
14          "lwtQos": 1,
15          "lwtRetain": true, change to you broker password
16          "password": "123", change to you broker username
17          "port": 1883,
18          "publickeypin": false,
19          "qos": 1,
20          "reconnectTime": 60000,
21          "secure": false,
22          "username": "mqtt"
23        }
24      },
25      "properties": {},
26      "uid": {
27        "segments": [
28          "mqtt",
29          "broker",
30          "dingtianbroker"
31        ],
32        "uid": "mqtt:broker:dingtianbroker"
33      },
34      "thingTypeUID": {
35        "segments": [
36          "mqtt",
37          "broker"
38        ],
39        "uid": "mqtt:broker"
40      }
41    }
42  },
43 }
```

2 Change json SN(example SN 7920) to you relay board SN

Change file:

"org.openhab.core.thing.Thing.json"

"org.openhab.core.thing.link.ItemChannelLink.json"

"org.openhab.core.items.Item.json"

Step 4 Add Dingtian Relay board to openHAB

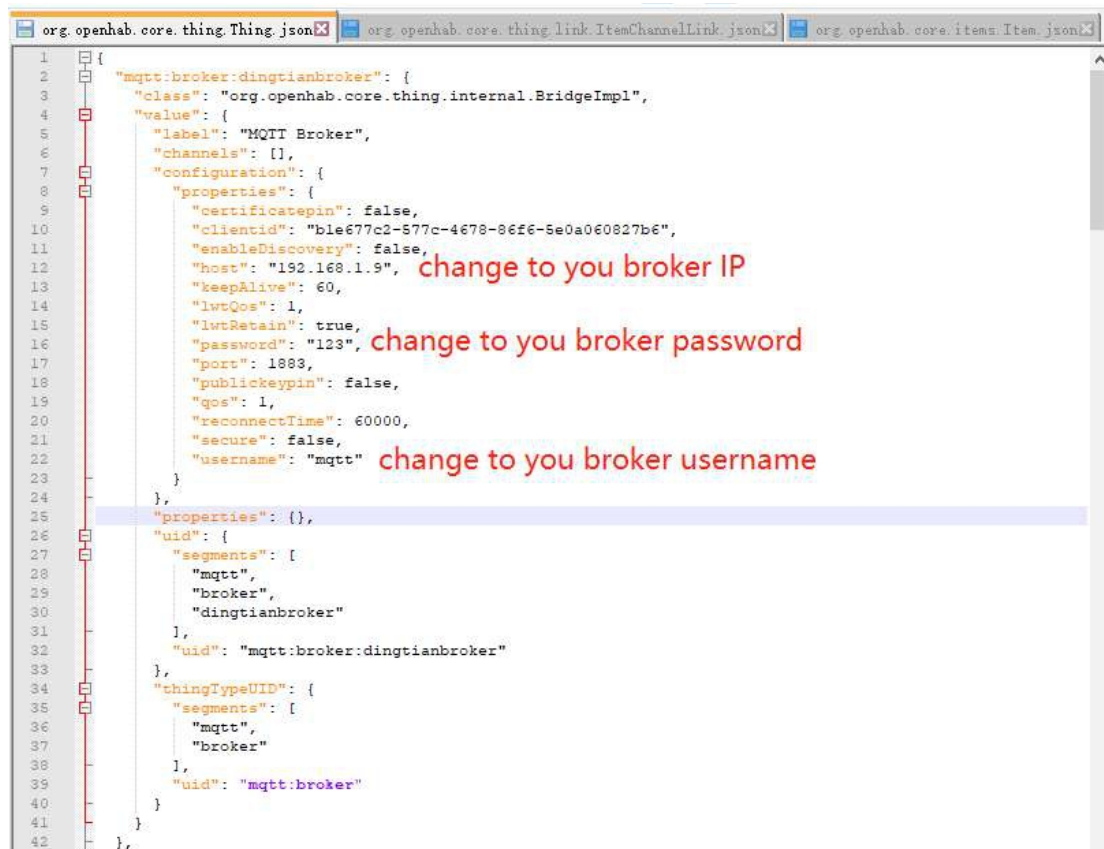
2ch_config for 2 channel relay board

4ch_config for 4 channel relay board

8ch_config for 8 channel relay board

1 Change json MQTT broker host, username,password

change file "org.openhab.core.thing.Thing.json"



```
1 {
2   "mqtt:broker:dingtianbroker": {
3     "class": "org.openhab.core.thing.internal.BridgeImpl",
4     "value": {
5       "label": "MQTT Broker",
6       "channels": [],
7       "configuration": {
8         "properties": {
9           "certificatepin": false,
10          "clientId": "ble677c2-577c-4678-86f6-5e0a060827b6",
11          "enableDiscovery": false,
12          "host": "192.168.1.9", change to you broker IP
13          "keepAlive": 60,
14          "lwtQos": 1,
15          "lwtRetain": true, change to you broker password
16          "password": "123", change to you broker password
17          "port": 1883,
18          "publickeypin": false,
19          "qos": 1,
20          "reconnectTime": 60000,
21          "secure": false,
22          "username": "mqtt" change to you broker username
23        }
24      },
25      "properties": {},
26      "uid": {
27        "segments": [
28          "mqtt",
29          "broker",
30          "dingtianbroker"
31        ],
32        "uid": "mqtt:broker:dingtianbroker"
33      },
34      "thingTypeUID": {
35        "segments": [
36          "mqtt",
37          "broker"
38        ],
39        "uid": "mqtt:broker"
40      }
41    }
42  }
43 }
```

2 Change json SN(example SN 7920) to you relay board SN

Change file:

"org.openhab.core.thing.Thing.json"

"org.openhab.core.thing.link.ItemChannelLink.json"

"org.openhab.core.items.Item.json"

org.openhab.core.thing.Thing.json

The screenshot shows an IDE window with the file `org.openhab.core.thing.Thing.json` open. A search and replace dialog is displayed over the code. The dialog has the following settings:

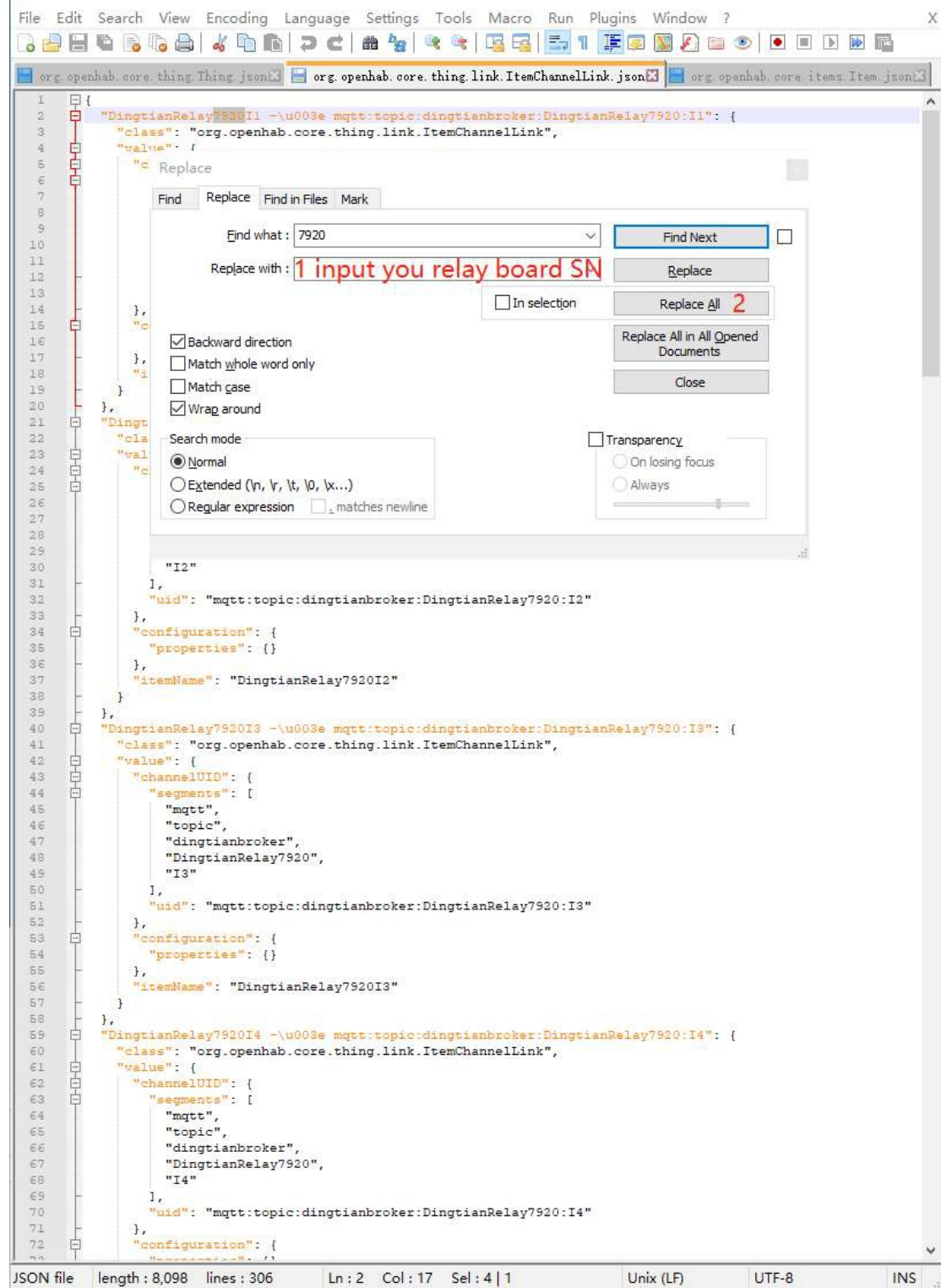
- Find what: `7920`
- Replace with: `1 input you relay board SN`
- Buttons: `Find Next`, `Replace`, `Replace All 2`, `Replace All in All Opened Documents`, `Close`
- Options: `In selection` (unchecked), `Backward direction` (checked), `Match whole word only` (unchecked), `Match case` (unchecked), `Wrap around` (checked)
- Search mode: `Normal` (selected), `Extended (n, v, t, \d, \x...)` (unchecked), `Regular expression` (unchecked), `matches newline` (unchecked)
- Transparency: `On losing focus` (selected), `Always` (unchecked)

The JSON code in the background is as follows:

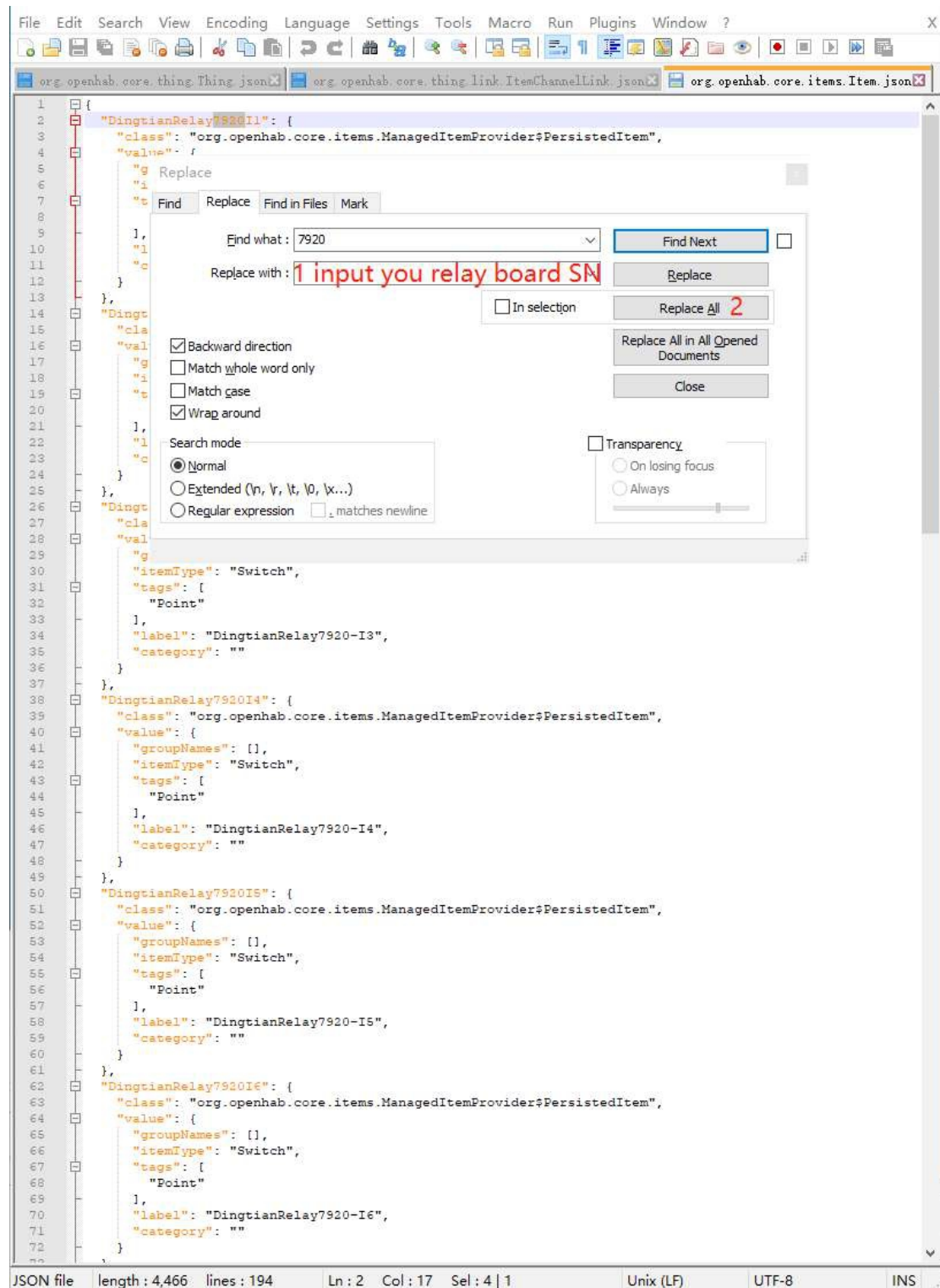
```
10      "clientId": "ble677c2-577c-4678-86f6-5e0a0e0827b6",
11      "enableDiscovery": false,
12      "host": "192.168.1.9",
13      "keepAlive": 60,
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39      "uid": "mqtt:broker"
40    }
41  },
42 },
43 },
44 "mqtt:topic:dingtianbroker:DingtianRelay7920": {
45   "class": "org.openhab.core.thing.internal.ThingImpl",
46   "value": {
47     "label": "Relay7920",
48     "bridgeUID": {
49       "segments": [
50         "mqtt",
51         "broker",
52         "dingtianbroker"
53       ],
54       "uid": "mqtt:broker:dingtianbroker"
55     },
56     "channels": [
57       {
58         "acceptedItemType": "Switch",
59         "kind": "STATE",
60         "uid": {
61           "segments": [
62             "mqtt",
63             "topic",
64             "dingtianbroker",
65             "DingtianRelay7920",
66             "R1"
67           ],
68           "uid": "mqtt:topic:dingtianbroker:DingtianRelay7920:R1"
69         },
70         "channelTypeUID": {
71           "segments": [
72             "mqtt",
73             "switch"
74           ],
75           "uid": "mqtt:switch"
76         },
77         "label": "DingtianRelay7920-R1",
78         "description": "",
79         "configuration": {
80           "properties": {
81             "commandTopic": "/dingtian/relay7920/in/r1",
82             "off": "OFF",
83             "on": "ON"
84           }
85         }
86       }
87     ]
88   }
89 }
```

At the bottom of the IDE, the status bar shows: `JSON file length: 16,233 lines: 605 Ln: 43 Col: 43 Sel: 4 | 1 Unix (LF) UTF-8 INS`

org.openhab.core.thing.link.ItemChannelLink.json



org.openhab.core.items.Item.json

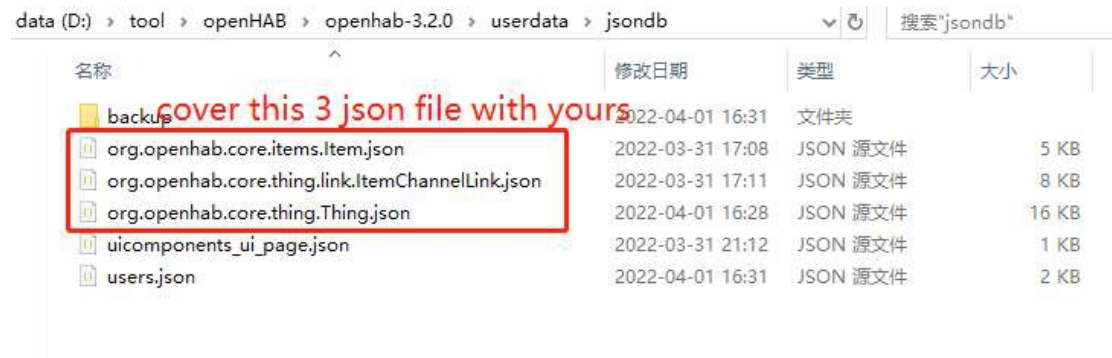


3 Cover openHAB json

OpenHAB json path: "D:\tool\openHAB\openhab-3.2.0\userdata\jsondb"

Notice:

example openHAB install path "D:\tool\openHAB\openhab-3.2.0"



4 Control relay board with openHAB

1 double click "start.bat"



```
管理员: Karaf
Launching the openHAB runtime...

  openHAB
  3.2.0 - Release Build

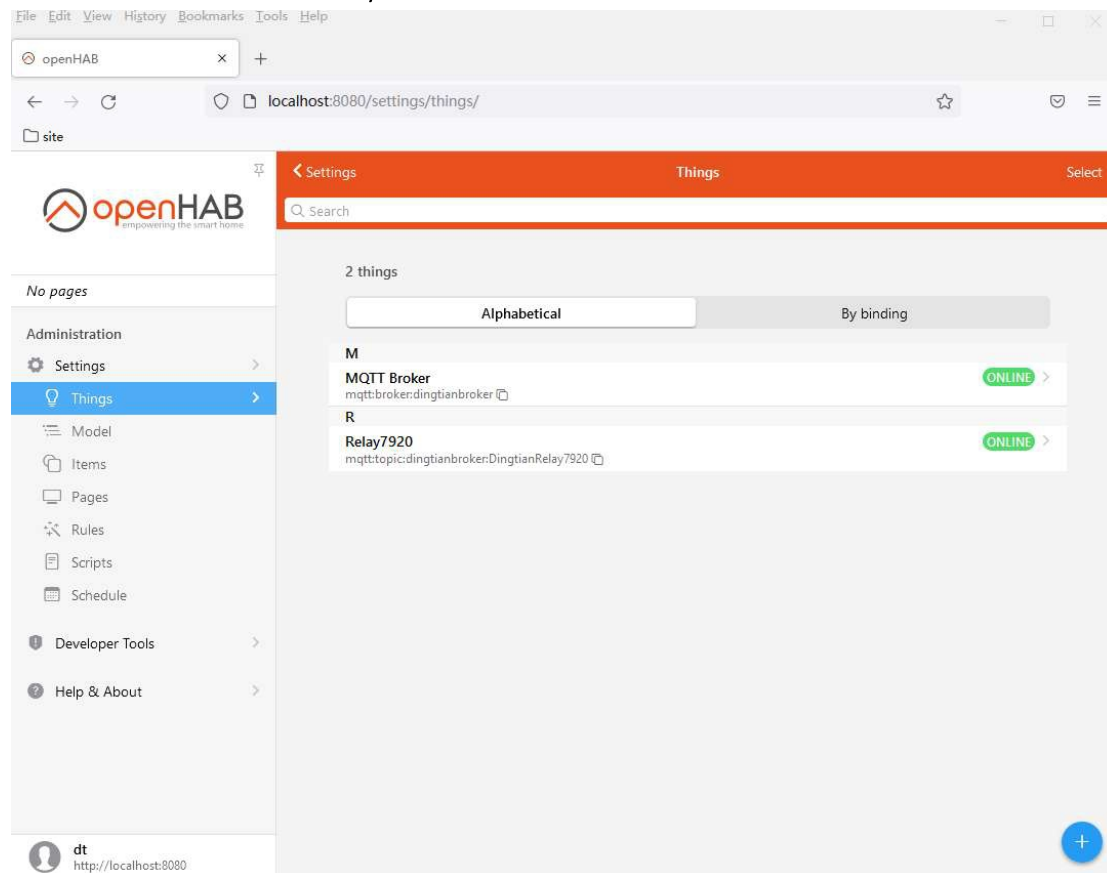
Use '<tab>' for a list of available commands
and '[cmd] --help' for help on a specific command.
To exit, use '<ctrl-d>' or 'logout'.

openhAB> _
```

Wait 1 minute for openHAB startup

2 Open openHAB web page

It shows MQTT broker and Relay board 7920 is online




control relay

File Edit View History Bookmarks Tools Help

openHAB x +

localhost:8080/settings/model/

site

 **openHAB**
empowering the smart home

Settings Semantic Model

Search

No pages

Administration

- Settings
- Things
- Model**
- Items
- Pages
- Rules
- Scripts
- Schedule

Developer Tools

Help & About

DingtianRelay7920-11
Point

DingtianRelay7920-12
Point

DingtianRelay7920-13
Point

DingtianRelay7920-14
Point

DingtianRelay7920-15
Point

DingtianRelay7920-16
Point

DingtianRelay7920-17
Point

DingtianRelay7920-18
Point

DingtianRelay7920-R1
Point

DingtianRelay7920-R2
Point

DingtianRelay7920-R3
Point


DingtianRelay7920-R4
Point

DingtianRelay7920-R5
Point

DingtianRelay7920-R6
Point

DingtianRelay7920-R7
Point

DingtianRelay7920-R8
Point


click to control relay
Analyze

Item

D DingtianRelay7920-R1 >
Switch · Point
DingtianRelay7920R1

Edit Remove

Metadata

Add Metadata

Channel Links

D Relay7920 ONLINE >
DingtianRelay7920-R1
mqtt:topic:dingtianbroken:DingtianRelay7920:R1

Add Link

dt http://localhost:8080

Clear Show non-semantic