

Guideline to configure the transparent communication with MQTT mode of Ethernet IP device for 4G Router

The following uses a Local Server test environment as an example, shown as Figure1.

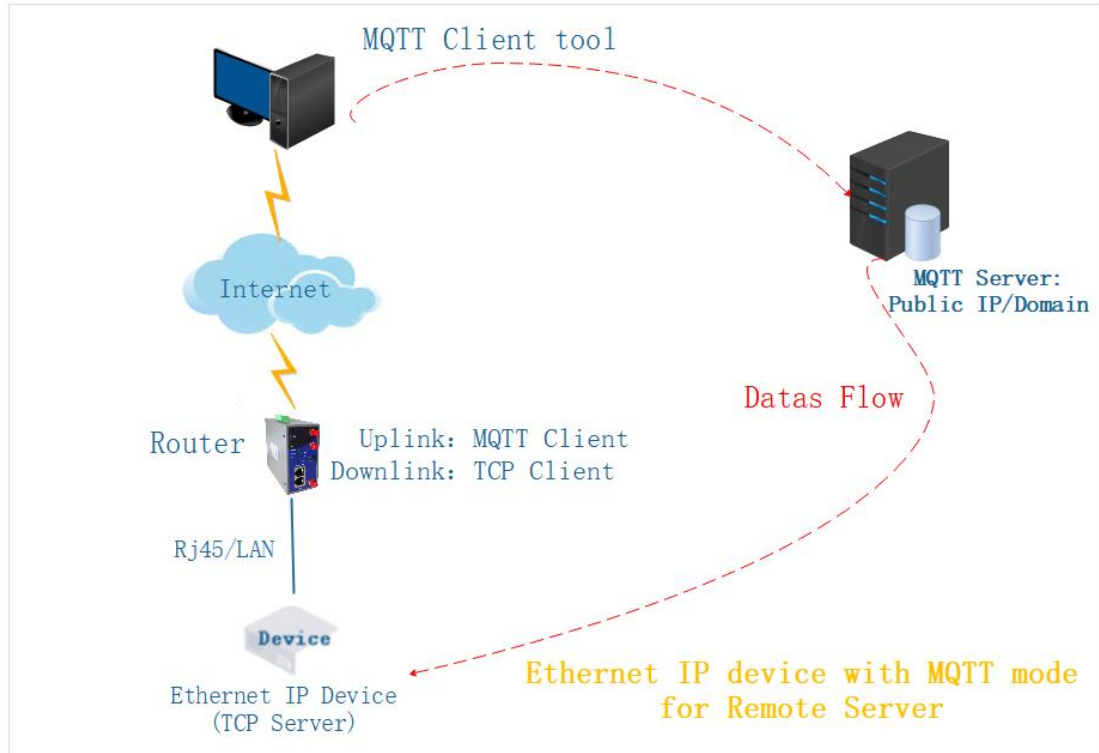
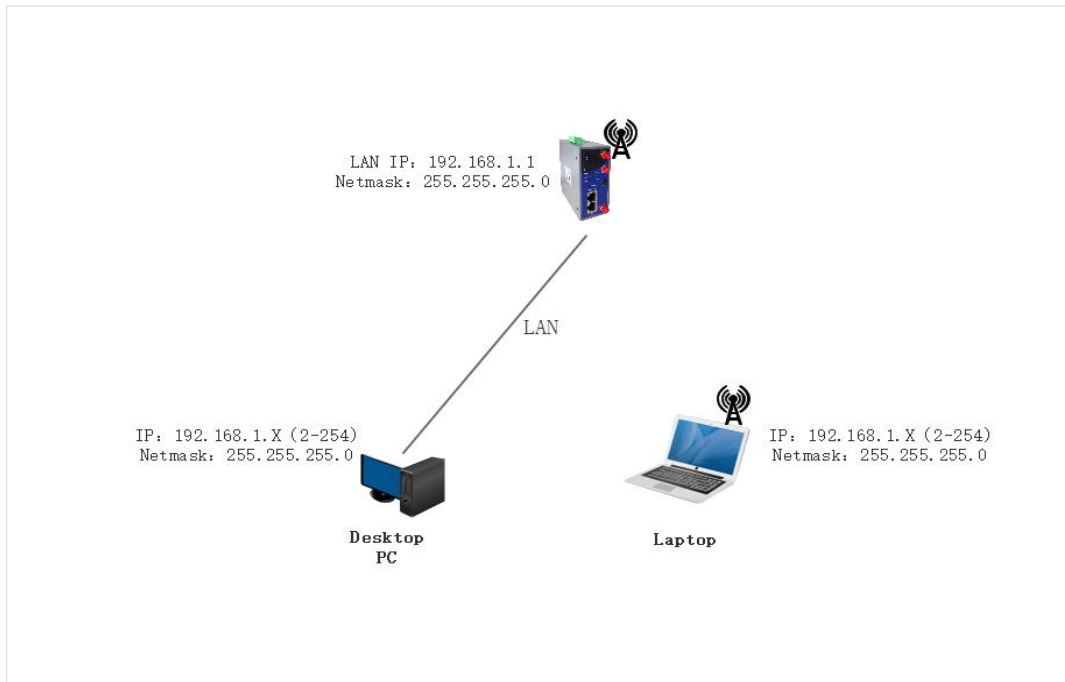
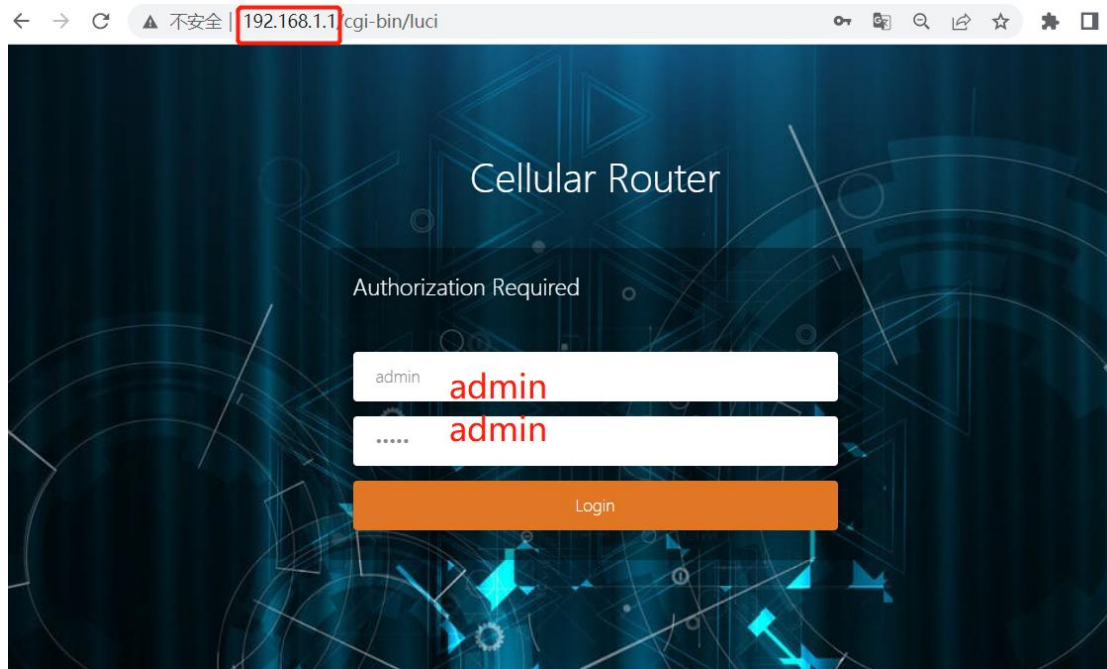


Figure1

1. Connect the LAN port of the router to the computer, and set the automatic dhcp mode for the computer Network Interface Card, and ensure that the computer can obtain the address 192.168.1.x, netmask 255.255.255.0 (with dhcp mode or static ip).



2. Open the browser, type the default IP address of the router with 192.168.1.1, then press Enter. And then input the username/password with admin/admin to login the Router.



3. After logging, you will see overview details about the router system, including the software/hardware version, product model, product id, networking mode, and MAC address, etc.

The screenshot shows the web interface for an M2M wireless terminal. The browser address bar displays '192.168.1.1/cgi-bin/luci/'. The page title is 'M2M wireless terminal' and 'Cellular Router'. The left sidebar contains navigation menus for System Status, Basic Network, Advanced Network, VPN Configuration, System Management, and Logout. The main content area is titled 'Status' and contains a table of system information:

System			
Router Name	M2M	Product Name	ZR2721S
Firmware Version	Premium Wireless Router v2.5.221125	Product ID	1120ZR21908270518
Local Time	Mon Nov 28 19:44:33 2022	Hardware Class	Single Model Single Card
Uptime	0h 8m 39s	MAC Address	34:0a:68:24:b8:ec
Load Average	1.06, 1.11, 0.58	WAN Mode	4G/5G and Wired

Below the system status table is the 'MobileWAN Status' section, which includes fields for Interface, Gateway, IPv4Address, DNS, Modem Type, Modem IMEI, Modem IMSI, Modem ICCID, and Network Operator.

4. Check the LAN IP address of the router (you can also change the default IP for specific using) and PC address directly connected to router (for later testing), shown as follows.

The screenshot shows the 'Wired Network' configuration page in the web interface. The 'LAN' tab is selected and highlighted with a red box. The page title is 'Interfaces - LAN'. Below the title is a section for 'Common Configuration' with two tabs: 'General Setup' and 'Advanced Settings'. The 'General Setup' tab is active, showing the following configuration:

- Status: Collecting data...
- Protocol: Static address
- IPv4 address: 192.168.1.1/24 (highlighted with a red box)
- Use custom DNS servers: (empty field)
- IPv6 assignment length: 64
- IPv6 assignment hint: (empty field)

System Status Overview

eth1
MAC Address: 34:0A:68:24:B8:EC
Netmask: 255.255.255.0
Gateway: 0.0.0.0

Active Connections: 160 / 16384 (0%)

Memory

Total Available	72172 kB / 123688 kB (58%)
Free	64404 kB / 123688 kB (52%)
Buffered	7768 kB / 123688 kB (6%)

DHCP Leases

Hostname	IP Address	MAC-Address	Leasetime remaining
mc007	192.168.1.236	E4:E7:49:1A:A7:F3	11h 49m 21s

Wireless

Generic MAC80211 802.11bgn Wireless Controller (radio0)

SSID: ZR2721S-24b8ec
Mode: Master
Channel: 6 (2.437 GHz)
Bitrate: ? Mbit/s
BSSID: 34:0A:68:24:B8:EE
Encryption: mixed WPA/WPA2 PSK (CCMP)
Uptime: 0h 10m 57s

SSID: default
Mode: Client
Channel: 6 (2.437 GHz)
Bitrate: ? Mbit/s

Wireless is disabled or not associated

5. Confirm the WAN interface address of the router owns the same subnet network as the MQTT server(they can ping each other well). They are as follows.

System Status Overview

WiredWAN Status

Type: dhcp
IPv4Address: 192.168.10.119
MAC Address: 34:0A:68:24:B8:EC
Netmask: 255.255.255.0
Gateway: 192.168.10.1
DNS 1: 202.96.134.33
Expires: 23h 57m 55s
Connected: 0h 2m 5s

eth1

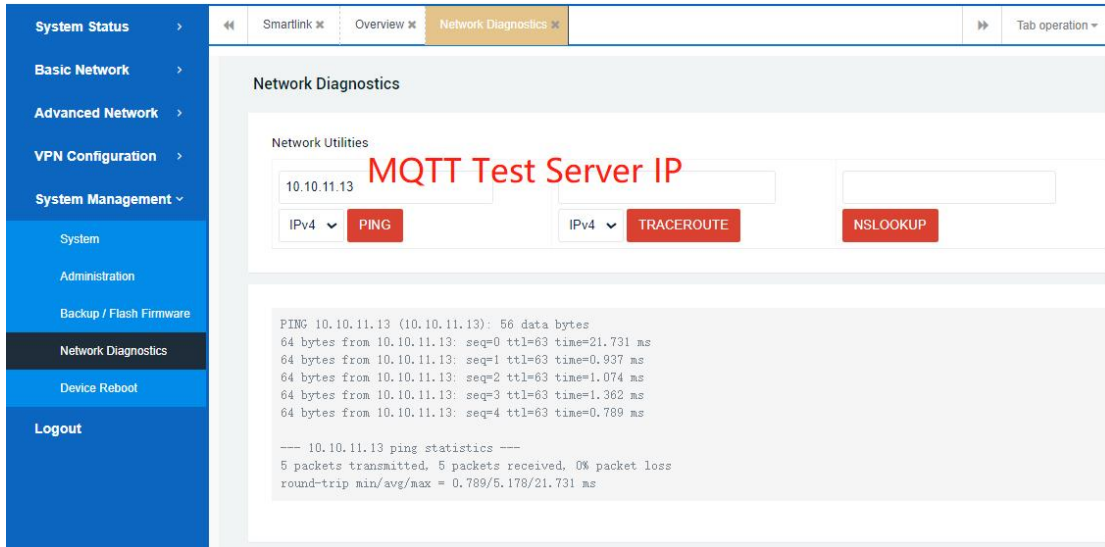
Active Connections: 224 / 16384 (1%)

Memory

Total Available	70668 kB / 123688 kB (57%)
Free	62324 kB / 123688 kB (50%)
Buffered	8344 kB / 123688 kB (6%)

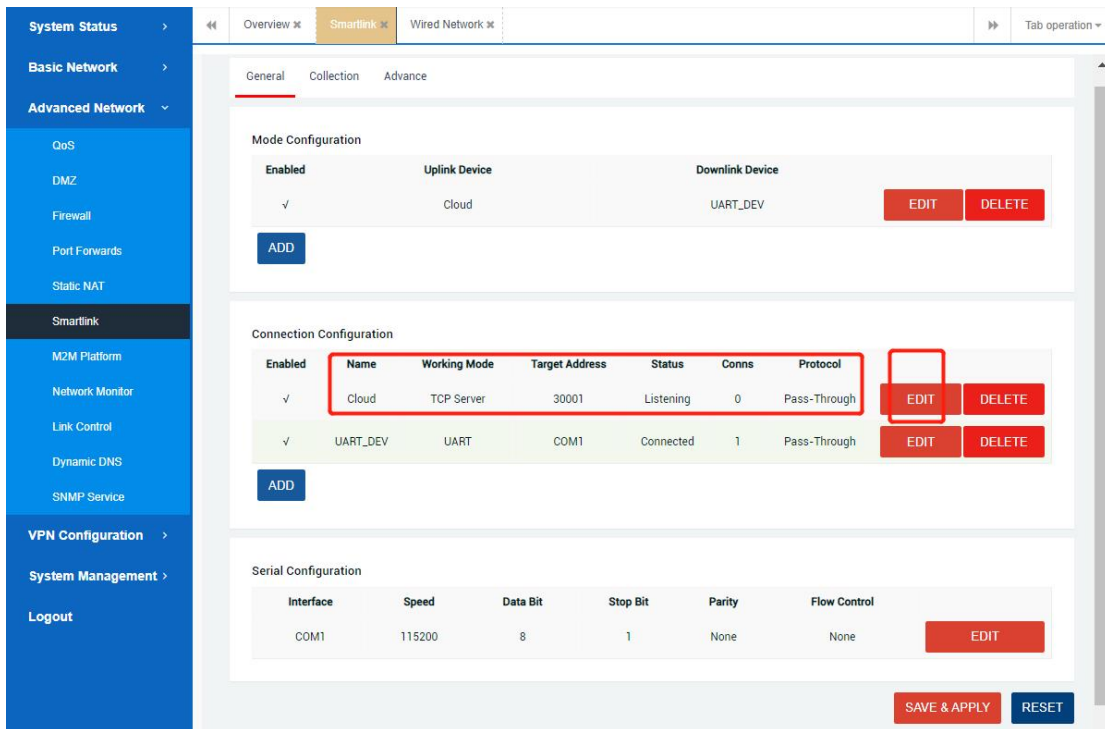
DHCP Leases

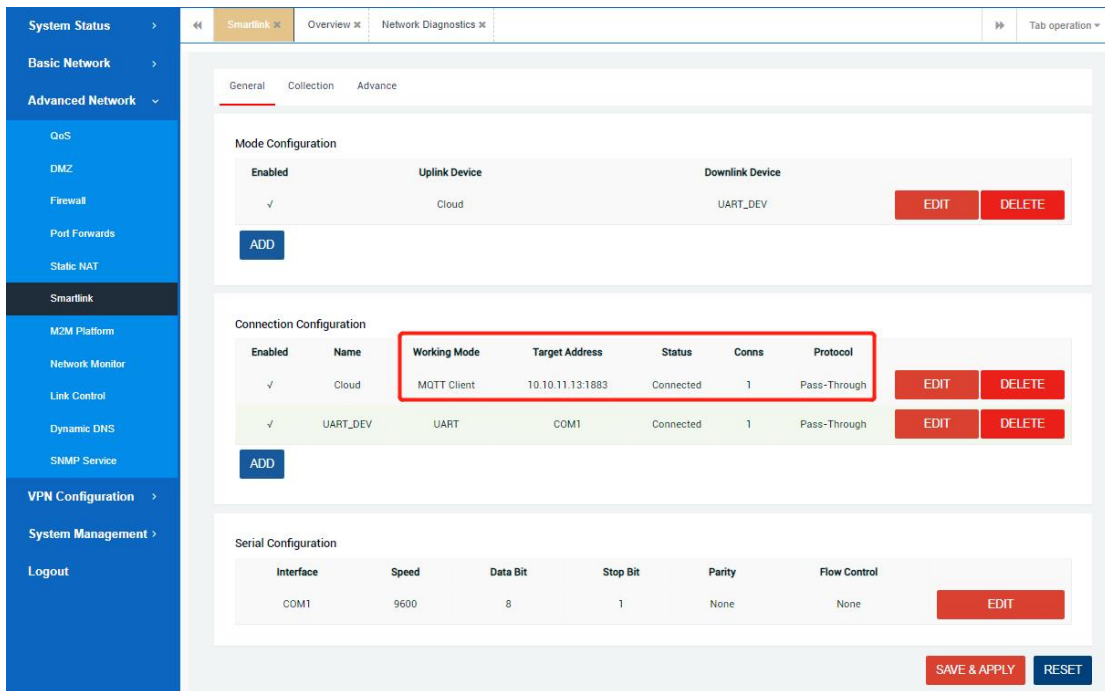
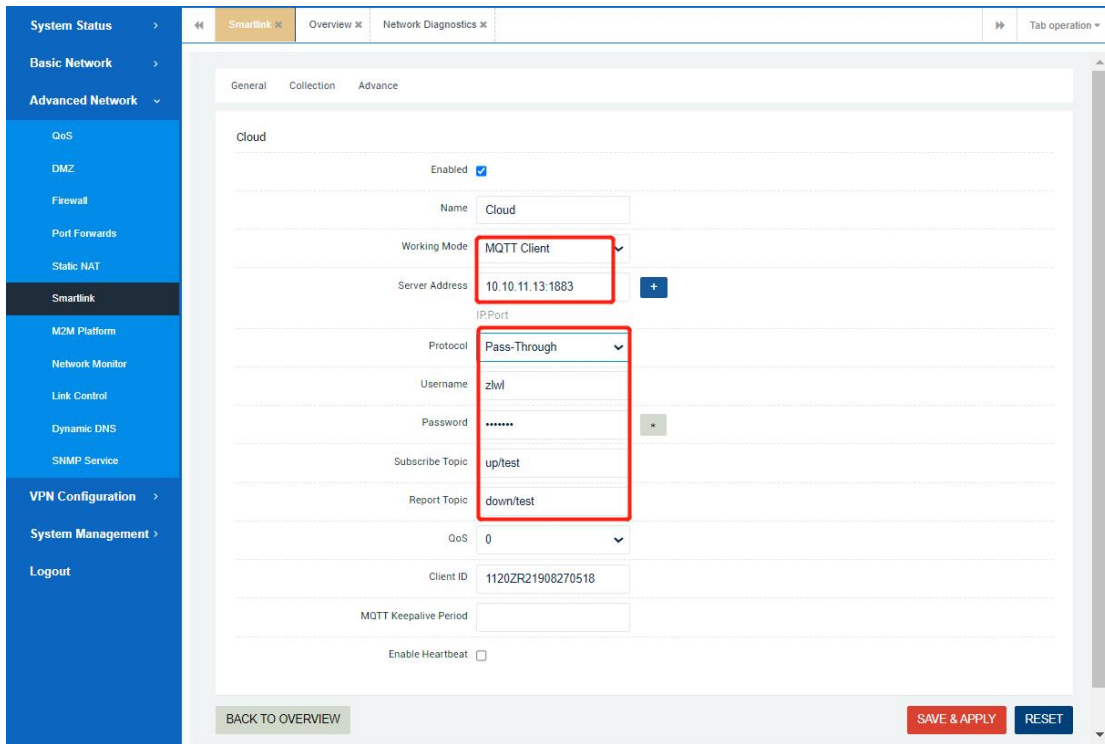
Hostname	IP Address	MAC-Address	Leasetime remaining
mc007	192.168.1.236	E4:E7:49:1A:A7:F3	11h 57m 52s



6. Start to configure smartlink usage.

6.1 to config 'cloud'/'uplink device' option: set it to MQTT Client mode, select protol to PASS-Through and type MQTT Server IP and port/username/password/Subscribe topic/report topic all well.





6.2 to config 'UART_DEV'/'Downlink Device' option: set it to tcp client mode(We simulate the IP address of the computer as the user network device running in TCP Server mode), select proto to PASS-Through.

System Status > Overview x Network Diagnostics x Tab operation

Basic Network >

Advanced Network >

QoS

DMZ

Firewall

Port Forwards

Static NAT

Smartlink

M2M Platform

Network Monitor

Link Control

Dynamic DNS

SNMP Service

VPN Configuration >

System Management >

Logout

General Collection Advance

Mode Configuration

Enabled	Uplink Device	Downlink Device	
<input checked="" type="checkbox"/>	Cloud	UART_DEV	EDIT DELETE

[ADD](#)

Connection Configuration

Enabled	Name	Working Mode	Target Address	Status	Conns	Protocol	
<input checked="" type="checkbox"/>	Cloud	MQTT Client	10.10.11.13:1883	Connected	1	Pass-Through	EDIT DELETE
<input checked="" type="checkbox"/>	UART_DEV	UART	COM1	Connected	1	Pass-Through	EDIT DELETE

[ADD](#)

Serial Configuration

Interface	Speed	Data Bit	Stop Bit	Parity	Flow Control	
COM1	9600	8	1	None	None	EDIT

[SAVE & APPLY](#) [RESET](#)

System Status > Overview x Network Diagnostics x Tab operation

Basic Network >

Advanced Network >

QoS

DMZ

Firewall

Port Forwards

Static NAT

Smartlink

M2M Platform

Network Monitor

Link Control

Dynamic DNS

SNMP Service

VPN Configuration >

System Management >

Logout

General Collection Advance

UART_DEV

Enabled

Name

Working Mode [+](#)

Server Address [+](#)

PPort

Protocol

Enable Heartbeat

[BACK TO OVERVIEW](#) [SAVE & APPLY](#) [RESET](#)

6.3 All configuration finished as below (here we don't need Serial Configuration any more).

System Status > Overview x Network Diagnostics x Tab operation

Basic Network >

Advanced Network >

QoS

DMZ

Firewall

Port Forwards

Static NAT

Smartlink

M2M Platform

Network Monitor

Link Control

Dynamic DNS

SNMP Service

VPN Configuration >

System Management >

Logout

General Collection Advance

Mode Configuration

Enabled	Uplink Device	Downlink Device	
<input checked="" type="checkbox"/>	Cloud	UART_DEV	EDIT DELETE

[ADD](#)

Connection Configuration

Enabled	Name	Working Mode	Target Address	Status	Conns	Protocol	
<input checked="" type="checkbox"/>	Cloud	MQTT Client	10.10.11.13:1883	Connected	1	Pass-Through	EDIT DELETE
<input checked="" type="checkbox"/>	UART_DEV	TCP Client	192.168.1.236:502	Disconnect	0	Pass-Through	EDIT DELETE

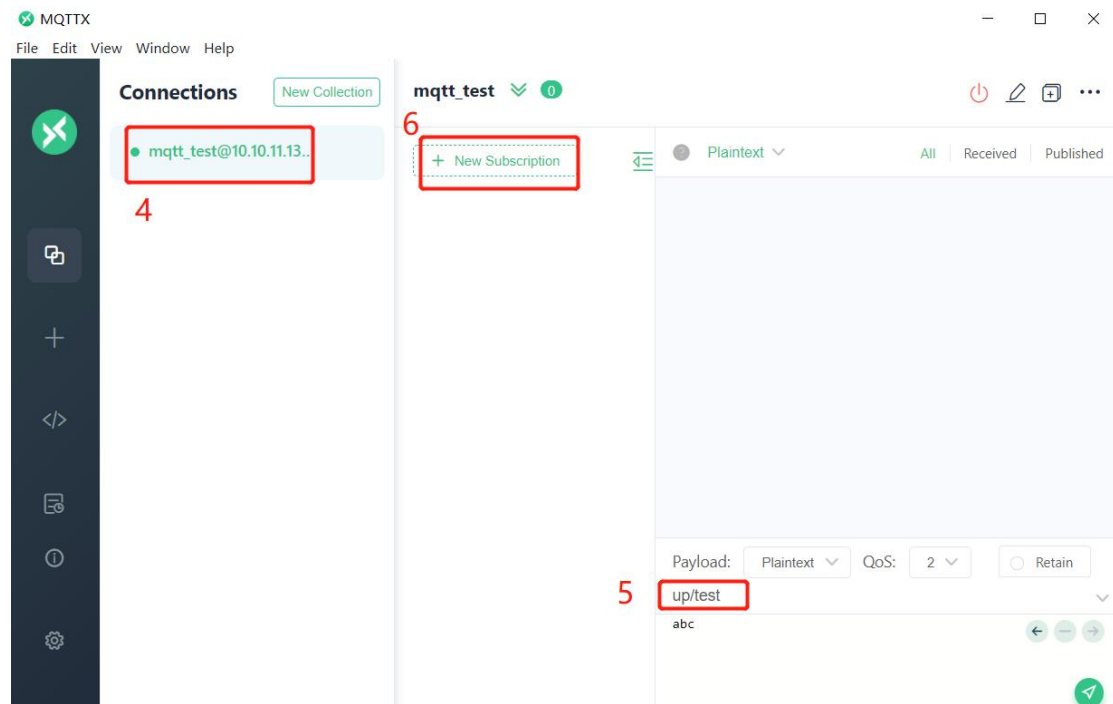
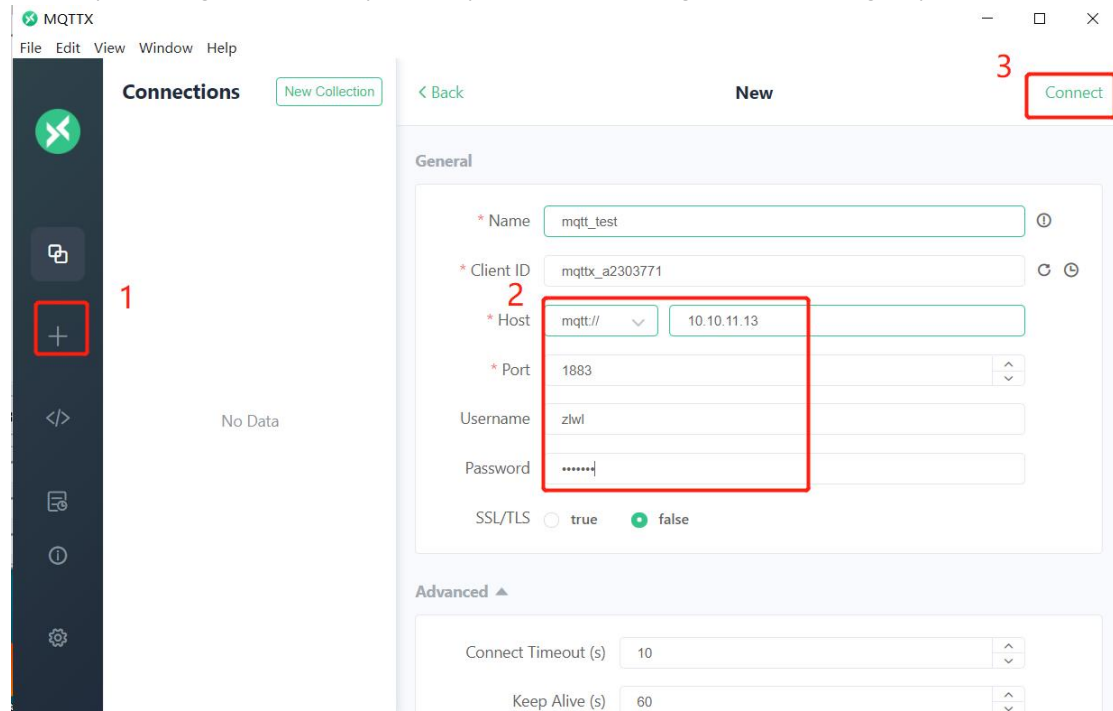
[ADD](#)

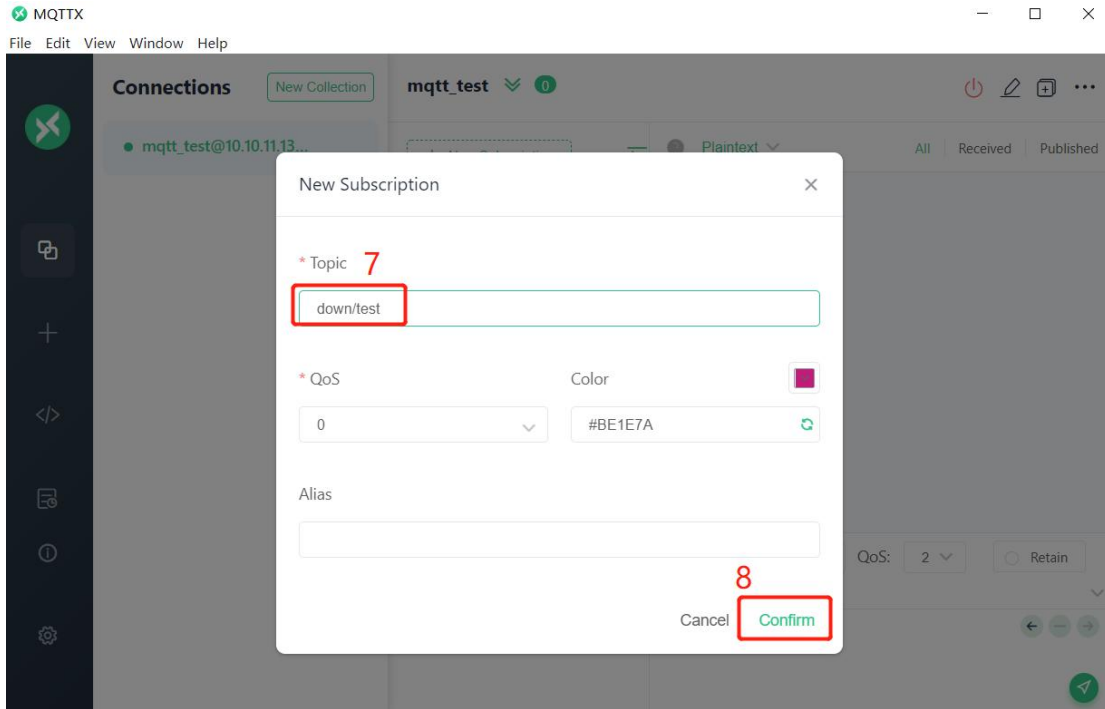
Serial Configuration

Interface	Speed	Data Bit	Stop Bit	Parity	Flow Control	
COM1	9600	8	1	None	None	EDIT

[SAVE & APPLY](#) [RESET](#)

7. Firstly, to install and run the MQTTx client testing tool on the computer. Then try to configure all MQTT portocol parameters referring to the following steps.





8.Run the TCP/UDP network tool (to set TCP Server mode with port 502 for example) and MQTT client tool on the computer at the same time, then you can see that the data sending and receiving from each tool works well.

