WideIOT

Device Tunnel Software

User Manual

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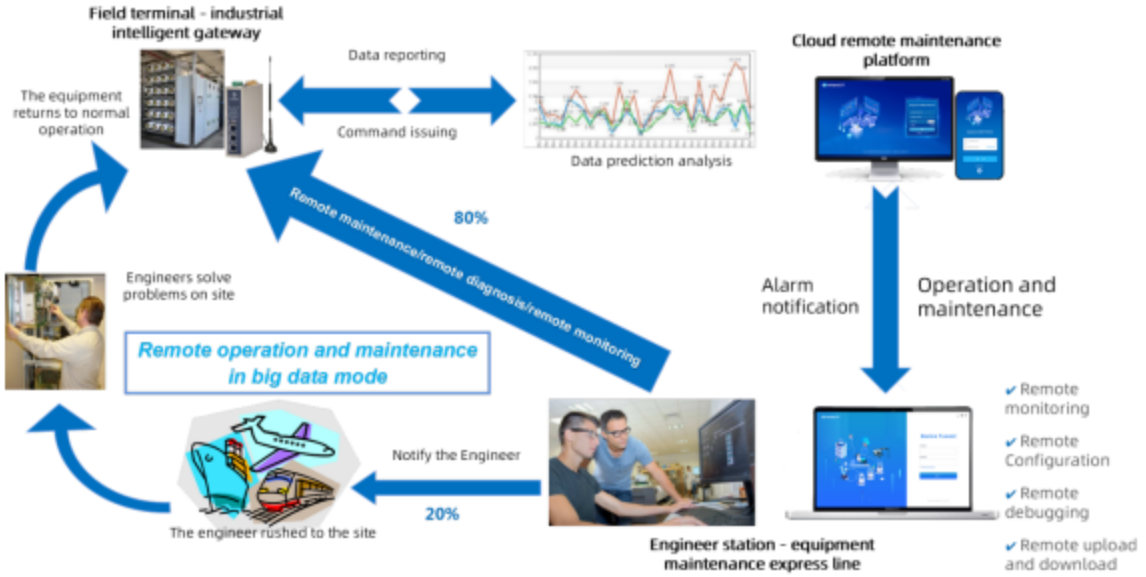
1. Product Overview

1.1. Overview

The WidelOT·Device Remote Maintenance System is a set of hardware and software systems designed for remote maintenance and operation of distributed equipment. It establishes a secure data channel for engineers to access on-site remote equipment, enabling remote configuration, remote diagnosis, remote debugging, and remote program upgrading of on-site devices (such as PLCs).

It is widely used by equipment manufacturers for remote maintenance and management of large intelligent devices (controlled by PLCs or other main controllers), including construction machinery, pharmaceutical equipment, sewage treatment equipment, solid waste disposal equipment, etc.



2. Installation Guide

2.1. Installation Overview

The gateway can only fulfill its designed functions after proper installation.

⚠ Warning:

Do not install the device while it is powered on.

2.2. Package Contents

To ensure safe transportation, proper packaging is required. After unpacking the device, retain the packaging materials for future transportation needs.

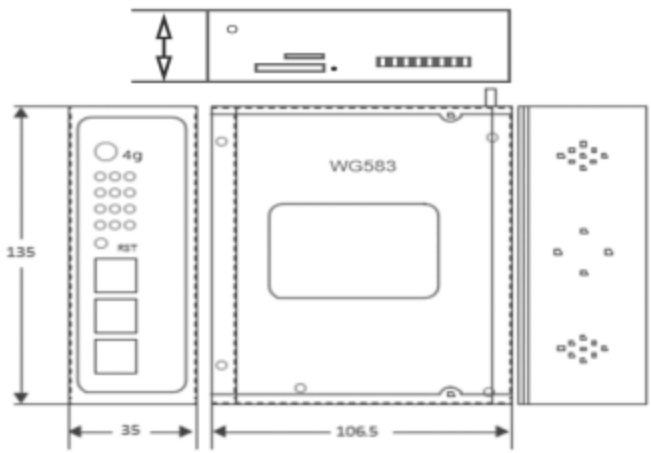
It includes the following components:

The package includes the following components:

- ✧ 1 gateway
- ✧ 1 wireless cellular antenna (if the model supports 4G)
- ✧ 2 WIFI antennas (if the model supports WIFI)
- ✧ 1 power cable
- ✧ 1 Ethernet cable
- ✧ 1 DIN rail clip
- ✧ Product certification
- ✧ Warranty card

2.3. Installation and Wiring Connection

Dimensions (Unit: mm)



Antenna Installation：

The wireless 4G antenna interface is a standard SMA female connector (on the side). Insert the cellular antenna into this interface and ensure it is tightly fastened to avoid affecting signal quality.

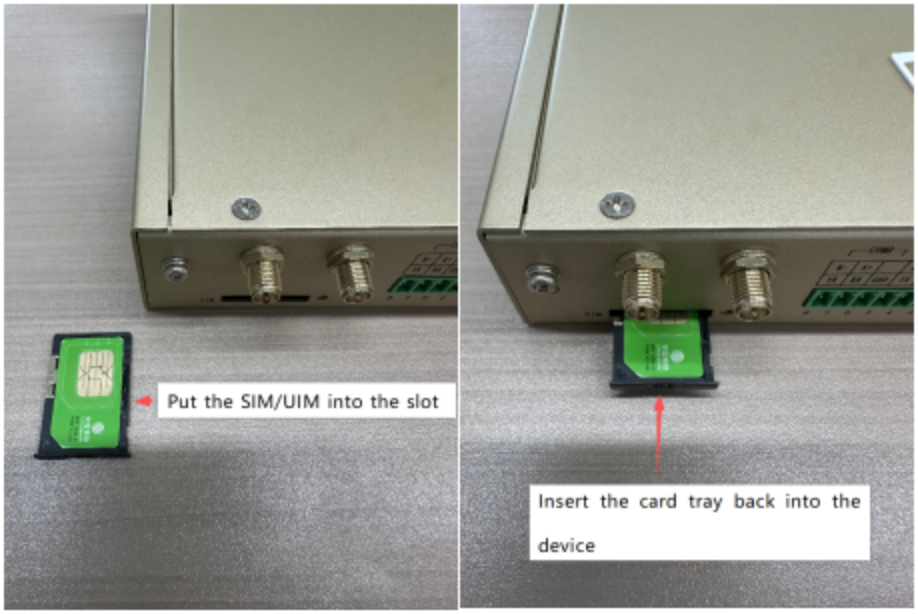
The wireless WIFI antenna interfaces are 2 standard SMA male connectors (on the top). Insert the WIFI antennas into these interfaces and ensure they are tightly fastened to avoid affecting signal quality.

Note: Do not mix 4G antennas with WIFI antennas; otherwise, the device may not work properly.

SIM/UIM Card Installation Steps：

Gently press the circular eject button on the left side of the card slot; the SIM/UIM card tray will pop out automatically. During installation, place the SIM/UIM card into the tray with the metal chip facing outward, then insert the tray back into the device.

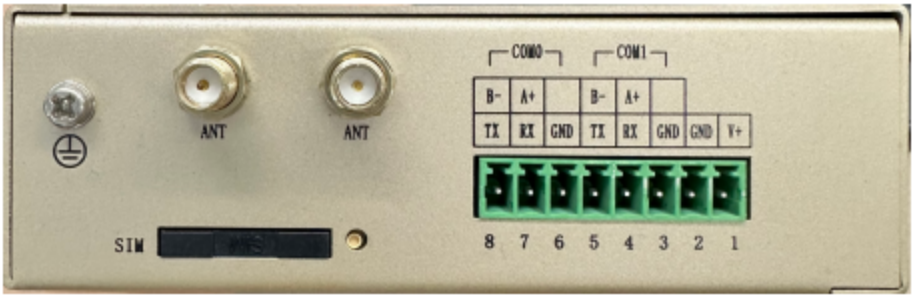
(The following is an example for the single-card version)



Ethernet Cable Connection：

Connect one end of the Ethernet cable to the LAN port of the gateway, and the other end to the Ethernet port of the user's device. The cable specification is defined as follows:

LAN1	LAN2	Color
1	1	White/Orange
2	2	Orange
3	3	White/Green
4	4	Blue
5	5	White/Blue
6	6	Green
7	7	White/Brown
8	8	Brown



3.5mm Terminal Block Interface Definition：

This 8-pin terminal block includes POWER (power supply) and RS485 (RS232) functions. The specific definitions are as follows:

Power Wiring		
Gateway Terminal	GND	VIN
	V-	V+
Description	Connect to DC6-35V negative pole	Connect to DC6-35V positive pole

RS485 Wiring		
Gateway Terminal	B-	A+
	T/B	R/A
Description	Connect to device RS485-	Connect to device RS485+

RS232 Wiring			
Gateway Terminal	TX	RX	GND
	T/B	R/A	GND
Description	Connect to device RS232RX	Connect to device RS232TX	Connect to device RS232GND

2.4. Power Supply Description

The gateway is typically used in complex external environments. To adapt to the environment and improve system stability, this gateway adopts advanced power supply technology. Users can power the device using the standard 12V DC / 1A power adapter included with the device, or directly use a 6–35V wide-voltage DC power supply.

If users use other power supplies, ensure the output is stable (ripple less than 300mV, instantaneous voltage not exceeding 35V) and the

power is greater than 8W. We recommend using the standard 12V DC / 1A power adapter included with the device.

2.5. Indicator Light Description

The gateway is equipped with the following LED indicators: "STATUS", "WARN", "ERROR", 3 4G signal strength indicators, "POWER", "WLAN", and "LTE".

Indicator	Status	Description
STATUS	Blinking	In operation
WARN	Steady On	Failed to connect to 4G network
	Off	4G connected / 4G disabled
ERROR	Steady On	Abnormal operation
	Off	Normal operation
POWER	Steady On	Normal power supply
WLAN	Steady On	WIFI enabled
	Off	WIFI disabled
LTE	Steady On	4G enabled
	Off	4G disabled

2.6. Reset Function

The gateway is equipped with a reset button marked "Reset", which is used to restore the device to factory settings.

Operation Steps

First, power off the gateway and then power it on again;

When the STATUS and WARN indicators start blinking alternately, immediately press and hold the RESET button;

Release the button when the ERROR indicator enters a slow-blinking state (or hold for 3 seconds and then release);

Press and hold the RESET button again until the ERROR indicator switches to fast blinking, then release (or hold for 3 seconds and then release);

The gateway will then start automatic reset.

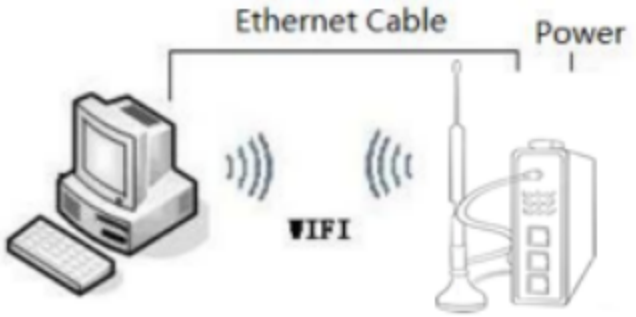
3. Configuration and Management

3.1. Configuration Connection

Connection Method Before Gateway Configuration

Before configuring the gateway, connect it to the computer using the included Ethernet cable.

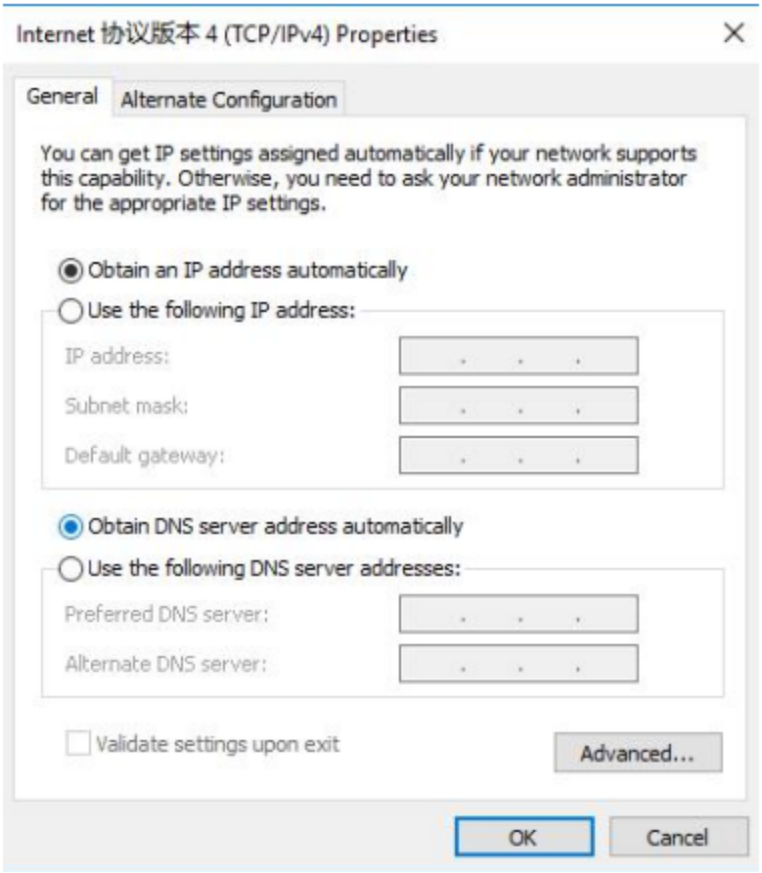
Wired Connection: Insert one end of the Ethernet cable into any LAN port of the gateway, and the other end into the Ethernet port of the computer.



3.2. Accessing the Configuration Interface

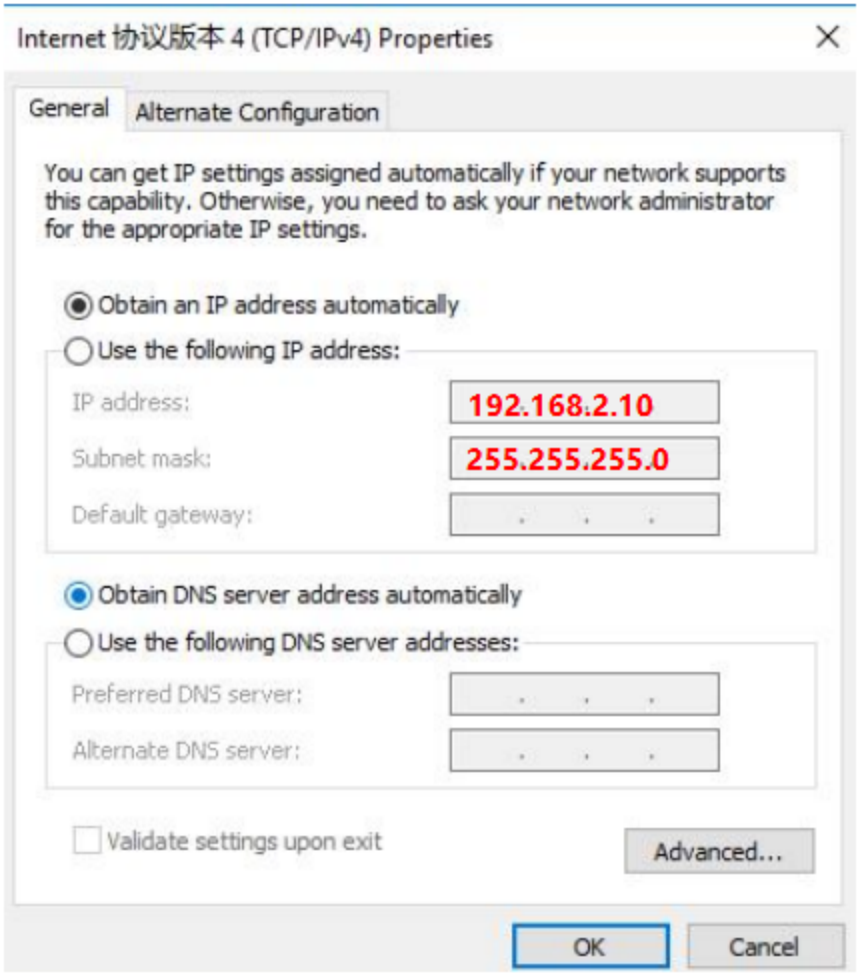
3.2.1. Computer IP Address Setting (Two Methods)

Method 1: Obtain IP Address Automatically



Method 2: Static IP Address Setting

Set the computer's IP address to [192.168.2.10](192.168.2.10) (or another IP address in the 192.168.2 network segment), subnet mask to [255.255.255.0](255.255.255.0), and default gateway to [192.168.2.1](192.168.2.1). The DNS can be set to any local available DNS server.



3.2.2. Logging In to the Configuration Interface

This chapter introduces the main functions of each setting page. Users can access the gateway's configuration interface via a web browser on the connected computer. The configuration interface includes 11 main pages: Setup, Wireless, Services, VPN, Security, Access Restrictions, NAT, QoS Setting, Applications, Administration, and Status.

To access the web-based configuration tool, open IE or another browser, enter the default gateway IP address [192.168.2.1](192.168.2.1) in the address bar, and press Enter.

Enter the correct username and password, then click "Login". The default username is "admin" and the default password is "123456". You can modify the default username and password in the "System" section.

3.3. Configuration and Management Functions

3.3.1. Ethernet Settings

1) Basic Settings

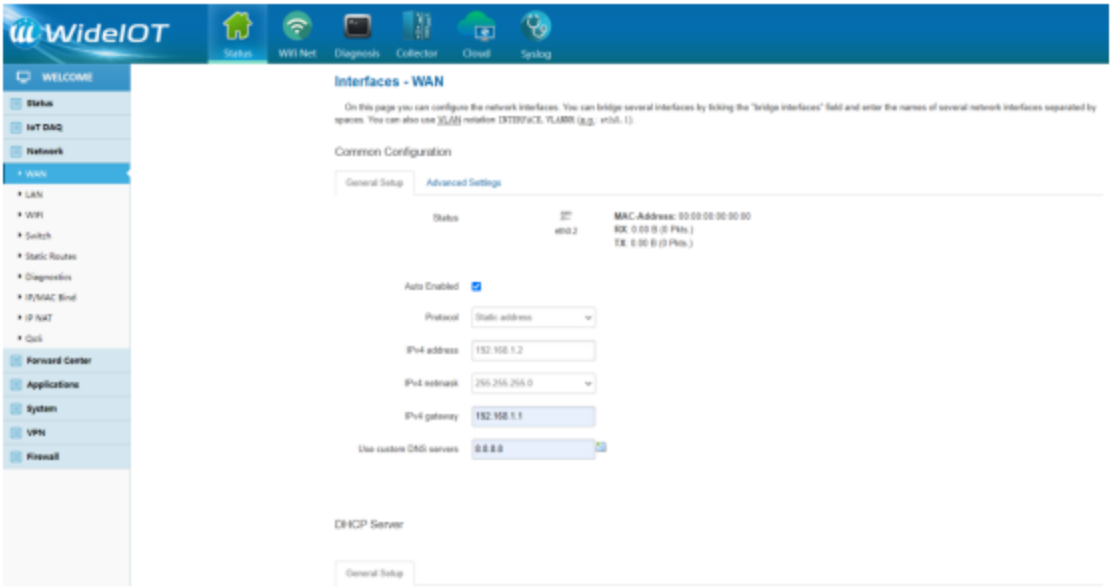
"WAN (Wide Area Network)" is used to configure how the gateway connects to the Internet. Specific parameter information can be obtained from your Internet Service Provider (ISP).

WAN Connection Type Setting

Select the required connection type from the drop-down menu. There are 3 optional types: Static IP, Automatic Configuration-DHCP, and PPPoE.

Type 1: Static IP

This connection type is usually used for dedicated line access, such as enterprise or commercial fiber. The Internet Service Provider (ISP) will provide you with detailed network parameters, such as IP address, subnet mask, gateway, and DNS information. You need to use these parameters to configure the gateway.



Type 2: Automatic Configuration - DHCP

This is the default WAN connection type, used by some wired network service providers and home broadband Internet services.

The IP address of the WAN port will be obtained automatically via DHCP.

Type3: PPPoE

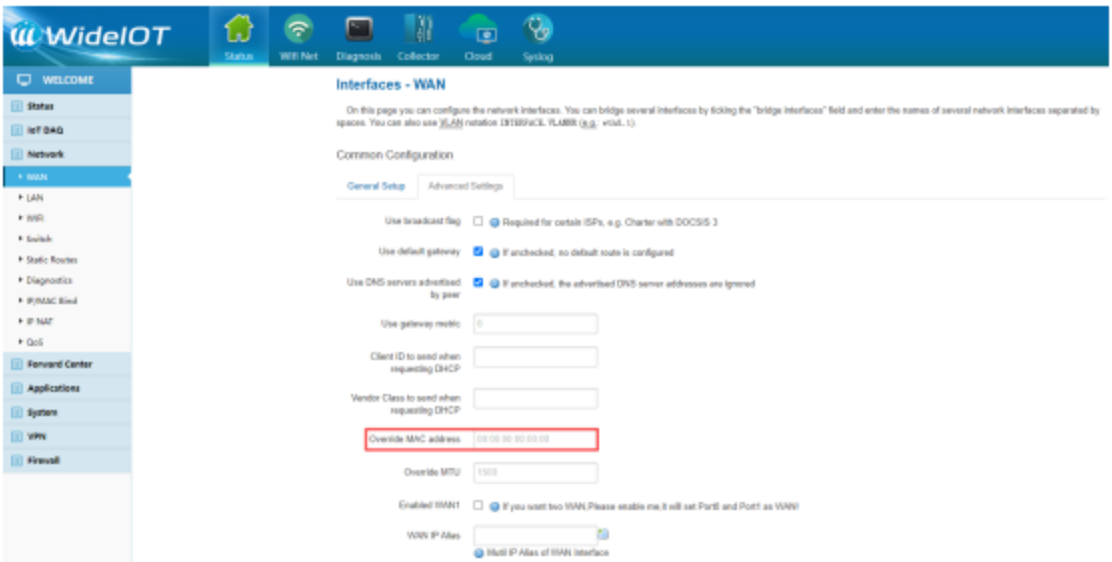
When using a PPPoE connection, the Internet Service Provider (ISP) will provide a username, password, and service name. Enter this information into the relevant setting fields of the gateway.

PAP/CHAP Username: The username used to log in to the Internet

PAP/CHAP Password: The password used to log in to the Internet

2) MAC Address Cloning

Some Internet Service Providers (ISPs) require users to register a MAC address. If you do not want to re-register the MAC address, you can clone the gateway's MAC address to the MAC address already registered with the ISP.



3.3.2. Wireless WiFi Settings

1) Basic Settings

WIFI client Configuration

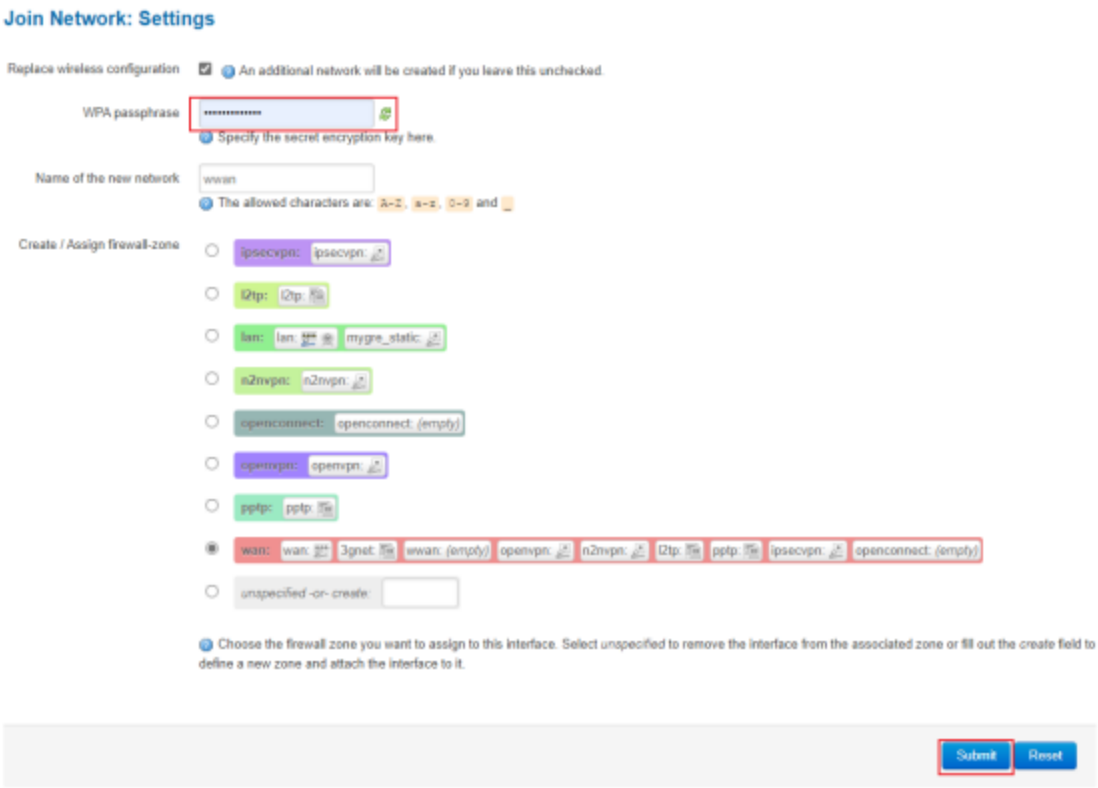
WIFI Network - Click to enable

Click "Advanced"

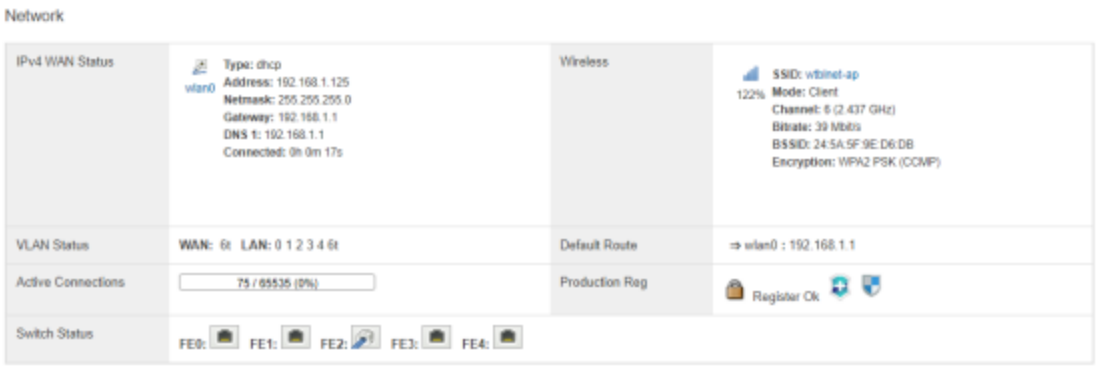
Click "Scan"

Click "Join Network"

Enter the WIFI password - Click "Submit"



Click "Status" - Scroll down to check the WIFI connection status. The figure below indicates that WIFI is connected.

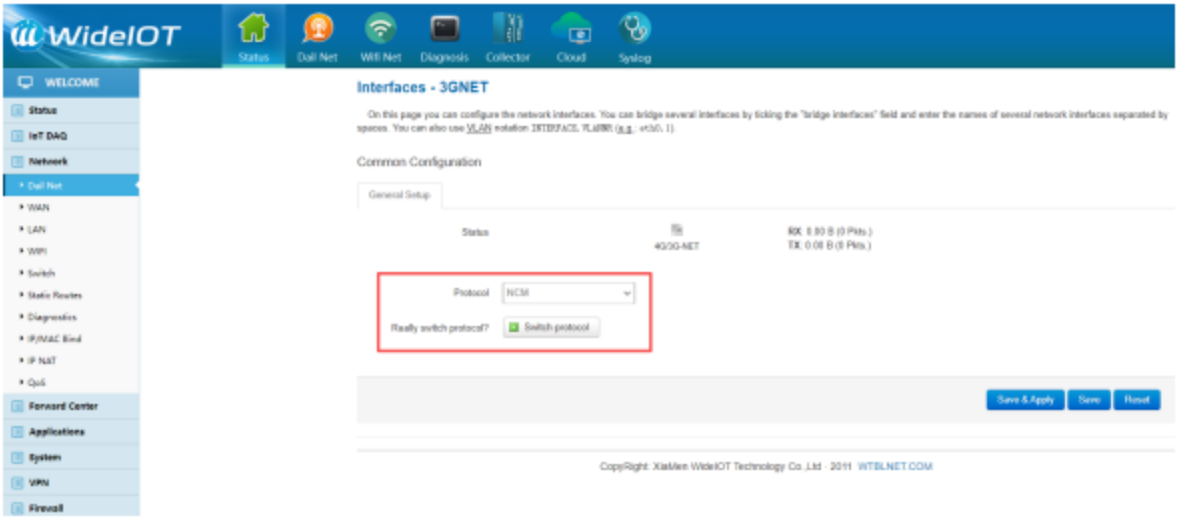


3.3.3. Dial-Up Network Settings

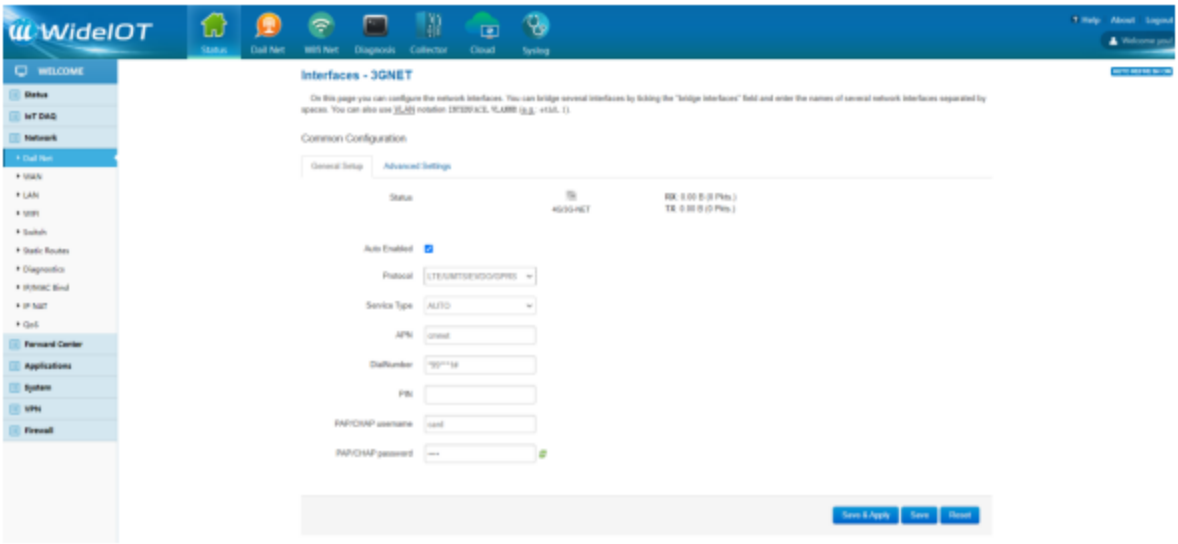
1) Basic Settings

Data Card Internet Configuration

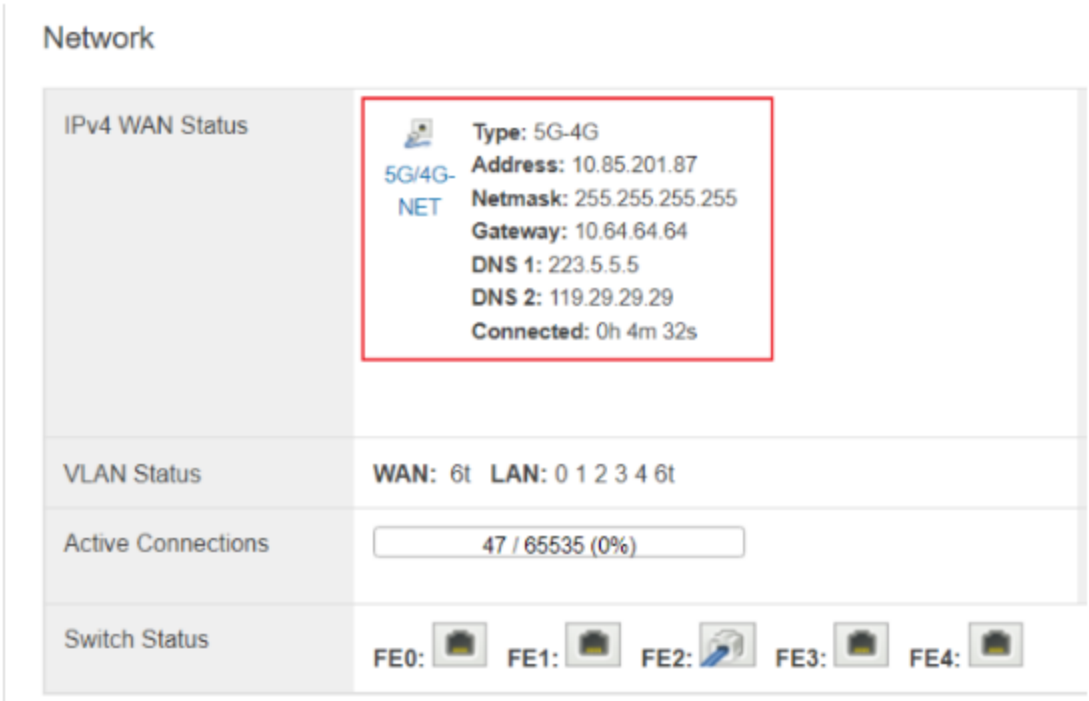
For WG7 series dial-up networks: Switch the communication protocol to NCM (5G mode), click "Save & Apply". The dial-up network is checked by default at the factory.



For WG5 series dial-up networks: Switch the communication protocol to LTE (4G mode), click "Save & Apply". The dial-up network is checked by default at the factory.



Click "Status" - "Overview" - "Dail NET" - Check the network connection information



Use the diagnostic command "PING" to test connectivity to baidu to confirm Internet access

Note: If no SIM card is inserted, the SIM card is in poor contact, no antenna is connected, or the data card is in arrears, the system may restart irregularly.

3.4. Device Tunnel Configuration

Configuration Process

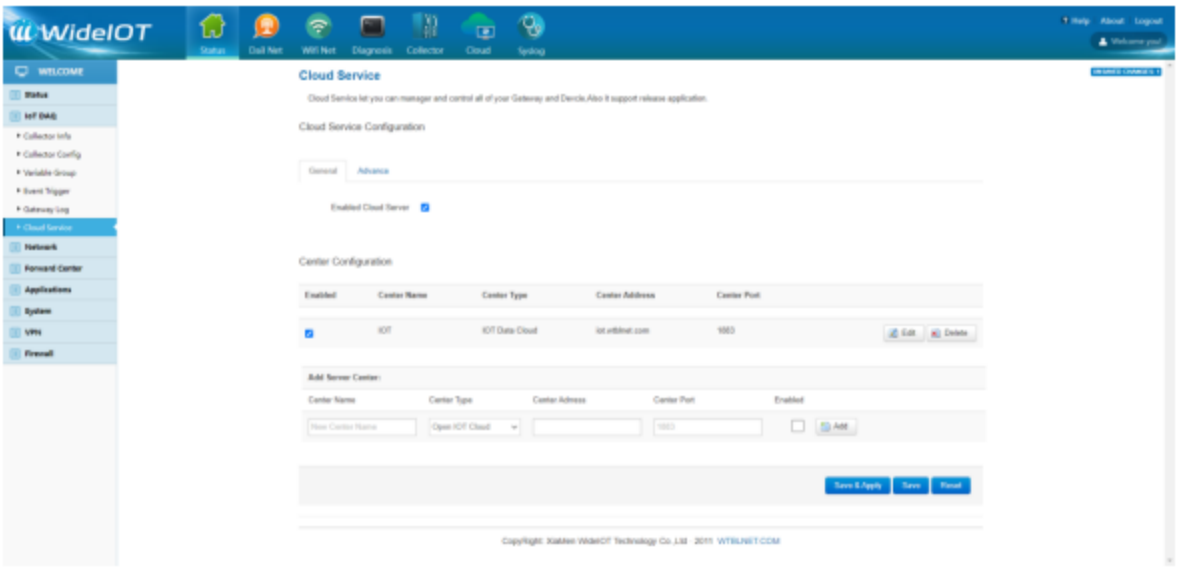
1.Configuration: Install the gateway → Configure gateway network access → Configure cloud service center

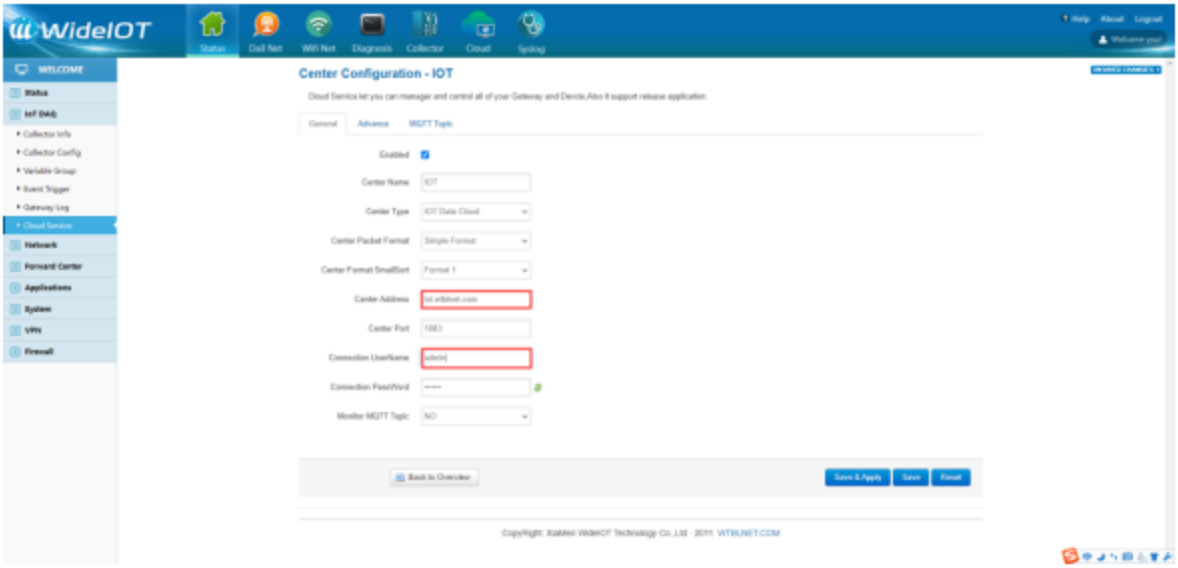
2.Device Tunnel Software Configuration: Install Device Tunnel → Log in → Add gateway → Add device

The Device Tunnel can only be used normally after completing the above two configurations.

3.4.1. Gateway Cloud Service Center Configuration

Add a service center in the cloud service center: Enter the center name "Cloud Platform", select the center type "IOT Data Cloud Platform", enter the center address "iot.wtblnet.com", set the center port number to 1883, check "Enable", click "Add". Wait for the "Cloud Platform" to appear in the center configuration, click "Modify" to enter the center configuration interface. Change the connection username to "admin", click "Save&Apply". After the modification takes effect, return to the overview and click "Save & Apply" again. Wait for the cloud service to restart successfully.

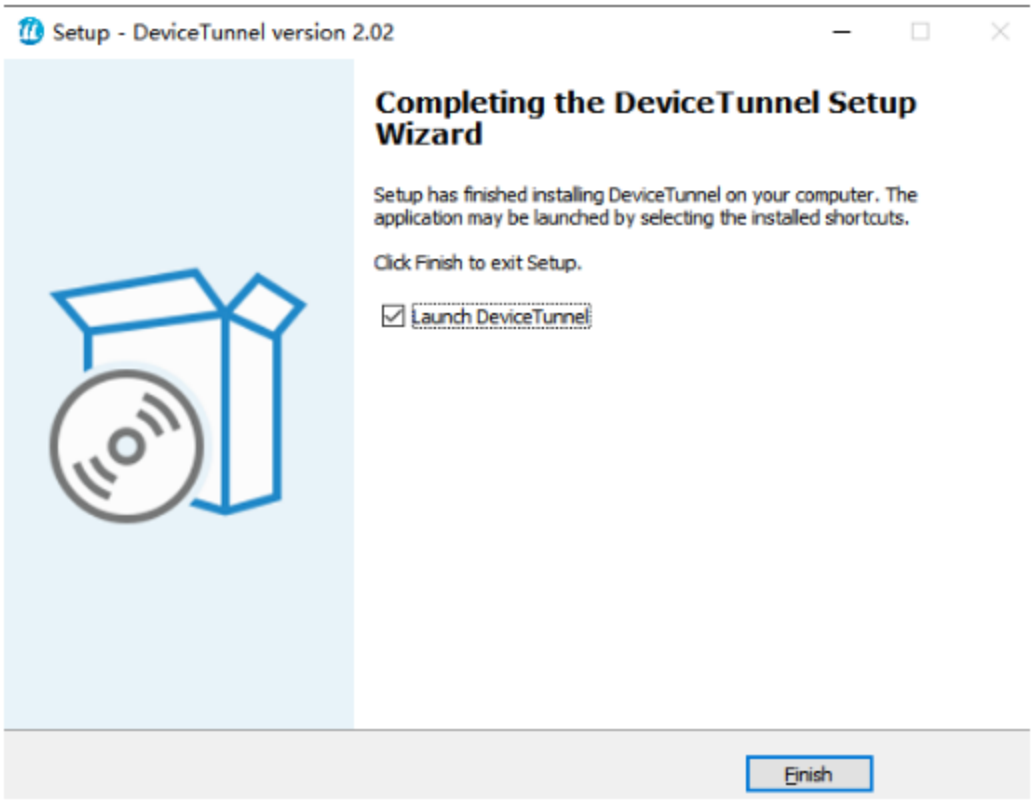




3.4.2. Device Tunnel Software Configuration

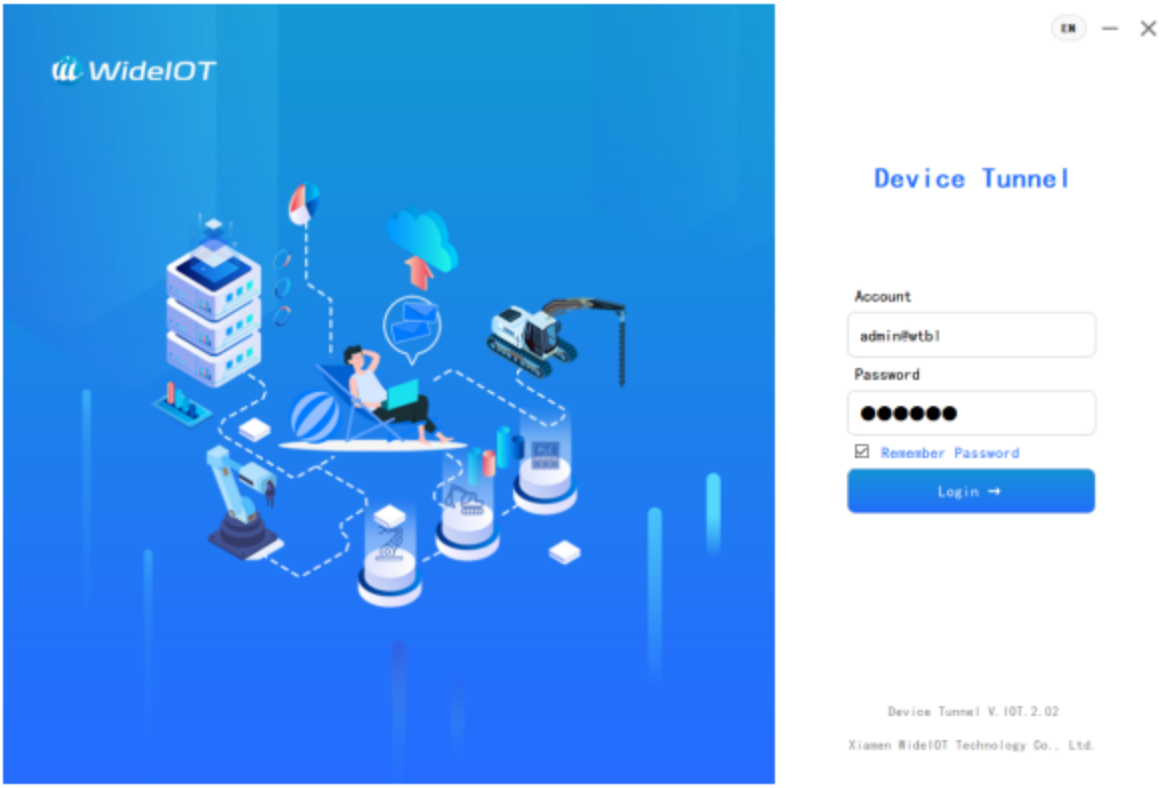
Install Device Tunnel Software

1.Right-click the installation package and select "Run as administrator" → Follow the default steps until installation is complete

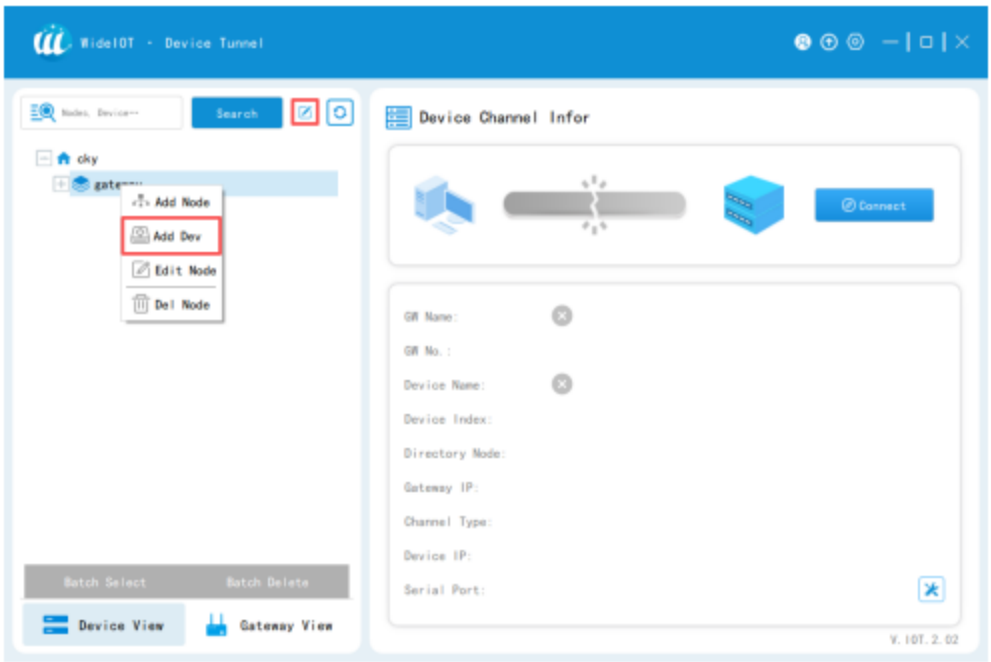


Add Gateway Serial Number

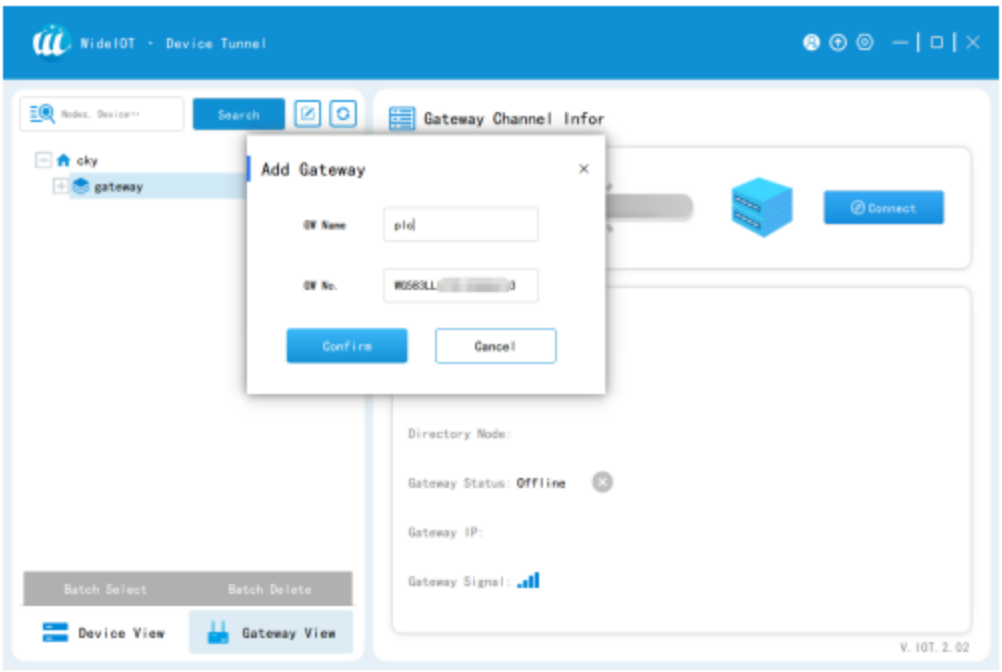
1.Right-click the Device Tunnel software and select "Run as administrator", enter the username and password to log in



2. Under "Gateway View" → Click the brush icon to enable edit mode → Right-click and select "Add Dev"

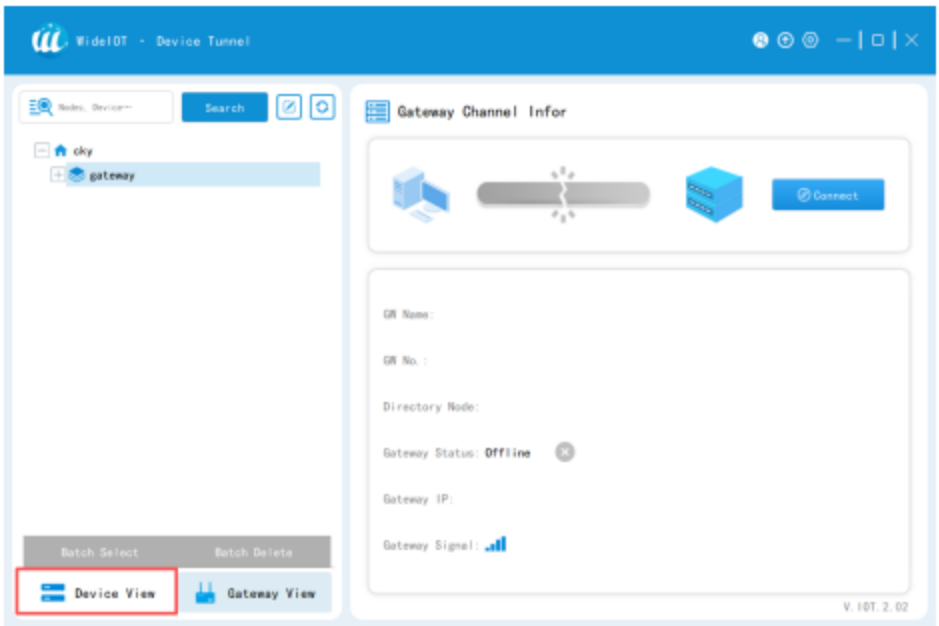


3. Enter the 20-digit SN code from the label on the back of the gateway



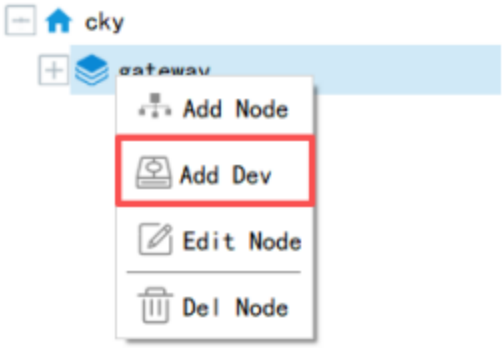
3.4.3. Remote Upload/Download via Network Port

1. Click "Device View" to add a network port device

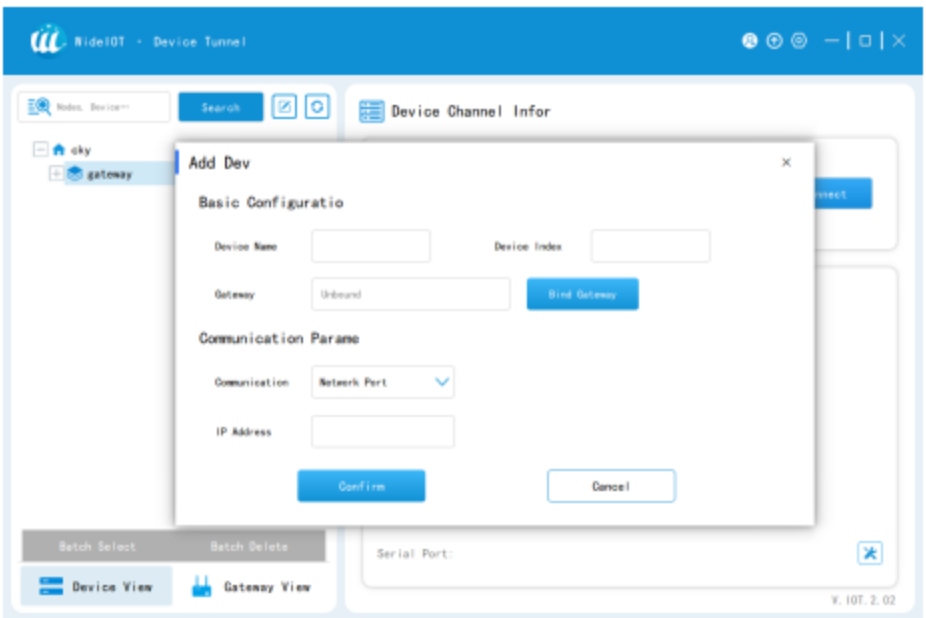


2.Click the brush icon to enable edit mode

3.Right-click the bottom directory node and select "Add Dev"



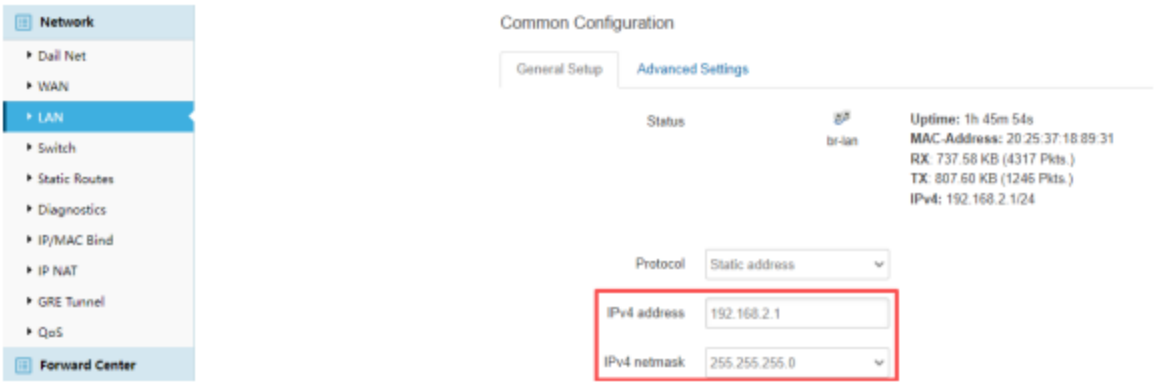
4.Enter the device information and click "Confirm" to save



- Device Name: Customizable
- Device Index: Customizable

- Associated Gateway: Click "Bind Gateway" and select the corresponding gateway number
- Communication Method: Network Port
- IP Address: PLC's IP address

Note: The PLC's IP address must be in the same network segment as the gateway's LAN port. If not, modify the settings in the local interface (default [192.168.2.1](192.168.2.1)) → "LAN (Local Area Network)" → "IPv4 Address".

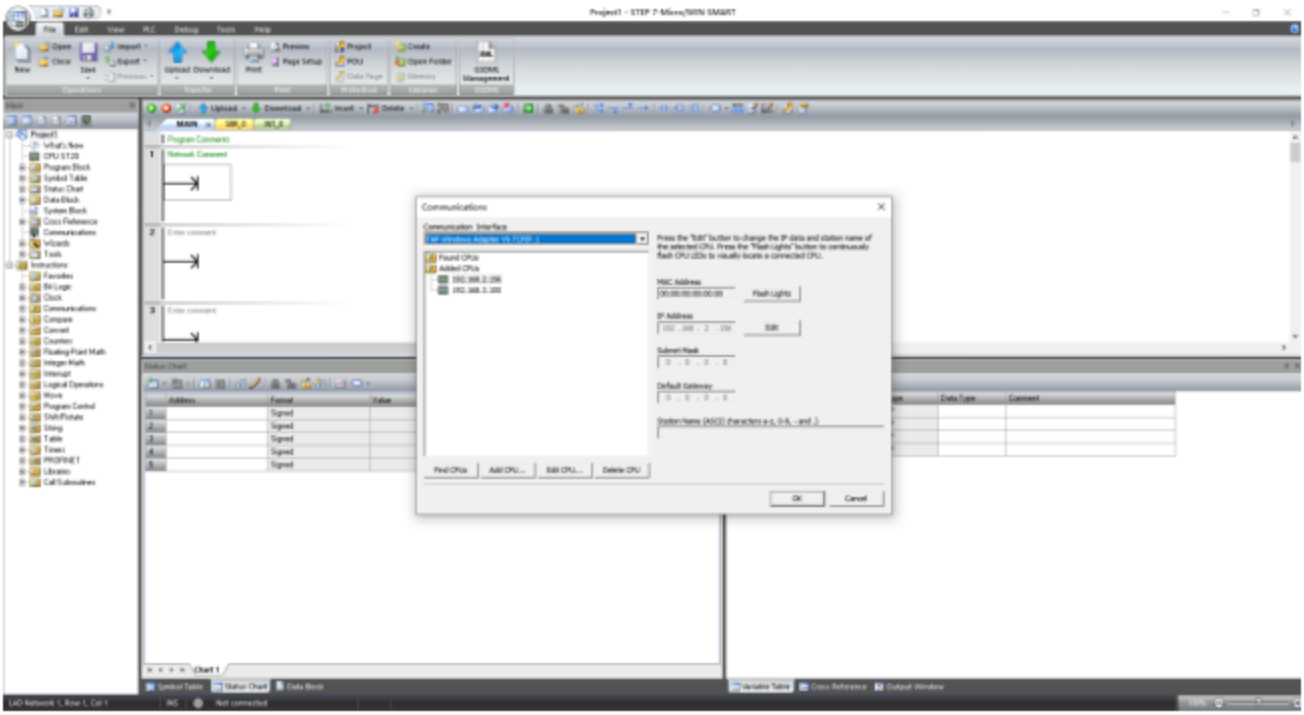


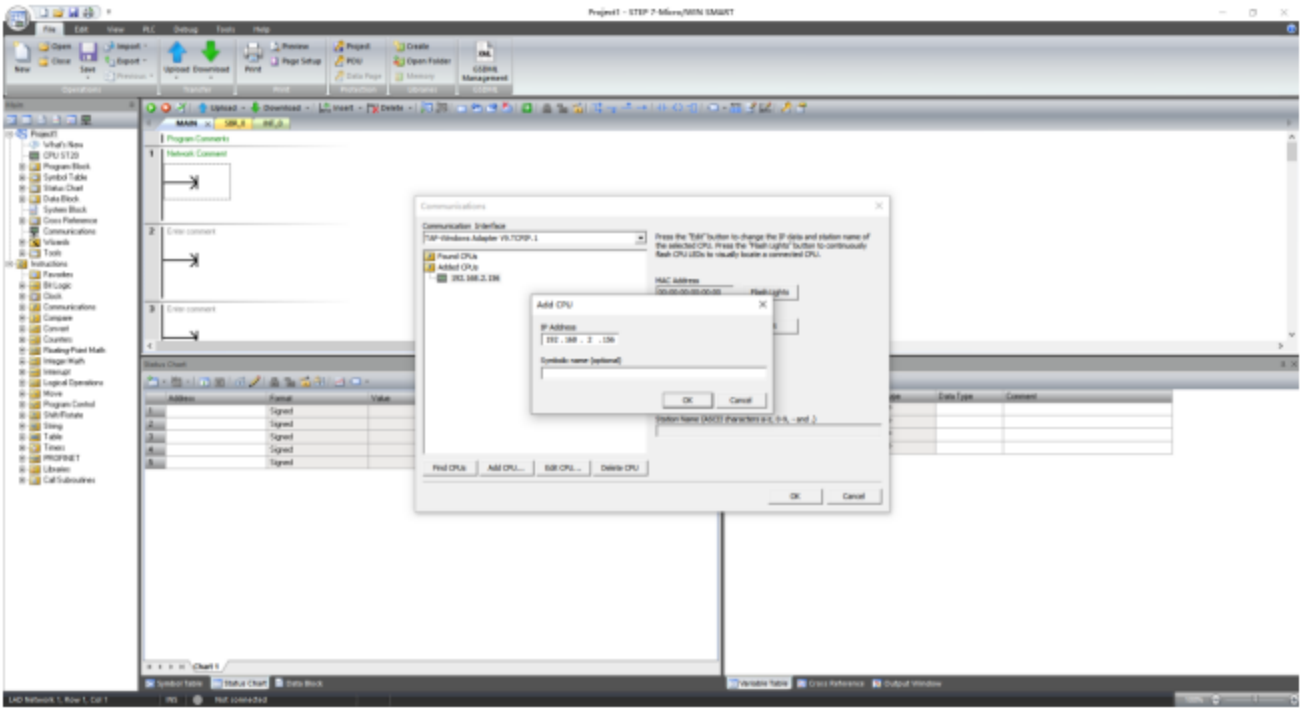
5.Select the network port device just added and click "Connect" to establish the channel

6.The channel is established successfully as shown in the figure below. You can directly open the programming software to connect

7.PLC Connection Test

Select "Communication Interface" → Choose the "TAP Windows Adapter V9" interface → Select "Add CPU" and enter the PLC IP address

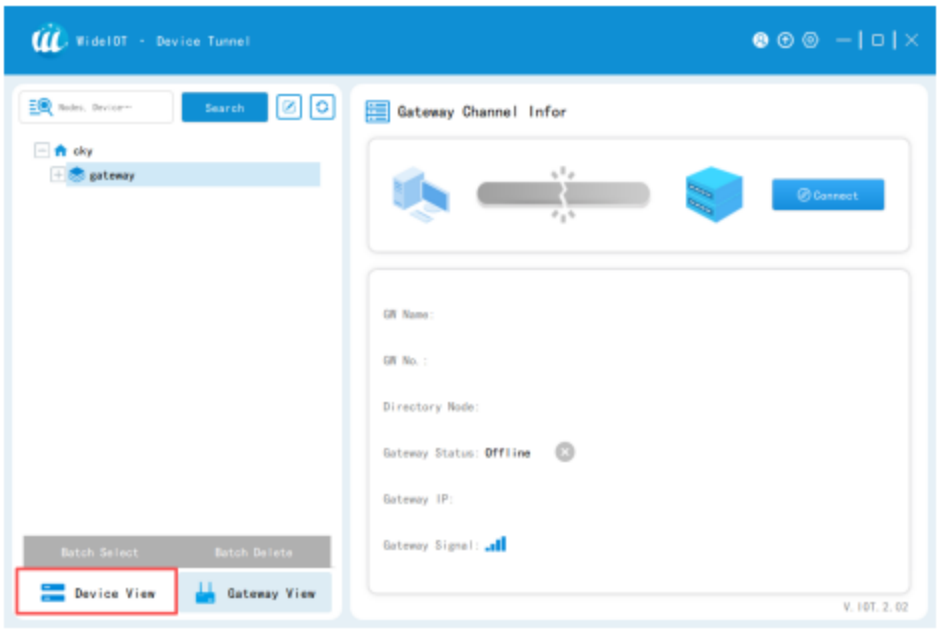




Click the entered IP address to connect

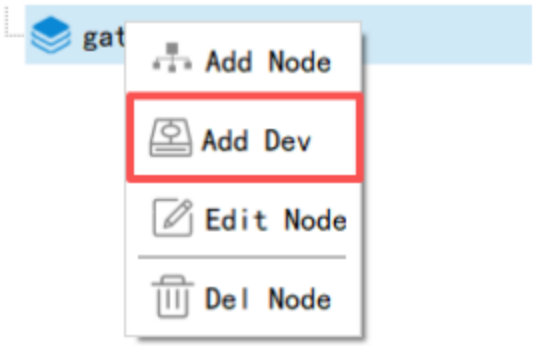
3.4.4. Remote Upload/Download via Serial Port

1.Click "Device View" to add a serial port device

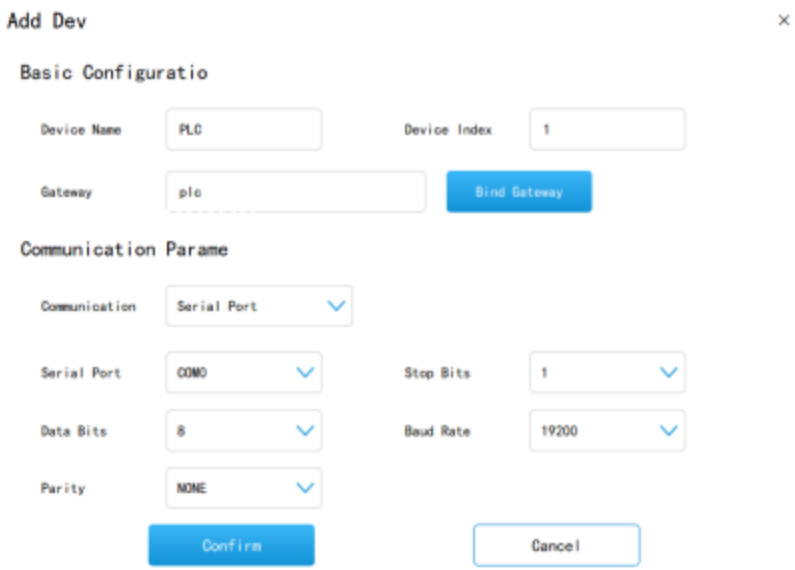


2.Click the brush icon to enable edit mode

3.Right-click the bottom directory node and select "Add Dev"



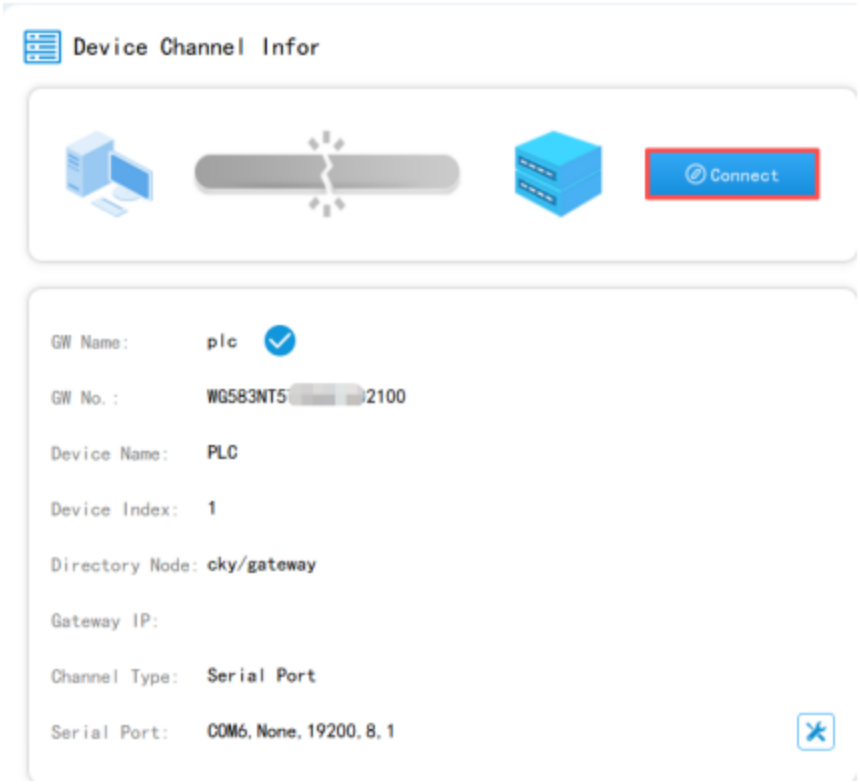
4.Enter the device information and click "Confirm" to save



- Device Name: Customizable
- Device Index: Customizable (no duplicates)
- Associated Gateway: Select the gateway connected to the PLC

- Communication Parameters: Enter according to the PLC's communication parameters
- Serial Port Number: Select the serial port number of the gateway connected to the PLC

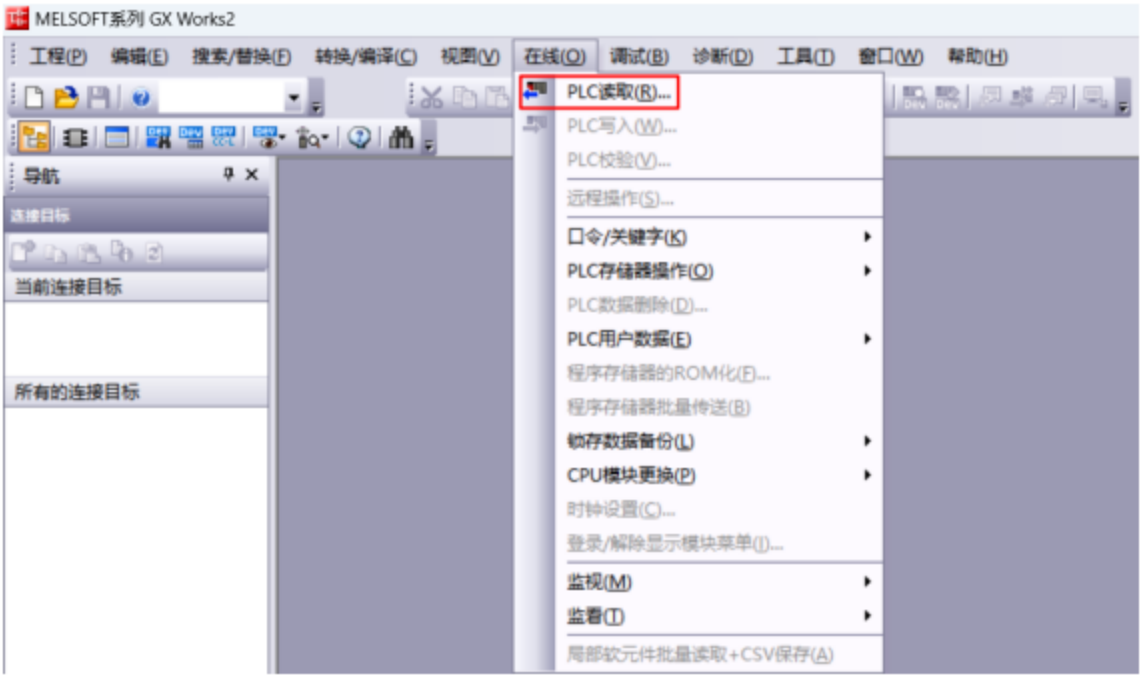
5.Select the device just added and click "Connect" to establish the channel



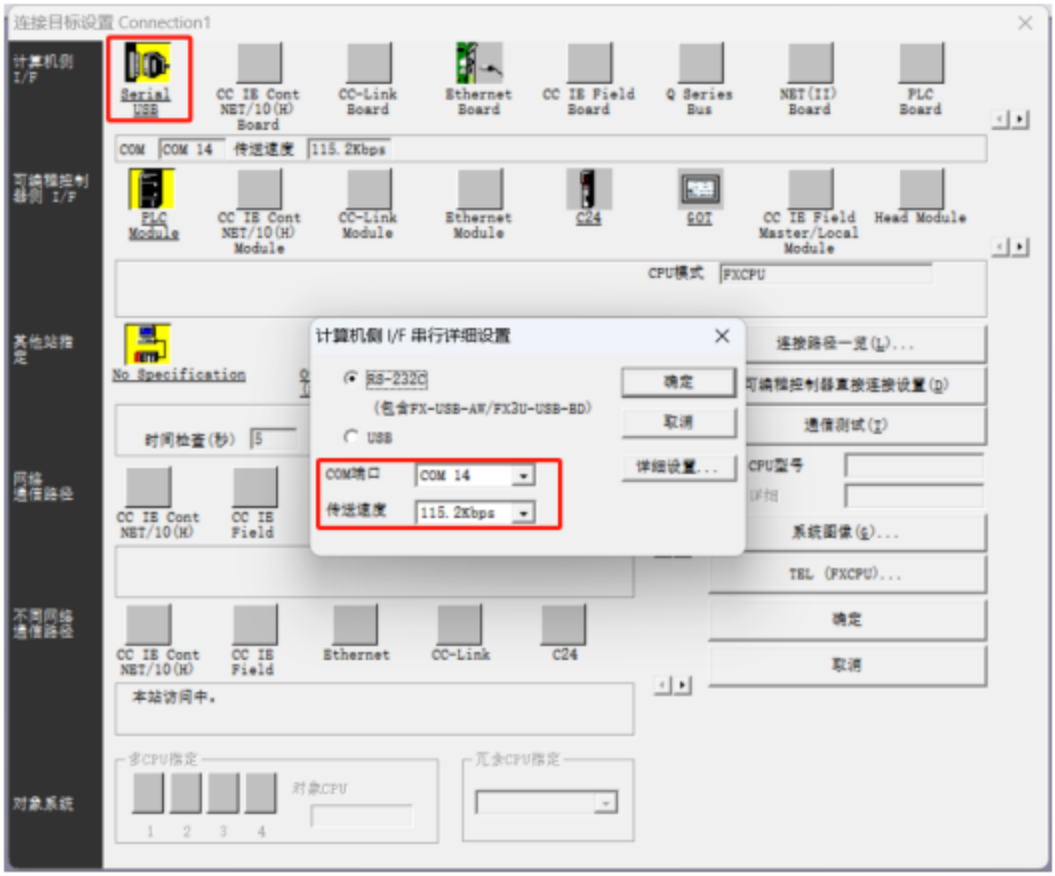
6.The channel is established successfully. You can directly open the programming software and use COM6 (shown in the software) to connect

7. PLC Connection Test

Open the programming software → Click "Online" → "Read from PLC"



Double-click "SerialUSB" → Select COM6 for the COM port, then click "OK" to save



Then click "Communication Test". A prompt indicating successful connection will appear

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