



SLK-S502

Serial Server

Instruction manual

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Chapter 1 Product Introduction

1.1 Introduction



SERIALLINK SLK-S502 serial server converts multi-channel decentralized, low-speed, and different standard serial devices into Ethernet for centralized management. After installing the virtual serial port, it can realize remote reading of serial data. SLK-S502 serial server supports multiple working modes, including TCP server mode, TCP client mode, UDP mode, TCP/UDP Socket, Modbus RTU to Modbus TCP Server and other working modes, allowing user software to access the serial port through TCP plus port number Line equipment. In addition, it also supports virtual serial port access to serial devices. SERIALLINK SLK-S502 supports convenient and quick manual configuration of the IP address through a browser or Telnet terminal. At the same time, users can also use the easy-to-use Windows management software to automatically search for serial server devices in the LAN, and perform applications such as remote configuration management and working status monitoring.

features:

- ✓ 2 x Adaptive 10/100/1000M Ethernet
- ✓ 1 x R232 serial port (interface is RJ45)
- ✓ 1 x RS485 serial port (interface as terminal)
- ✓ 4 x Digital DI input
- ✓ 1 x Digital quantity DO output, relay output
- ✓ RS485 serial port with TVS, ESD protection
- ✓ RS232 serial port with ESD protection
- ✓ Multiple working modes: TCP server, UDP working mode, TCP client mode, Modbus RTU to Modbus TCP Server mode
- ✓ Support WEB and Telnet two configuration methods
- ✓ Wide voltage: DC9-28V power supply

1.2 Detailed Parameters

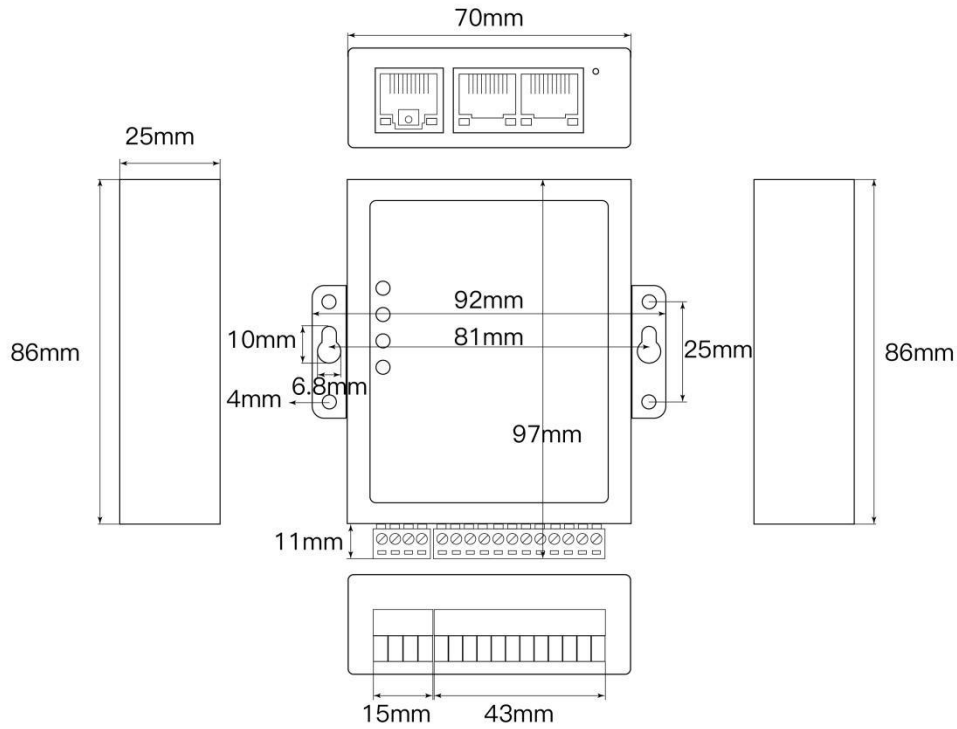
Item	Description
CPU	Dual-Core 880MHZ
RAM	1Gb DDR3 RAM default, can be customized to support 4Gb DDR3 RAM maximum
NAND Flash	128Mbytes default
Ethernet interface	Number of interfaces:2
	speed: 10/100 /1000Mbps, auto MDI/MDIX
	Connector:8-pin RJ45
	protect: 2.4 kV built-in
	defaultIP:192.168.0.233
Serial port	Number of serial ports:2,1 x RS232,1 x RS485
	The first channel is the RS232 serial port (RJ45) definition Note: RXD, TXD, GND are connected with the previous terminal definitions to facilitate terminal wiring)
	The second serial port RS485-definition RS-485-2w: A,B
Serial parameter	Data bit: 5, 6, 7, 8
	Stop bits:1, 1.5, 2
	Check Digit: None, Even, Odd
	Baud rate: 300bps to 115200 kbps
Serial port protection	RS232/485 with 15 kV ESD protection
	RS232/485 with TVS protection
	RS-485Terminal resistance: 120 Ω
Software performance	Network protocol: TCP, UDP, DHCP ,DNS
	Configuration method: Web configuration
	Working mode: TCP Server, TCP client, UDP, Modbus RTU to Modbus TCP Server
	Windows 95/98/ME/NT/2000, Windows XP/2003/Vista/2008/7/8/8.1/10 (x86/x64), Windows 2008 R2/2012/2012 R2 (x64)
	Use the IP address and port number to access the serial port under LINUX
Physical parameter	Material: iron
	Dimensions with mounting accessories86mm x 70mm x 25mm
temperature	Operating temperature: -40 to 75°C (-40 to 167°F)
	storage temperature: -40 to 85°C (-40 to 167°F)
	Relative humidity: 5 to 95%
power supply	Input voltage: DC9-28V
Warranties	2 year

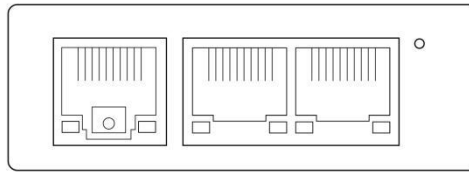
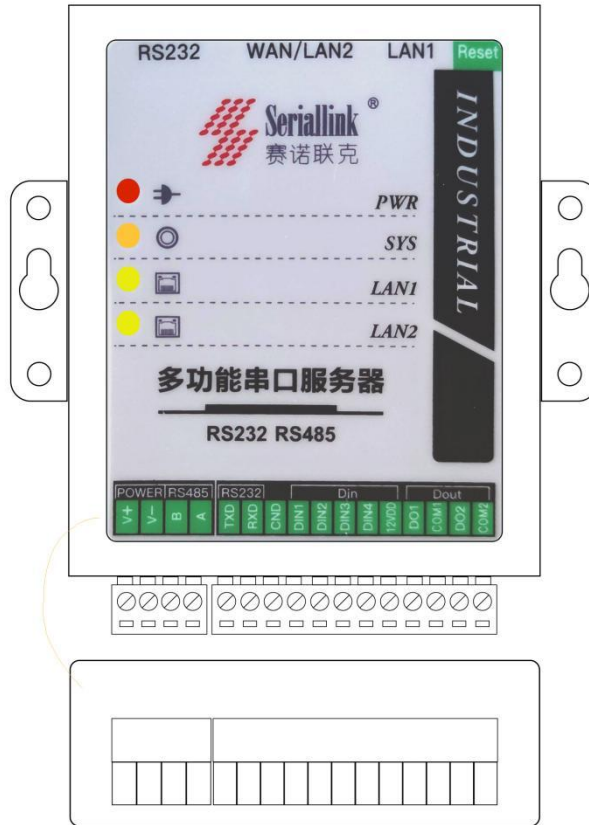
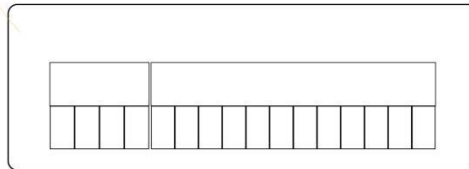
1.3 Appearance Design

1.3.1 Product Size

Product Dimensions

unit : mm



1.3.2 Appearance Instructions

Figure 1

Figure 2

Figure 3
Figure 1

RS232	WAN/LAN2	LAN1	Reset
Serial port	Network port	Network port	Restore factory settings button

Figure 2

PWR	Power indicator light	Always bright: Equipment power supply is normal Not bright : The device is not powered, please check whether the voltage is 9-28V
SYS	System indicator light	Flashing: Is now Entering the system Always bright(Very bright): The equipment is running Always bright(Slightly bright): The system does not start
LAN1	LAN1 network port indicator	Flashing/Always bright: Access network Not bright: Not connected to the network
LAN2	WAN/LAN2 network port indicator	Flashing/Always bright: Access network Not bright: Not connected to the network

Figure 3

category	parameter	Description
POWER	V+	Power input 9-28V
	V-	
RS458	B	RS458 Negative end
	A	RS458 Positive end
RS232	TXD	RS232 Signal sending end
	RXD	RS232 Signal receiving end
	GND	Ground terminal end
Din	DIN1	Switching value input end
	DIN2	
	DIN3	
	DIN4	
	12VDD	High level output of switching value
Dout	D01	Switching value output end
	COM1	Switching value output public end
	D02	Switching value output end
	COM2	Switching value output public end

Chapter 2 Parameters Configuration

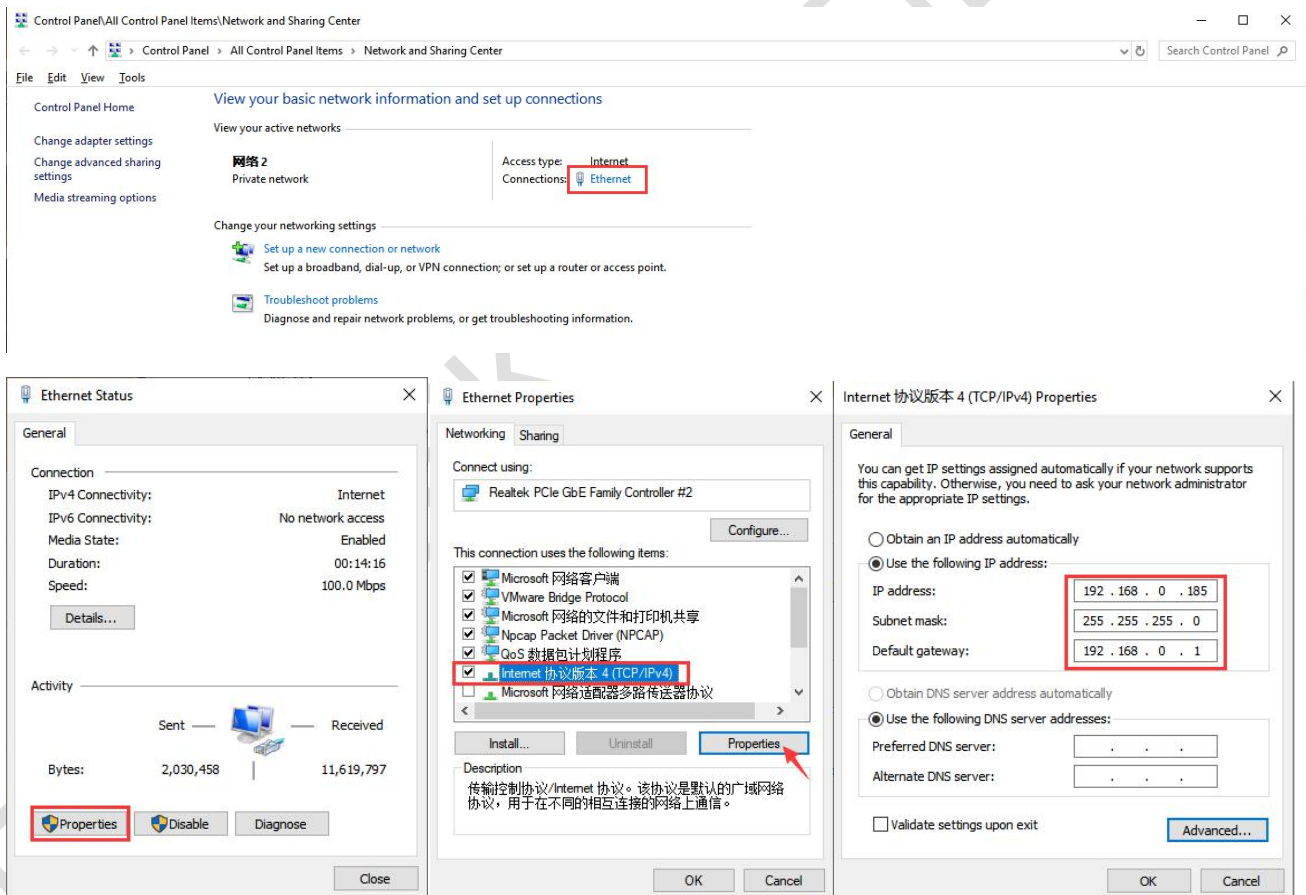
2.1 Preparation Before Serial Port Server Configuration

Connect one of the LAN ports of the serial server directly to a computer or to a switch. Before logging in to the Web setting page of the serial server, you need to make sure that the management computer has an Ethernet card installed.

2.1.1 Set A Static IP Address.

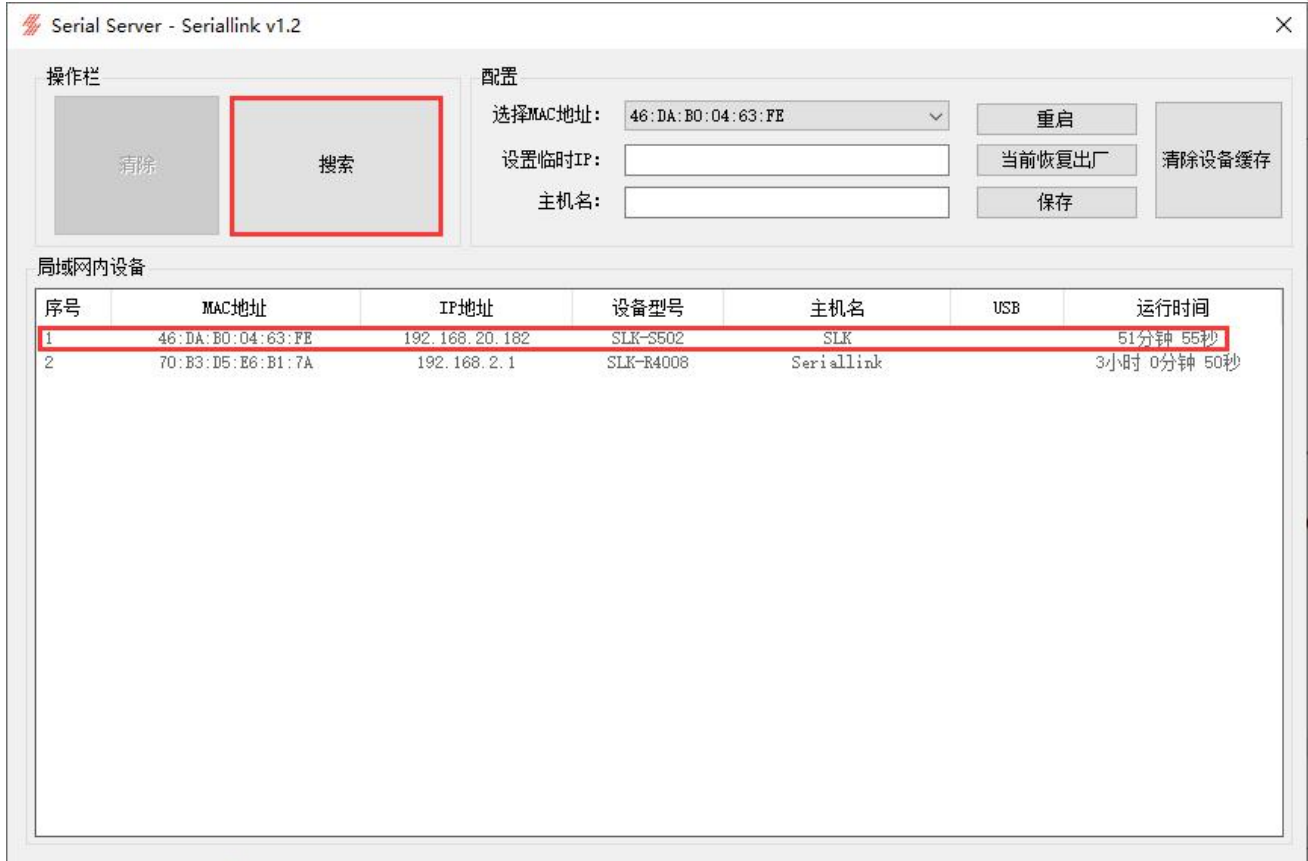
Please set the IP address of the management PC (for example, set it to: 192.168.0.185) and the IP address of the device's LAN port in the same network segment (the initial IP address of the device's LAN port is: 192.168.0.233, and the subnet mask is 255.255.255.0).

Start>>>Settings>>>Control Panel>>>Network&Internet>>>Ethernet>>>Network and Sharing Center,Modify as follows:



2.1.2 Get IP

The network protocol of the LAN setting is DHCP (dynamic allocation) or you forget the IP address of the LAN port currently set, you can use the tool Seriallinkv1.2.exe to get the device IP information, as shown in the figure (LAN has been set to DHCP), search The IP address of the device model SLK-S502 is 192.168.20.182, and then the network bit in the IP address of the PC is changed to 192.168.20, see 2.1.1 for details.

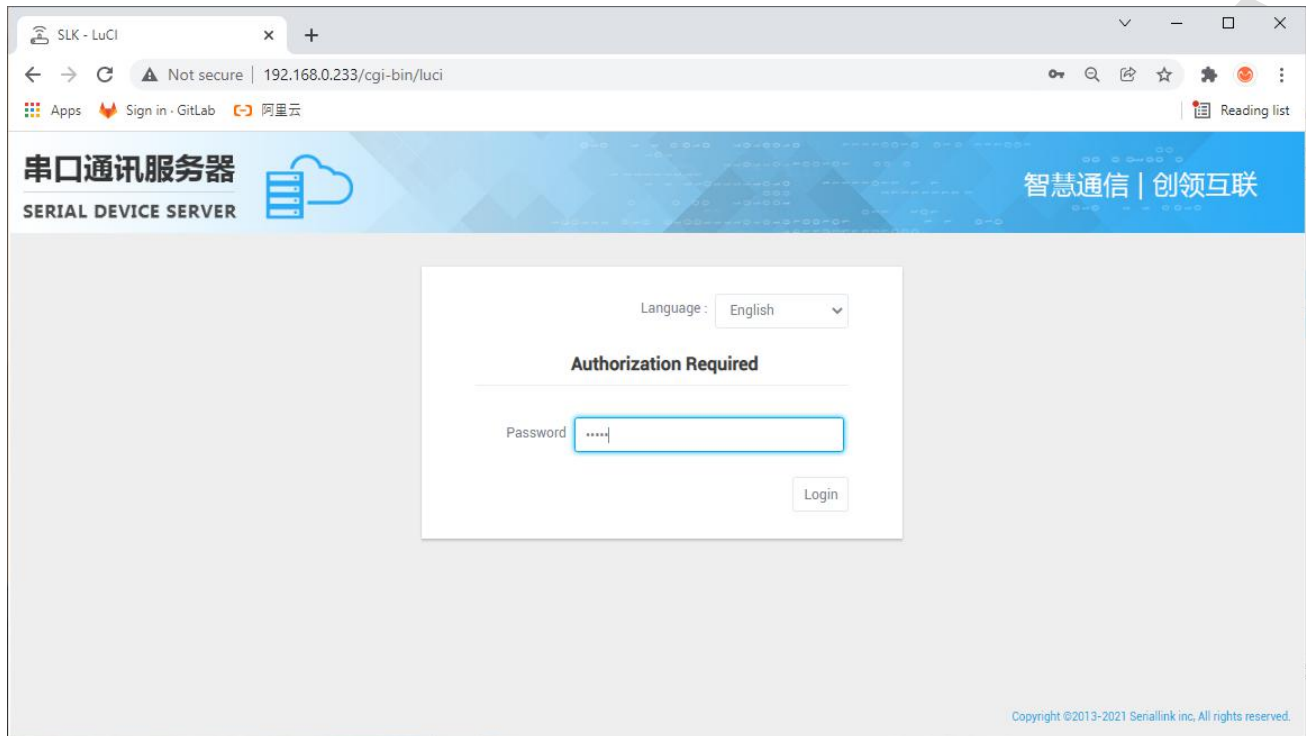


Double-click the SLK-S502 device information, you can also set temporary IP, change the host name, restart, restore factory settings and other operations.

Note: After logging in with the modified temporary IP, if the LAN protocol is static, it is recommended to reset and save in the LAN settings to change it back to the original IP address. For details, see 2.3.1 to change the device to the original address.

2.2 Login Configuration Page

Open IE or other browsers, enter the LAN port IP address in the address bar (default is 192.168.0.233), after the connection is established, in the pop-up login interface, log in as the system administrator (admin), that is, in the login interface Enter the password (the factory default setting of the password is admin).

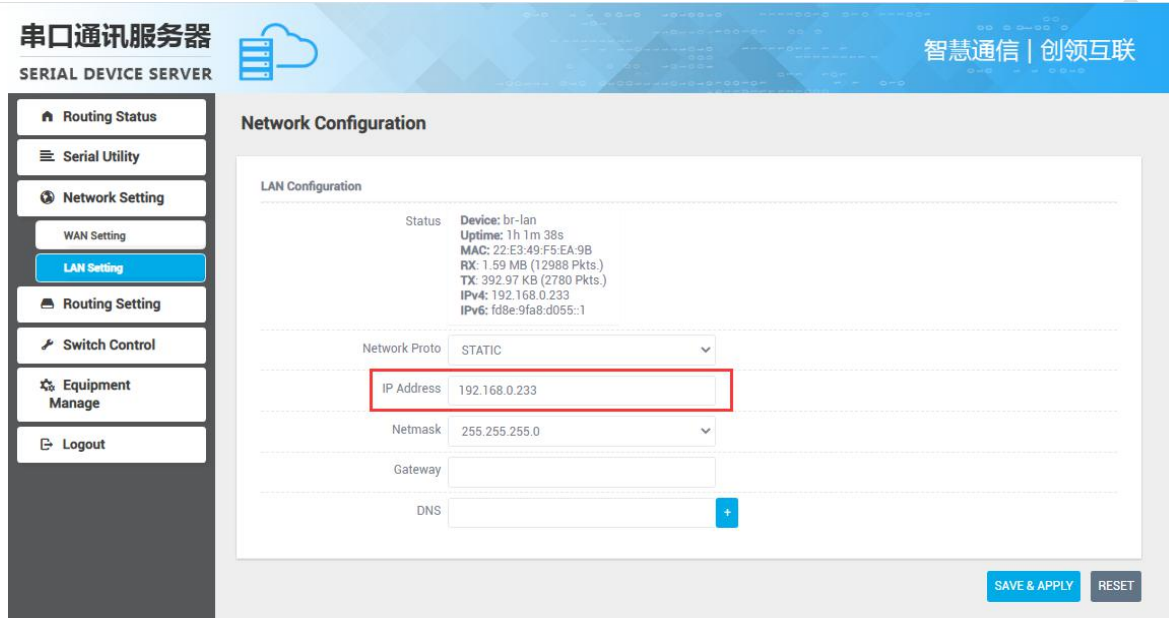


The default login password is admin. If the user needs to protect the configuration interface and avoid being modified by others, you can modify the login password. For detailed operations, please refer to 3.4.

2.3 Network Setting

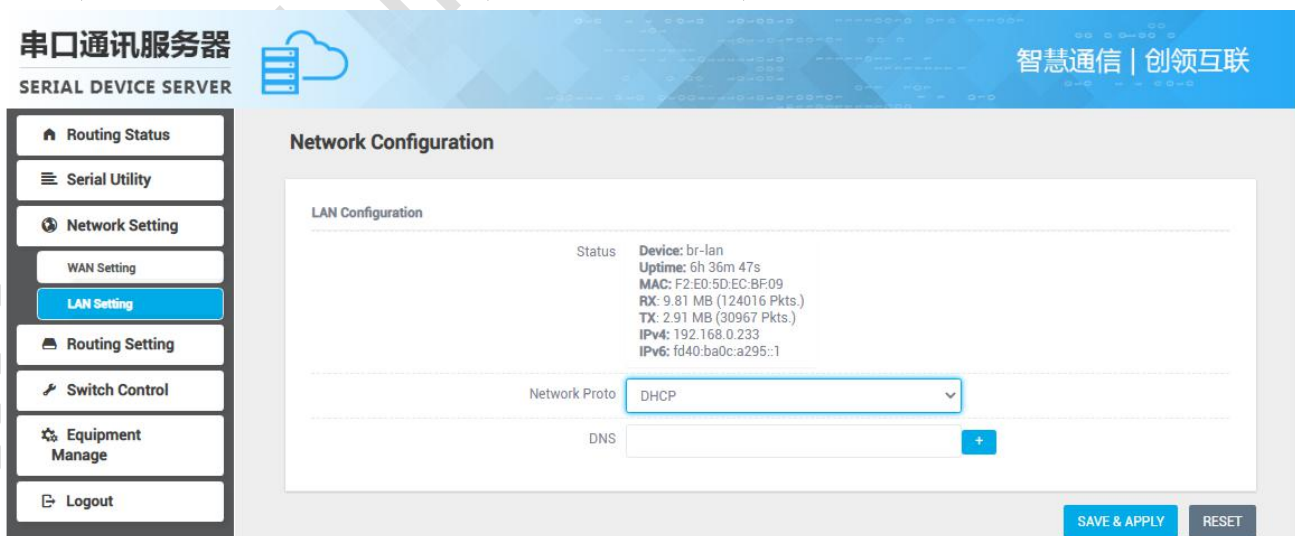
2.3.1 Modify The Static Login Page Address

The default static address of the serial server is 192.168.0.233. You can see the network information in the navigation bar "Network Setting" >>> "LAN Setting". You can also modify the static IP address, and after the modification, the new IP address will be used to log in to the page.



2.3.2 DHCP

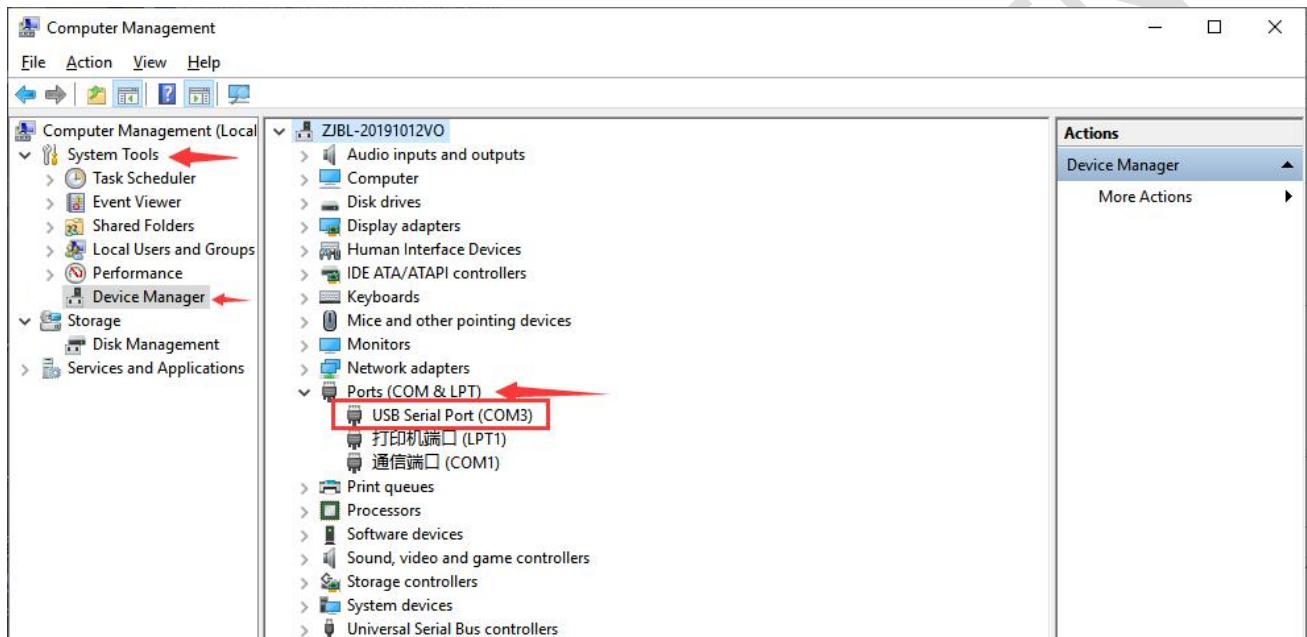
The LAN port of the serial server is connected to a switch or router, and you can select the DHCP network protocol to automatically obtain an IP address. After the computer is connected to the switch, log in to the page through the IP automatically obtained by the serial server DHCP. At this time, the IP of the serial server is assigned by the upper-level router. You need to check which IP the upper-level router assigns to the serial server, or use Seriallinkv1.2.exe Software, obtain the IP address, see 2.1.2 for details.



2.4 Serial Port Configuration

2.4.1 Use Tools And Preparation

Select Serisl Utility>>>PROT 2 in turn to configure a port according to your needs. Here is an example of PORT 2. Connect the computer serial port, check the serial port as shown in the figure below, right click on the desktop This PC>>>Manage>>>System Tools>>>Device Manage>>>Ports(COM &LPT). Use tools UartAssist.exe and NetAssist.exe for TCP Server, TCP Client, UDP Server, and UDP Client simulation, and ModSim32.exe and ModScan32.exe for Modbus TCP simulation. You can use your familiar serial port and network debugging software. The difference between UDP Client and UDP Server is whether it needs to communicate with only a specific IP address. UDP Client only communicates with a specific server IP address.

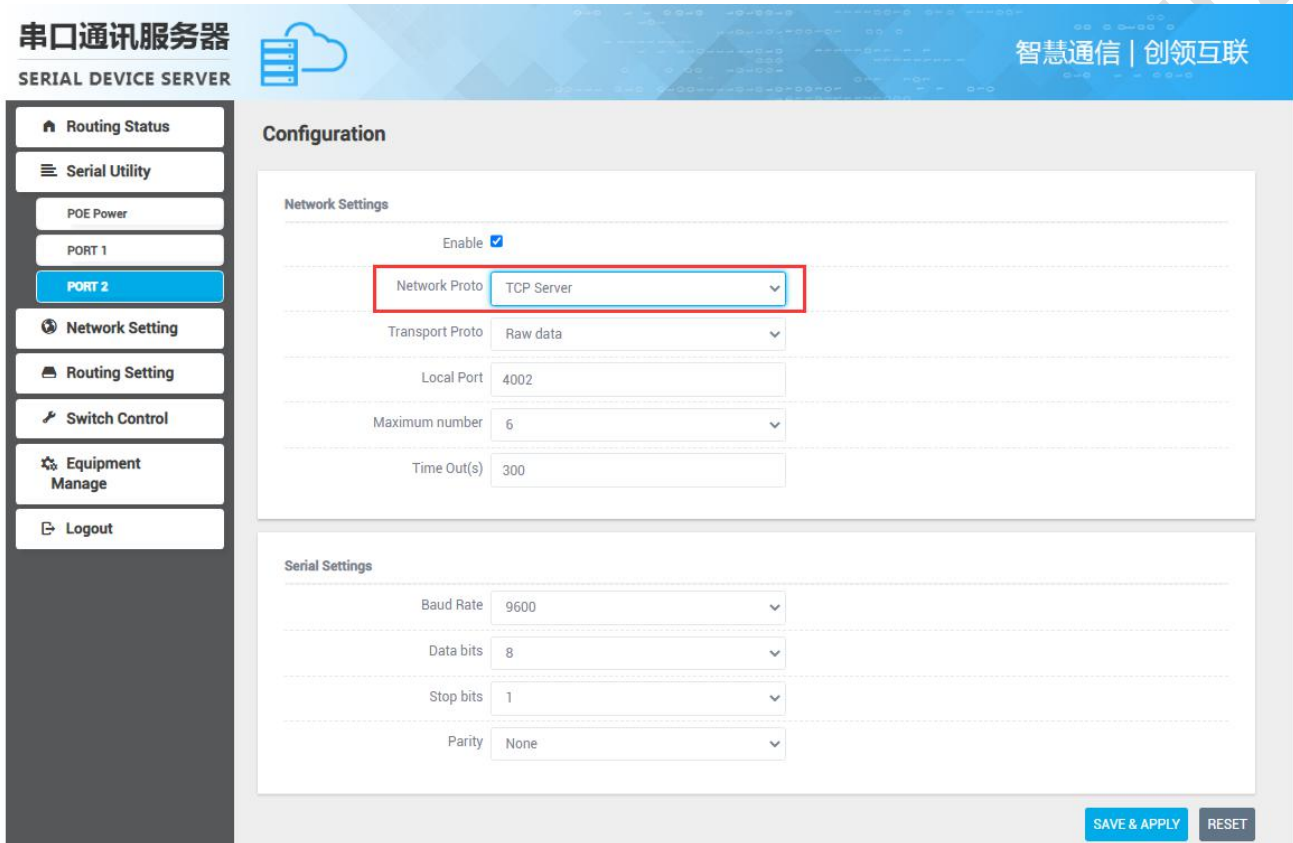


The settings of UartAssist.exe are as follows. The baud rate and stop bit can be changed as required. After the setting is completed, click Open.



2.4.2 TCP Server

Select Serisl Utility>>>PORT2 in turn,select TCP Server as the network protocol, and choose the data type according to your needs. Generally, the choice is "Raw date". You need to remember the local port after setting. When establishing a TCP connection, you need to use the IP address and port number of the serial server.Configure the baud rate, data bit, stop bit and parity bit of the serial port through the serial port configuration bar according to your needs. After the configuration is complete, click SAVA & APPLY.

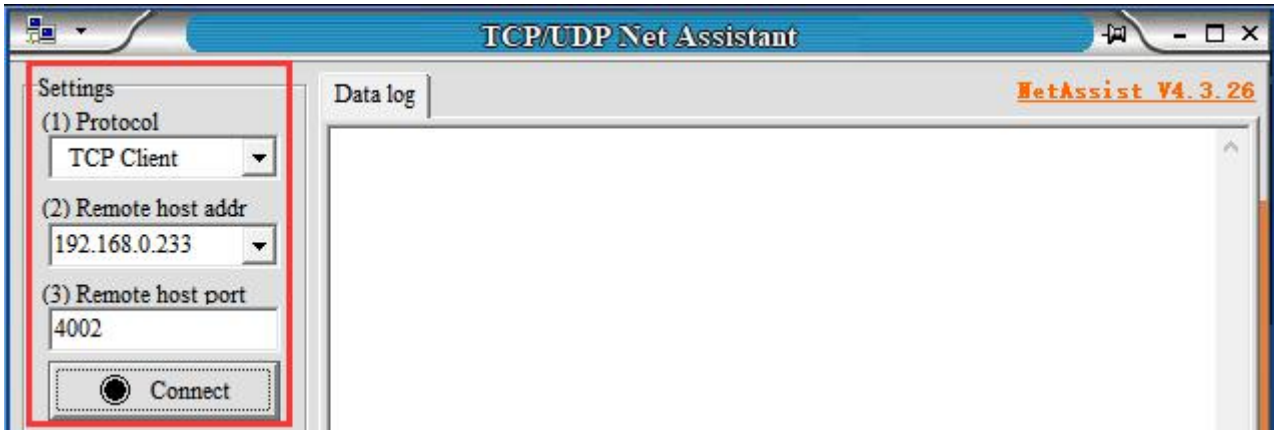


The screenshot displays the configuration page for PORT 2 in the Serial Device Server. The left sidebar contains navigation options: Routing Status, Serial Utility (selected), POE Power, PORT 1, PORT 2 (highlighted), Network Setting, Routing Setting, Switch Control, Equipment Manage, and Logout. The main configuration area is titled 'Configuration' and is divided into two sections: 'Network Settings' and 'Serial Settings'. In the 'Network Settings' section, the 'Enable' checkbox is checked. The 'Network Proto' dropdown menu is set to 'TCP Server' and is highlighted with a red box. Other settings include 'Transport Proto' set to 'Raw data', 'Local Port' set to '4002', 'Maximum number' set to '6', and 'Time Out(s)' set to '300'. The 'Serial Settings' section shows 'Baud Rate' at '9600', 'Data bits' at '8', 'Stop bits' at '1', and 'Parity' at 'None'. At the bottom right, there are 'SAVE & APPLY' and 'RESET' buttons.

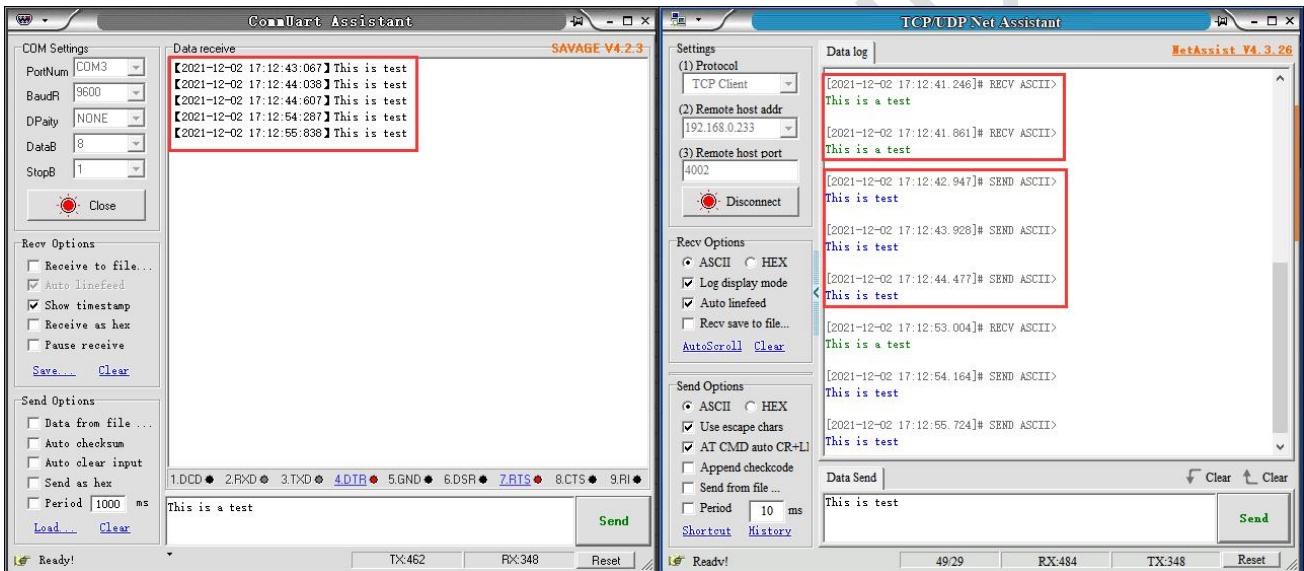
Maximum number: The default is 6, which means that up to 6 TCP Clients are supported to connect to the same serial port.

Time Out (s): The default is 300, which means that after the TCP Server establishes a connection, if there is no data, the connection will be disconnected after 300 seconds. If you need a permanent online connection, you can set the value to 0.

Open the software, select TCP Client, IP is the server address, the port is the same as the server port, and click Connect.

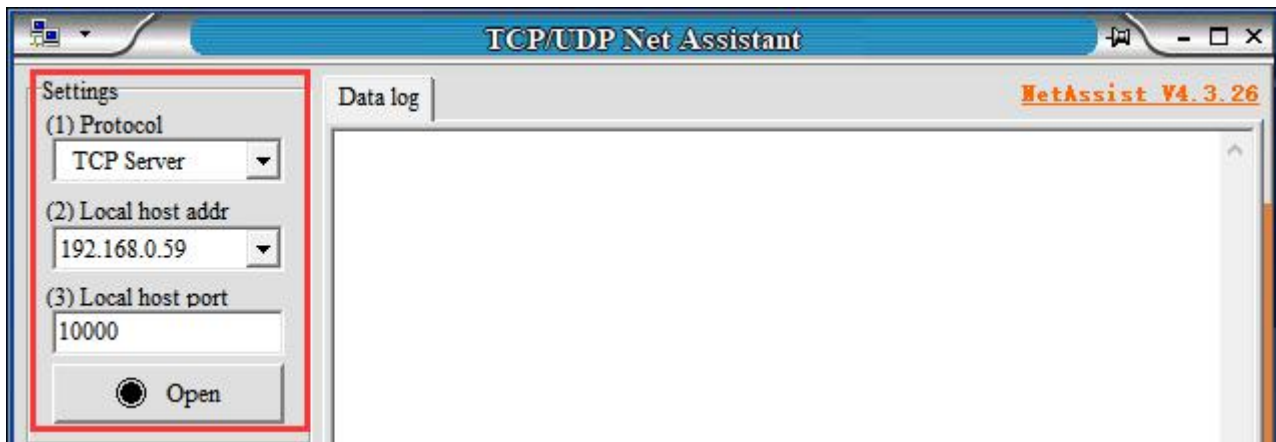


TCP Server and TCP Client send and receive data diagram.

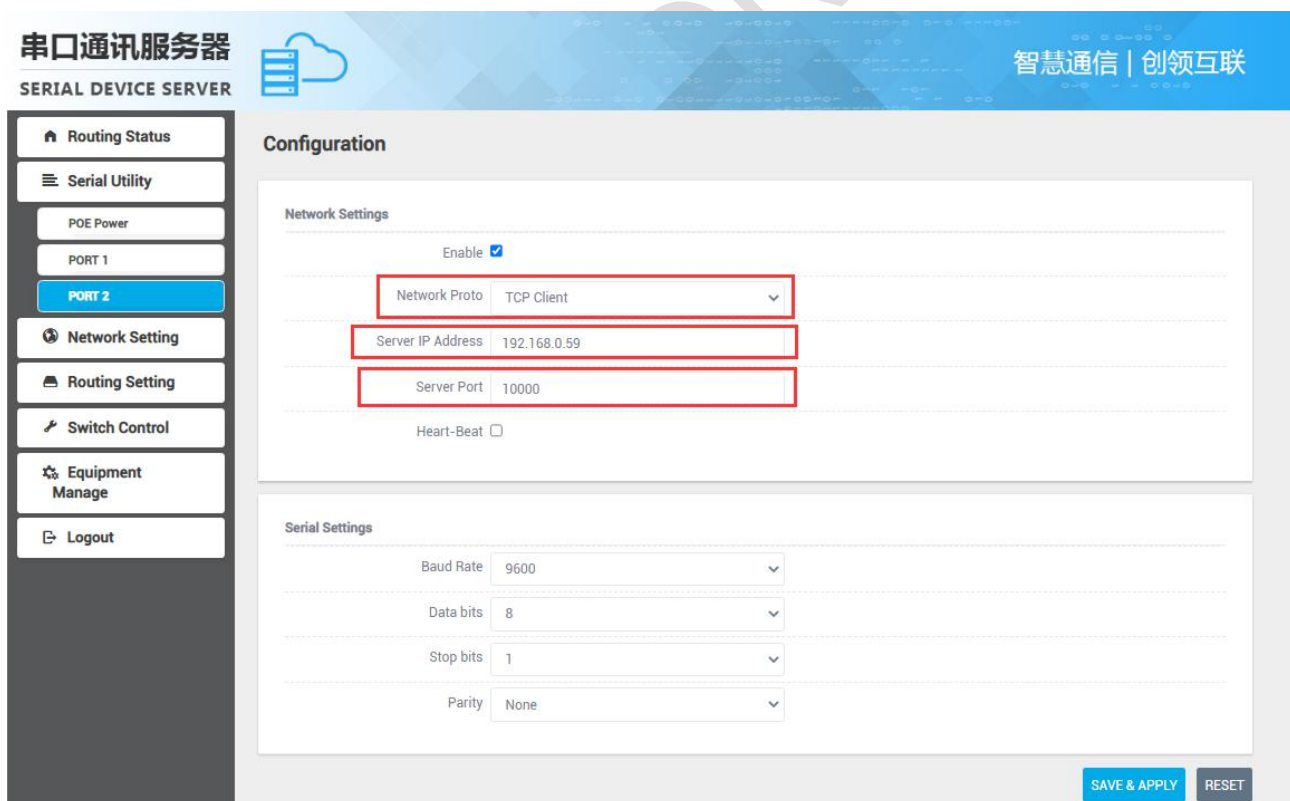


2.4.3 TCP Client

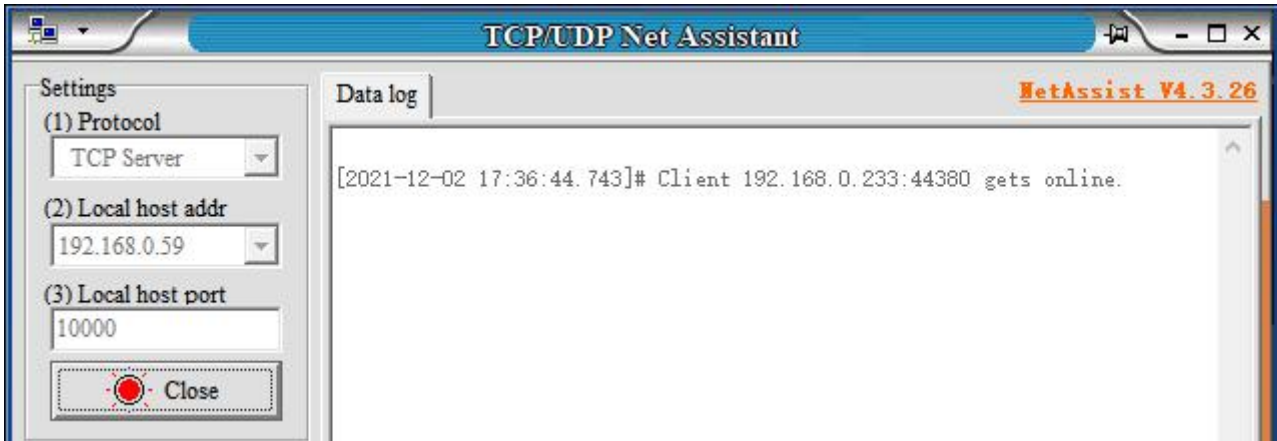
Protocol select TCP Server, Local host addr select the IP address set by the computer, which is in the same network segment as the device's LAN port IP. The Local host port is the default, and the client settings need to use Local host addr and Local host port,click Open.



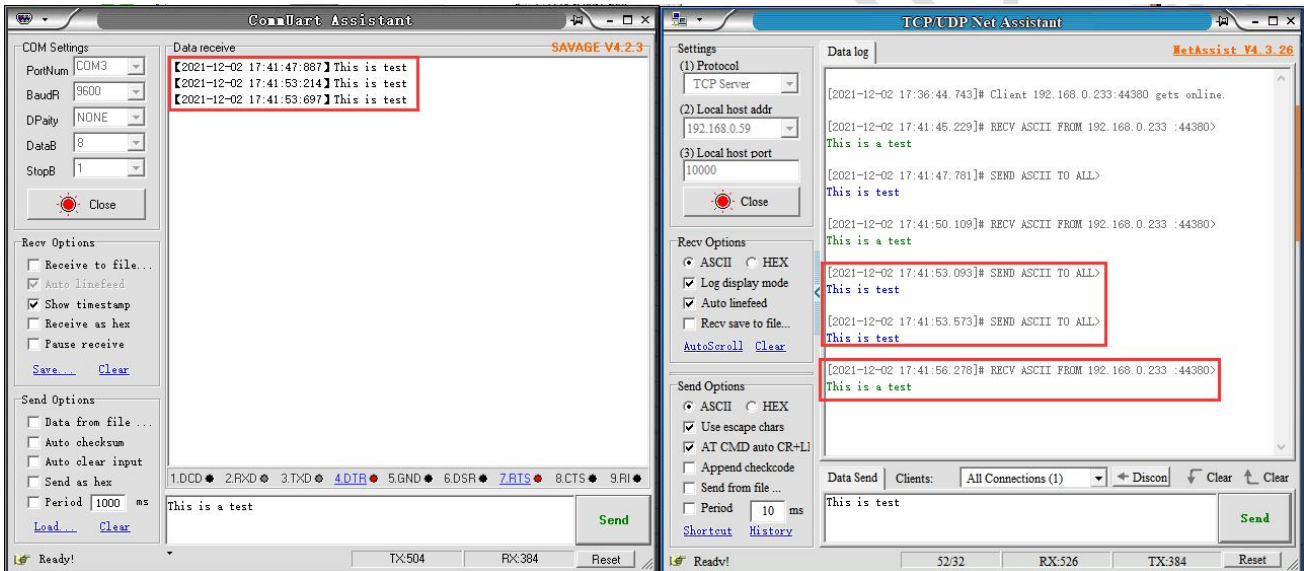
Select Serisl Utility>>>PORT2 in turn,select TCP Client as the network protocol, and the server IP and port number should be consistent with the software settings. Configure the baud rate, data bit, stop bit and parity bit of the serial port according to your needs through the serial port configuration bar. After the configuration is complete, click SAVA & APPLY.



After saving and applying, the software will print "[2021-12-02 17:36:44.743]# Client 192.168.0.233:44380 gets online.", indicating that the connection is successful.

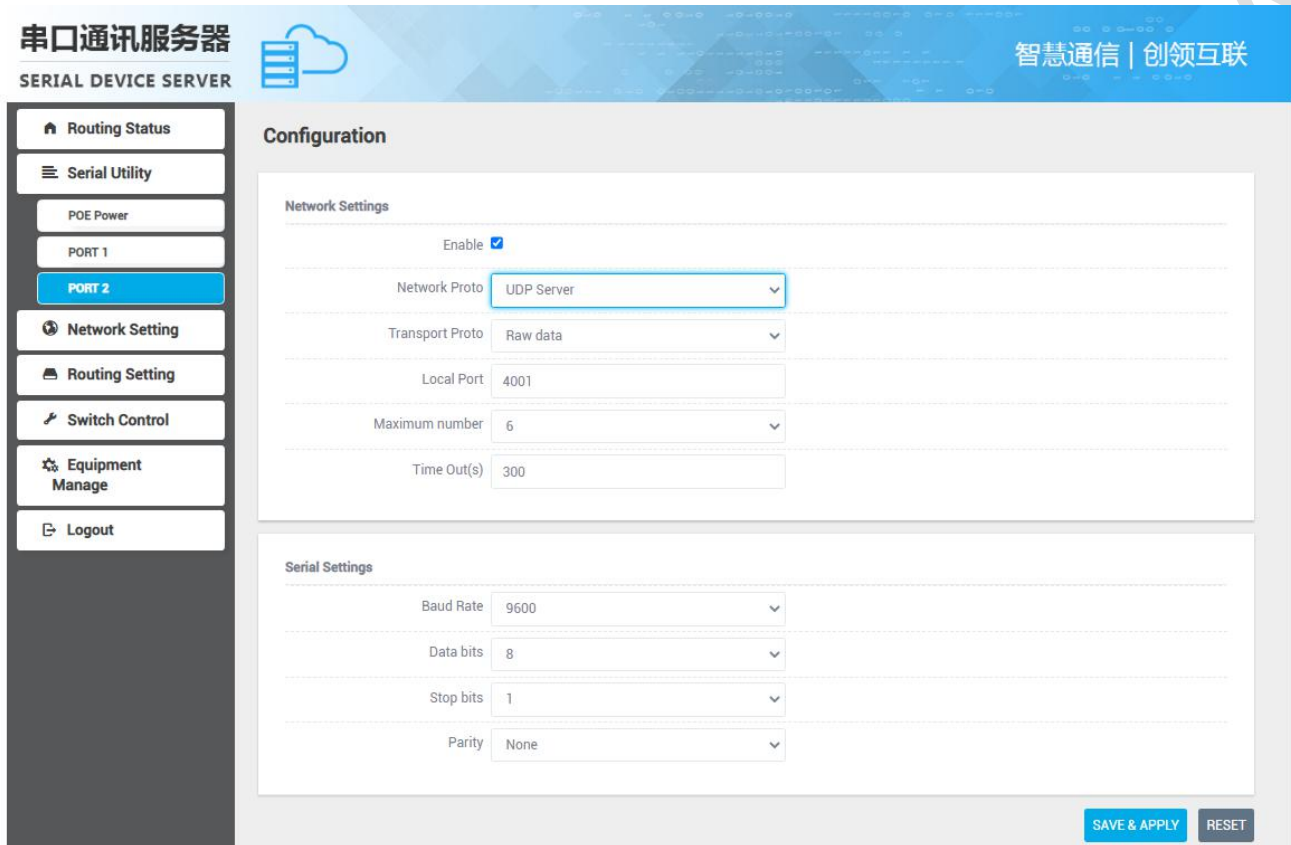


TCP Client and TCP Server send and receive data diagram.



2.4.4 UDP Server

Select Serial Utility>>>PORT2 in turn,select UDP Server as the network protocol, choose the data type according to your needs. Generally, the choice is Raw date. You need to remember the local port after setting. When establishing a UDP connection, you need to use the IP address and port number of the serial server. The baud rate, data bit, stop bit and parity bit of the serial port are configured according to your needs. After the configuration is complete, click SAVA & APPLY.

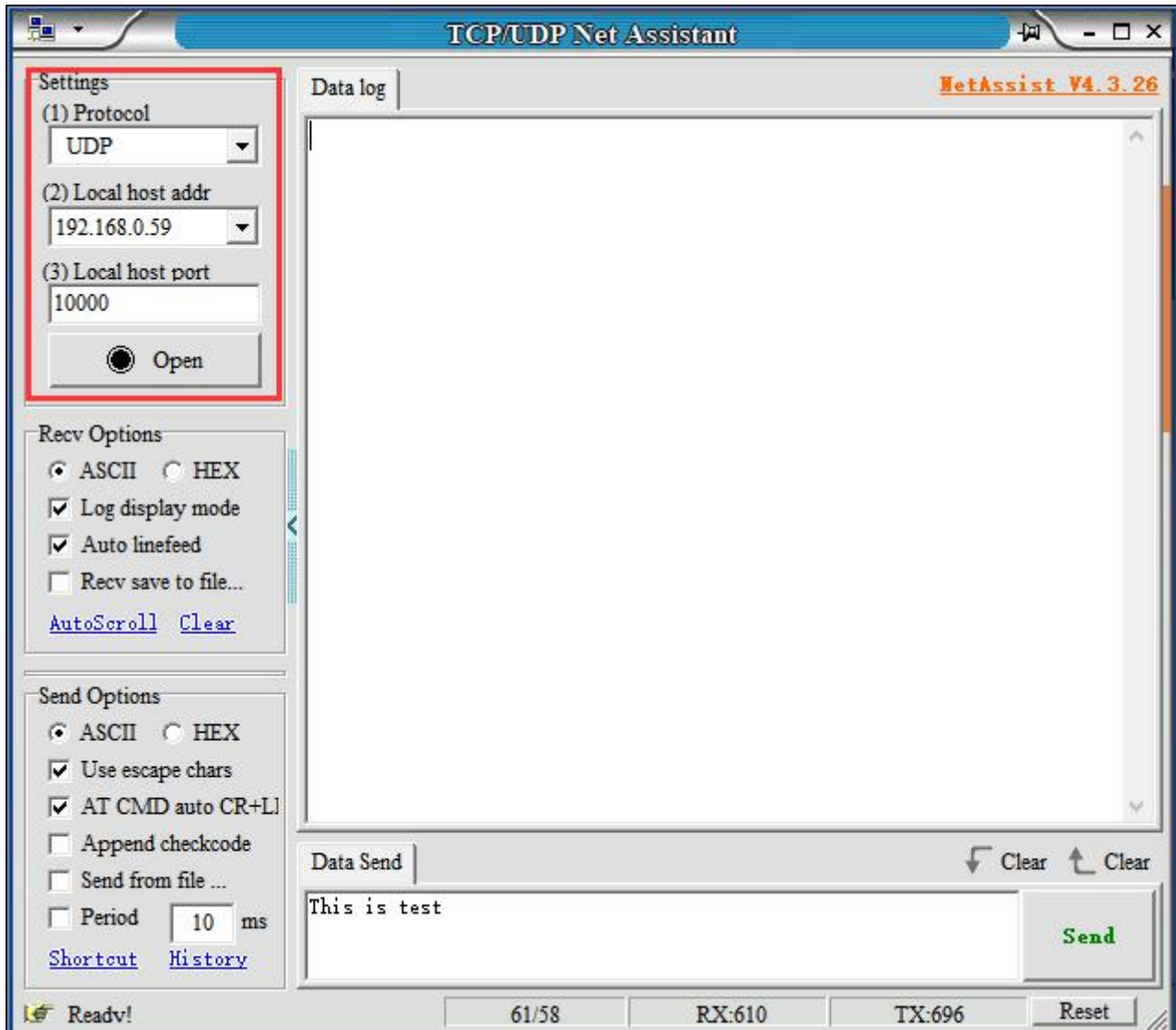


The screenshot displays the configuration page for PORT 2 in the Serial Device Server. The left sidebar contains navigation options: Routing Status, Serial Utility, POE Power, PORT 1, PORT 2 (selected), Network Setting, Routing Setting, Switch Control, Equipment Manage, and Logout. The main content area is titled 'Configuration' and is divided into two sections: 'Network Settings' and 'Serial Settings'. In the 'Network Settings' section, the 'Enable' checkbox is checked. The 'Network Proto' dropdown is set to 'UDP Server', 'Transport Proto' is 'Raw data', 'Local Port' is '4001', 'Maximum number' is '6', and 'Time Out(s)' is '300'. The 'Serial Settings' section shows 'Baud Rate' as '9600', 'Data bits' as '8', 'Stop bits' as '1', and 'Parity' as 'None'. At the bottom right, there are 'SAVE & APPLY' and 'RESET' buttons.

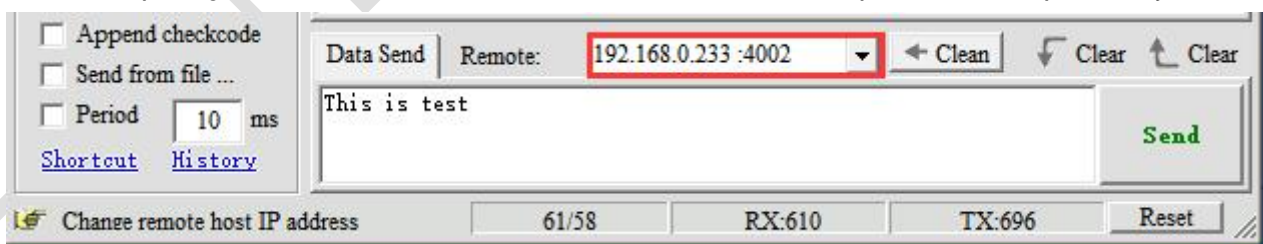
Maximum number: The default is 6, which means that up to 6 UDP Clients are supported to connect to the same serial port.

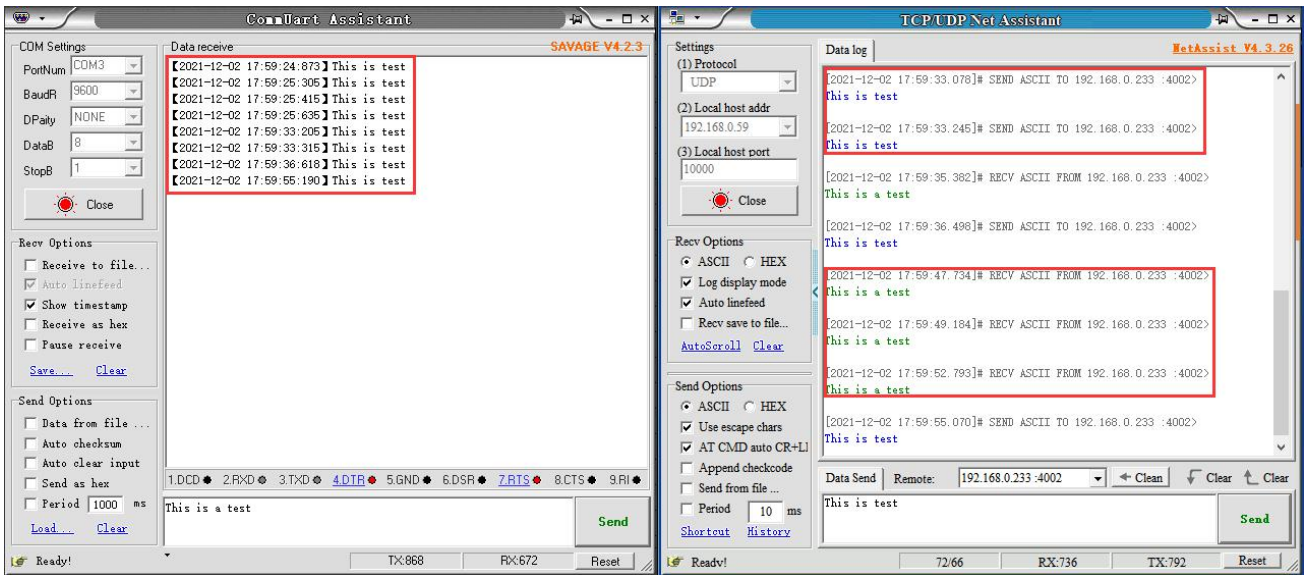
Time Out (s): The default is 300, which means that after the UDP Server establishes a connection, if there is no data, the connection will be disconnected after 300 seconds. If you need a permanent online connection, you can set the value to 0.

The software settings are as follows, Protocol selects UDP, Local host addr selects the same network segment IP set by the computer and the device, and the Local host port defaults to it. Click Open after setting.



After opening, fill in "192.168.0.233:4002", the server's IP address and port number, separated by ':'.

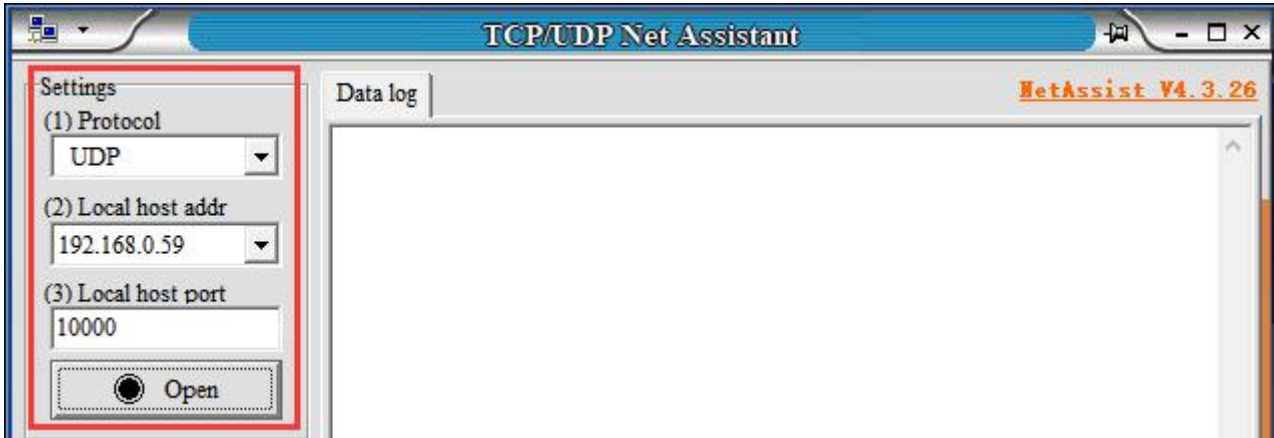


UDP Server and UDP Client send and receive data diagram.


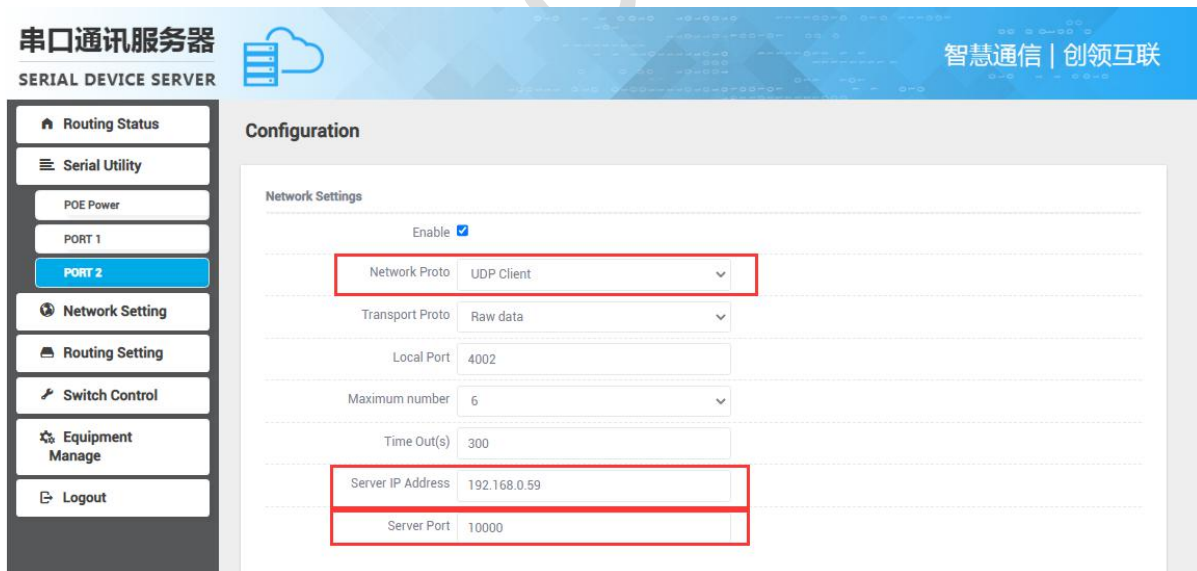
The screenshot displays two software interfaces used for serial communication. The left window, 'CommUart Assistant', is configured for COM3 at 9600 baud. Its 'Data receive' window shows a series of received messages, each starting with a timestamp and followed by 'This is test'. The right window, 'TCP/UDP Net Assistant', is configured for UDP on local host 192.168.0.59. Its 'Data log' window shows a sequence of send and receive operations to the remote address 192.168.0.233:4002. The log entries include timestamps, the direction of the data flow (SEND or RECV), and the content 'This is test'.

2.4.5 UDP Client

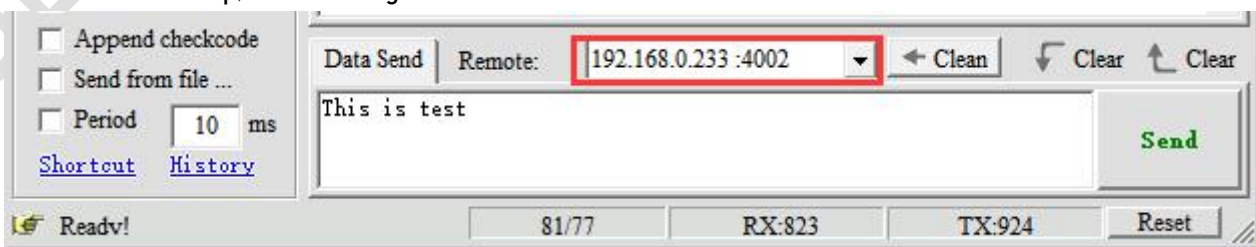
Protocol select UDP, Local host addr select the IP address set by the computer, which is in the same network segment as the device's LAN port IP. The Local host port is the default, and the client settings need to use Local host addr and Local host port,click Open.



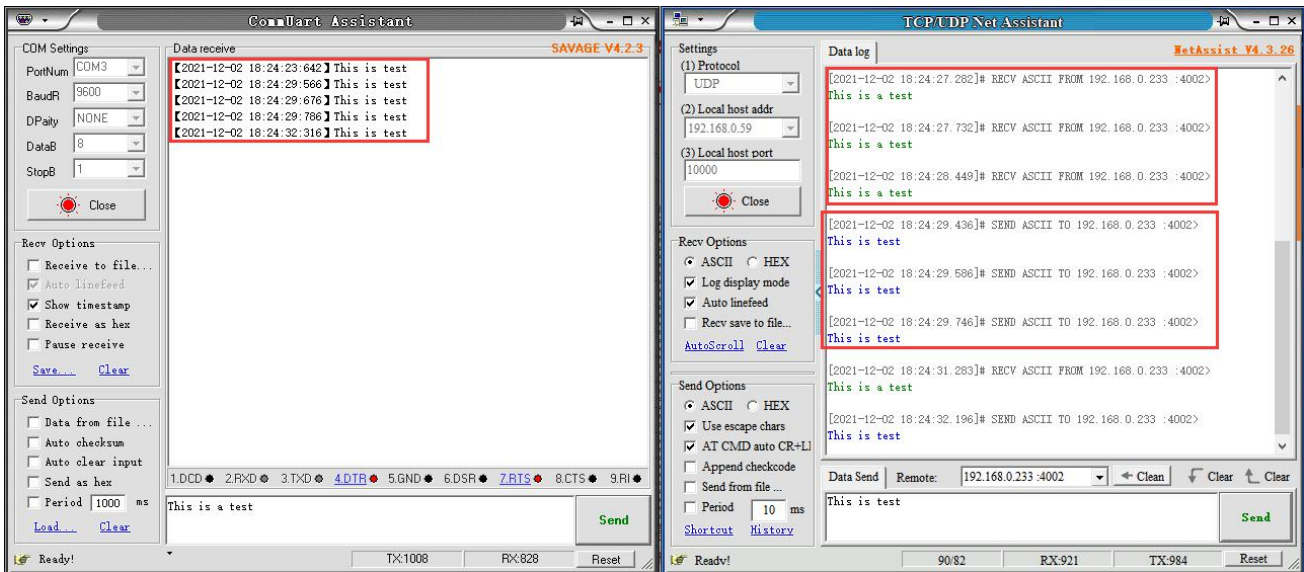
Select Serisl Utility>>>PORT2 in turn,choose UDP Client as the network protocol, and choose the data type according to your needs. Generally, the choice is Raw date. You need to remember the local port after setting. The IP address and port number of the serial port server are used when establishing a UDP connection. Compared with UDP Server, UDP Client has an additional server IP address and server port number. The purpose of this addition is to ensure the security of UDP data transmission. Network data only receives data from the server IP and server port number. The rest of the data are denied access. Configure the baud rate, data bit, stop bit and parity bit of the serial port through the serial port configuration bar according to your needs. After the configuration is complete, click SAVA & APPLY.



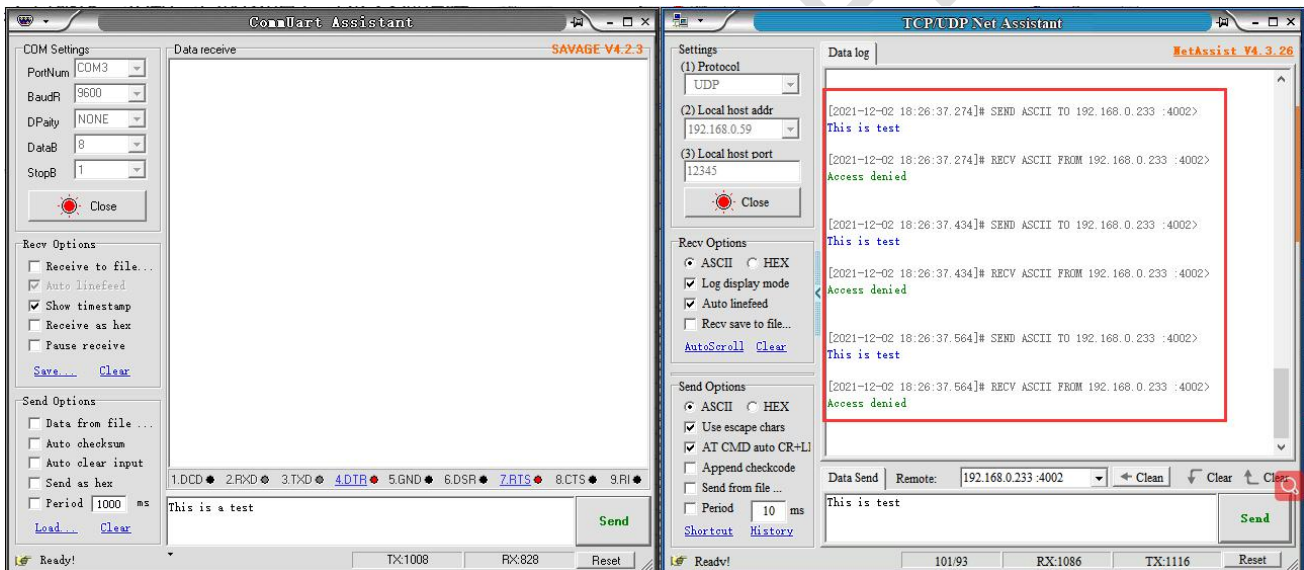
In the next step, the following information needs to be filled in the software.



UDP Client and UDP Server send and receive data diagram,

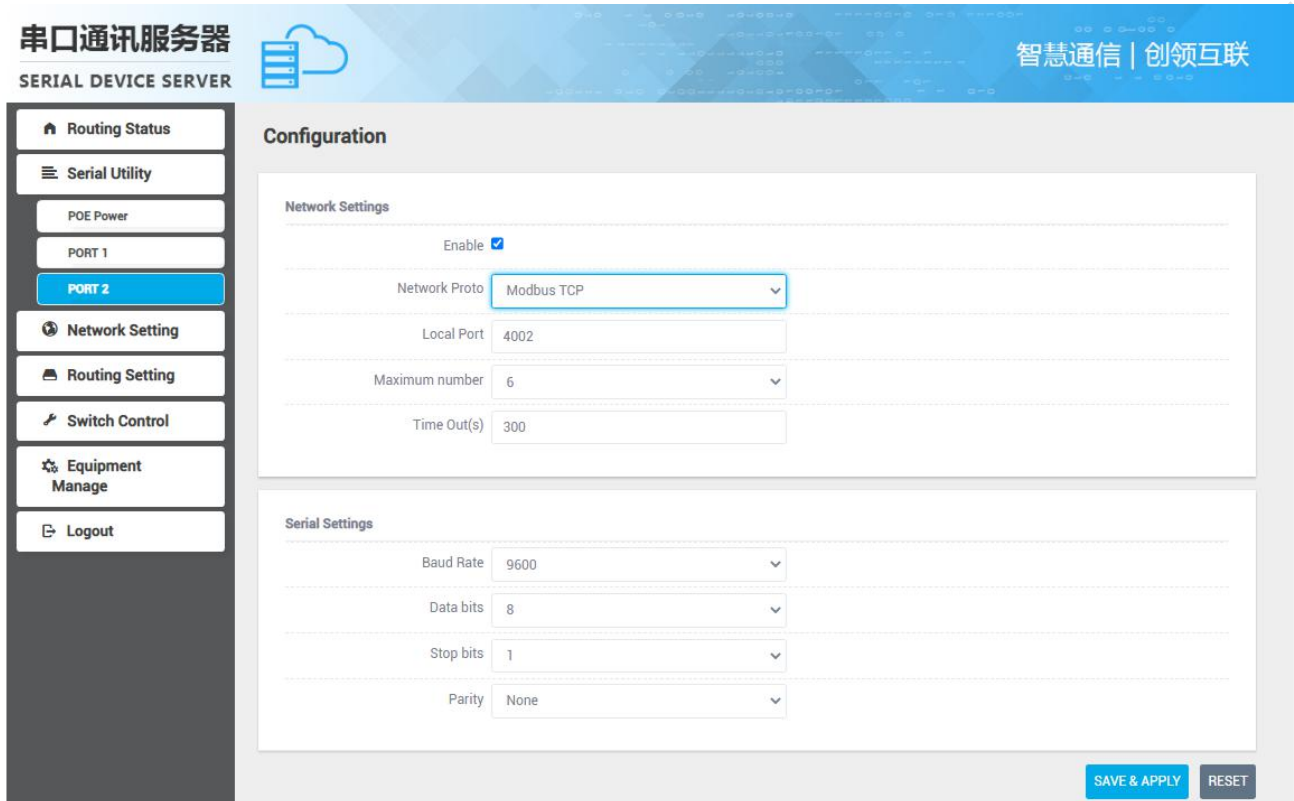


If the data is not sent from the server IP and port, it will be rejected.

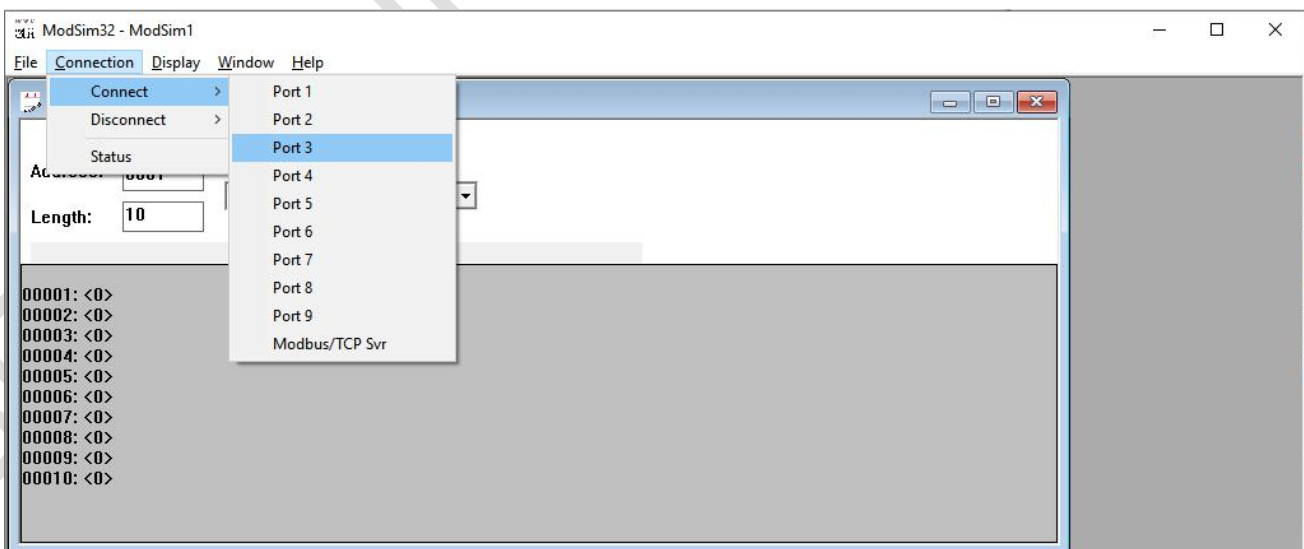


2.4.5 Modbus TCP

Select Serisl Utility>>>PORT2 in turn,Select Modbus TCP as the network protocol. After setting the local port, remember to configure the baud rate, data bit, stop bit and parity bit of the serial port through the serial port configuration bar according to your needs. After the configuration is complete, click SAVA & APPLY.

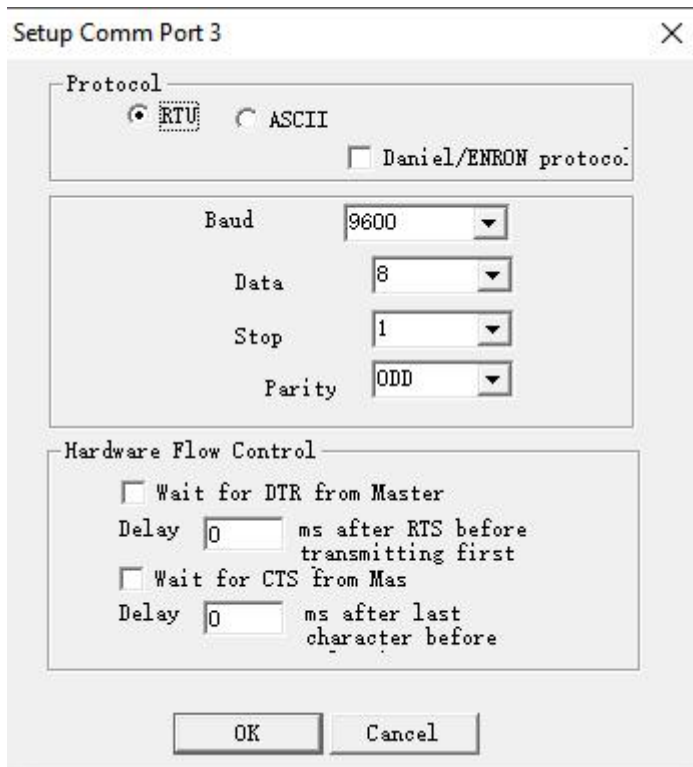


Here you need to use ModSim32.exe and ModScan32.exe to simulate the use, first open the software ModSim32, File>>>New to create a new file, Connection>>>Connect>>>Port 3 (the choice here is the connection between your computer and the device port).

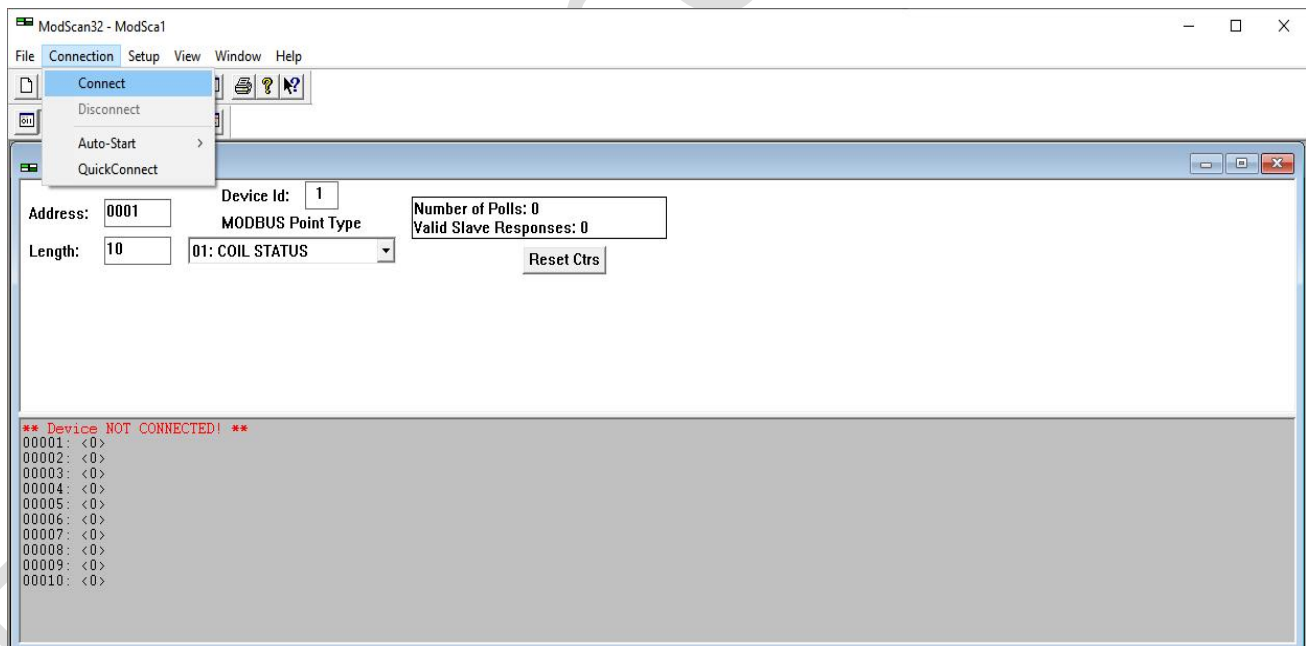


The pop-up dialog box is as follows, the baud rate, data bit, stop bit and parity bit are changed according to

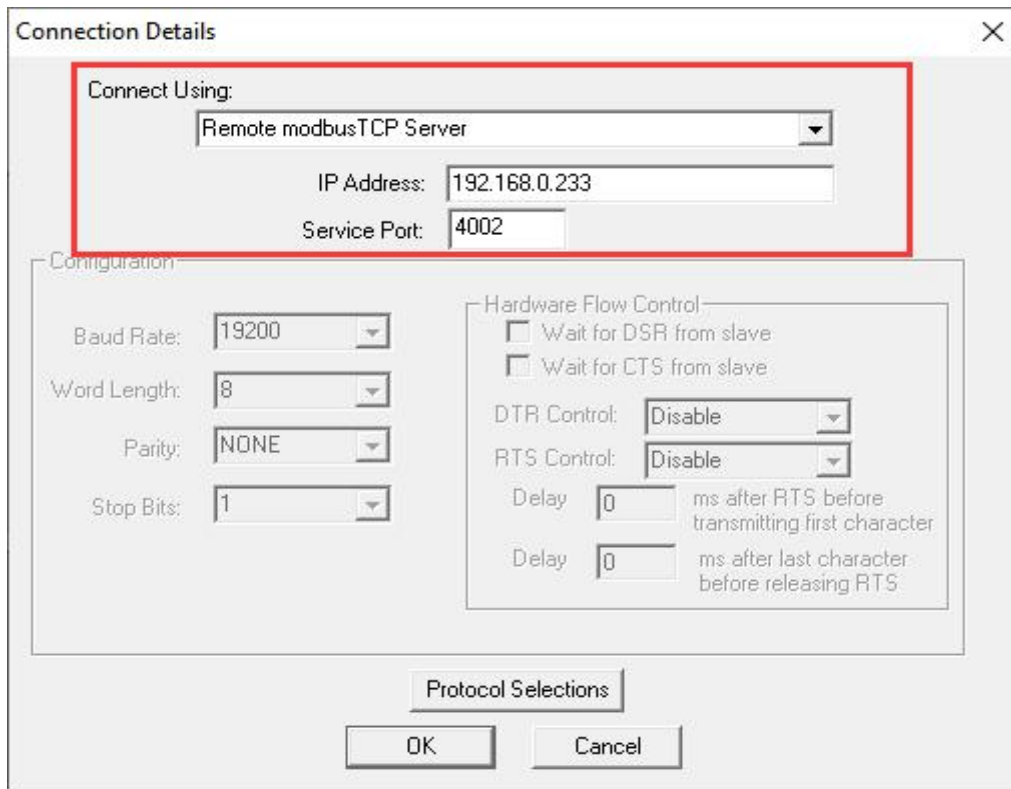
the values set on the web page.



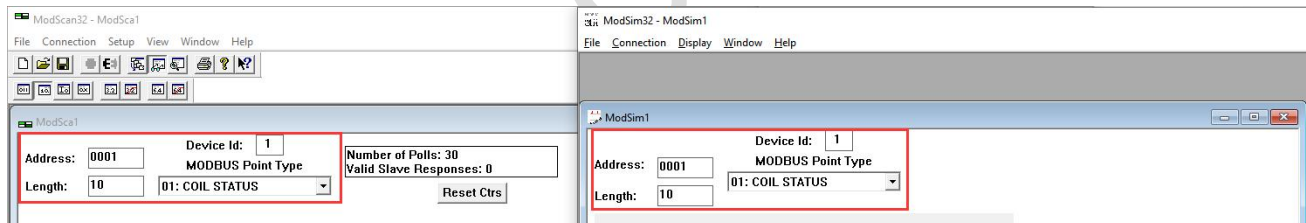
Open the software ModScan32, Connection>>>Connect.



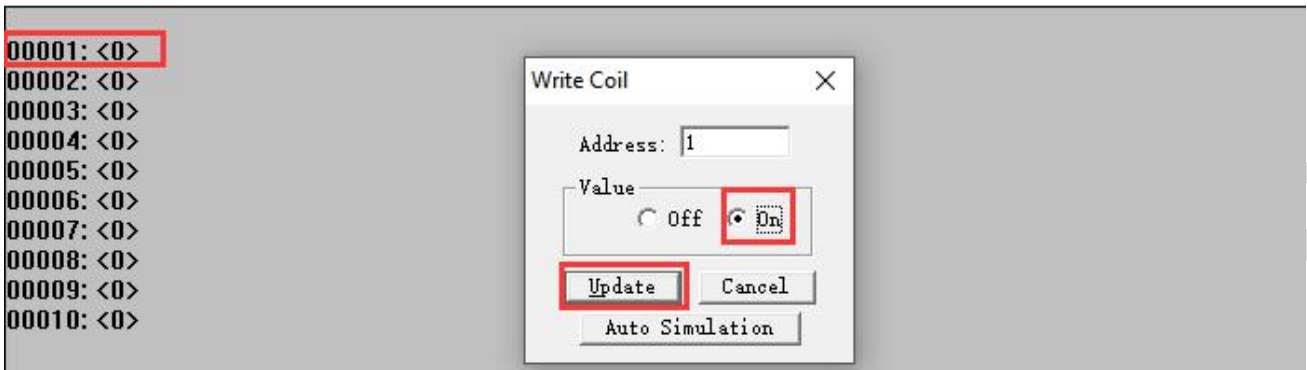
The pop-up dialog box is as follows, select Remote modbusTCP Server, fill in the IP Address and Service Port, and then click OK.



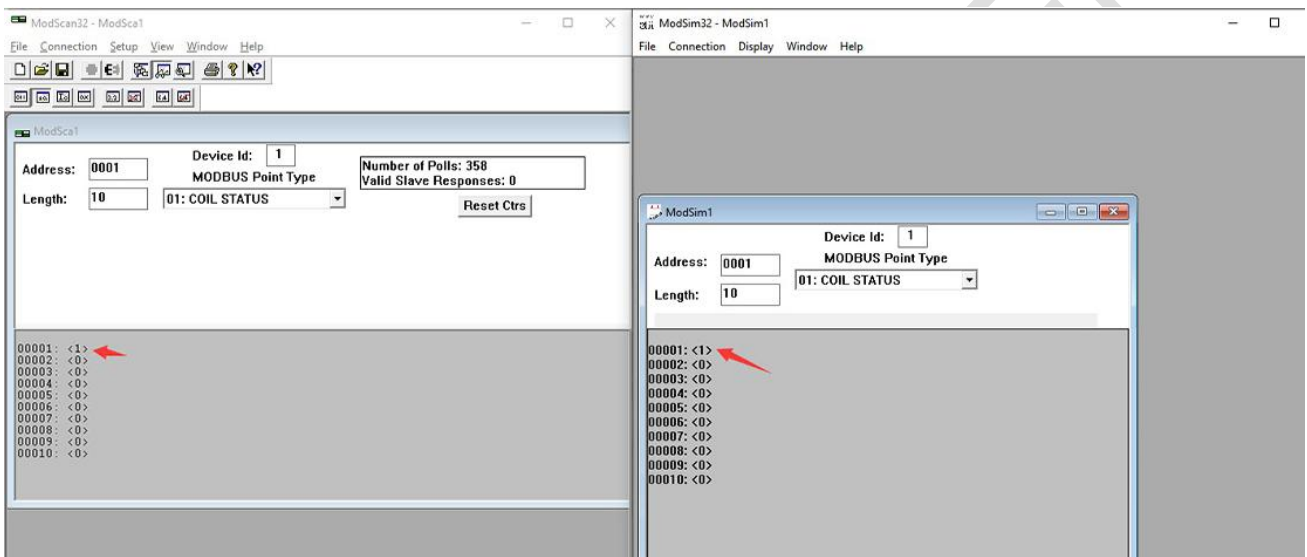
The selected settings in ModSim32 and ModScan32 software need to be consistent.



Double-click 00001: <0> area, a dialog box pops up, select On, and then click Update.

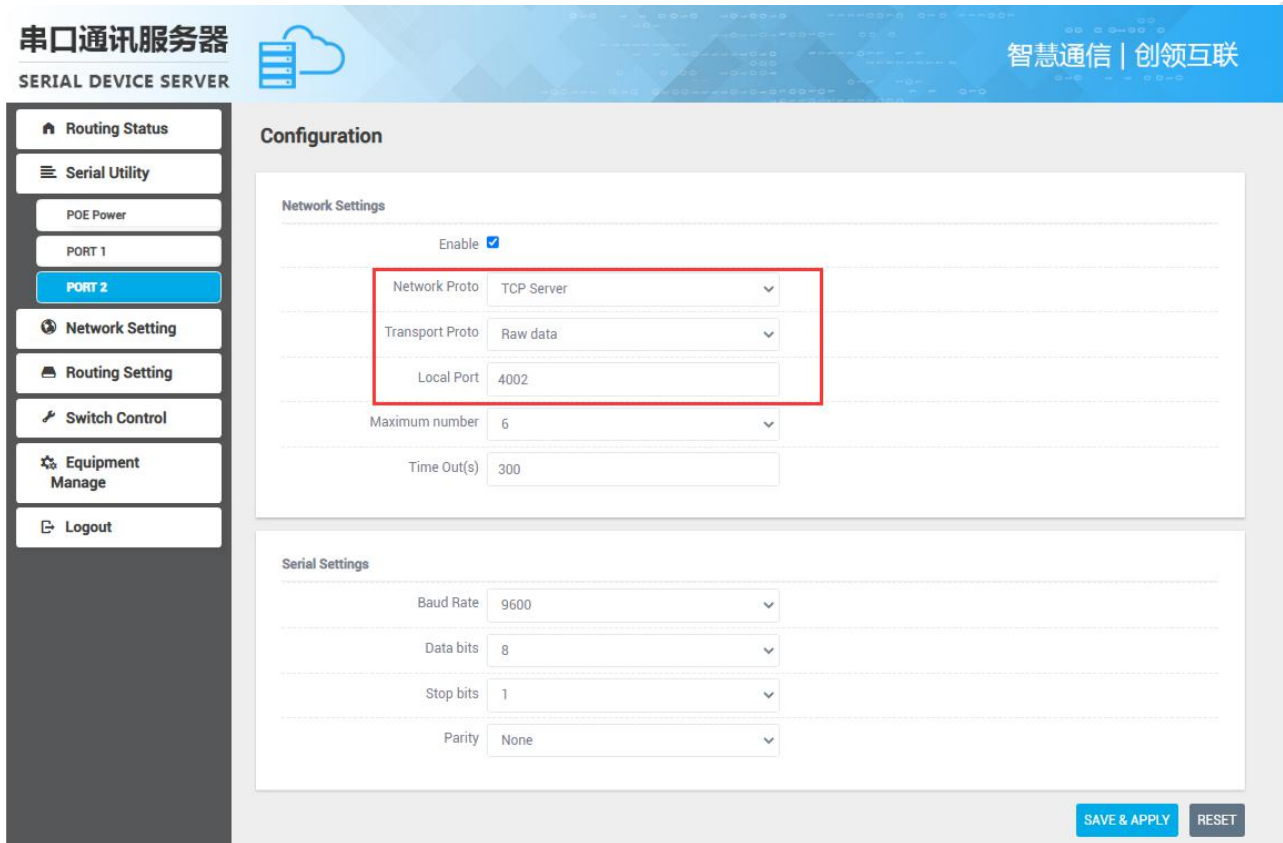


The effect is as follows



2.4.6 Transport Proto

When selecting TCP Server, the data type also has the option of Telnet (RFC2217), and a software putty.exe is used here. Select Serisl Utility>>>PORT2 in turn, Select TCP Server or UDP Server as the Network Proto, and Telnet (RFC2217) as the Transport Proto. After the configuration is complete, click SAVE & APPLY.



串口通讯服务器
SERIAL DEVICE SERVER

智慧通信 | 创领互联

Configuration

Network Settings

Enable

Network Proto TCP Server

Transport Proto Raw data

Local Port 4002

Maximum number 6

Time Out(s) 300

Serial Settings

Baud Rate 9600

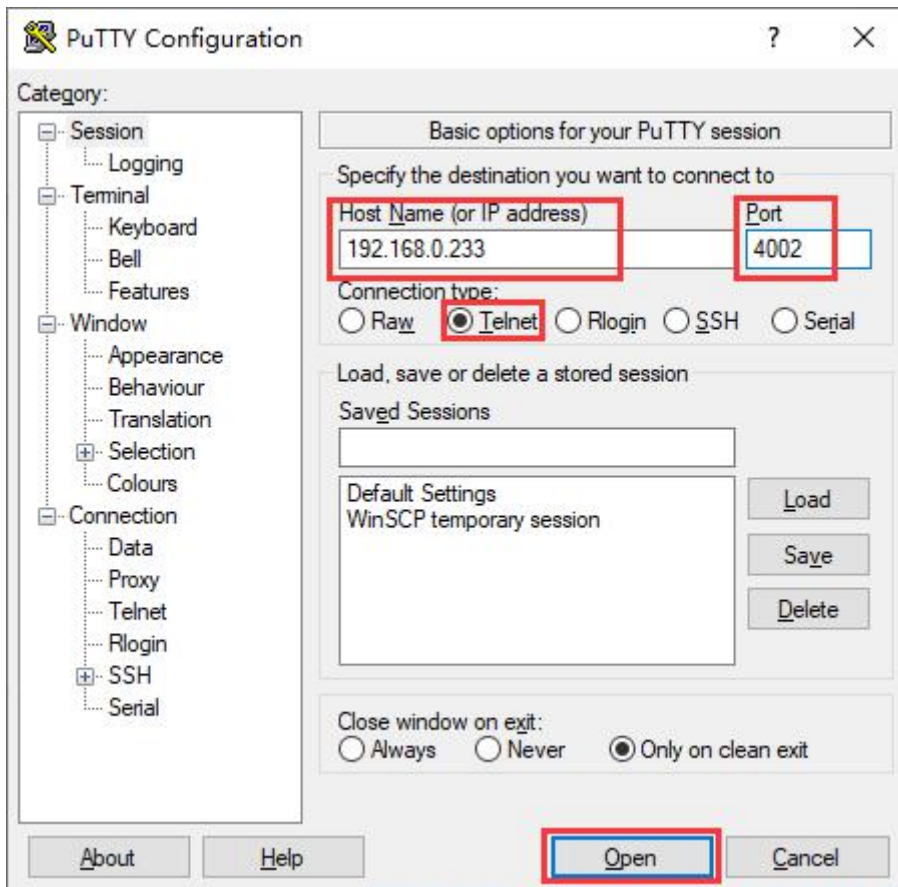
Data bits 8

Stop bits 1

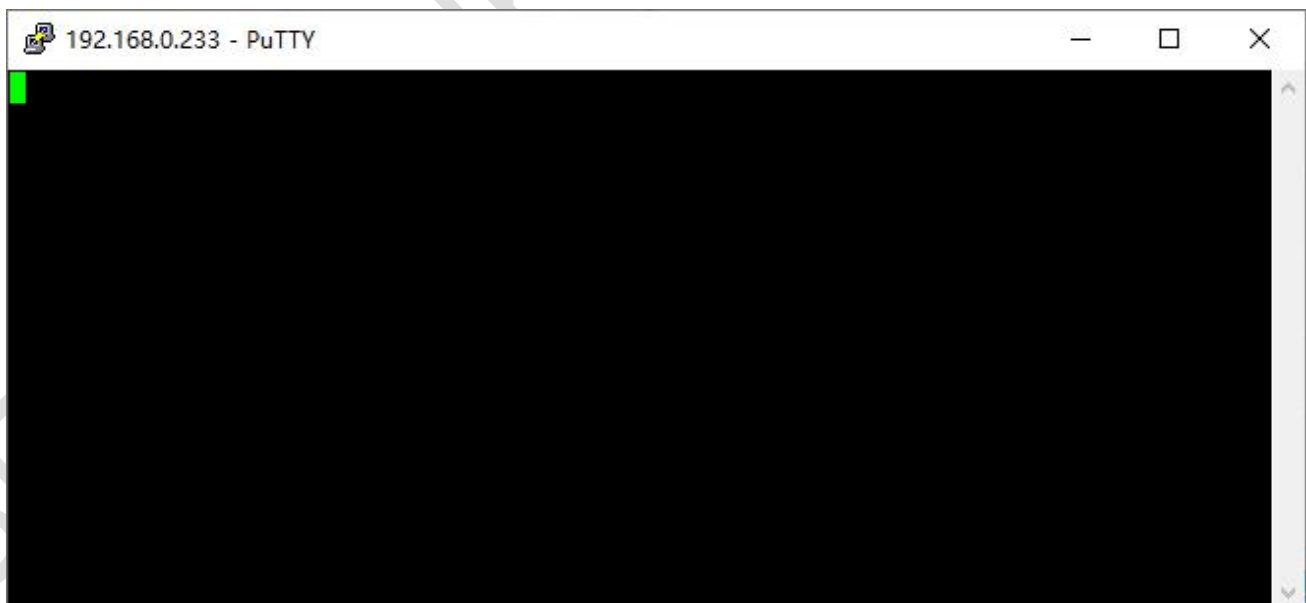
Parity None

SAVE & APPLY RESET

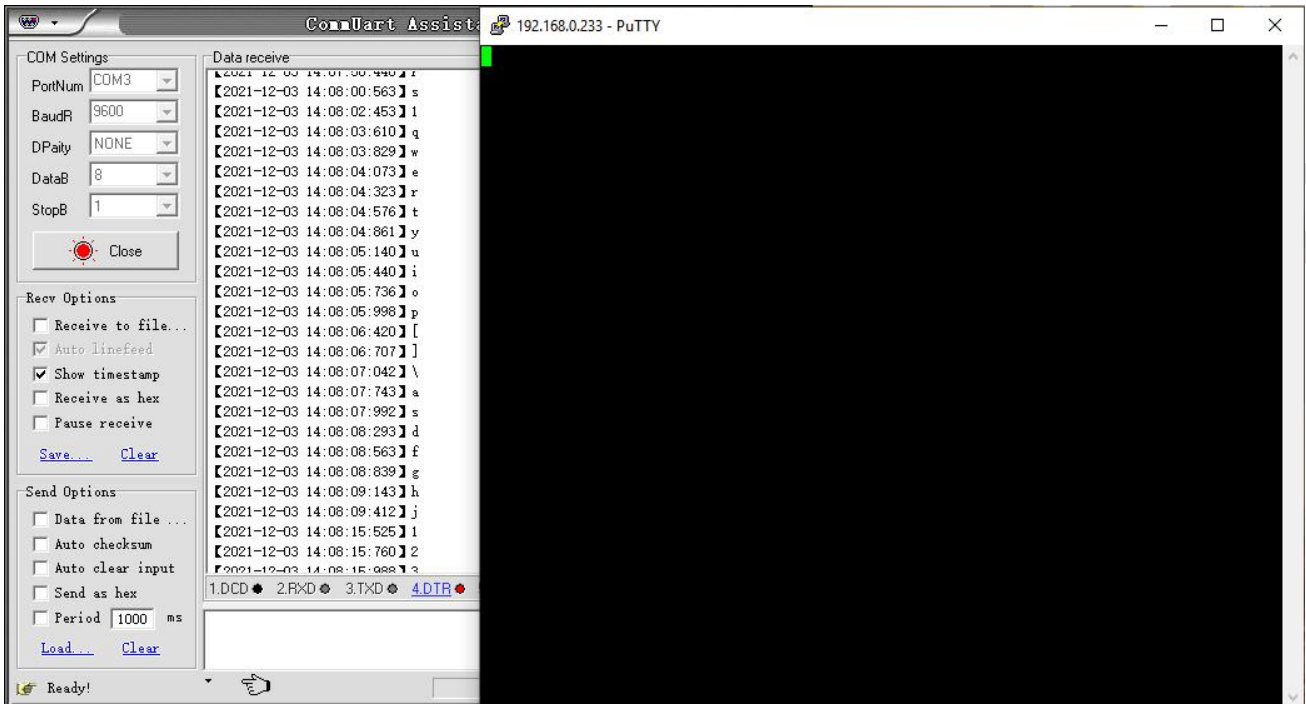
Open the putty.exe software, fill in the server IP address and port number, select Telnet for Connection type, set as follows, click Open after the configuration is complete.



If no error is prompted after opening, a pure black dialog box will be displayed, as shown below.

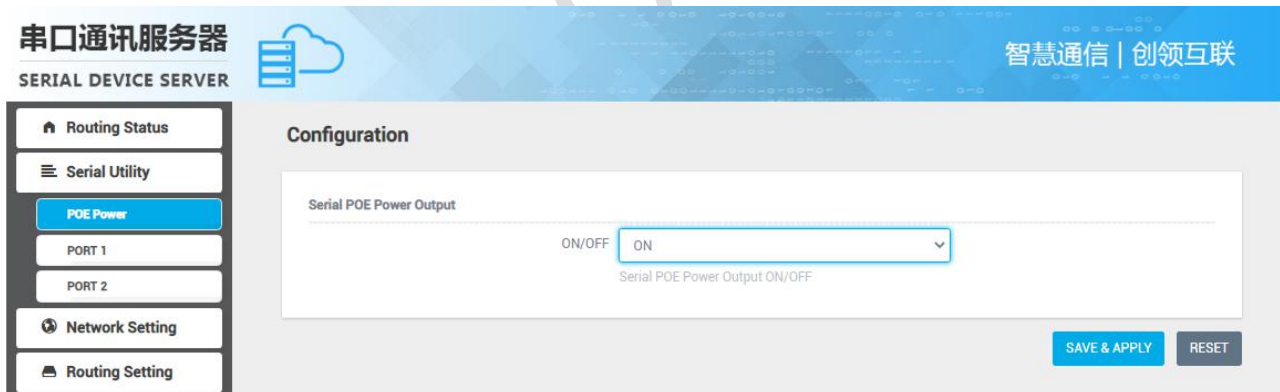


Click the putty dialog box, enter any character, and the result is as follows.



2.4.7 POE Power

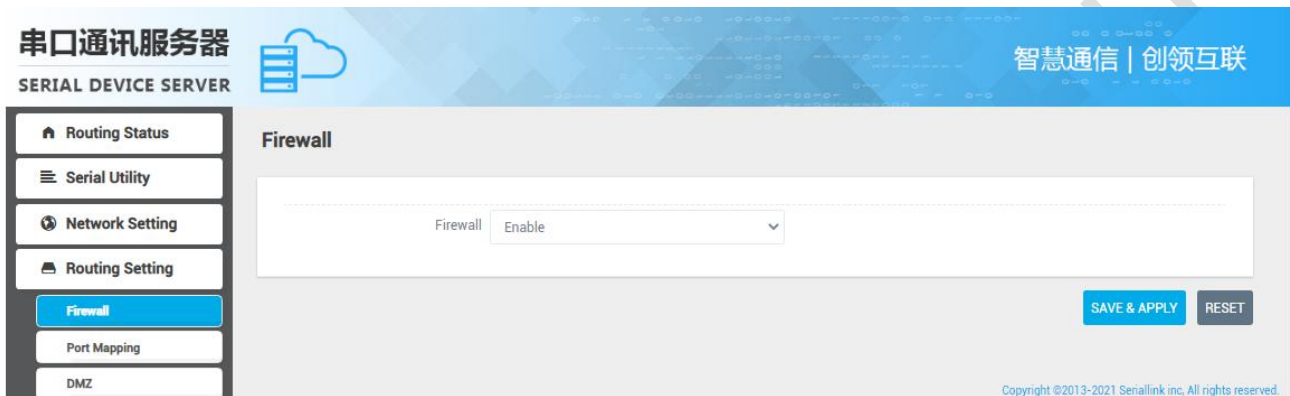
The serial port power supply function switch is closed by default. Log in to the serial server page when you need to use it, click Serial Utility>>>POE Power, select ON, and then click SAVE&APPLY.



Chapter 3 Routing Setting

3.1 Firewall

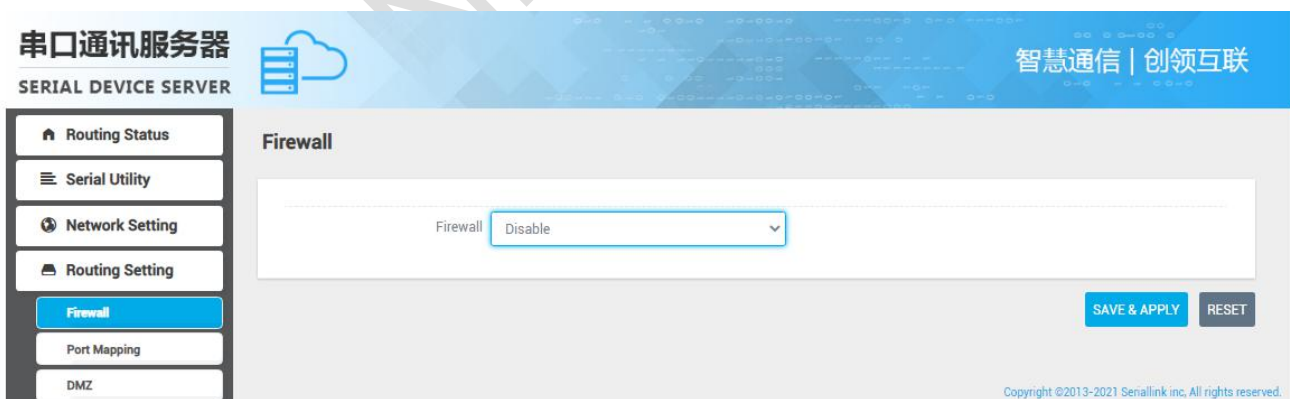
The firewall is turned on by default. When doing DMZ and Port Mapping, you need to disable the firewall. To disable the firewall, click Routing Setting>>>Firewall, select Disable for the firewall, and then click "SAVE&APPLY".



3.2 Port Mapping

Compared with DMZ (3.3), port forwarding is more refined control. Data packets sent to a certain port can be forwarded to a certain host on the LAN side, so that different ports can be transferred to different hosts.

First, you need to disable the firewall.



Click Routing Setting>>>Port Mapping and enter the "Port Forwards" interface to configure.

Name: Specify the name of this rule, you can give a meaningful name.

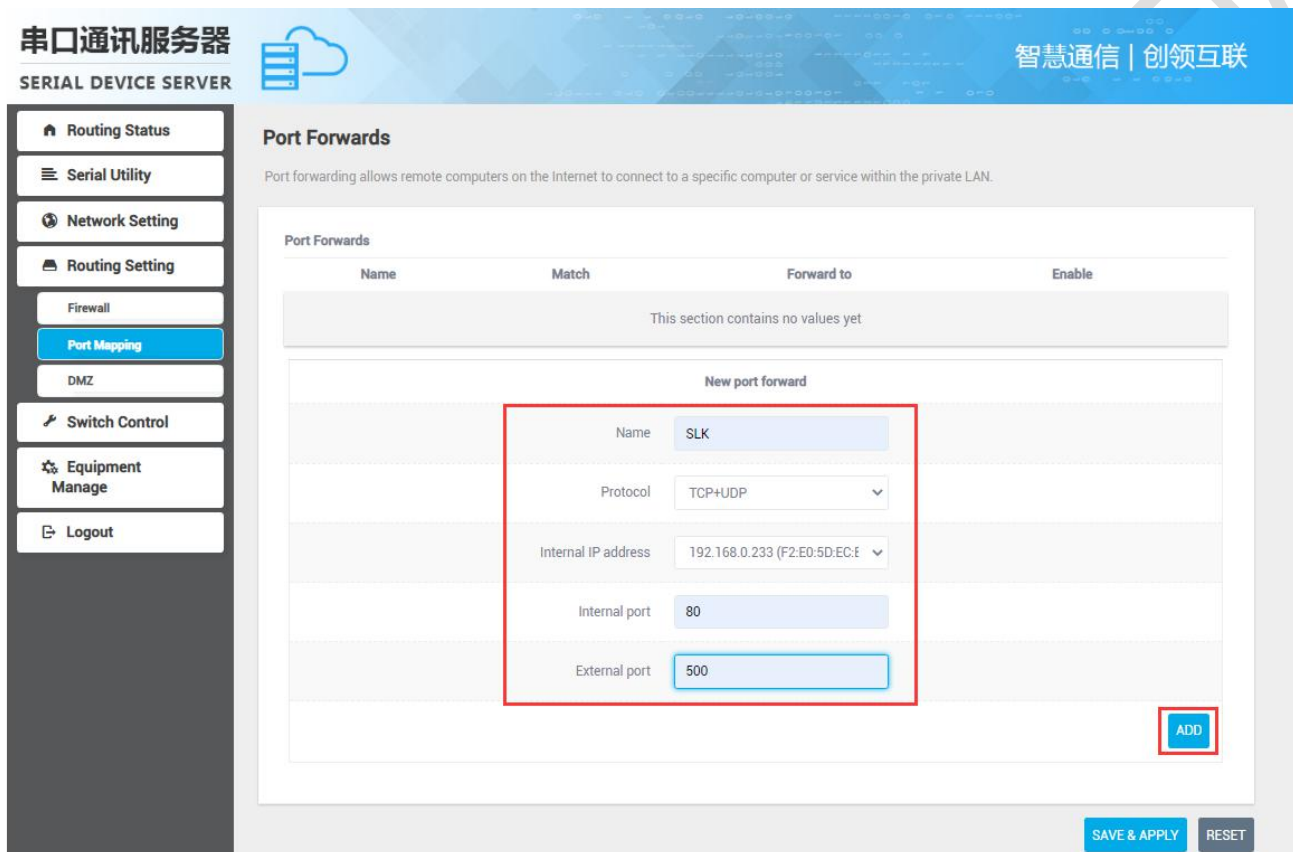
Protocol: Specify the protocol to be forwarded, which can be TCP, UDP, or TCP/UDP.

Internal IP address: select the IP address that needs to be forwarded to the external network.

Internal port: the port to be forwarded by the downstream device or this machine.

External port: Add this external port through the wan port ip to access the downstream device.

After configuration, click the "ADD" button to add a forwarding rule. Click the "SAVE&APPLY" button to make the rule effective.



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Port Forwards

Port forwarding allows remote computers on the Internet to connect to a specific computer or service within the private LAN.

Name	Match	Forward to	Enable
This section contains no values yet			

New port forward

Name: SLK

Protocol: TCP+UDP

Internal IP address: 192.168.0.233 (F2:E0:5D:EC:F)

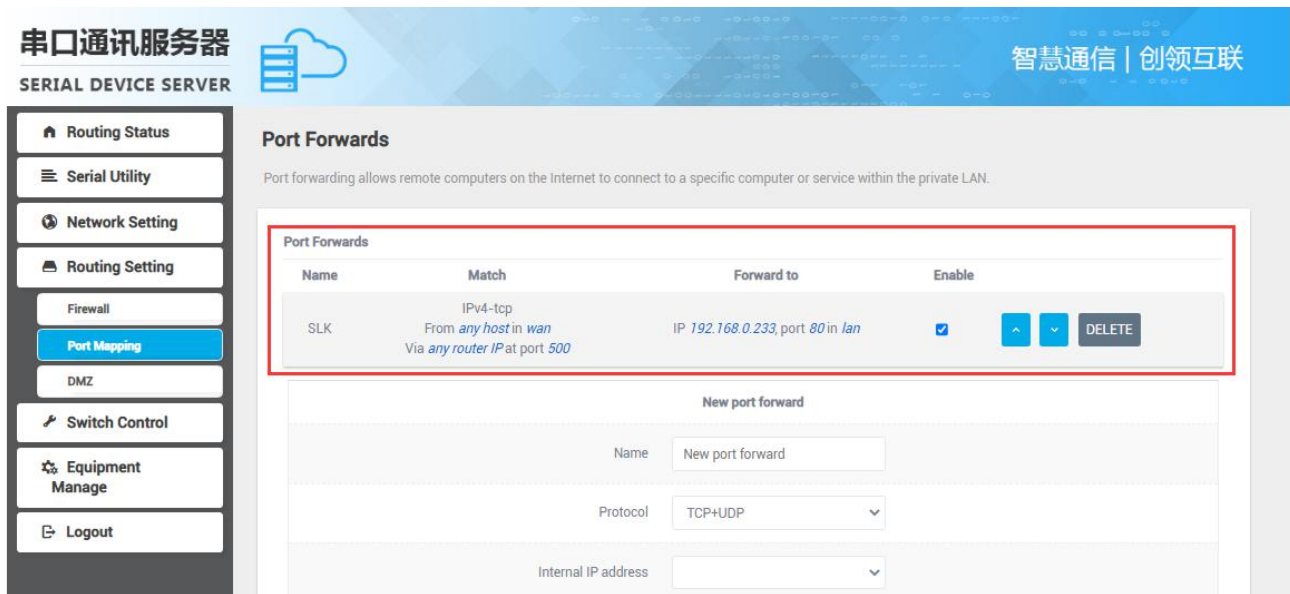
Internal port: 80

External port: 500

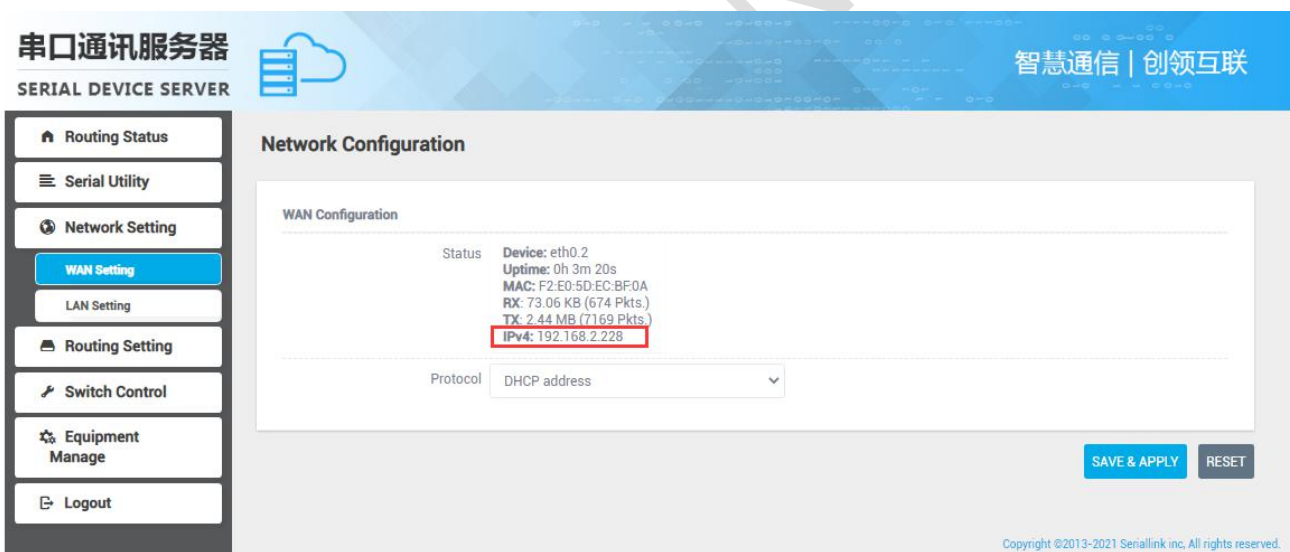
ADD

SAVE & APPLY RESET

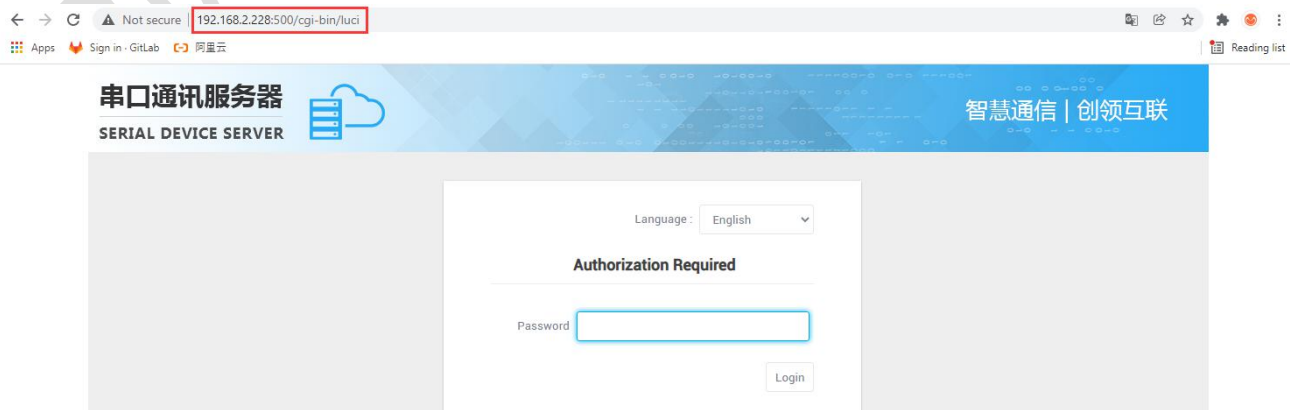
After the addition is successful, there will be an extra port forwarding rule, click "SAVE&APPLY" to make this rule effective. You can add multiple rules.



Check the wan port ip, through the wan port ip and the external port number, you can access the internal port of the downstream device or the local device.



Through 192.168.2.228:500 to access the internal port of the downstream device.

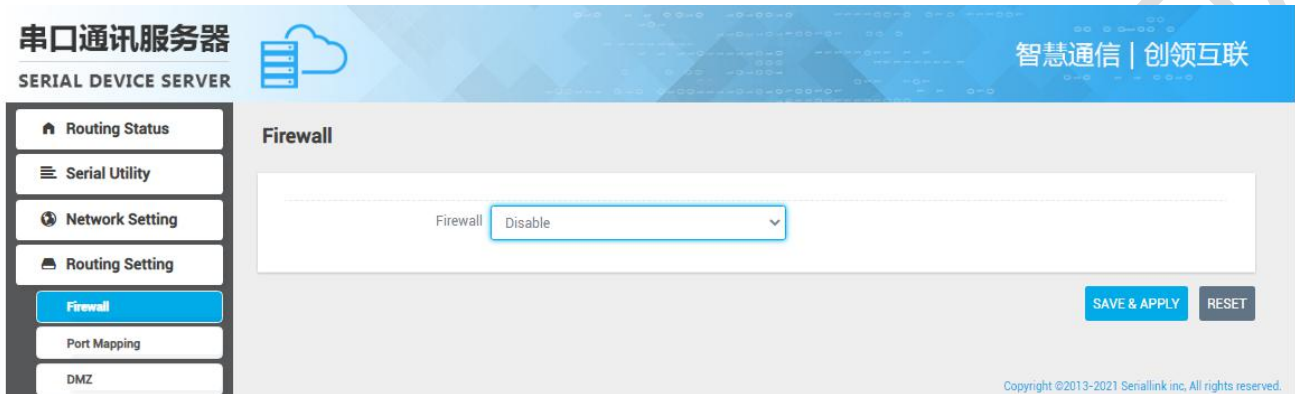


3.3 DMZ

The DMZ function can map the WAN port address to a host on the LAN side; all packets to the WAN address will be transferred to the designated LAN host to achieve two-way communication. In fact, a host in the intranet is completely exposed to the Internet and all ports are opened.

It is equivalent to all port mapping. It is equivalent to using the public IP directly.

First, you need to disable the firewall.

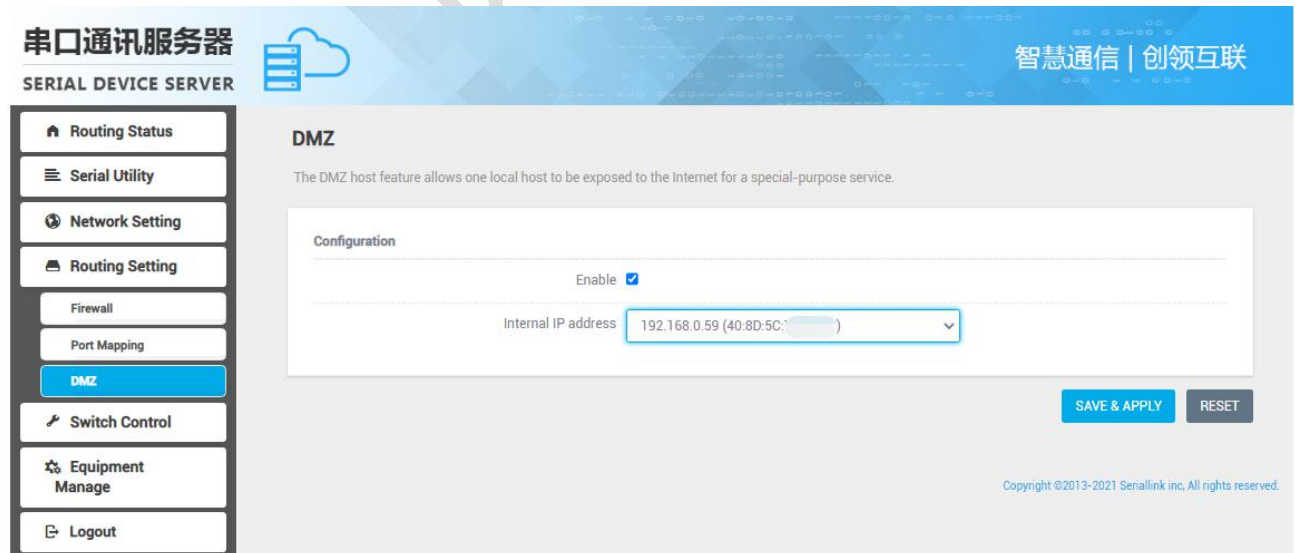


Click Routing>>>DMZ, check Enable, set the ip address assigned by the lan port to the downstream device, forward all the ports of the downstream device, and you can directly access it through the ip address of the wan port.

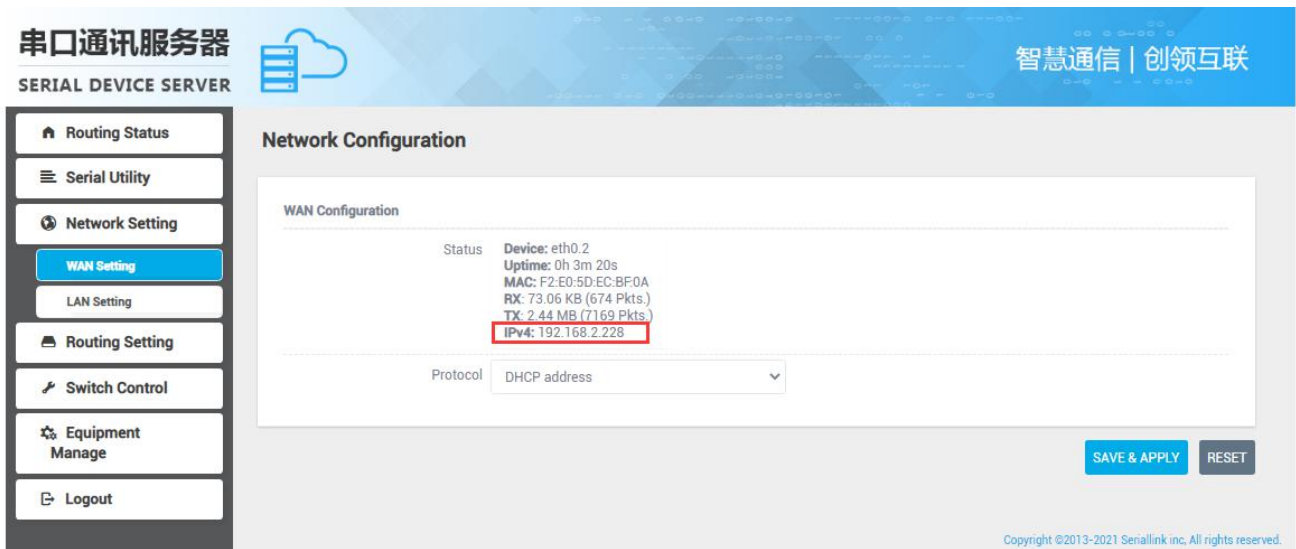
Enable: Check Enable

Internal IP address: PC end IP address

After the configuration is complete, click "SAVE&APPLY" to make it effective.



Check the wan port ip, you can directly access the downstream device through the wan port ip. If you can't access it, the possible cause is that the firewall of the downstream device is turned on, and the firewall of the downstream device needs to be turned off.

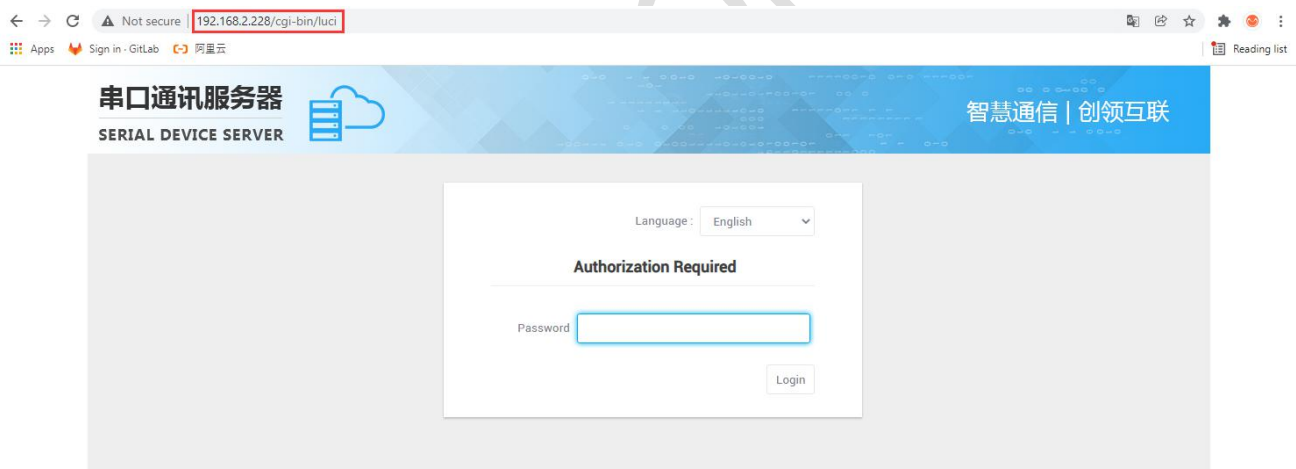


The screenshot shows the 'Serial Device Server' web interface. The top navigation bar includes '串口通讯服务器' (Serial Device Server) and 'SERIAL DEVICE SERVER'. The main content area is titled 'Network Configuration' and displays 'WAN Configuration' details:

Status	Device: eth0.2 Uptime: 0h 3m 20s MAC: F2:E0:5D:EC:BF:0A RX: 73.06 KB (674 Pkts.) TX: 2.44 MB (7169 Pkts.) IPv4: 192.168.2.228
Protocol	DHCP address

Buttons for 'SAVE & APPLY' and 'RESET' are visible at the bottom right of the configuration area. A copyright notice at the bottom reads: 'Copyright ©2013-2021 Seriallink inc, All rights reserved.'

You can access the downstream device directly through the ip of the wan port. (Note: The computer needs to be in the same local area network as the wan port ip to be able to access)



The screenshot shows the 'Serial Device Server' web interface displaying an 'Authorization Required' page. The browser address bar shows the URL '192.168.2.228/cgi-bin/luci'. The page includes a language dropdown menu set to 'English' and a password input field with a 'Login' button.

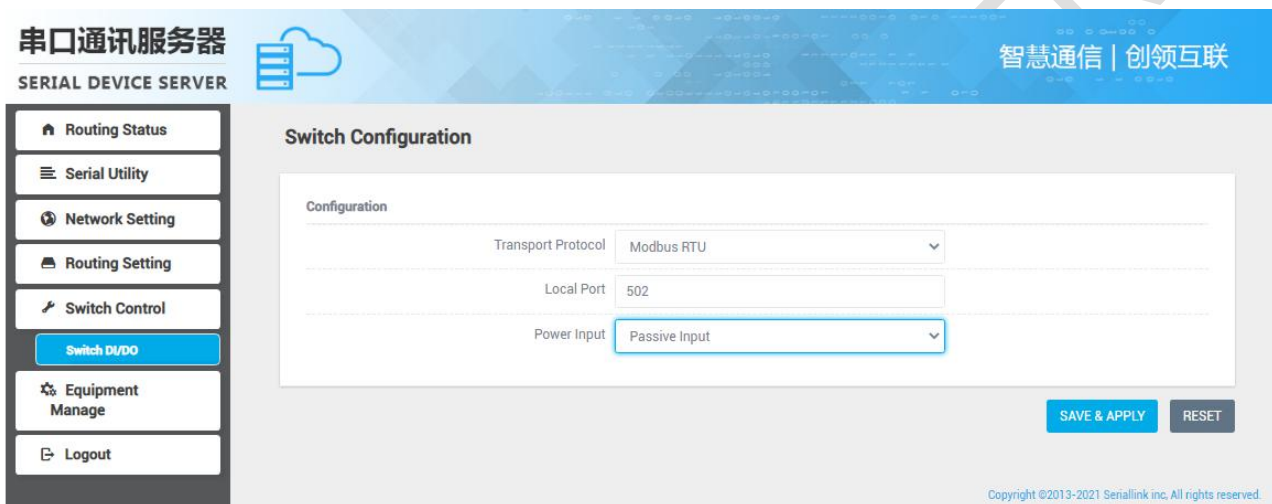
Chapter 4 Switch Control

4.1 Switch DI/DO

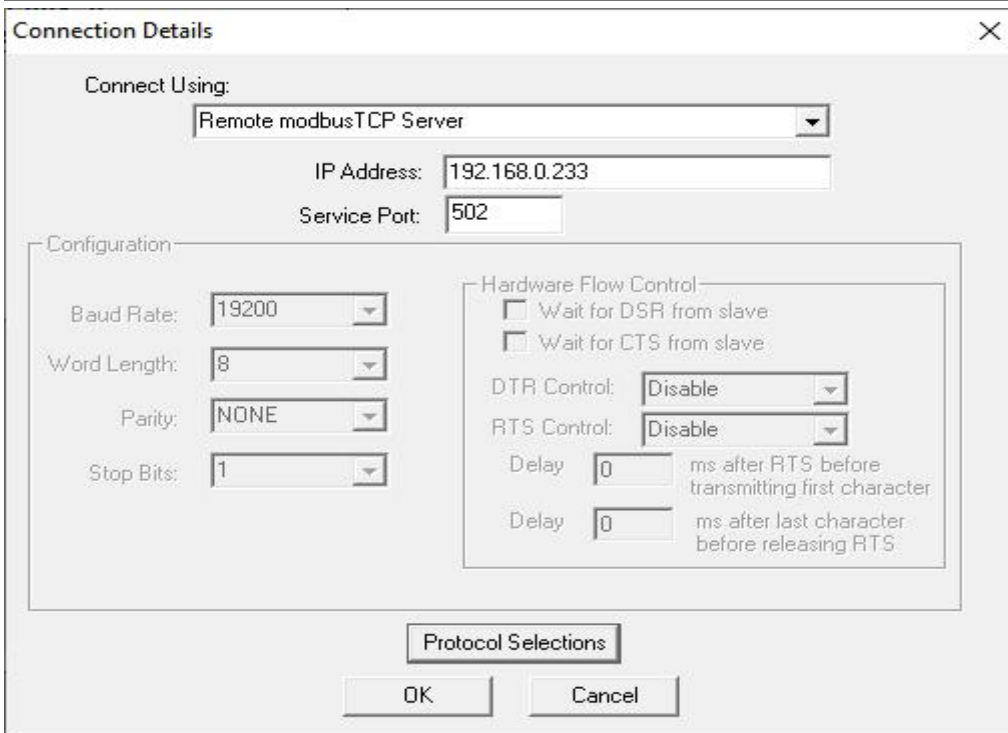
Click Switch Control>>>Switch DI/DO, select Transport Protocol, Local Port, and Power Input as needed. Here, follow the instructions of Passive Input and Active Input of Power Input.

Passive Input:

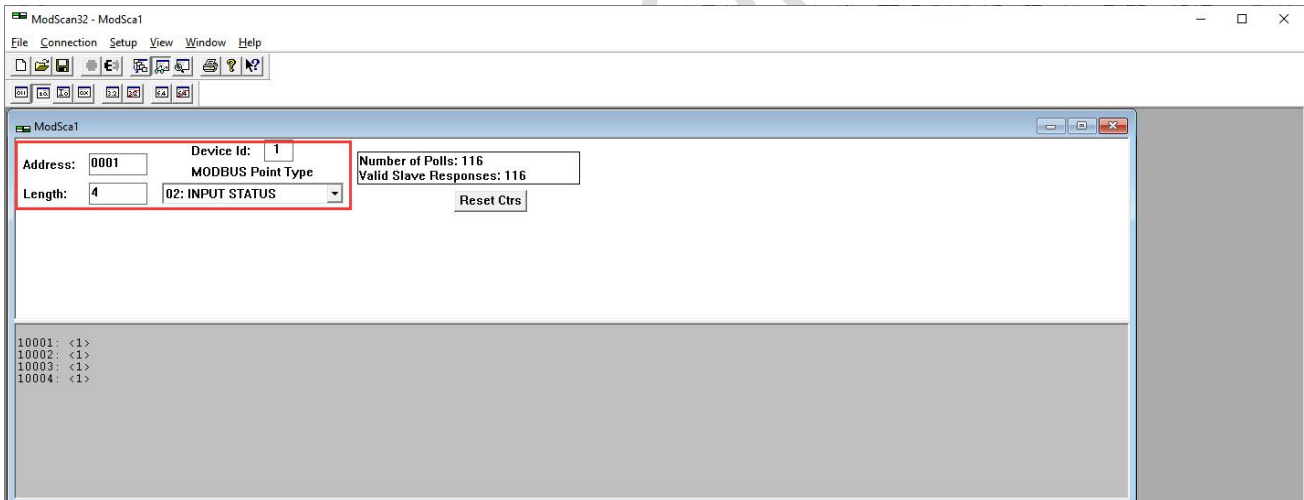
After changing the power input to Passive Input, click Save and Apply.



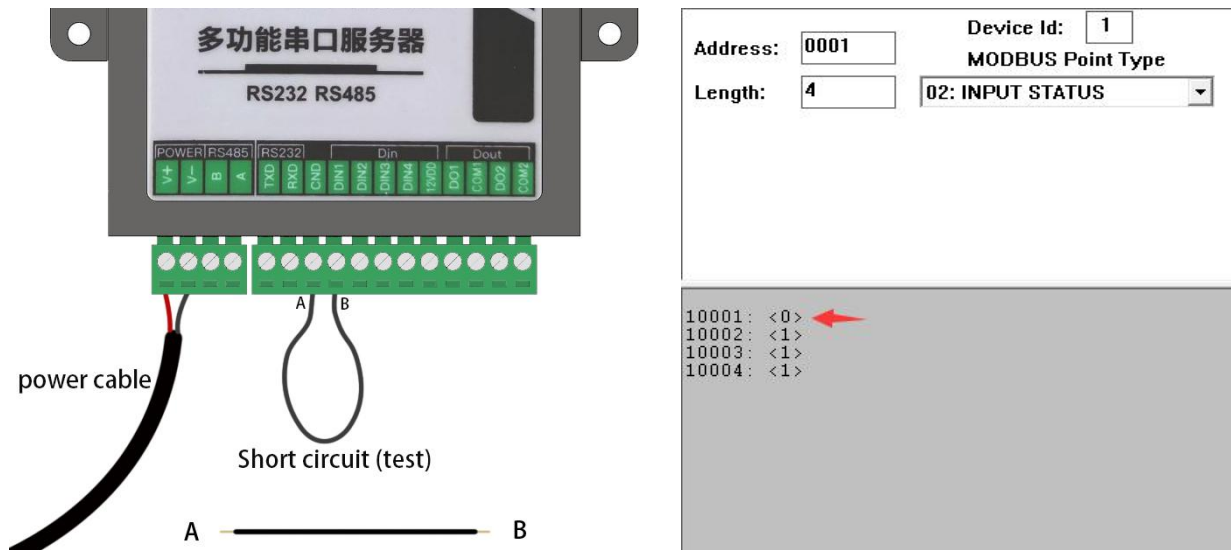
Open ModScan32.exe software, click Connection>>>Connect on the menu bar, fill in the pop-up window IP Address as the IP address of the LAN port, Service Port as the local port in the Switch Control, and then click OK, the settings are as follows:



As shown in the figure below, the area Address setting value in the red box: 0001, the Length setting value: 4, and the MODBUS Point Type select 02: INPUT STATUS.



This is mainly for demonstration. The short connection method is used. A is connected to CND and B is connected to DIN1. The interface corresponds to the value in the software one-to-one. DIN1 corresponds to 10001, DIN2 corresponds to 10002, DIN3 corresponds to 10003, DIN4 corresponds to 10004, and the following brackets. The value will vary according to the wiring method, as shown in the figure.



The diagram shows the SLK-S502 serial server with the following terminal connections:

- POWER (RS485): V+ (red), V- (black), A (green)
- RS232: TXD (green), RXD (green), GND (green)
- Din: DIN1 (green), DIN2 (green), DIN3 (green), DIN4 (green)
- Dout: DOUT (green), DOUT2 (green), DOUT3 (green)

A power cable is connected to the V+ and V- terminals. A short circuit (test) is formed by connecting terminal A to terminal B. A legend below shows terminal A connected to terminal B.

The configuration interface on the right shows:

- Address: 0001
- Device Id: 1
- MODBUS Point Type: 02: INPUT STATUS
- Length: 4

The screenshot of the terminal data shows:

```

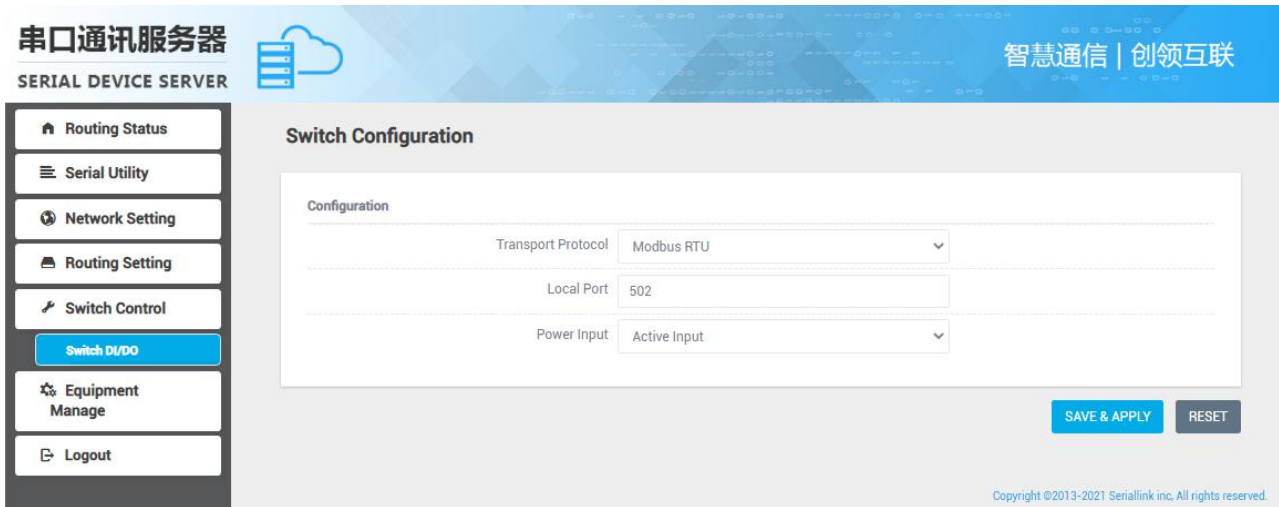
10001: <0>
10002: <1>
10003: <1>
10004: <1>
    
```

A red arrow points to the value <0> for address 10001.

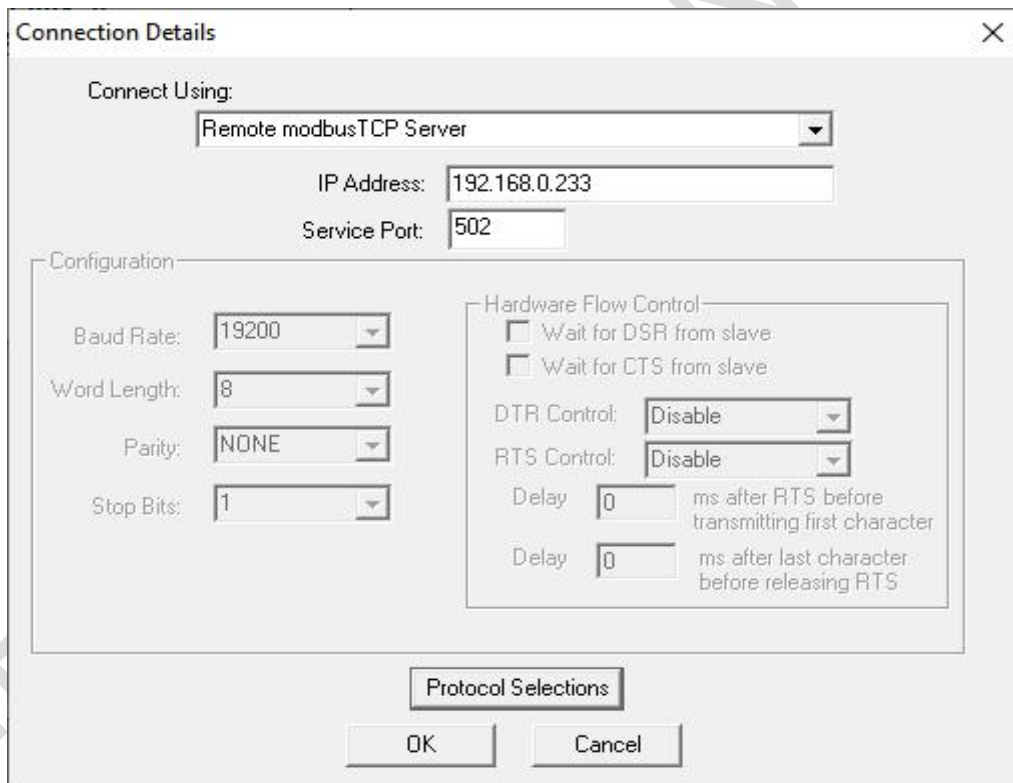
If B is connected to DIN2, the value of 10002 will become 0.

Active Input:

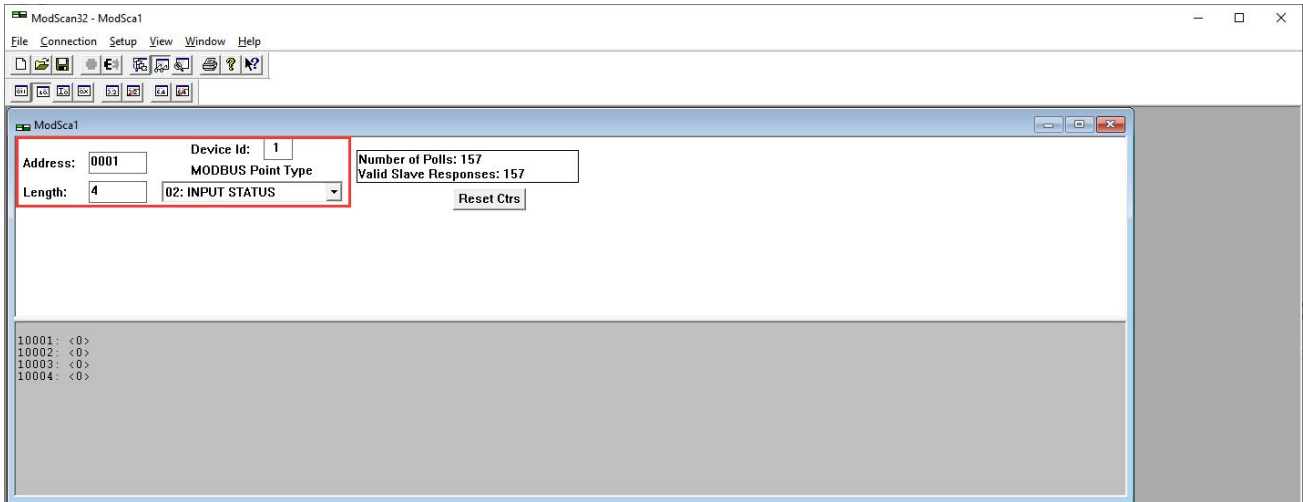
After changing the power input to Active Input, click **SAVE&APPLY**.



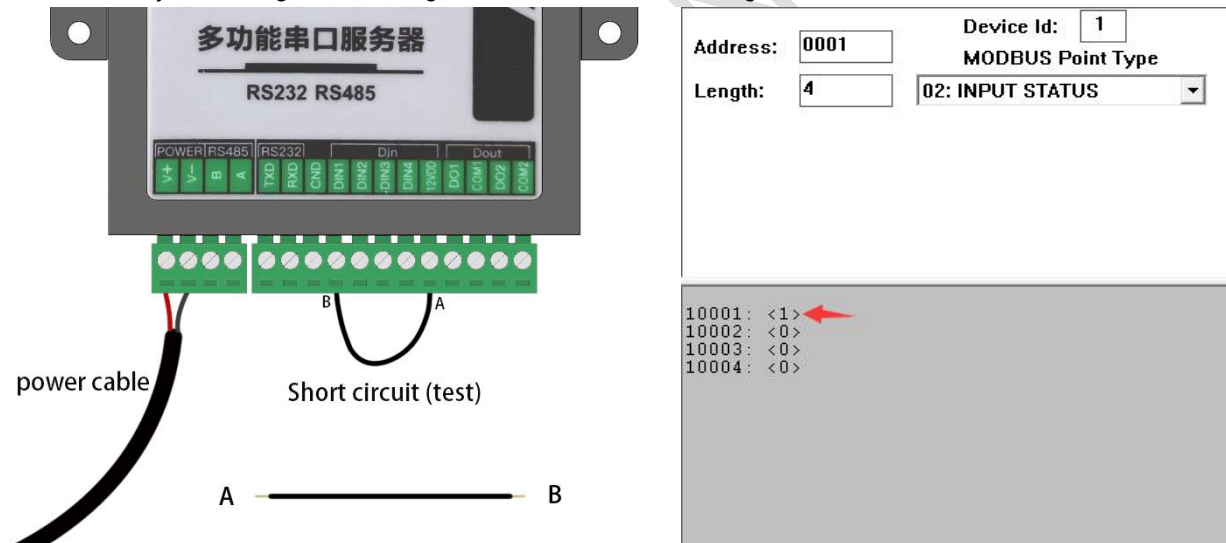
Open ModScan32.exe software, click Connection>>>Connect on the menu bar, fill in the pop-up window IP Address as the IP address of the LAN port, Service Port as the local port in the Switch Control, and then click OK, the settings are as follows:



As shown in the figure below, the area Address setting value in the red box: 0001, the Length setting value: 4, and the MODBUS Point Type select 02: INPUT STATUS.



This is mainly for demonstration. The short connection method is adopted. A is connected to 12VDD and B is connected to DIN1. The interface corresponds to the value in the software one-to-one. DIN1 corresponds to 10001, DIN2 corresponds to 10002, DIN3 corresponds to 10003, DIN4 corresponds to 10004, and the following brackets. The value will vary according to the wiring method, as shown in the figure.

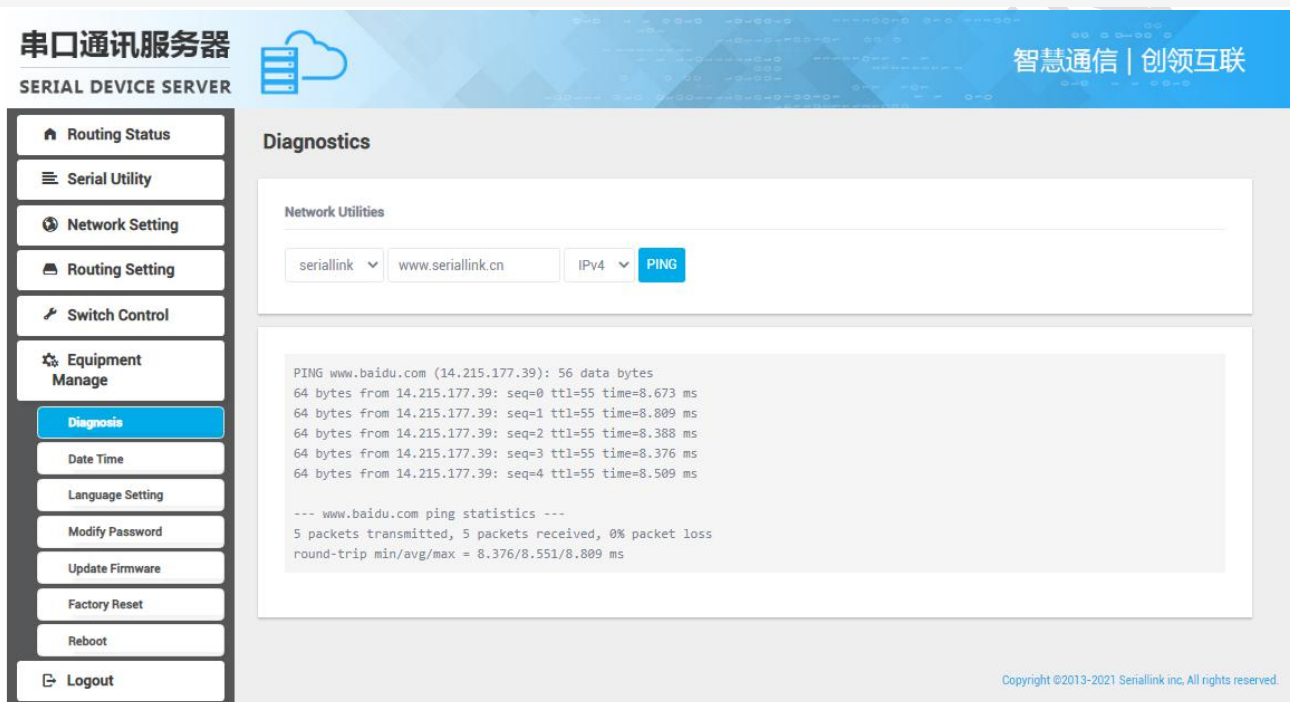


If B is connected to DIN2, the value of 10002 will become 1.

Chapter 5 Equipment Manage

5.1 Diagnosis

This function is used to test whether it is connected to the Internet, the PING address can be selected, or you can fill in a well-known domain name (a website that can be accessed normally), and then click PING, wait for the result, if "ping: bad address '*****'" appears, it means there is no ping. Please check the domain name, network cable access to the WAN port, WAN settings and other issues.



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seriallink www.seriallink.cn IPv4 PING

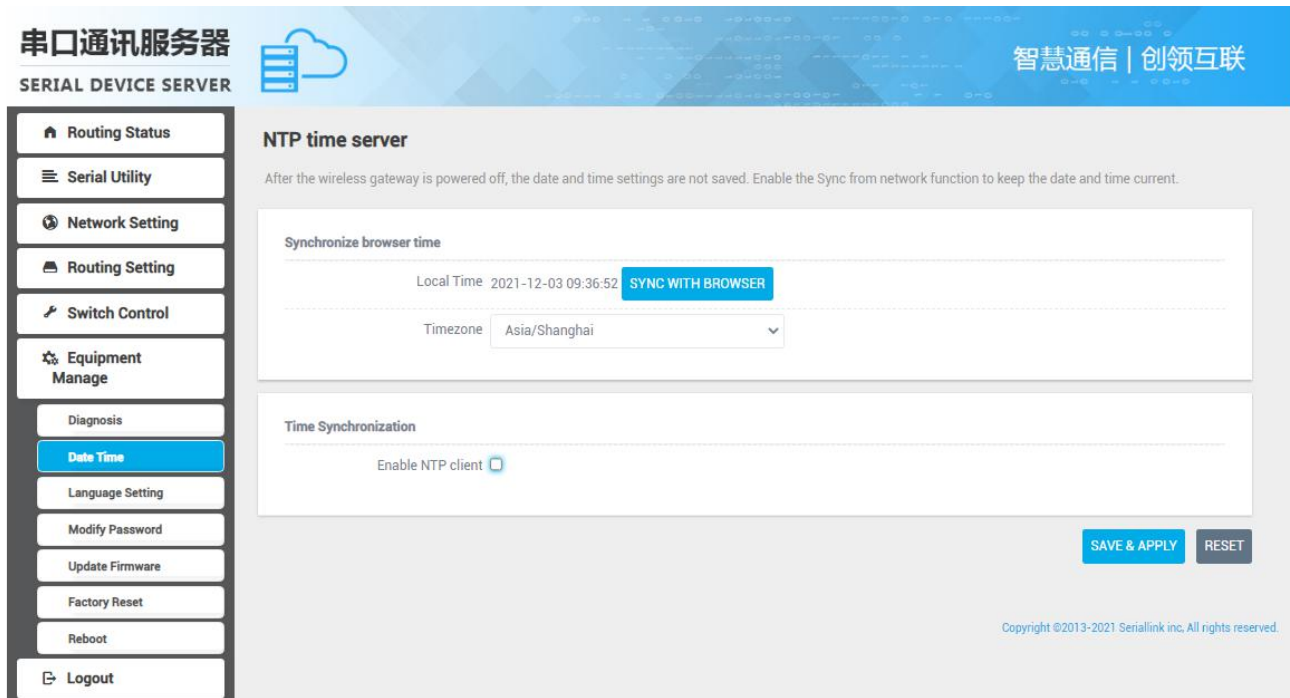
```
PING www.baidu.com (14.215.177.39): 56 data bytes
64 bytes from 14.215.177.39: seq=0 ttl=55 time=8.673 ms
64 bytes from 14.215.177.39: seq=1 ttl=55 time=8.809 ms
64 bytes from 14.215.177.39: seq=2 ttl=55 time=8.388 ms
64 bytes from 14.215.177.39: seq=3 ttl=55 time=8.376 ms
64 bytes from 14.215.177.39: seq=4 ttl=55 time=8.509 ms

--- www.baidu.com ping statistics ---
5 packets transmitted, 5 packets received, 0% packet loss
round-trip min/avg/max = 8.376/8.551/8.809 ms
```

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5.2 Date Time

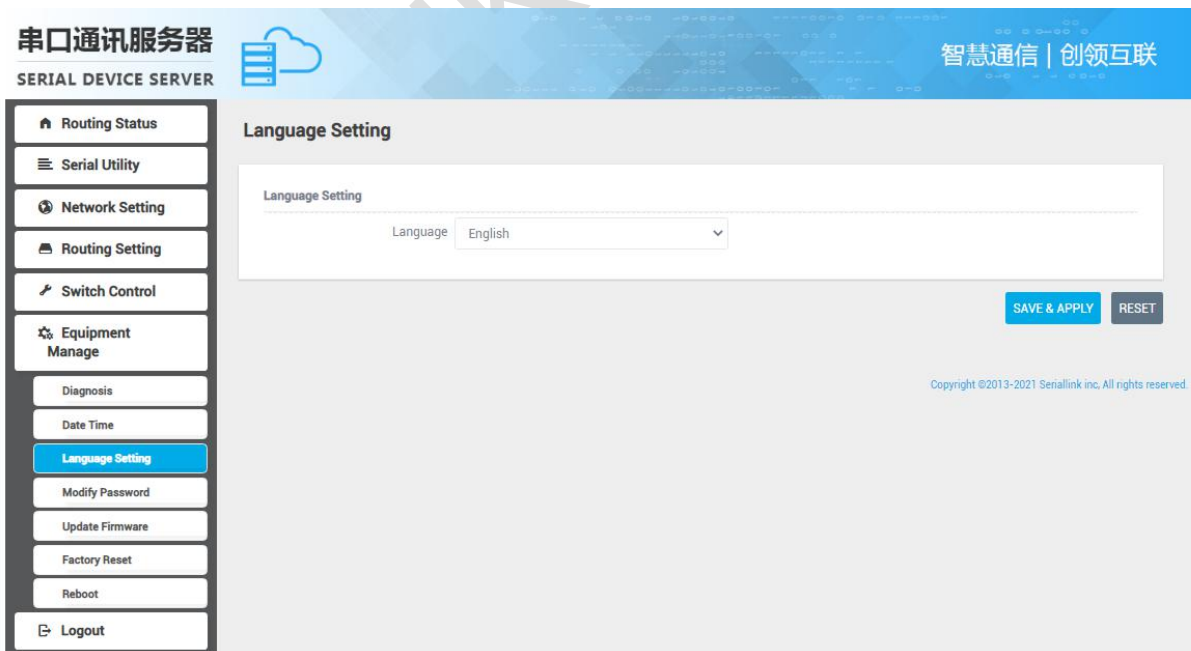
You can choose to synchronize the local time, or you can synchronize the time of the NTP server.



The screenshot shows the 'Serial Device Server' web interface. The left sidebar contains a menu with options: Routing Status, Serial Utility, Network Setting, Routing Setting, Switch Control, Equipment Manage, Diagnosis, Date Time (highlighted), Language Setting, Modify Password, Update Firmware, Factory Reset, Reboot, and Logout. The main content area is titled 'NTP time server' and includes a warning: 'After the wireless gateway is powered off, the date and time settings are not saved. Enable the Sync from network function to keep the date and time current.' Below this, there are two sections: 'Synchronize browser time' with a 'Local Time' field showing '2021-12-03 09:36:52' and a 'SYNC WITH BROWSER' button, and a 'Timezone' dropdown menu set to 'Asia/Shanghai'. The 'Time Synchronization' section has an 'Enable NTP client' checkbox which is currently unchecked. At the bottom right, there are 'SAVE & APPLY' and 'RESET' buttons. A copyright notice at the bottom right reads: 'Copyright ©2013-2021 Seriallink inc. All rights reserved.'

5.3 Language Setting

Modify the language of the serial server, and you need to save it before you can use it after modification.



The screenshot shows the 'Serial Device Server' web interface. The left sidebar contains a menu with options: Routing Status, Serial Utility, Network Setting, Routing Setting, Switch Control, Equipment Manage, Diagnosis, Date Time, Language Setting (highlighted), Modify Password, Update Firmware, Factory Reset, Reboot, and Logout. The main content area is titled 'Language Setting' and includes a 'Language Setting' section with a 'Language' dropdown menu set to 'English'. At the bottom right, there are 'SAVE & APPLY' and 'RESET' buttons. A copyright notice at the bottom right reads: 'Copyright ©2013-2021 Seriallink inc. All rights reserved.'

5.4 Modify Password

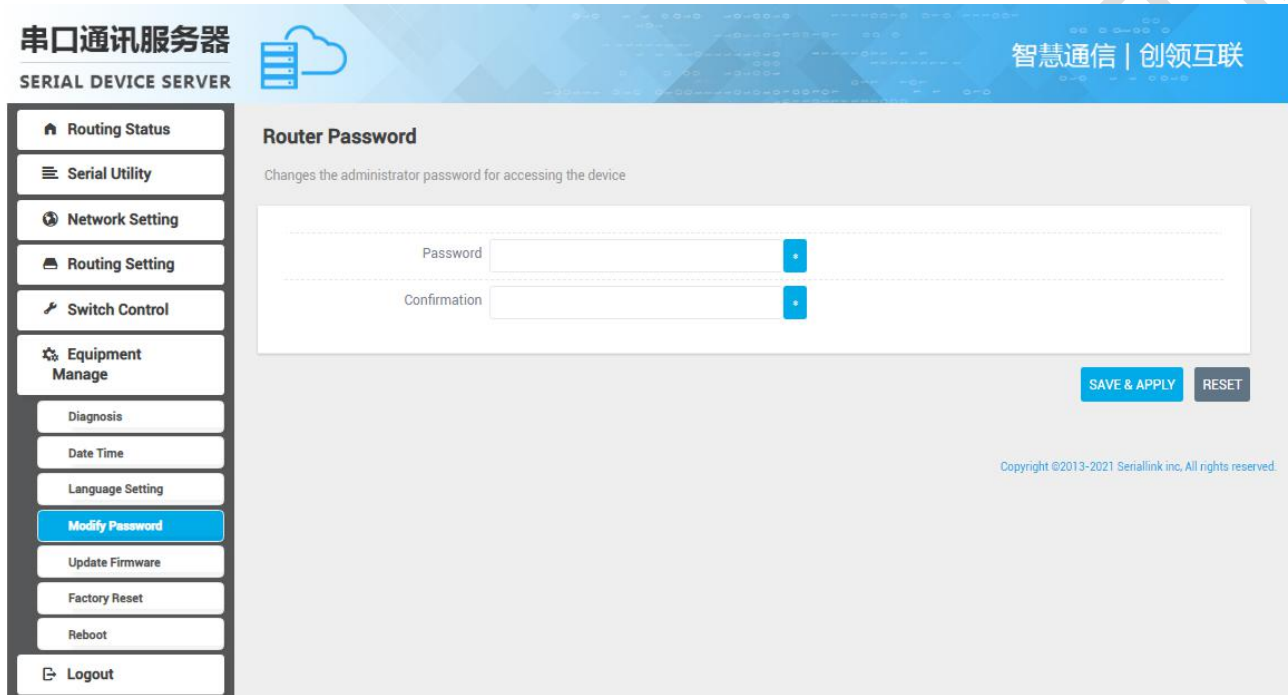
Change the login password of the serial server page

Password: new password

Confirmation: Enter again to confirm the password

If the password does not match the confirmed password, the password modification will fail.

If they are the same, the modification is successful. After the password is modified, the password will take effect the next time you log in to the page.



The screenshot shows the 'SERIAL DEVICE SERVER' web interface. The top navigation bar includes the title '串口通讯服务器' and '智慧通信 | 创领互联'. A left sidebar menu lists various functions: Routing Status, Serial Utility, Network Setting, Routing Setting, Switch Control, Equipment Manage, Diagnosis, Date Time, Language Setting, Modify Password (highlighted), Update Firmware, Factory Reset, Reboot, and Logout. The main content area is titled 'Router Password' and contains the instruction 'Changes the administrator password for accessing the device'. It features two input fields: 'Password' and 'Confirmation', each with a blue eye icon for toggling visibility. At the bottom right of the form area are 'SAVE & APPLY' and 'RESET' buttons. A copyright notice 'Copyright ©2013-2021 Seriallink inc, All rights reserved.' is visible at the bottom right of the page.

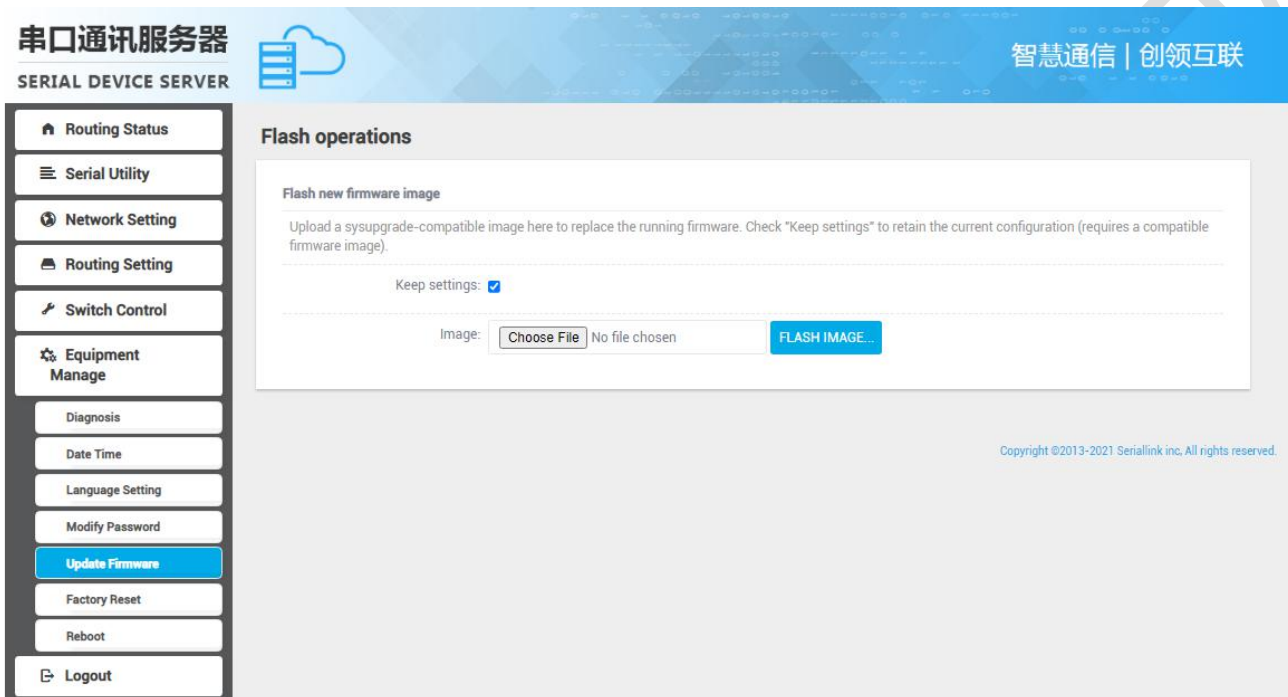
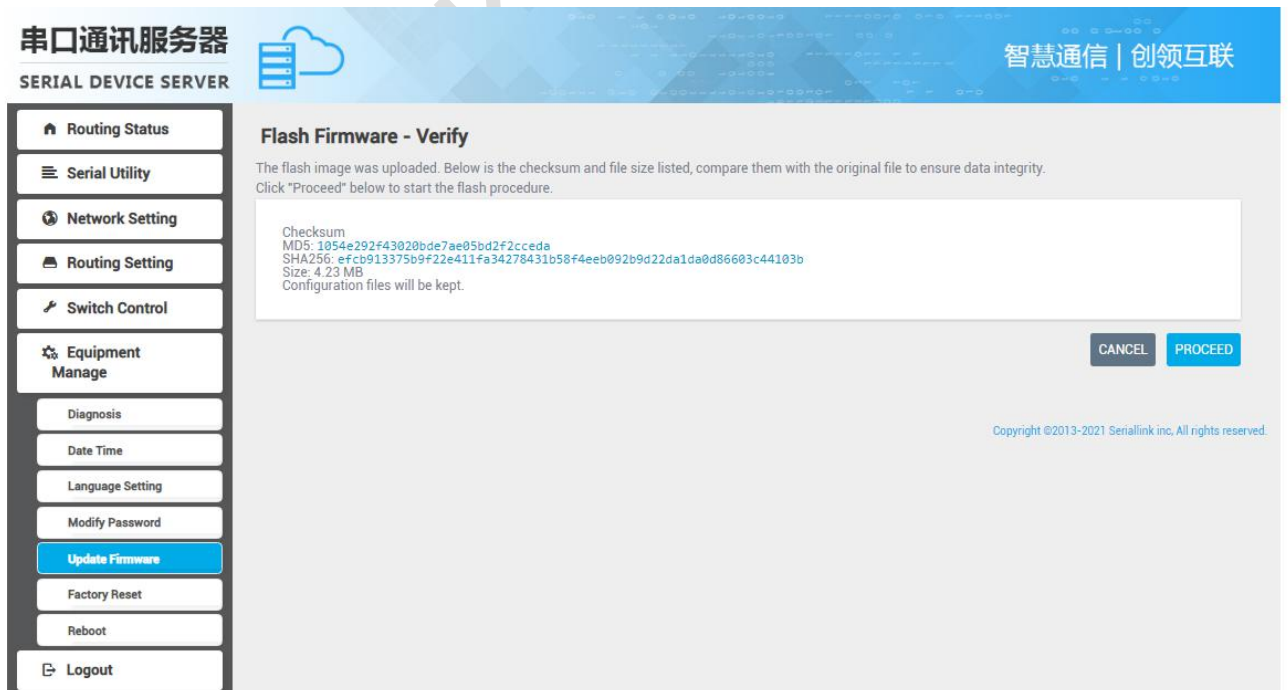
5.5 Update Firmware

Image: Click "Choose File" to select your firmware file. Click "FLASH IMAGE..."

Checksum: MD5 of the firmware

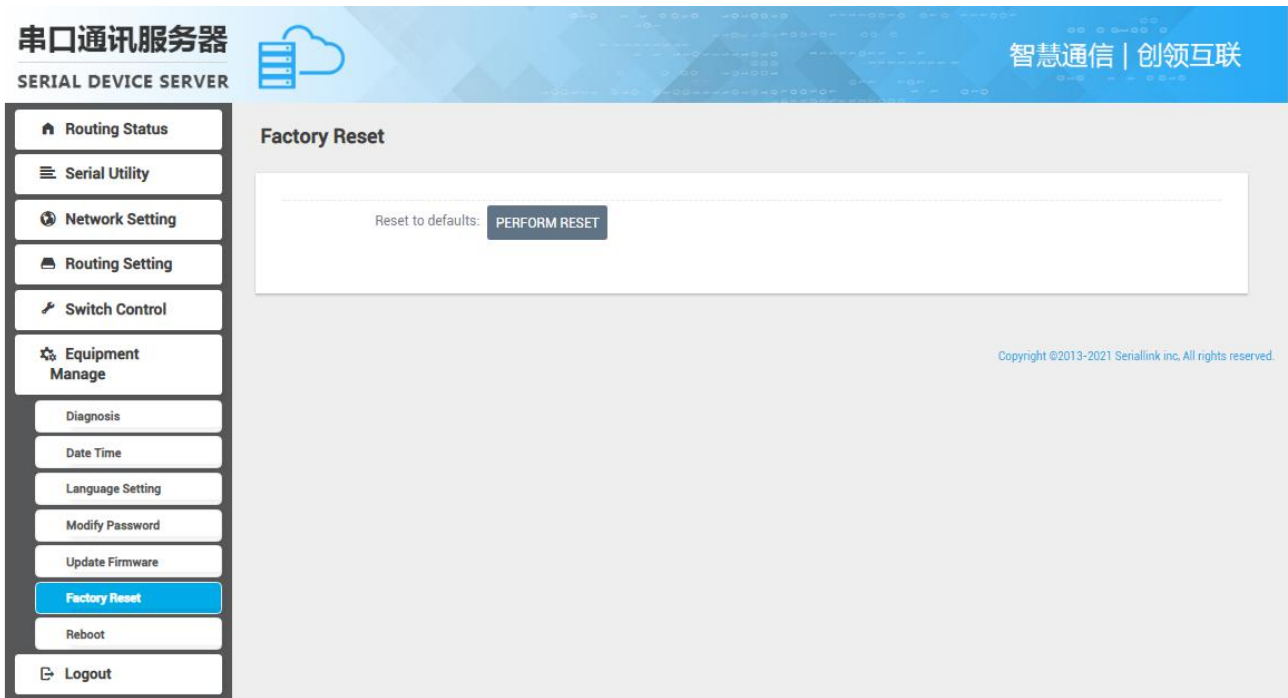
Size: The size of the firmware file

Click "PROCEED" to start the firmware upgrade

5.6 Factory Reset

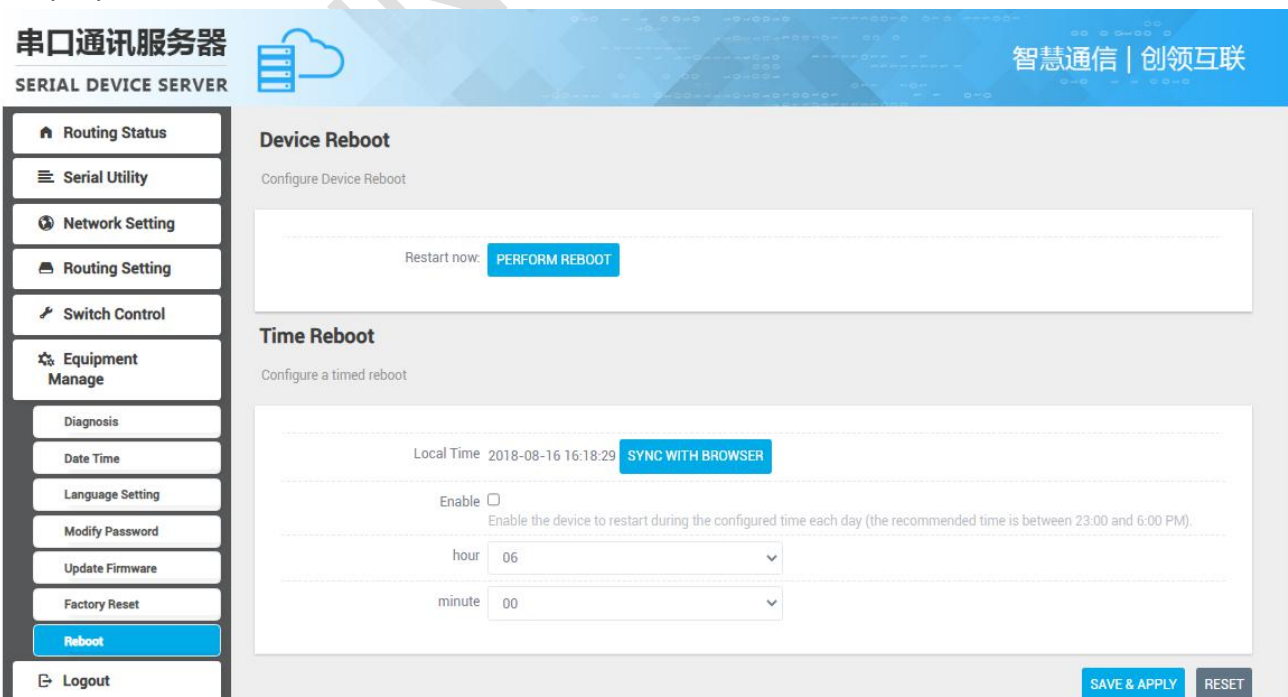
Restoring the factory settings can effectively solve some errors caused by improper configuration.



5.7 Reboot

Device Reboot: Click PERFORM REBOOT, the device restarts.

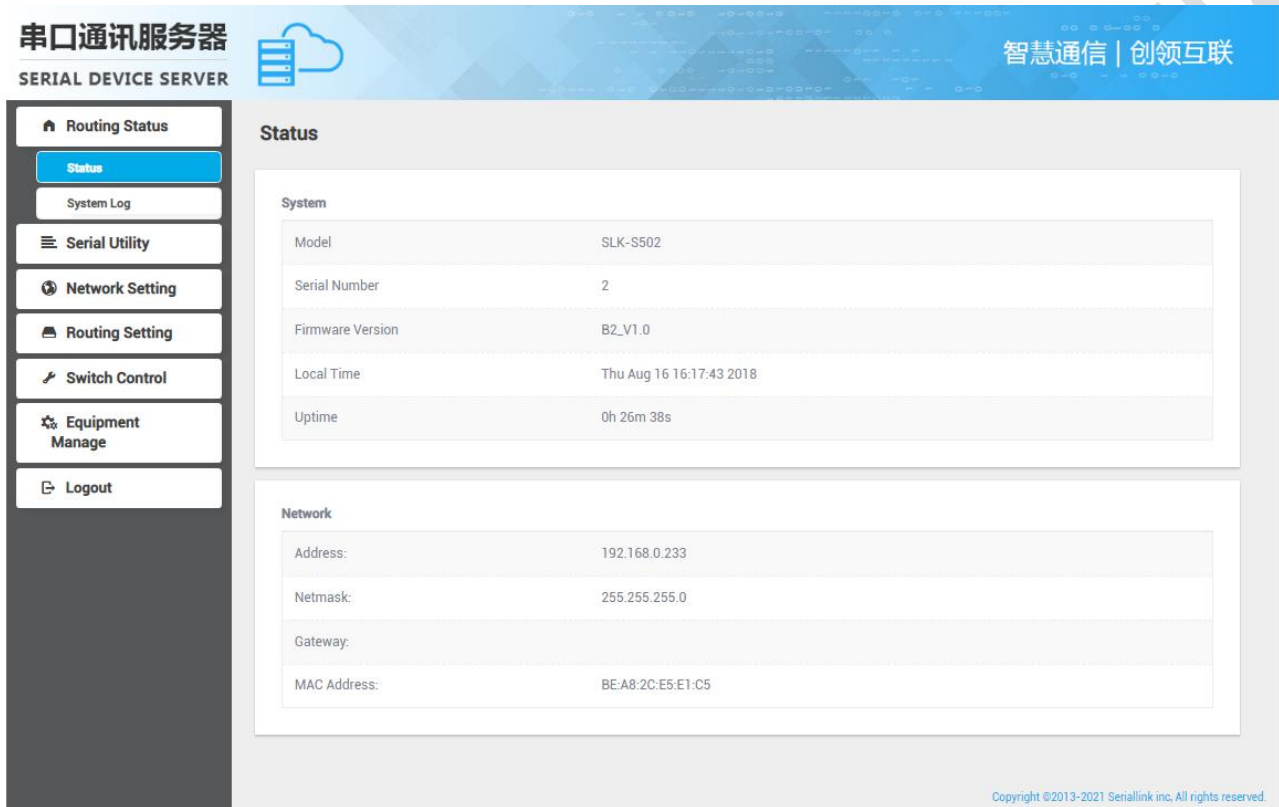
Time Reboot: Tick enable, set the time, click SAVE & APPLY, after it is turned on, it will restart at a fixed time every day (the device time needs to be correct).



Chapter 6 Check

6.1 Status

Display information related to the system.



The screenshot shows the web interface for the Serial Device Server. The top navigation bar includes the title '串口通讯服务器 SERIAL DEVICE SERVER' and the slogan '智慧通信 | 创领互联'. A left sidebar contains menu items: Routing Status, Status (selected), System Log, Serial Utility, Network Setting, Routing Setting, Switch Control, Equipment Manage, and Logout. The main content area is titled 'Status' and is divided into two sections: 'System' and 'Network'. The 'System' section displays the following information:

System	
Model	SLK-S502
Serial Number	2
Firmware Version	B2_V1.0
Local Time	Thu Aug 16 16:17:43 2018
Uptime	0h 26m 38s

The 'Network' section displays the following information:

Network	
Address:	192.168.0.233
Netmask:	255.255.255.0
Gateway:	
MAC Address:	BE:A8:2C:E5:E1:C5

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6.2 System Log

Display system log.

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Routing Status

Status

System Log

Serial Utility

Network Setting

Routing Setting

Switch Control

Equipment Manage

Logout

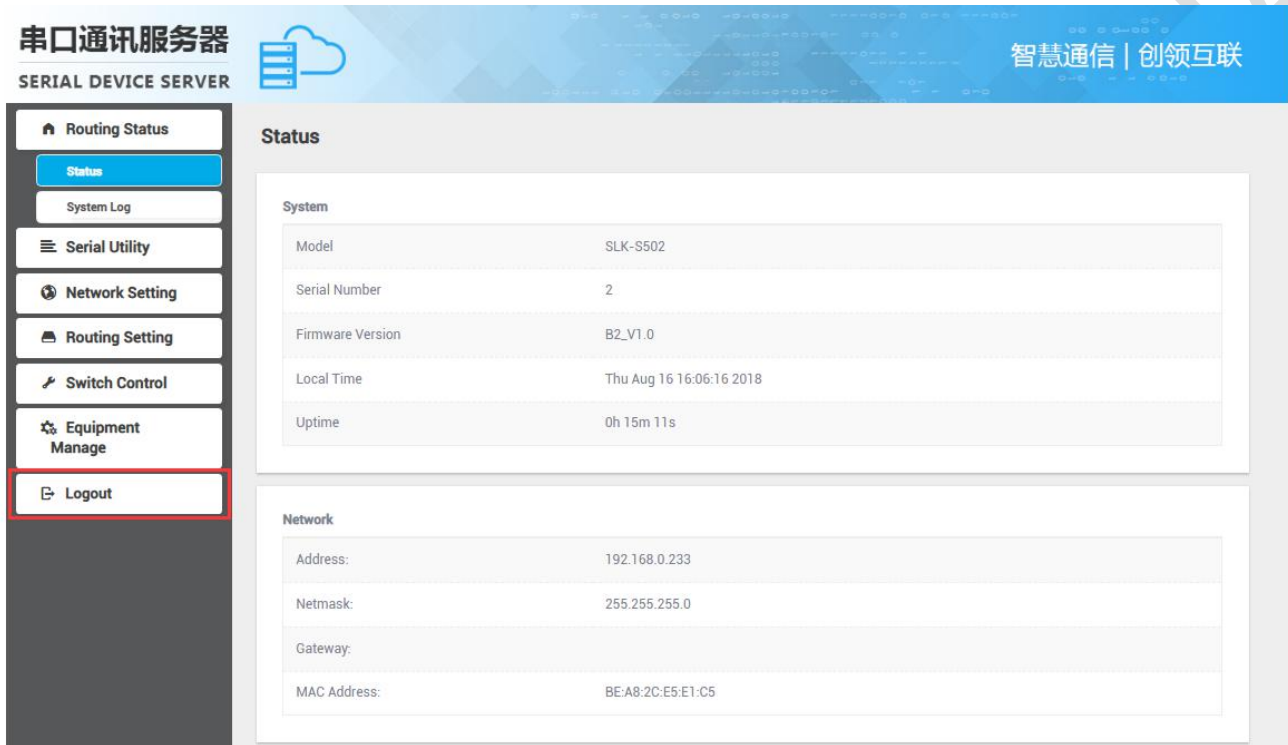
```

Thu Aug 16 15:51:19 2018 kern.info kernel: [ 0.000010] sfn60_clock: 32 bits at 440MHz, resolution 2ns, wraps every 480004511ns
Thu Aug 16 15:51:19 2018 kern.info kernel: [ 0.007798] Calibrating delay loop... 586.13 BogoMIPS (lpj=2930688)
Thu Aug 16 15:51:19 2018 kern.info kernel: [ 0.073972] pid_max: default: 32768 minimum: 301
Thu Aug 16 15:51:19 2018 kern.info kernel: [ 0.078736] Mount-cache hash table entries: 1024 (order: 0, 4096 bytes)
Thu Aug 16 15:51:19 2018 kern.info kernel: [ 0.085243] Mountpoint-cache hash table entries: 1024 (order: 0, 4096 bytes)
Thu Aug 16 15:51:19 2018 kern.info kernel: [ 0.089393] Hierarchical SRCU implementation.
Thu Aug 16 15:51:19 2018 kern.info kernel: [ 0.099964] smp: Bringing up secondary CPUs ...
Thu Aug 16 15:51:19 2018 kern.warn kernel: [ 6.679833] Primary instruction cache 32kB, VIPT, 4-way, linesize 32 bytes.
Thu Aug 16 15:51:19 2018 kern.warn kernel: [ 6.679843] Primary data cache 32kB, 4-way, PIPT, no aliases, linesize 32 bytes
Thu Aug 16 15:51:19 2018 kern.warn kernel: [ 6.679854] MIPS secondary cache 256kB, 8-way, linesize 32 bytes.
Thu Aug 16 15:51:19 2018 kern.info kernel: [ 6.679985] CPU1 revision is: 0001992f (MIPS 1004Kc)
Thu Aug 16 15:51:19 2018 kern.info kernel: [ 0.163796] Synchronize counters for CPU 1: done.
Thu Aug 16 15:51:19 2018 kern.warn kernel: [ 5.596285] Primary instruction cache 32kB, 4-way, linesize 32 bytes.
Thu Aug 16 15:51:19 2018 kern.warn kernel: [ 5.596214] Primary data cache 32kB, 4-way, PIPT, no aliases, linesize 32 bytes
Thu Aug 16 15:51:19 2018 kern.warn kernel: [ 5.596222] MIPS secondary cache 256kB, 8-way, linesize 32 bytes.
Thu Aug 16 15:51:19 2018 kern.info kernel: [ 5.596291] CPU2 revision is: 0001992f (MIPS 1004Kc)
Thu Aug 16 15:51:19 2018 kern.info kernel: [ 0.254885] Synchronize counters for CPU 2: done.
Thu Aug 16 15:51:19 2018 kern.warn kernel: [ 0.185773] Primary instruction cache 32kB, VIPT, 4-way, linesize 32 bytes.
Thu Aug 16 15:51:19 2018 kern.warn kernel: [ 0.185781] Primary data cache 32kB, 4-way, PIPT, no aliases, linesize 32 bytes
Thu Aug 16 15:51:19 2018 kern.info kernel: [ 0.185787] MIPS secondary cache 256kB, 8-way, linesize 32 bytes.
Thu Aug 16 15:51:19 2018 kern.info kernel: [ 0.185864] CPU3 revision is: 0001992f (MIPS 1004Kc)
Thu Aug 16 15:51:19 2018 kern.info kernel: [ 0.339983] Synchronize counters for CPU 3: done.
Thu Aug 16 15:51:19 2018 kern.info kernel: [ 0.369830] smp: Brought up 1 node, 4 CPUs
Thu Aug 16 15:51:19 2018 kern.info kernel: [ 0.377475] clocksource: jiffies: mask: 0xffffffff max_cycles: 0xffffffff, max_idle_ns: 19112604467500
Thu Aug 16 15:51:19 2018 kern.info kernel: [ 0.387253] futex hash table entries: 1024 (order: 3, 32768 bytes)
Thu Aug 16 15:51:19 2018 kern.info kernel: [ 0.393541] pinctrl core: initialized pinctrl subsystem
Thu Aug 16 15:51:19 2018 kern.info kernel: [ 0.399257] NET: Registered protocol family 16
Thu Aug 16 15:51:19 2018 kern.debug kernel: [ 0.413652] FPU Affinity set after 11720 emulations
Thu Aug 16 15:51:19 2018 kern.info kernel: [ 0.422862] mt7621_gpio 1e000600.gpio: registering 32 gpios
Thu Aug 16 15:51:19 2018 kern.info kernel: [ 0.428616] mt7621_gpio 1e000600.gpio: registering 32 gpios
Thu Aug 16 15:51:19 2018 kern.info kernel: [ 0.434339] mt7621_gpio 1e000600.gpio: registering 32 gpios
Thu Aug 16 15:51:19 2018 kern.info kernel: [ 0.442473] clocksource: Switched to clocksource GIC
Thu Aug 16 15:51:19 2018 kern.info kernel: [ 0.448860] NET: Registered protocol family 2
Thu Aug 16 15:51:19 2018 kern.info kernel: [ 0.453783] TCP established hash table entries: 2048 (order: 1, 8192 bytes)
Thu Aug 16 15:51:19 2018 kern.info kernel: [ 0.460666] TCP bind hash table entries: 2048 (order: 2, 16384 bytes)
Thu Aug 16 15:51:19 2018 kern.info kernel: [ 0.467082] TCP: Hash tables configured (established 2048 bind 2048)
Thu Aug 16 15:51:19 2018 kern.info kernel: [ 0.473483] UDP hash table entries: 256 (order: 1, 8192 bytes)
                
```

Chapter 7 Logout

7.1 Logout

Exit and enter the login page.



The screenshot shows the Seriallink web interface. The top navigation bar includes the text '串口通讯服务器 SERIAL DEVICE SERVER' and '智慧通信 | 创领互联'. The left sidebar contains a menu with the following items: Routing Status, Status (highlighted in blue), System Log, Serial Utility, Network Setting, Routing Setting, Switch Control, Equipment Manage, and Logout (highlighted with a red border). The main content area displays the 'Status' page, which is divided into two sections: 'System' and 'Network'.

System	
Model	SLK-S502
Serial Number	2
Firmware Version	B2_V1.0
Local Time	Thu Aug 16 16:06:16 2018
Uptime	0h 15m 11s

Network	
Address:	192.168.0.233
Netmask:	255.255.255.0
Gateway:	
MAC Address:	BE:A8:2C:E5:E1:C5

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If you have any questions, please email: info@seriallink.net or www.seriallink.net