3onedata




# Safe Serial Server

# User Manual

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Industrial Ethernet Communication Solution Expert

3onedata Co., Ltd.

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## 3onedata Co., Ltd.


| | |
|---|---|
| Headquarter address: | 3/B, Zone 1, Baiwangxin High Technology Industrial park, Nanshan District, Shenzhen, 518108 China |
| Technology support: | support@3onedata.com |
| Service hotline: | +86-400-880-4496 |
| E-mail: | sales@3onedata.com |
| Fax: | +86-0755-26703485 |
| Website: | http://www.3onedata.com |

# Preface

The user manual describes the following contents of the device:

- WEB Configuration
- Work Mode Configuration Instance
- Overview of relevant principles

Note
The screenshot reference model for this manual is 32 3IN1 serial ports + 2 100M copper ports + 2 220VAC power inputs. Other types of products in addition to the supported serial type (RS-232, RS-422, RS-485), and the number of network ports, serial ports and power supplies, the interface functions and operation are the same.

## Audience

This manual applies to the following engineers:

- Network administrators responsible for network configuration and maintenance
- On-site technical support and maintenance personnel
- Network engineer

## Text Format Convention

| Format | Description |
|---|---|
| " " | Words with “” represent the interface words. Fox example: “Port number”. |
| > | Multi-level path is separated by ">". Such as opening the local connection path description: Open "Control Panel> Network Connection> Local Area Connection". |
| Light Blue Font | It represents the words clicked to achieve hyperlink. The font color is as follows: ‘Light Blue’. |
| About this chapter | The section ‘about this chapter’ provide links to various sections of this chapter, as well as links to the Principles Operations Section of this chapter. |


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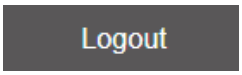
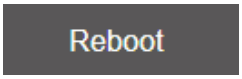
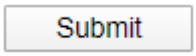
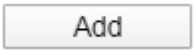
# Symbols

| Format | Note |
|---|---|
|  Notice | Remind the announcements in the operation, improper operation may result in data loss or equipment damage. |
|  Warning | Pay attention to the notes on the mark, improper operation may cause personal injury. |
|  Note | Conduct a necessary supplements and explanations for the description of operation content. |
|  Key | Configuration, operation, or tips for device usage. |
|  Tips | Pay attention to the operation or information to ensure success device configuration or normal working. |

# Port Convention

The port number in this manual is only an example, and does not represent the actual port with this number on the device. In actual use, the port number existing on the device shall prevail.

# Button Operation Convention

| Format | Note |
|---|---|
|  | There is a logout button in the upper left corner of the webpage. After clicking it, the webpage returns to the login page. |
|  | There is a restart button in the upper left corner of the webpage. After clicking, the device will restart automatically. |
|  | Click the Submit button to submit the current configuration. |
|  | Click Refresh button to refresh the current page. |
|  | Click the Add button to add a line of configuration. Note that repeated configuration may result in data overwrite. |
|  | Check the line to be deleted, and then click the Delete button to delete the configuration. |

# Revision Record

| Version No. | Date | Revision note |
|---|---|---|
| 01 | 1/15/2021 | Software Function updates, and webpage style changes. |


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| Version No. | Date | Revision note |
|---|---|---|
| 02 | 3/30/2022 | Optimize password verification function description |
| 03 | 8/01/2023 | Upgrade |

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# 1 Log in the Web Interface

## About This Chapter

| Content | Link |
|---|---|
| This Chapter | 1.1 System Requirements for WEB Browsing<br>1.2 Set the IP Address of PC<br>1.3 Log in to the WEB Configuration Interface |

## 1.1 System Requirements for WEB Browsing

Using this equipment, the system should meet the following conditions.

| Hardware and Software | System requirements |
|---|---|
| CPU | Above Pentium 586 |
| Memory | Above 128MB |
| Resolution | Above 1024x768 |
| Color | 256 color or above |
| Browser | Internet Explorer 6.0 or above |
| Operating system | Windows XP/7/8/10 or above |

## 1.2 Set the IP Address of PC

The default management of device is as follows:

| IP Settings | Default Value |
|---|---|
| IP address | 192.168.1.254 |

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| IP Settings | Default Value |
|---|---|
| (LINK1) | |
| Subnet mask | 255.255.255.0 |

Note
The network configuration of parts of double IP device supports single IP and double IP modes.

- In the single IP mode, the default IP address of Ethernet port LINK1/LINK2 is 192.168.1.254.
- In the Dual IP mode, the default IP address of Ethernet port LINK1 is 192.168.1.254, the default IP address of Ethernet port LINK2 is 192.168.8.254.

When configuring a device through the Web:

- Before conducting remote configuration, please confirm the route between computer and device is reachable.
- Before making a local configuration, make sure that the IP address of the computer and the serial server are on the same subnet.

Note
While configuring the device for the first time, if it's the local configuration mode, first confirm the network segment of current PC is 1.

Eg: Assume that the IP address of the current PC is 192.168.5.60, change the network segment "5" of the IP address to "1".

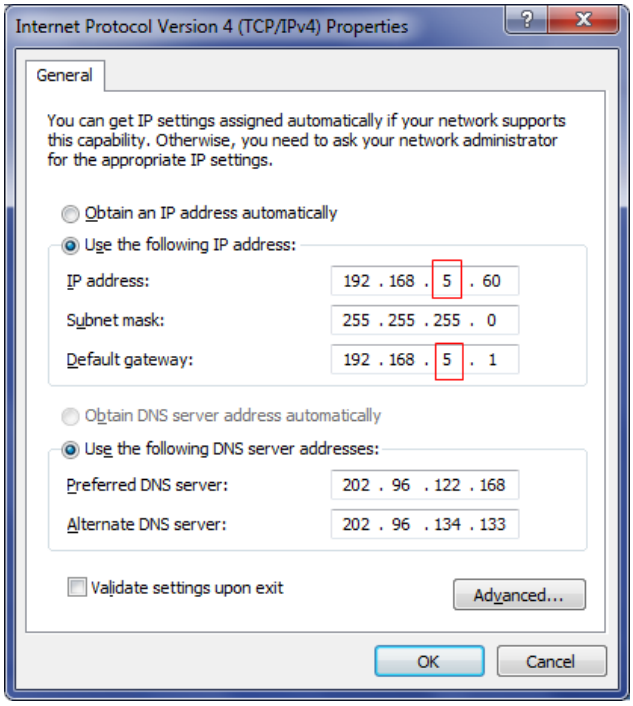
## Operation Steps

Amendment steps as follow:

**Step 1** Open "Control Panel> Network Connection> Local Area Connection> Properties> Internet Protocol Version 4 (TCP / IPv4)> Properties".

**Step 2** Change the selected "5" in red frame of the picture below to "1".


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**Step 3** Click “OK”, IP address is modified successfully.

**Step 4** End.

# 1.3 Log in to the WEB Configuration Interface

## Operation Steps

Log in to the WEB configuration interface as follows:

**Step 1** Run the computer browser.

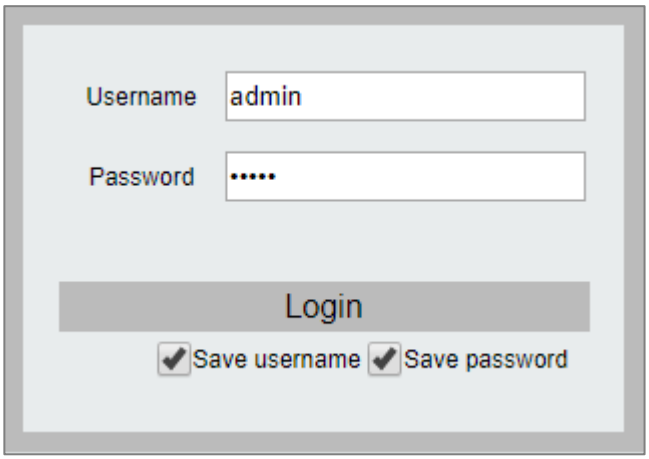
**Step 2** Enter the address of the device "http://192.168.1.254" in the address bar of the browser.

**Step 3** Click the “Enter” key.

**Step 4** Click the drop-down list at the upper right corner of the page and select the device type and system language.

**Step 5** Pop-up dialog box as shown below, enter the user name and password in the login window.


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Note:

- The default username and password are “admin”; please strictly distinguish capital and small letter while entering.
- Default user account has the administrator privilege.

**Step 6** Click "Login".

**Step 7** End.

After successful login, you can configure the relevant parameters and information of the WEB interface as needed.


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# 2 System Information

## About this chapter

| Content | Link |
| --- | --- |
| This Chapter | 2.1 Product Information<br>2.2 Network information |

## 2.1 Product Information

### Function Description

User can check Device name, Device model, Serial No, Firmware Ver, Device time, Description, Number of LAN, CPU Utilization, Memory Utilization and so on.

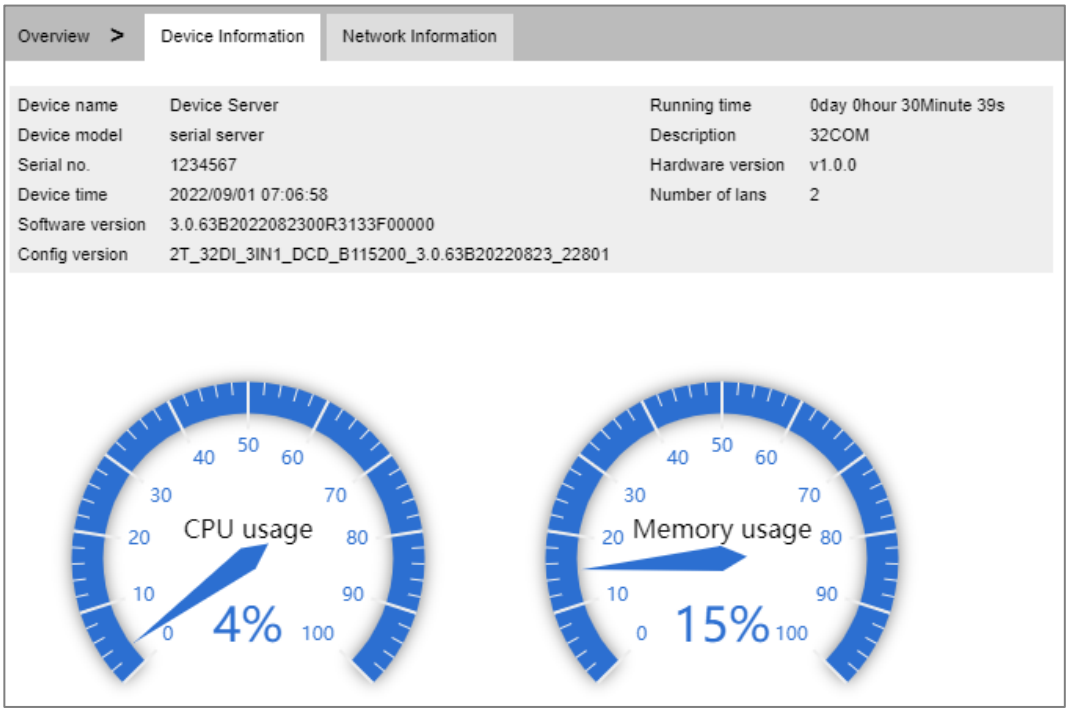
### Operation Path

Open in order: “System Maintenance > Device information”.

### Interface Description

The product information interface is as follows:


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The main elements configuration description of device information interface:

| Interface Element | Description |
|---|---|
| Device name | Network identity or device type of the device.<br>Note:<br>Configure the device name on the "System Management > Device Information Configuration" page. |
| Device model | Equipment model or name of the device. |
| Serial No. | Serial number of the device |
| Device time | The time display of current device, which can synchronize the time of local PC or NTP server. |
| Software version | Software version information of the device. |
| Configuration version | Software version information of the device. |
| Running time | The running time of current device after powering on. |
| Description | Description information of the device.<br>Note:<br>Configure the device information On the "System Management > Device Information Configuration" page. |
| Hardware version | Current hardware version information, pay attention to the hardware version limits in software version. |
| Number of LANs | The network port number of the device. |
| CPU usage | CPU usage of the current device. |
| Memory usage | Memory usage of the current device. |


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# 2.2 Network Information

## Function Description

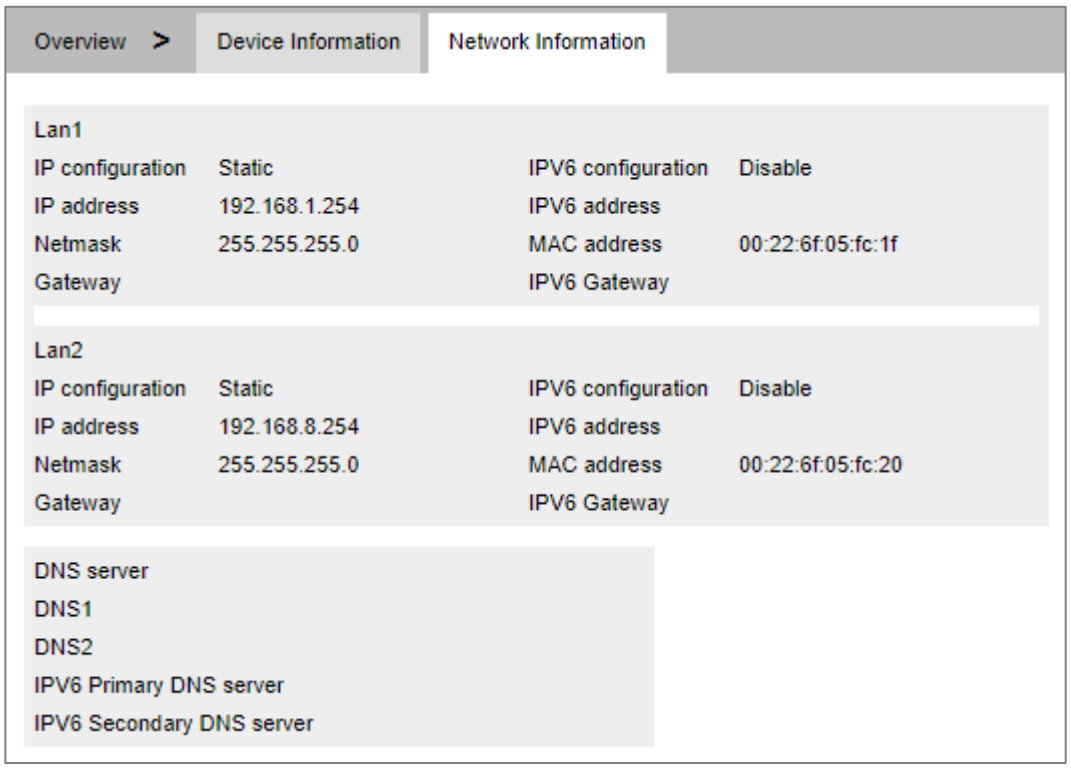
User can check device network address information and DNS server information.

## Operation Path

Open in order: “System Information” > Network Information”.

## Interface Description

Network information interface is as follows:




The main elements configuration description of network information interface.

| Interface Element | Description |
|---|---|
| **LAN1** | **LAN1 information bar** |
| IP configuration | Shows how the LAN1 of the device gets the IPv4 address. |
| IP address | Display LAN1 IPv4 address. |
| Netmask | Display device LAN1 IPv4 subnet mask. |
| Gateway | Display LAN1 Ipv4 gateway address. |
| IPv6 configuration | Shows how the LAN1 of the device gets the IPv6 address. |
| IPV6 address | Display LAN1 IPv6 address. |
| MAC address; | Display the MAC address of device LAN1. |
| IPv6 gateway | Display LAN1 IPv6 gateway address. |


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| Interface Element | Description |
|---|---|
| **LAN2** | **LAN2 information bar** |
| IP configuration | Shows how the LAN2 of the device gets the IPv4 address. |
| IP address | Display device LAN2 IPv4 address. |
| Netmask | Display device LAN2 IPv4 subnet mask. |
| Gateway | Display LAN2 IPv4 gateway address. |
| IPv6 configuration | Shows how the LAN2 of the device gets the IPv6 address. |
| IPV6 address | Display device LAN2 IPv6 address. |
| MAC address; | Display device LAN 2 MAC address. |
| IPv6 gateway | Display LAN2 IPv6 gateway address. |
| **DNS server** | **DNS server information bar** |
| DNS1 | Display the main DNS server IPv4 address of the device. |
| DNS2 | Display device backup DNS server IPv4 address. |
| IPv6 primary DNS | Display the main DNS server IPv6 address of the device. |
| IPv6 secondary DNS | Display device backup DNS server IPv6 address. |


Note

The dual-port device or dual-IP mode displays the "Lan1" and "Lan2" columns. The single-port device or single-IP mode displays only the "Lan1" column.


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# 3 Network Configuration

## Function Description

User can set the IP address, DNS address and LLDP of this device. The IPv4 address of the device supports dynamic acquisition or manual static configuration through DHCP and BOOTP protocols; IPv6 addresses can be dynamically acquired through DHCPv6 protocol or manually configured statically, and can also be used to dynamically acquire IPv6 addresses via SLAAC.

An IPv6 address is 128 bits long and is written as eight groups of four hexadecimal digits (base 16 digits represented by the numbers 0-9 and the letters A-F). Each group is separated by a colon (:). For the convenience of writing, IPv6 also provides a compression format. The specific compression rules are:

- The leading "0" in each group can be omitted.
- The address contains two or more consecutive groups of 0s, which can be replaced by double colons "::".

IPv6 addresses have two parts:

- Network prefix: n bits, corresponding to the network ID of an IPv4 address;
- Interface identifier (interface ID): Corresponds to the host ID of an IPv4 address. It is comprised of 128-n bits.

Note

- Parts of dual-IP device provide two Ethernet ports, which can work in single IP mode (redundant mode / switching mode) or dual IP mode to meet the requirements of various network environments.
- The configuration of single-IP device is the same with that of dual-IP device, except the network address of single-IP device doesn't support "Network Mode" and "Mode Setting".

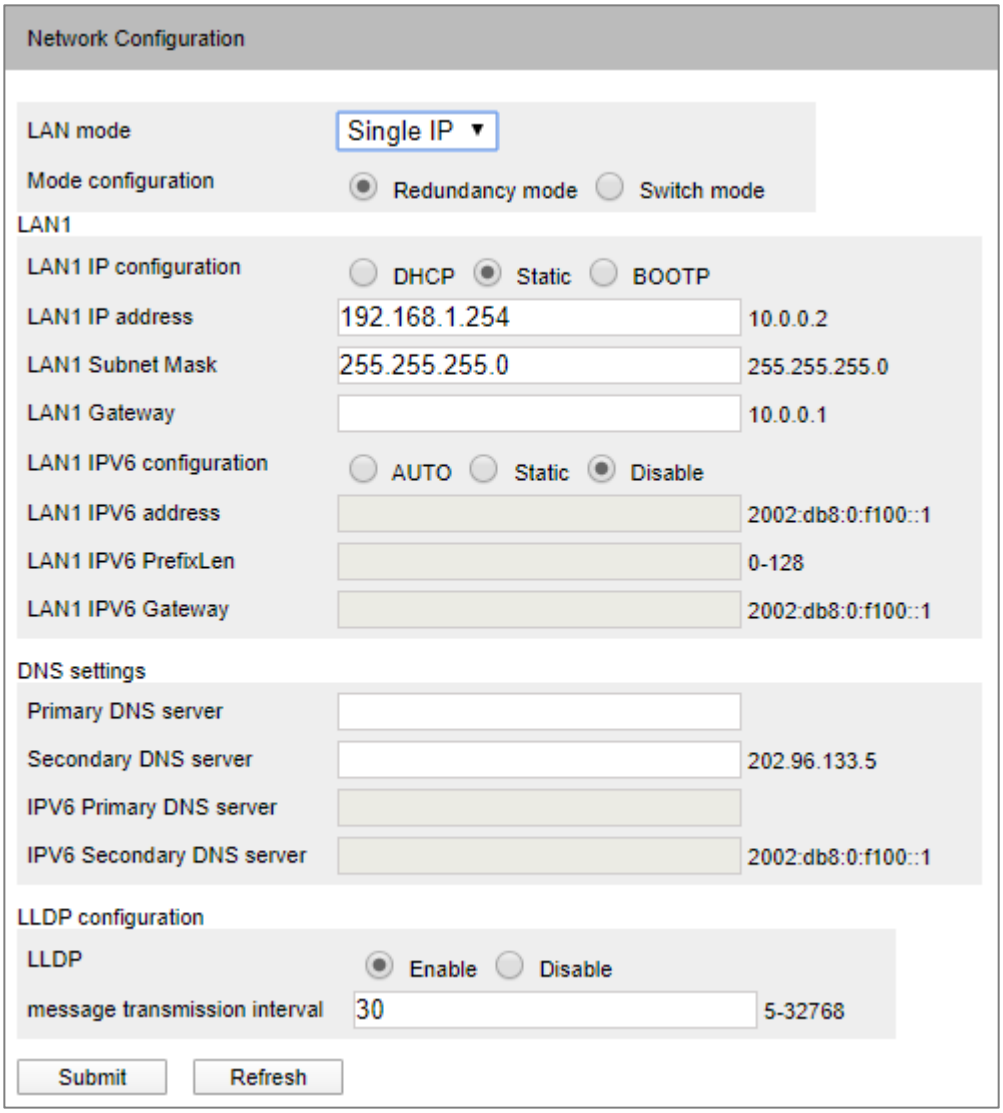

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## Operation Path

Open: “Network Configuration”.

## Interface Description 1: Single IP

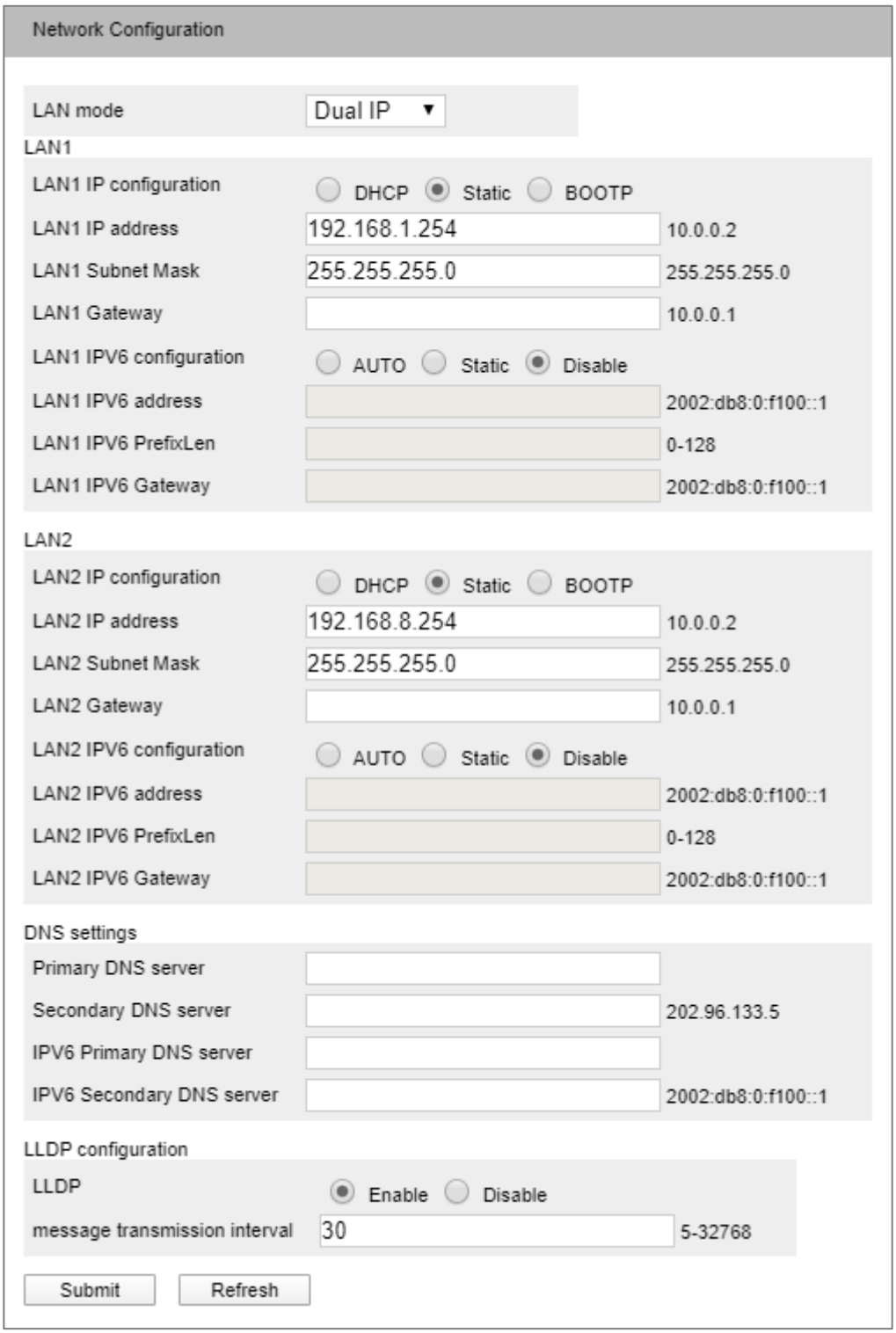
Single IP interface is as below:




## Interface Description 2: Dual IP

Dual IP interface is as below:


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The main element configuration description of network configuration interface:

| Interface Element | Description |
|---|---|
| LAN Mode | The network mode drop-down list of the device can be selected as follows:<br>• Single IP: the device ports LINK1 and LINK2 are in the same network LAN1; |


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| Interface Element | Description |
|---|---|
| | • Dual IP: the device has dual IP and dual MAC addresses, with port LINK1 in network LAN1 and port LINK2 in network LAN2. |
| Mode configuration | In the single IP mode, the operation mode of the equipment network port can be checked as follows:<br>• Redundancy mode: Ports LINK1 and LINK2 are redundant ports, which support link backup. One port is in active state and one port is in backup state;<br>• Switch mode: ports LINK1 and LINK2 are normal Ethernet ports. |
| **LAN1** | **LAN1 Configuration Bar** |
| LAN1 IP Configuration | Configuration of IPv4 network address of device LAN1:<br>• Obtain an IP address automatically (DHCP): Obtain an IP address, subnet mask, and gateway address automatically from DHCP server.<br>• Manual setting: manually configure the IP address, subnet mask, and gateway address.<br>• BOOTP: Automatically obtain IP address, subnet mask and default gateway address from BOOTP (Bootstrap Protocol) server. |
| LAN1 IP Address | Manually set the IPv4 address of the device LAN1, which is 192.168.1.254 by default. |
| LAN1 Subnet Mask. | Manually set the IPv4 subnet mask of the device LAN1, which is 255.255.255.0 by default. |
| LAN1 Gateway | Manually set the IPv4 gateway address of the device LAN1. |
| LAN1 IPv6 Configuration | Configuration of IPv6 network address of device LAN1:<br>• Automatic acquisition (DHCPv6): automatically acquire the dynamic IPv6 address, prefix length and gateway address from the DHCPv6 server, or acquire the network address through SLAAC to complete the IPv6 address setting.<br>• Manual setting: manually configure the IPv6 address, prefix length, and gateway address.<br>• Disable: IPv6 network address is not enabled by default. |
| LAN1 IPv6 Address | Under manual setting, the IPv6 address of network card 1 of |


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| Interface Element | Description |
|---|---|
| | the device, such as 2002:db8:0:f100::1. |
| LAN1 IPv6 prefixlen | Under the manual setting, the IPv6 prefix length of network card 1 of the device, whose range is 0-128. |
| LAN1 IPv6 gateway | Manually set the IPv6 gateway address of the device LAN1. |
| **LAN 2** | **LAN2 configuration bar** |
| LAN2 IP configuration | Configuration of IPv4 network address of device LAN2:<br>• Obtain an IP address automatically (DHCP): Obtain an IP address, subnet mask, and gateway address automatically from DHCP server.<br>• Manual setting: manually configure the IP address, subnet mask, and gateway address.<br>• BOOTP: Automatically obtain IP address, subnet mask and default gateway address from BOOTP (Bootstrap Protocol) server. |
| LAN2 IP address | Manually set the IPv4 address of the device LAN2, which is 192.168.8.254 by default. |
| LAN2 subnet mask. | Manually set the IPv4 subnet mask of the device LAN2, which is 255.255.255.0 by default. |
| LAN2 gateway | Manually set the IPv4 gateway address of the device LAN2. |
| LAN2 IPv6 Configuration | Configuration of IPv6 network address of device LAN2:<br>• Automatic acquisition (DHCPv6): automatically acquire the dynamic IPv6 address, prefix length and gateway address from the DHCPv6 server, or acquire the network address through SLAAC to complete the IPv6 address setting.<br>• Manual setting: manually configure the IPv6 address, prefix length, and gateway address.<br>• Disable: IPv6 network address is not enabled by default. |
| LAN2 IPv6 Address | Manually set the IPv6 address of the network card 2 of the device, such as 2002:db8:0:f100::1. |
| LAN2 IPv6 prefixlen | Under the manual setting, the IPv6 prefix length of the network card 2 of the device, whose range is 0-128. |
| LAN2 IPv6 Gateway | Manually set the IPv6 gateway address of the device LAN2. |
| **DNS Settings** | **DNS Settings Bar** |

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| Interface Element | Description |
|---|---|
| Primary DNS server | DNS Sever IPv4 address, for example: 202.96.133.4. |
| Secondary DNS server | DNS Sever backup IPv4 address, for example: 202.96.133.5. |
| IPv6 primary DNS server | IPv6 address of DNS server, for example: 2002:db8:0:f100::4. |
| IPv6 secondary DNS server | Backup IPv6 address of DNS server, for example: 2002:db8:0:f100::5. |
| **LLDP Configuration** | **LLDP Configuration Bar** |
| LLDP | Radiobox of LLDP function enable, options are as follows:<br>• Enable: enable LLDP (Link Layer Discovery Protocol).<br>• Disable: disable LLDP. |
| Message transmission interval | LLDP packet sending interval time, the value range is 5-32768, and the unit is seconds. When the LLDP function is enabled, the device will periodically send LLDP messages to neighboring devices. |


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# 4 COM Settings

## Function Description

You can view and configure the baud rate, parity bit, data bit, stop bit, flow control, interface type, FIFO function and other parameters of each serial port of the device.

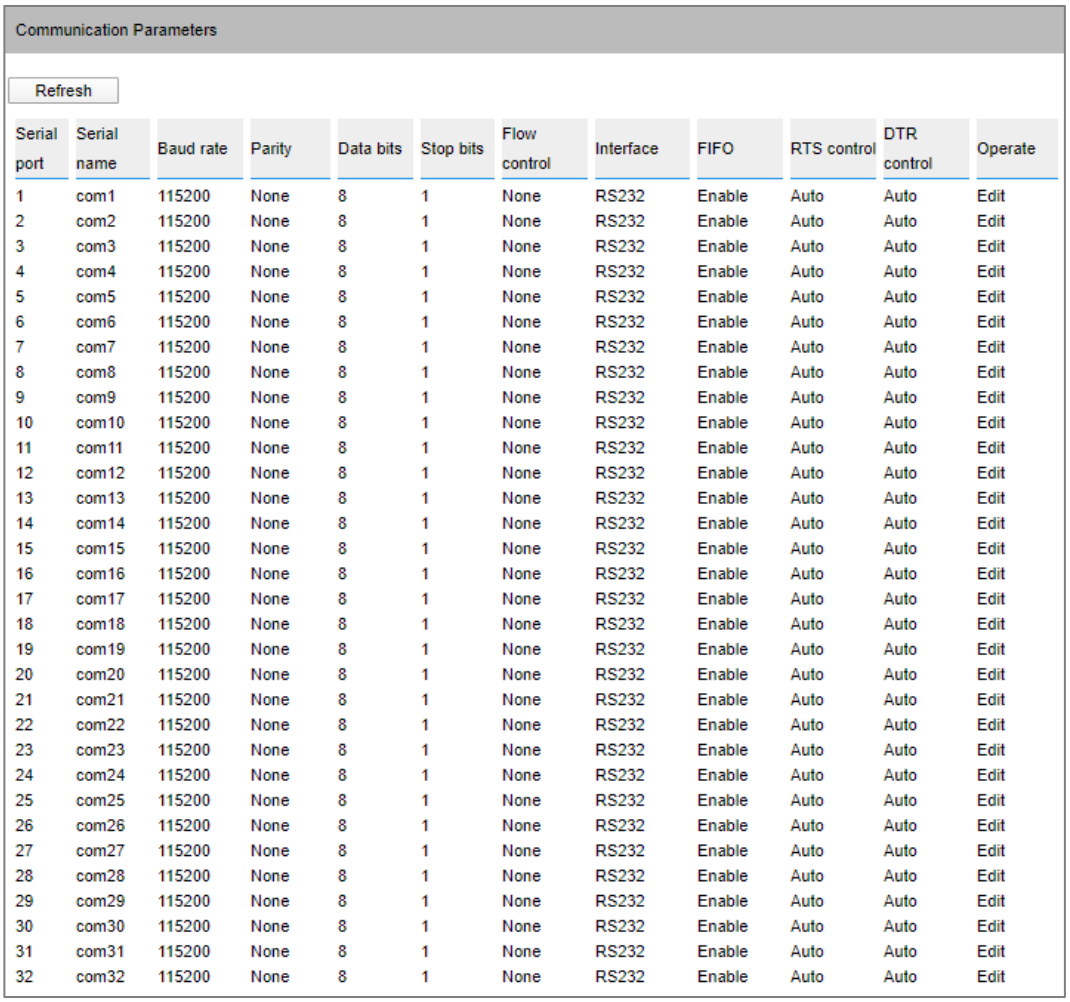
## Operation Path

Open: “COM Settings”.

## Interface Description

COM setting interface as follows:


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Communication Parameters

Refresh

| Serial port | Serial name | Baud rate | Parity | Data bits | Stop bits | Flow control | Interface | FIFO | RTS control | DTR control | Operate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | com1 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 2 | com2 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 3 | com3 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 4 | com4 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 5 | com5 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 6 | com6 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 7 | com7 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 8 | com8 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 9 | com9 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 10 | com10 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 11 | com11 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 12 | com12 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 13 | com13 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 14 | com14 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 15 | com15 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 16 | com16 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 17 | com17 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 18 | com18 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 19 | com19 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 20 | com20 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 21 | com21 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 22 | com22 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 23 | com23 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 24 | com24 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 25 | com25 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 26 | com26 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 27 | com27 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 28 | com28 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 29 | com29 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 30 | com30 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 31 | com31 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 32 | com32 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |

The main element configuration description of serial port setup interface:

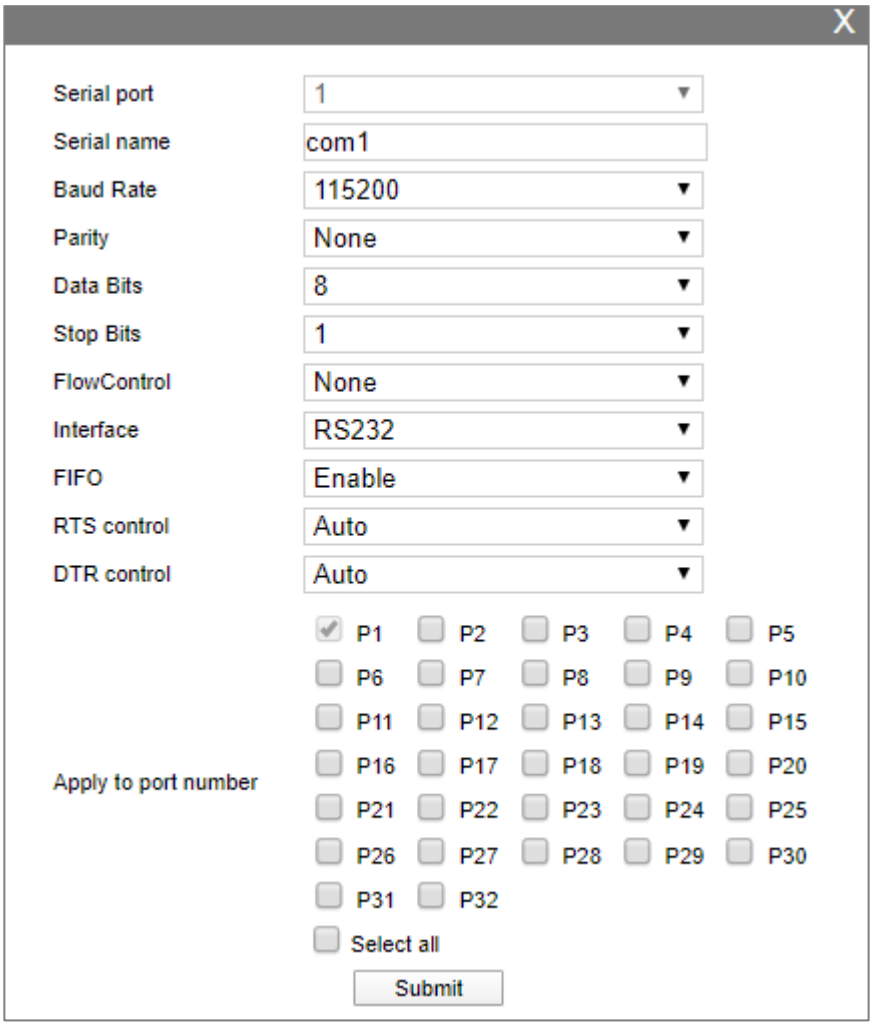
| Interface Element | Description |
|---|---|
| Serial port | Display the serial port number of the device. |
| Serial name | Displays the name of the device. |
| Baud Rate | Displays the baud rate of the device's serial port. |
| Parity | Displays the parity bits of the device's serial Port. |
| Data bit | Displays the data bits of the device's serial port. |
| Stop Bit | Displays the stop bits of the device's serial port. |
| Flow control | Displays whether the flow control function of the device's serial port is enabled. |
| Interface | Displays the interface mode of the device's serial port. |
| FIFO | Display whether the FIFO function of the device's serial port is enabled. |
| RTS Control | Display the RTS pin status of the serial port of the device. |
| DTR Control | Display the DTR pin status of the serial port of the device. |
| Operation | Click Edit to modify the parameters of the device's serial port. |


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Click Edit in the serial port entry to modify the current serial port parameters.

## Interface Description: Edit

Edit interface is as follows:




Configuration description of main elements of the Edit interface:

| Interface Element | Description |
|---|---|
| Serial port | Display the serial port number of the device. |
| Serial name | The text box of serial port name, which supports 1-32 letters or numbers input, and can customize the name of the current serial port. |
| Baud Rate | Choose baud rate of corresponding serial port. Unit: bps. Options: 110/300/600/1200/2400/4800/9600/19200/38400/57600/115200 |
| Parity | Select parity bits of corresponding serial number. Options: |


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| Interface Element | Description |
|---|---|
| | • None<br>• Odd<br>• Even<br>• Mark<br>• Space |
| Data bit | Select data bits of corresponding serial number. Options:<br>• 5 bits<br>• 6 bits<br>• 7 bits<br>• 8 bits |
| Stop Bits | Select stop bits of corresponding serial number. Options:<br>• 1 bits<br>• 2 bits<br>Note:<br>When the data bit is 5bits, stop bit is 1bits and 1.5bits optional. |
| Flow control | Flow control is used in two data transmission speed of different devices in the control of data flow technology to ensure that two devices communicate with each other to avoid data loss. Click the "flow control" drop-down list box, select the flow control parameters, the options are:<br>• None<br>• RTS/CTS<br>• DTR/DSR<br>• XON/XOFF |
| Interface | Determined by both hardware and software, options are as follows:<br>• RS232<br>• RS422<br>• RS485 |
| FIFO | Enable or disable the FIFO function, if the serial device does not support data transceiver cache FIFO, FIFO function can be disabled to avoid data transmission errors. |
| RTS Control | RTS pin can be controlled, the options are:<br>• Auto<br>• Force ON<br>• Force OFF |
| DTR Control | DTR pin can be controlled, the options are: |


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| Interface Element | Description |
| --- | --- |
| | • AUTO<br>• Force ON<br>• Force OFF |
| Apply to port number | Check the serial port check box to apply the current settings to the specified serial port. |


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# 5 COM Mode

## About This Chapter

| Content | Link |
| --- | --- |
| This Chapter | 5.1 Serial Port Mode<br>5.2 Log<br>5.3 Serial Port Encryption<br>5.4 User Table |

## 5.1 Serial Port Mode

### Function Description

You can configure the working mode of the corresponding serial port number of the device.

The working modes supported by the device are:

- RealCom Mode
- Reverse RealCom Mode
- TCP Server Mode
- TCP Client Mode
- UDP Server Mode
- UDP Client Mode
- UDP Rang Mode
- UDP Multicast Mode
- Pair Slave Mode
- Pair Master Mode
- Telnet Mode
- Reverse Telnet Mode

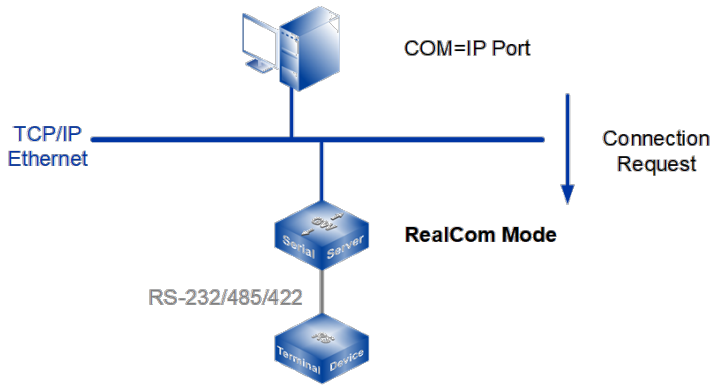

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- RFC2217 Mode
- Redundant COM Mode
- DRDAS RealCom Mode
- DRDAS TCP Server Mode
- SSH
- Reverse SSH
- Disable Mode

## Operation Path

Open in order “COM Mode > Port1 > COM Mode”. Under the menu of "COM Mode", the corresponding serial port information can be configured by entering different serial ports. The configuration operation mode of all serial ports' WEB interfaces is the same.

### 5.1.1 RealCom Mode




Notes:

The device picture mentioned in above figure is only an example, and the actual appearance of the device and serial port type is subject to the device obtained.

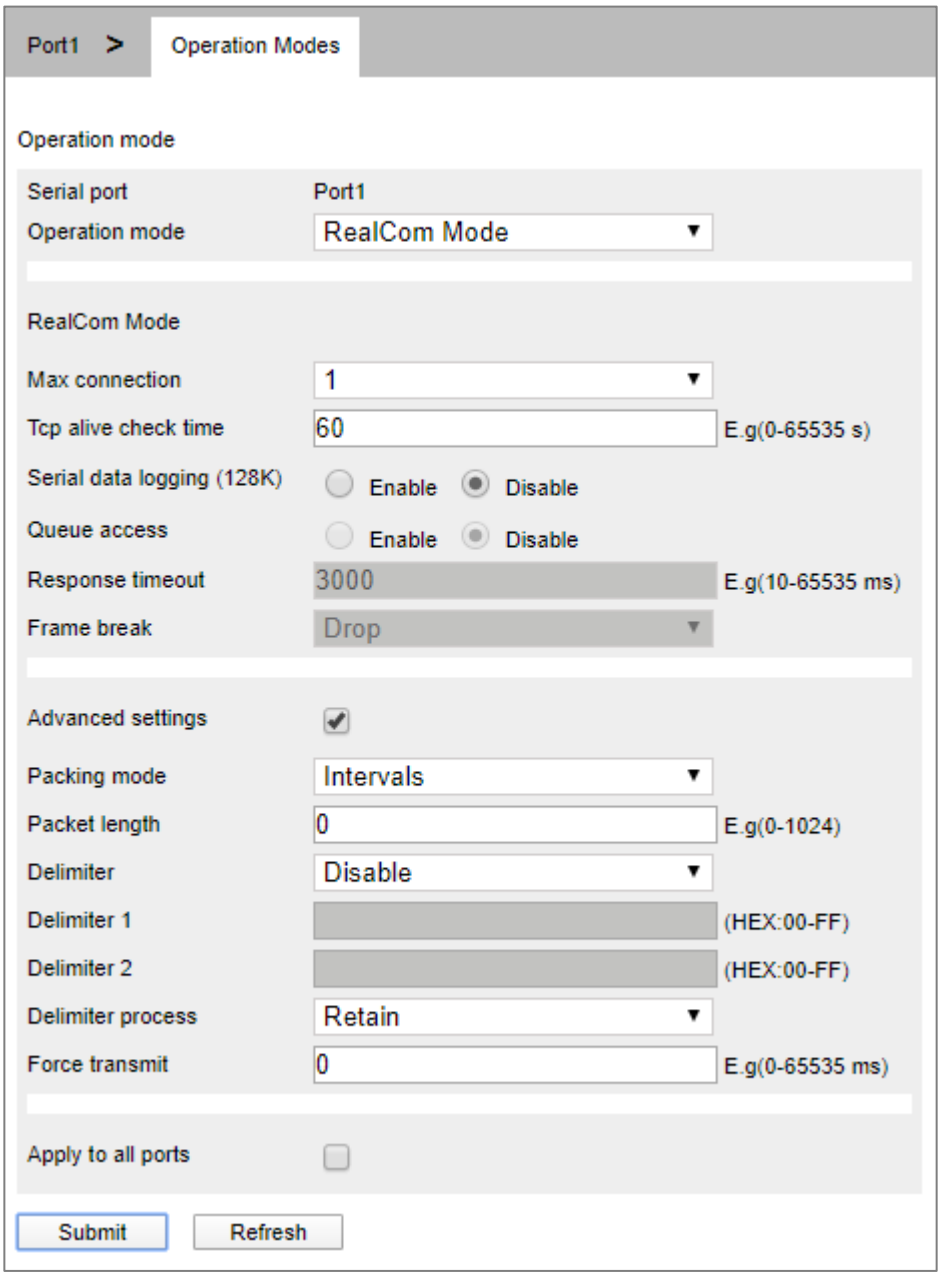
In RealCom mode, the serial port server and Windows / Linux operating system with the RealCOM drive work cooperatively. RealCom COM/TTY driver establishes a transparent or secure network transmission connection between the host and the serial device in the operating system. Map the serial port of the serial port server to the local COM/TTY device of the host according to the user configured serial server IP address and serial port number and other parameters. The original serial device software or communication module without modification can be used directly without modification.

The RealCom driver gets the data be sent to the local COM / TTY device of the host, then sends it over Ethernet in the form of TCP / IP packet. At the other end of the transmission, the serial server will receive the TCP / IP packet and analyse the packet, and after unpacking send the original data to the serial device through the corresponding serial port, and vice versa.


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## Interface Description

The interface of RealCom Mode is as follows:




Main element configuration instructions in RealCom Mode interface

| Interface Element | Description |
|---|---|
| **Operation mode** | **Working Mode Configuration Bar** |
| Serial port | Displays the serial number of the device currently configured. |
| Operation mode | The working modes of serial port of the device are as follows:<br>• RealCom Mode |


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| Interface Element | Description |
|---|---|
| | • Reverse RealCom Mode<br>• TCP Server Mode<br>• TCP Client Mode<br>• UDP Server Mode<br>• UDP Client Mode<br>• UDP Rang Mode<br>• UDP Multicast Mode<br>• Pair Slave Mode<br>• Pair Master Mode<br>• Telnet Mode<br>• Reverse Telnet Mode<br>• RFC2217 Mode<br>• Redundant COM Mode<br>• DRDAS RealCom Mode<br>• DRDAS TCP Server Mode<br>• SSH<br>• Reverse SSH<br>• Disable Mode |
| **RealCom Mode** | **RealCom Mode configuration bar** |
| Max connection | The number of host that one serial port connects to.<br>• Each host communicates with serial port in the order of first-in first-out;<br>• The system supports up to 8 connections. |
| TCP Alive Check Time | If there isn't any TCP activity within schedule time, the system will automatically send connection detection message and check whether the TCP connection is valid. If the reply packet of opposite side hasn't been received after sending probe packet for 3 times, system will regard the opposite side as down and forwardly close the communication connection. |
| Serial data logging (128K) | Serial data log enable, and the options are as follows:<br>• Enable: after enabling it, the log page will be displayed to monitor serial communication data, and the log can display up to 128K serial data.<br>• Disable: the serial port data log is disabled by default. |
| Queue access | With multiple host connections, the command mode only |


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| Interface Element | Description |
|---|---|
| | supports one request and one response from each host, and one response data can be cached in response to other same requests. Options are as follows:<br>• Enable;<br>• Disable;<br>Notes:<br>Queue access is enabled when the number of connections is greater than 1. |
| Response timeout | Time interval that allows the serial server to respond to each host's request, the communication between serial server and host is deemed to be completed after schedule time, serial server continues to deal with the next host request. |
| Frame break | The processing mode of serial port data with no request and automatic response of serial port equipment is as follows:<br>• Discard: discard the unrequested serial data;<br>• Transmit to the last communication connection: transmit the unrequested serial port data to the last communication connection;<br>• Transmit to all open connection: transmit the unrequested serial port data to all open connection; |
| **Advanced Settings** | **Advanced Settings Configuration Bar** |
| Packing mode | Serial port data packaging Ethernet data time, the options are as follows:<br>• Interval: after sending the last Ethernet packet for some time, the system packages the received serial port data into Ethernet packets and sends them out;<br>• Forced time: the system packages serial port data received within a specified time into Ethernet packets and transmit them. |
| Packet length | For the frame length of the serial data to Ethernet data, the data frame is forwarded within the set time range when it is greater than or equal to the set frame length, and the value ranges from 0 to 1024. It means no limit on data transmission length when it' set to 0.<br>Notes:<br>There are some slight deviations between the actual package length value and the set value. |
| Delimiter | Select the number of delimited characters, the options are as follows: |


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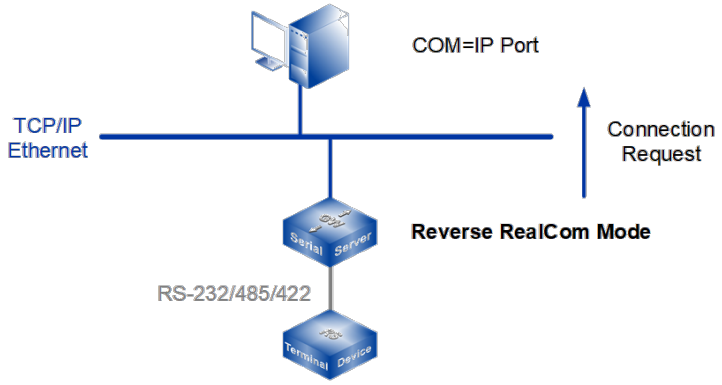
| Interface Element | Description |
|---|---|
| | • Disable: disable delimiter function;<br>• 1: Enable Delimiter 1<br>• 2: enable Delimiter 2.<br>Notes:<br>If the packaging length or the forced transfer time is 0 and the number of delimited character is greater than 0, the system would detect and process the delimiter after receiving serial data. Every time it receives matched delimiter (or combination of characters), the system would send out all cached serial data via network. |
| Delimiter 1 | The Delimiter 1 is expressed in hexadecimal, value range is 00-FF. |
| Delimiter 2 | The Delimiter 2 is expressed in hexadecimal, value range is 00-FF. |
| Delimiter process | Select the delimiter processing method. Options:<br>• Retain: the system would send out the received delimiter and other data via network.<br>• Delimiter+1: the system transfers data after receiving a delimiter and an extra byte.<br>• Delimiter+2: the system transfers data after receiving a delimiter and 2 extra byte.<br>• Delete: the matched delimiter (or combination of delimiter) would be deleted. The system only transmits data except delimiter. |
| Force transmit | If the transmission time is greater than 0, the system sends the serial data received within the specified time through a packet, in the range of 0 to 65535 ms. When the transfer time is 0, it means that the data transmission interval is not restricted. |
| Apply to All Ports | Check the “Apply to all port” check box to apply the current settings to all serial ports. |

Notice

- When the maximum number of connections is greater than 1, set the parameters to be consistent when multiple hosts are connected to the same serial port, otherwise it will cause communication error.
- Communication Parameters of real serial port will be automatically changed according to communication parameters of virtual serial port, and real-time communication parameters of serial port of serial port server can be viewed through "Serial Port Settings".


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## 5.1.2 Reverse RealCom Mode




Notes:

The device picture mentioned in above figure is only an example, and the actual appearance of the device and serial port type is subject to the device obtained.

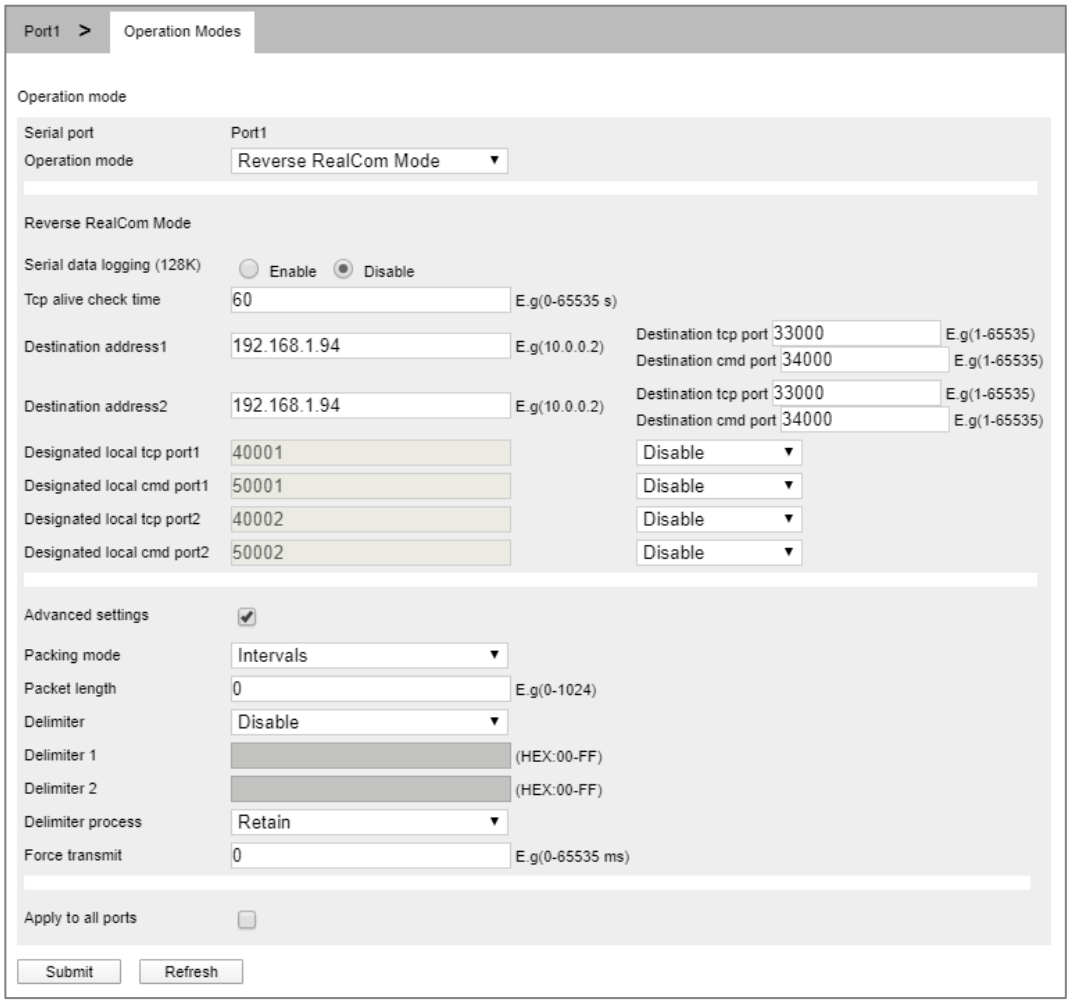
The RealCOM mode will not work when the device uses a private IP address or is in a dynamic IP address environment. In this case, the remote host/server cannot connect to the device. At this time, the connection can be established through the reverse RealCOM mode, and the device initiates a request to the remote host/server installed with the COM/TTY driver and establishes a connection, mapping the serial port of the device to the local COM/TTY device of the host, and the software or communication module of the original serial device can be directly used without modification.

The RealCom driver gets the data be sent to the local COM / TTY device of the host, then sends it over Ethernet in the form of TCP / IP packet. At the other end of transmission, the device receives the TCP/IP data packet, and after unpacking, sends the original data to the serial port device through the corresponding serial port, and vice versa.

### Interface Description

Reverse RealCom Mode interface is as follows:


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Reverse RealCom Mode interface main element configuration instructions:

| Interface Element | Description |
|---|---|
| **Operation mode** | **Working Mode Configuration Bar** |
| Serial port | Displays the serial number of the device currently configured. |
| Operation mode | The working modes of serial port of the device are as follows:<br>• RealCom Mode<br>• Reverse RealCom Mode<br>• TCP Server Mode<br>• TCP Client Mode<br>• UDP Server Mode<br>• UDP Client Mode<br>• UDP Rang Mode<br>• UDP Multicast Mode<br>• Pair Slave Mode<br>• Pair Master Mode |


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| Interface Element | Description |
|---|---|
| | • Telnet Mode<br>• Reverse Telnet Mode<br>• RFC2217 Mode<br>• Redundant COM Mode<br>• DRDAS RealCom Mode<br>• DRDAS TCP Server Mode<br>• SSH<br>• Reverse SSH<br>• Disable Mode |
| **Reverse RealCom Mode** | **Reverse RealCom Mode Configuration Bar** |
| Serial data logging (128K) | Serial data log enable, and the options are as follows:<br>• Enable: after enabling it, the log page will be displayed to monitor serial communication data, and the log can display up to 128K serial data.<br>• Disable: the serial port data log is disabled by default. |
| TCP Alive Check Time | If there isn't any TCP activity within schedule time, the system will automatically send connection detection message and check whether the TCP connection is valid. If the reply packet of opposite side hasn't been received after sending probe packet for 3 times, system will regard the opposite side as down and forwardly close the communication connection. |
| Destination address 1 | Specify the IPv4 or IPv6 address 1 of the remote host/server the device connected to. |
| Destination tcp port | Data port number of destination IPv4 or IPv6 address 1, ranging from 1-65535.<br>Notes:<br>Make sure the port is not blocked by the firewall or occupied by other programs when using port numbers. |
| Destination cmd port | The command port number of destination IPv4 or IPv6 address 1, ranging from 1-65535. |
| Destination address 2 | Specify the IPv4 or IPv6 address 2 of the remote host/server the device connected to. |
| Destination tcp port | Data port number of destination IPv4 or IPv6 address 2, ranging from 1-65535.<br>Notes:<br>Make sure the port is not blocked by the firewall or occupied by other programs when using port numbers. |


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| Interface Element | Description |
|---|---|
| Destination cmd port | The command port number of destination IPv4 or IPv6 address 2, ranging from 1-65535. |
| Designated local tcp port 1 | Designated local tcp port 1 that device and destination IPv4 or IPv6 address 1 connect, options are as follows:<br>• Enable: configure a specific local data port manually when enabled.<br>• Disable: system distributes local data port automatically when disable. |
| Designated local cmd port 1 | Designated local cmd port 1 that device and destination IPv4 or IPv6 address 1 connect, options are as follows:<br>• Enable: configure a specific local command port manually when enabled.<br>• Disable: system distributes local command port automatically when disabled. |
| Designated local tcp port 2 | Designated local tcp port 2 that device and destination IPv4 or IPv6 address 2 connect, options are as follows:<br>• Enable: configure a specific local data port manually when enabled.<br>• Disable: system distributes local data port automatically when disable. |
| Designated local cmd port 2 | Designated local cmd port 2 that device and destination IPv4 or IPv6 address 2 connect, options are as follows:<br>• Enable: configure a specific local command port manually when enabled.<br>• Disable: system distributes local command port automatically when disabled. |
| **Advanced Settings** | **Advanced Settings Configuration Bar** |
| Packing mode | Serial port data packaging Ethernet data time, the options are as follows:<br>• Interval: after sending the last Ethernet packet for some time, the system packages the received serial port data into Ethernet packets and sends them out;<br>• Forced time: the system packages serial port data received within a specified time into Ethernet packets and transmit them. |
| Packing length | For the frame length of the serial data to Ethernet data, the data frame is forwarded within the set time range when it is greater than or equal to the set frame length, and the value |


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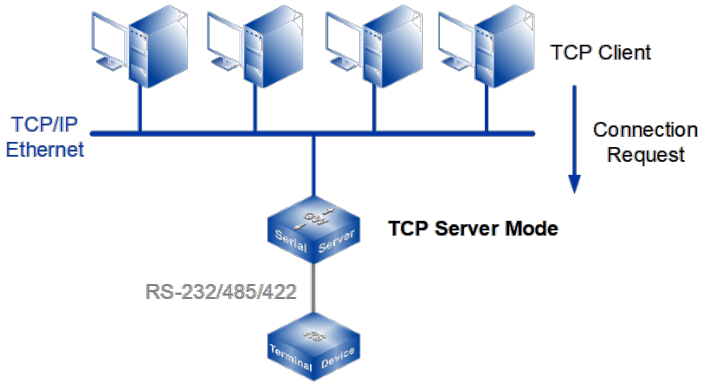
| Interface Element | Description |
|---|---|
| | ranges from 0 to 1024. It means no limit on data transmission length when it' set to 0.<br>Notes:<br>There are some slight deviations between the actual package length value and the set value. |
| Delimiter | Select the number of delimited characters, the options are as follows:<br>• Disable: disable delimiter function;<br>• 1: Enable Delimiter 1<br>• 2: enable Delimiter 2.<br>Notes:<br>If the packaging length or the forced transfer time is 0 and the number of delimited character is greater than 0, the system would detect and process the delimiter after receiving serial data. Every time it receives matched delimiter (or combination of characters), the system would send out all cached serial data via network. |
| Delimiter 1 | The Delimiter 1 is expressed in hexadecimal, value range is 00-FF. |
| Delimiter 2 | The Delimiter 2 is expressed in hexadecimal, value range is 00-FF. |
| Delimiter process | Select the delimiter processing method. Options:<br>• Retain: the system would send out the received delimiter and other data via network.<br>• Delimiter+1: the system transfers data after receiving a delimiter and an extra byte.<br>• Delimiter+2: the system transfers data after receiving a delimiter and 2 extra byte.<br>• Delete: the matched delimiter (or combination of delimiter) would be deleted. The system only transmits data except delimiter. |
| Force transmit | If the transmission time is greater than 0, the system sends the serial data received within the specified time through a packet, in the range of 0 to 65535 ms. When the transfer time is 0, it means that the data transmission interval is not restricted. |
| Apply to All Ports | Check the "Apply to all port" check box to apply the current settings to all serial ports. |


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Notice

Communication Parameters of real serial port will be automatically changed according to communication parameters of virtual serial port, and real-time communication parameters of device serial port can be viewed through "Serial Port Settings" page.

### 5.1.3 TCP Server Mode




Notes:

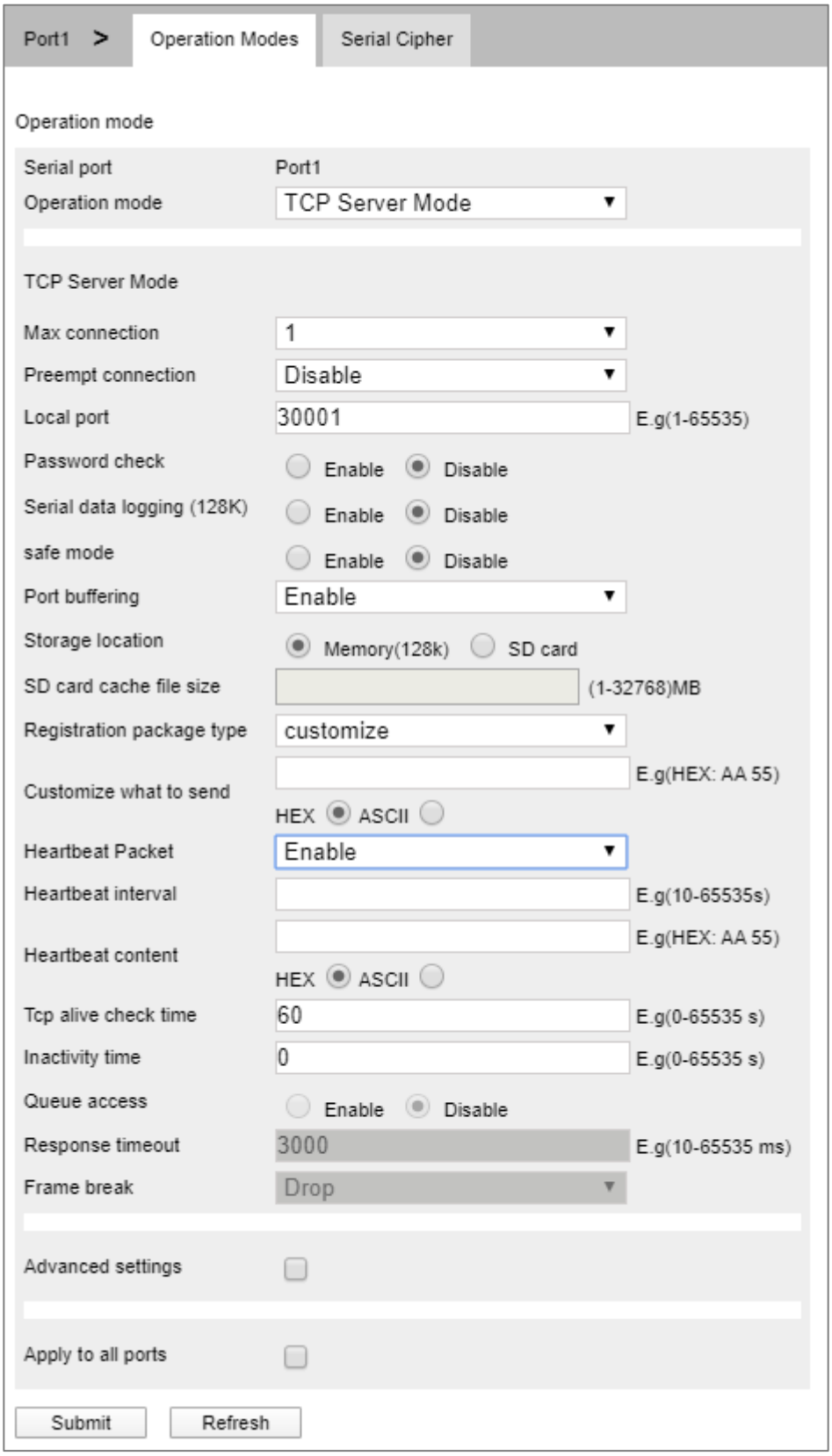
The device picture mentioned in above figure is only an example, and the actual appearance of the device and serial port type is subject to the device obtained.

In TCP server mode, the device is assigned an IP port number and passively waits for the host to connect. When the host initiates a connection request and establishes a connection with the device, the host can realize bidirectional transparent or encrypted data transmission through network connection and serial port. The TCP server mode supports up to 8 session connections simultaneously, allowing multiple hosts to simultaneously read or send Ethernet data to a serial device.

#### Interface Description

TCP server mode interface is as follows:


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TCP server mode interface main element configuration instructions:

| Interface Element | Description |
|---|---|
| **Operation mode** | **Working Mode Configuration Bar** |


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| Interface Element | Description |
|---|---|
| Serial port | Displays the serial number of the device currently configured. |
| Operation mode | The working modes of serial port of the device are as follows:<br>• RealCom Mode<br>• Reverse RealCom Mode<br>• TCP Server Mode<br>• TCP Client Mode<br>• UDP Server Mode<br>• UDP Client Mode<br>• UDP Rang Mode<br>• UDP Multicast Mode<br>• Pair Slave Mode<br>• Pair Master Mode<br>• Telnet Mode<br>• Reverse Telnet Mode<br>• RFC2217 Mode<br>• Redundant COM Mode<br>• DRDAS RealCom Mode<br>• DRDAS TCP Server Mode<br>• SSH<br>• Reverse SSH<br>• Disable Mode |
| **TCP Server Mode** | **TCP Server Mode Configuration bar** |
| Max connection | The number of host that one serial port connects to.<br>• Each host communicates with serial port in the order of first-in first-out;<br>• The system supports up to 8 connections. |
| Preempt Connection | When exceed the maximum number of connection request, the number of sessions that have established TCP connections can be preempted, options are as follows:<br>• Disable: established TCP link are not allowed to be preempted;<br>• First connection: the TCP link that first establishes will be preempted;<br>• Longest uncommunicated: the longest uncommunicated TCP link will be preempted. |
| Local port | The destination connection port of TCP client. |
| Password check | After the device is connected with the opposite end, the |


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| Interface Element | Description |
|---|---|
| | opposite end needs to send the authentication password to the device. If the authentication password is verified, the device and the opposite end can start communication.<br>Options:<br>• Disable: disable password authentication function.<br>• Enable: enable password authentication function.<br>Notes:<br>When password authentication is enabled, only users with administrator privileges can send / receive messages using this device.<br>• The first data sent by the opposite end to the device defaults to the authentication password.<br>• The authentication password is a hexadecimal data with 64 bytes. The first 32 bytes are the administrator account, fill with 0 if less than 32 bytes; the last 32 bytes are the administrator password, fill with 0 if less than 32 bytes.<br>• If the authentication password is entered incorrectly, the connection will be broken. After re-establishing the connection with the opposite end, you can re-enter the authentication password.<br>• Take the administrator whose account and password are "admin" as an example. The hexadecimal data corresponding to "admin" is "61 64 6D 69 6E", then the check code of the first and the last 32 bytes are "61 64 6D 69 6E 00 00 00

| Interface Element | Description |
|---|---|
| | the cached data is forwarded. The tick options are as follows:<br>• Enable<br>• Disable |
| Storage location | After the network is abnormal, the storage location of serial port cache data can be selected as follows:<br>• Memory (128k)<br>• SD Card<br>Notes:<br>• Saving serial port cache through SD card requires the device to support SD interface and install SD card. Some rack-mounted devices of this series support SD interface, which is subject to the actual device.<br>• After serial port cache is enabled, the storage location and SD card cache file size configuration are displayed. |
| SD card cache file size | The file size of serial port cache data is stored by SD card, and the value range is 1-32768MB. |
| Registration package type | The information sent after the device is connected to the peer client. Options:<br>• Disable: After the connection is successful, no information is sent to the peer client.<br>• Ipaddr: After the connection is successful, send the IP address of the device to the remote client.<br>• Devicename: After the connection is successful, send the devicename of the device to the remote client.<br>• Custom: Send custom content to the opposite client after successful connection. |
| Customize what to send | Send custom content to the opposite client after successful connection. Support HEX hexadecimal and ASCII character formats (optional).<br>Notes:<br>This item is displayed when the “Registration Package Type” is “Custom”. |
| Heartbeat Packet | Heartbeat packet enable drop-down list, the options are as follows:<br>• Enable: after the network heartbeat packet is enabled, the device periodically sends the specified content to the device at the opposite end.<br>• Disable: heartbeat packet is disabled by default. |


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| Interface Element | Description |
|---|---|
| Heartbeat Interval | The time interval for sending network heartbeat packet, the value range is 10-65535s.<br>Notes:<br>This item is displayed when “Network heartbeat packet” is “Enabled”. |
| Heartbeat Content | Heartbeat packet content. Support HEX hexadecimal and ASCII character formats (optional).<br>Notes:<br>This item is displayed when “Network heartbeat packet” is “Enabled”. |
| TCP Alive Check Time | If there isn't any TCP activity within schedule time, the system will automatically send connection detection message and check whether the TCP connection is valid. If the reply packet of opposite side hasn't been received after sending probe packet for 3 times, system will regard the opposite side as down and forwardly close the communication connection. |
| Inactivity time | Set the idle time of current data communication link of the device. If the idle time-out during communication is larger than 0, the system would close the TCP connection without any data transmission activity occurring in the specified time automatically. 0 means the free TCP connection would not be closed automatically. |
| Queue access | With multiple host connections, the command mode only supports one request and one response from each host, and one response data can be cached in response to other same requests. Options are as follows:<br>• Enable;<br>• Disable;<br>Notes:<br>Queue access is enabled when the number of connections is greater than 1. |
| Response timeout | The time it allowed for the device to respond to the request of each host. When the specified time arrives, the communication between the device and the host is considered complete, and the request of the next host continues to be processed. |
| Frame break | The processing mode of serial port data with no request and automatic response of serial port equipment is as follows: |

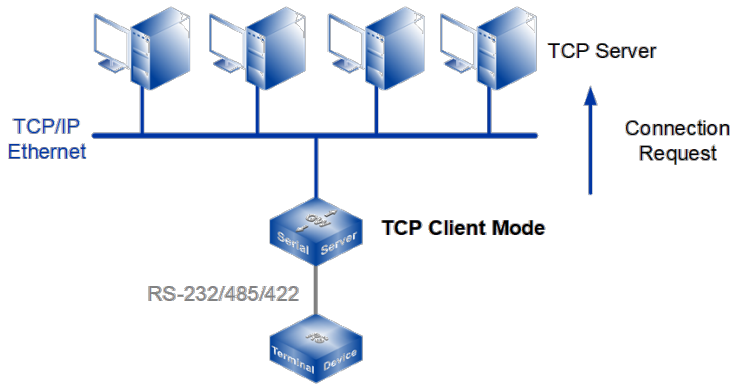

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| Interface Element | Description |
|---|---|
| | • Discard: discard the unrequested serial data;<br>• Transmit to the last communication connection: transmit the unrequested serial port data to the last communication connection;<br>• Transmit to all open connection: transmit the unrequested serial port data to all open connection; |
| **Advanced Settings** | **Advanced Settings Configuration Bar** |
| Packing mode | Serial port data packaging Ethernet data time, the options are as follows:<br>• Interval: after sending the last Ethernet packet for some time, the system packages the received serial port data into Ethernet packets and sends them out;<br>• Forced time: the system packages serial port data received within a specified time into Ethernet packets and transmit them. |
| Packet length | The frame length of serial data to Ethernet data. In the set time range, the data forwards when it is greater than or equals to the set frame length. The value range is 0~1460. It means no limit on data transmission length when it' set to 0.<br>Notes:<br>There are some slight deviations between the actual package length value and the set value. |
| Delimiter | Select the number of delimited characters, the options are as follows:<br>• Disable: disable delimiter function;<br>• 1: Enable Delimiter 1<br>• 2: enable Delimiter 2.<br>Notes:<br>If the packaging length or the forced transfer time is 0 and the number of delimited character is greater than 0, the system would detect and process the delimiter after receiving serial data. Every time it receives matched delimiter (or combination of characters), the system would send out all cached serial data via network. |
| Delimiter 1 | The Delimiter 1 is expressed in hexadecimal, value range is 00-FF. |
| Delimiter 2 | The Delimiter 2 is expressed in hexadecimal, value range is 00-FF. |
| Delimiter process | Select the delimiter processing method. Options:<br>• Retain: the system would send out the received delimiter and other data via network.<br>• Delimiter+1: the system transfers data after receiving a |


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| Interface Element | Description |
|---|---|
| | delimiter and an extra byte.<br>• Delimiter+2: the system transfers data after receiving a delimiter and 2 extra byte.<br>• Delete: the matched delimiter (or combination of delimiter) would be deleted. The system only transmits data except delimiter. |
| Force transmit | If the transmission time is greater than 0, the system sends the serial data received within the specified time through a packet, in the range of 0 to 65535 ms. When the transfer time is 0, it means that the data transmission interval is not restricted. |
| Apply to All Ports | Check the “Apply to all port” check box to apply the current settings to all serial ports. |

### 5.1.4 TCP Client Mode




Notes:

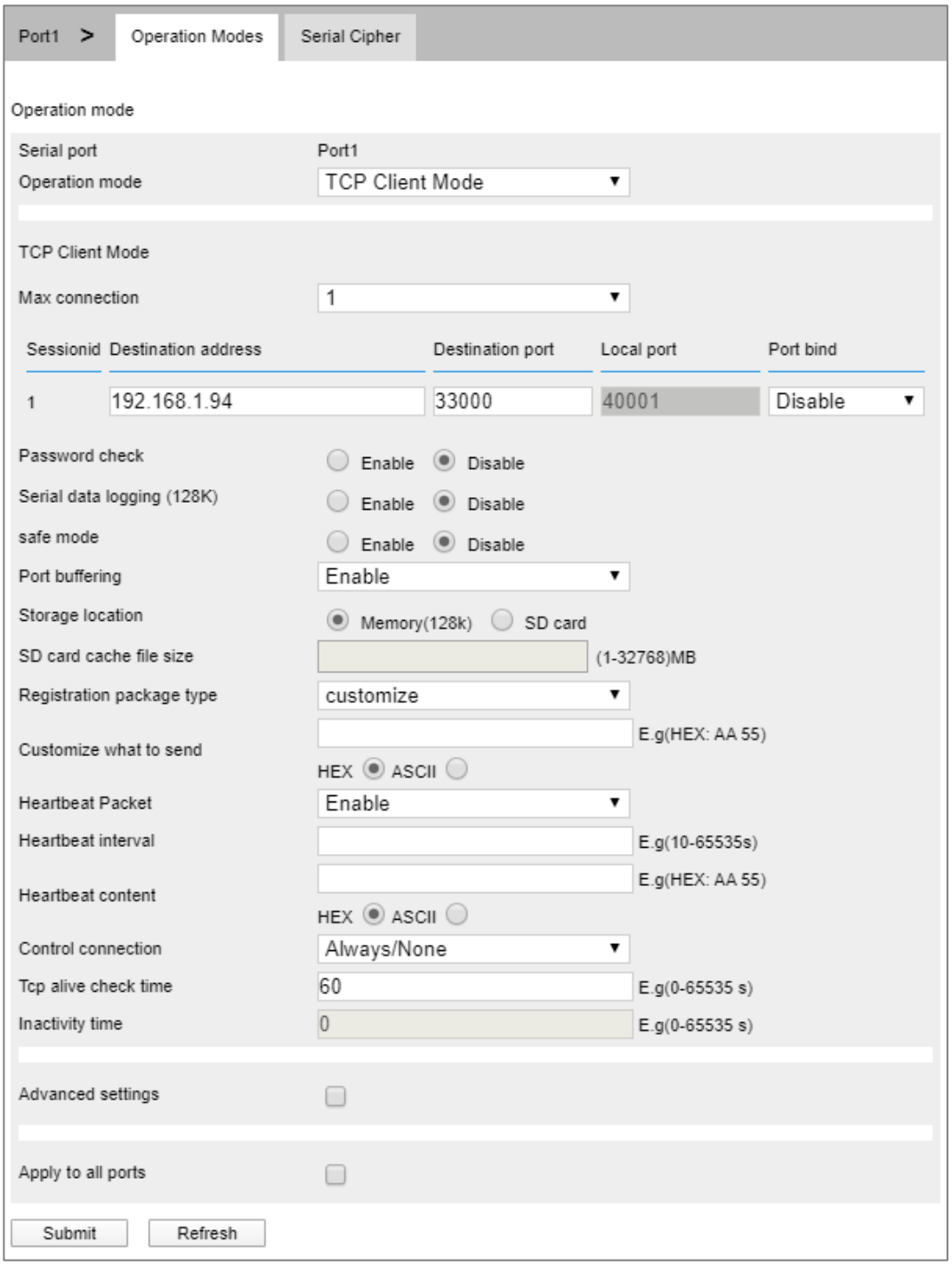
The device picture mentioned in above figure is only an example, and the actual appearance of the device and serial port type is subject to the device obtained.

In TCP client mode, the device can actively establish a network connection with the host specified by the user when the serial port data arrives. After the data transmission is completed, the device will automatically close the network connection according to TCP keep-alive time/idle timeout and other parameters. Similarly, TCP client mode can support up to 8 session connections at the same time, so that multiple hosts can simultaneously read or send Ethernet data to a serial device.

#### Interface Description

TCP Client mode interface is as follows:


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TCP client mode interface main element configuration instructions:

| Interface Element | Description |
|---|---|
| **Operation mode** | **Working Mode Configuration Bar** |
| Serial port | Displays the serial number of the device currently configured. |
| Operation mode | The working modes of serial port of the device are as follows:<br>• RealCom Mode<br>• Reverse RealCom Mode<br>• TCP Server Mode |


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| Interface Element | Description |
|---|---|
| | • TCP Client Mode<br>• UDP Server Mode<br>• UDP Client Mode<br>• UDP Rang Mode<br>• UDP Multicast Mode<br>• Pair Slave Mode<br>• Pair Master Mode<br>• Telnet Mode<br>• Reverse Telnet Mode<br>• RFC2217 Mode<br>• Redundant COM Mode<br>• DRDAS RealCom Mode<br>• DRDAS TCP Server Mode<br>• SSH<br>• Reverse SSH<br>• Disable Mode |
| **TCP Client Mode** | **TCP Client Mode Configuration Bar** |
| Max connection | The number of host that one serial port connects to.<br>• Each host communicates with serial port in the order of first-in first-out;<br>• The system supports up to 8 connections. |
| Session id | The number of TCP connection sessions corresponds to the maximum number of connections. |
| Destination Address | Enter the IPv4 or IPv6 address of the server to which the device is connected. |
| Destination Port | Enter the TCP port number of the server to which the device is connected. |
| Local Port | A local port number assigned by the device for TCP connection, which can provide service or connection to the outside world, is used to connect and communicate with the server. |
| Port bind | Local port fixed, options are as follows:<br>• Disable: the system automatically selects the idle local port to establish a connection with the server;<br>• Enable: connect to the server using a manually configured local port. |
| Password check | After the device is connected with the opposite end, the opposite end needs to send the authentication password to |


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| Interface Element | Description |
|---|---|
| | the device. If the authentication password is verified, the device and the opposite end can start communication.<br>Options:<br>• Disable: disable password authentication function.<br>• Enable: enable password authentication function.<br>Notes:<br>When password authentication is enabled, only users with administrator privileges can send / receive messages using this device.<br>• The first data sent by the opposite end to the device defaults to the authentication password.<br>• The authentication password is a hexadecimal data with 64 bytes. The first 32 bytes are the administrator account, fill with 0 if less than 32 bytes; the last 32 bytes are the administrator password, fill with 0 if less than 32 bytes.<br>• If the authentication password is entered incorrectly, the connection will be broken. After re-establishing the connection with the opposite end, you can re-enter the authentication password.<br>• Take the administrator whose account and password are "admin" as an example. The hexadecimal data corresponding to "admin" is "61 64 6D 69 6E", then the check code of the first and the last 32 bytes are "61 64 6D 69 6E 00 00 00

| Interface Element | Description |
|---|---|
| | • Enable<br>• Disable |
| Storage location | After the network is abnormal, the storage location of serial cache data can be selected as follows:<br>• Memory (128k)<br>• SD Card<br>Notes:<br>• Saving serial cache through SD card requires the device to support SD interface and install SD card. Some rack-mounted devices of this series support SD interface, which is subject to the actual device.<br>• After serial port cache is enabled, the storage location and SD card cache file size configuration are displayed. |
| SD card cache file size | The file size of serial port cache data is stored by SD card, and the value range is 1-32768MB. |
| Registration package type | The information sent after the device is connected to the peer client. Options:<br>• Disable: After the connection is successful, no information is sent to the peer client.<br>• Ipaddr: After the connection is successful, send the IP address of the device to the remote client.<br>• Devicename: After the connection is successful, send the devicename of the device to the remote client.<br>• Custom: Send custom content to the opposite client after successful connection. |
| Customize what to send | Send custom content to the opposite client after successful connection. Support HEX hexadecimal and ASCII character formats (optional).<br>Notes:<br>This item is displayed when the “Registration Package Type” is “Custom”. |
| Heartbeat Packet | Heartbeat packet enable drop-down list, the options are as follows:<br>• Enable: after the network heartbeat packet is enabled, the device periodically sends the specified content to the device at the opposite end.<br>• Disable: heartbeat packet is disabled by default. |
| Heartbeat Interval | The time interval for sending network heartbeat packet, the value range is 10-65535s. |


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| Interface Element | Description |
|---|---|
| | Notes:<br>This item is displayed when “Network heartbeat packet” is “Enabled”. |
| Heartbeat Content | Heartbeat packet content. Support HEX hexadecimal and ASCII character formats (optional).<br>Notes:<br>This item is displayed when “Network heartbeat packet” is “Enabled”. |
| Control connection | Select how the device initiates a connection request and disconnectsit. Options:<br>• Always/None<br>– Always: Immediately tries to establish a connection with the target host after the system is started and automatically reconnects the target host after the connection is disconnected.<br>– None: Never shut down the network connection automatically.<br>• Char/None<br>– Char: Automatically connects to the target host when receiving data from the serial port.<br>– None: Never shut down the network connection automatically.<br>• Char/Idel<br>– Char: Automatically connects to the target host when receiving data from the serial port.<br>– Idle: If the idle timeout time is greater than 0, the system will automatically shut down TCP connections that do not have any data send and receive activity for a specified period of time.<br>• DSR On/ DSR Off<br>– DSR On: Automatically connects to the target host when the DSR signal is detected.<br>– DCD Off: Automatically shuts down the network connection when the DCD signal is detected invalid.<br>• DSR On/ None<br>– DSR On: Automatically connects to the target host when the DSR signal is detected.<br>– None: Never shut down the network connection |


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| Interface Element | Description |
|---|---|
| | automatically.<br>• DCD On / DCD Off<br>– DCD On: Automatically connects to the target host when the DCD signal is detected.<br>– DCD Off: Automatically shuts down the network connection when the DCD signal is detected invalid.<br>• DCD On / None<br>– DCD On: Automatically connects to the target host when the DCD signal is detected.<br>– None: Never shut down the network connection automatically. |
| TCP Alive Check Time | If there isn't any TCP activity within schedule time, the system will automatically send connection detection message and check whether the TCP connection is valid. If the reply packet of opposite side hasn't been received after sending probe packet for 3 times, system will regard the opposite side as down and forwardly close the communication connection. |
| Inactivity time | Set the idle time of current data communication link of the device. If the idle time-out during communication is larger than 0, the system would close the TCP connection without any data transmission activity occurring in the specified time automatically. 0 means the free TCP connection would not be closed automatically. |
| **Advanced Settings** | **Advanced Settings Configuration Bar** |
| Packing mode | Serial port data packaging Ethernet data time, the options are as follows:<br>• Interval: after sending the last Ethernet packet for some time, the system packages the received serial port data into Ethernet packets and sends them out;<br>• Forced time: the system packages serial port data received within a specified time into Ethernet packets and transmit them. |
| Packet length | For the frame length of the serial data to Ethernet data, the data frame is forwarded within the set time range when it is greater than or equal to the set frame length, and the value |


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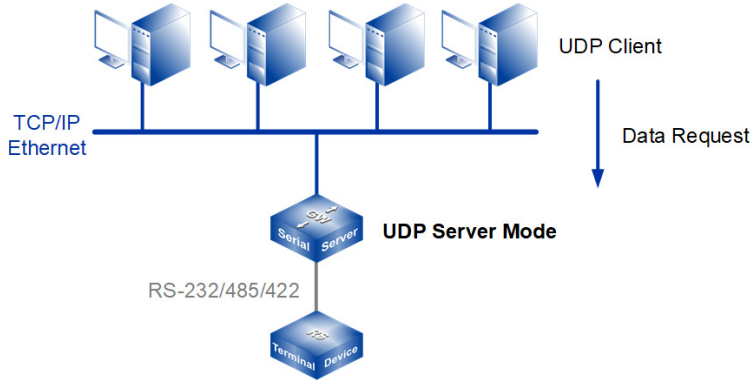
| Interface Element | Description |
|---|---|
| | ranges from 0 to 1024. It means no limit on data transmission length when it' set to 0.<br>Notes:<br>There are some slight deviations between the actual package length value and the set value. |
| Delimiter | Select the number of delimited characters, the options are as follows:<br>• Disable: disable delimiter function;<br>• 1: Enable Delimiter 1<br>• 2: enable Delimiter 2.<br>Notes:<br>If the packaging length or the forced transfer time is 0 and the number of delimited character is greater than 0, the system would detect and process the delimiter after receiving serial data. Every time it receives matched delimiter (or combination of characters), the system would send out all cached serial data via network. |
| Delimiter 1 | The Delimiter 1 is expressed in hexadecimal, value range is 00-FF. |
| Delimiter 2 | The Delimiter 2 is expressed in hexadecimal, value range is 00-FF. |
| Delimiter process | Select the delimiter processing method. Options:<br>• Retain: the system would send out the received delimiter and other data via network.<br>• Delimiter+1: the system transfers data after receiving a delimiter and an extra byte.<br>• Delimiter+2: the system transfers data after receiving a delimiter and 2 extra byte.<br>• Delete: the matched delimiter (or combination of delimiter) would be deleted. The system only transmits data except delimiter. |
| Force transmit | If the transmission time is greater than 0, the system sends the serial data received within the specified time through a packet, in the range of 0 to 65535 ms. When the transfer time is 0, it means that the data transmission interval is not restricted. |
| Apply to All Ports | Check the "Apply to all port" check box to apply the current settings to all serial ports. |

Notice

The inactivity time takes effect only when "Control Connection" is set to "Char/Idle".


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### 5.1.5 UDP Server Mode




Notes:

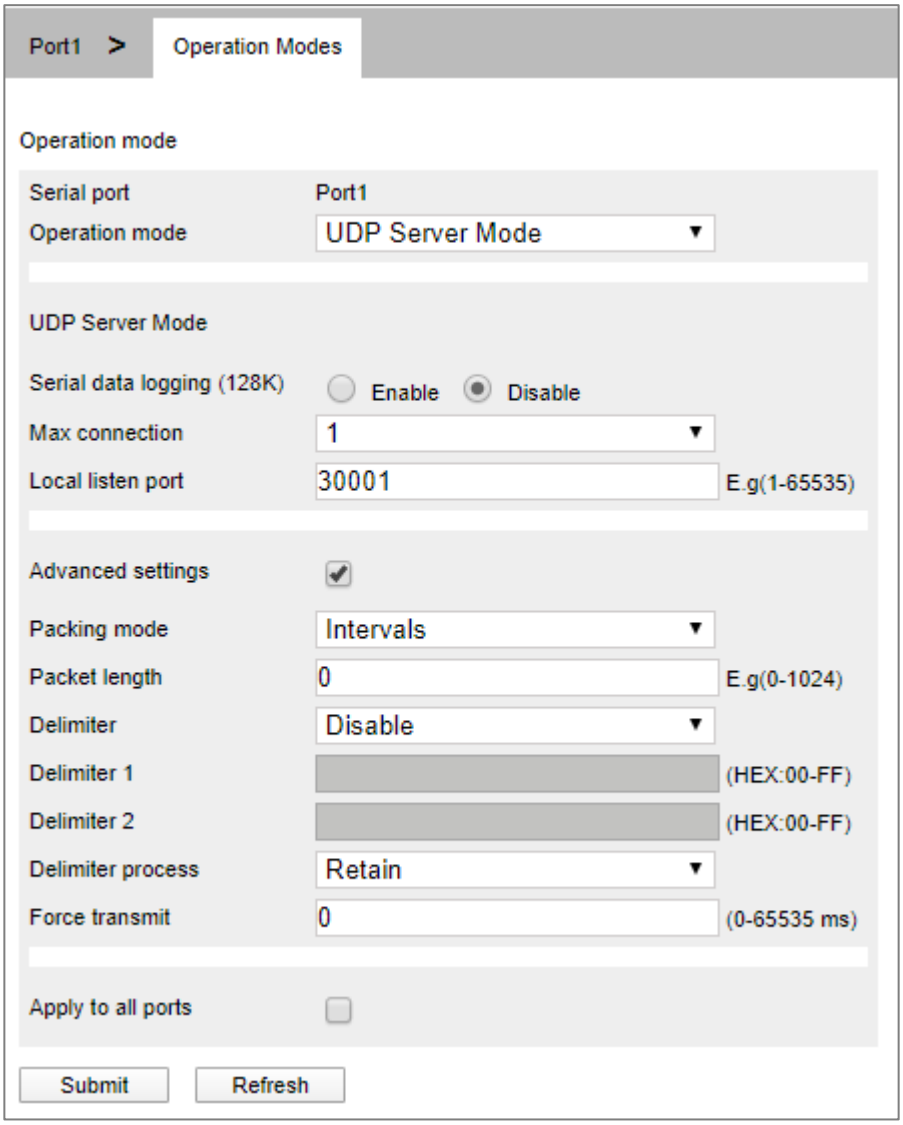
The device picture mentioned in above figure is only an example , and the actual appearance of the device and serial port type is subject to the device obtained.

In UDP mode, the device can be either a server or a client, and transmit serial data with the host designated by the user through UDP protocol. Devices in UDP mode can transmit data from serial devices to one or more hosts, and serial devices can also receive data from one or more hosts. Compared with TCP mode, UDP protocol is faster and more efficient.

#### Interface Description

TCP Server Mode interface is as follows:


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UDP Server Mode interface main element configuration instructions

| Interface Element | Description |
|---|---|
| **Operation mode** | **Working Mode Configuration Bar** |
| Serial port | Displays the serial number of the device currently configured. |
| Operation mode | The working modes of serial port of the device are as follows:<br>• RealCom Mode<br>• Reverse RealCom Mode<br>• TCP Server Mode<br>• TCP Client Mode<br>• UDP Server Mode<br>• UDP Client Mode<br>• UDP Rang Mode<br>• UDP Multicast Mode<br>• Pair Slave Mode<br>• Pair Master Mode |


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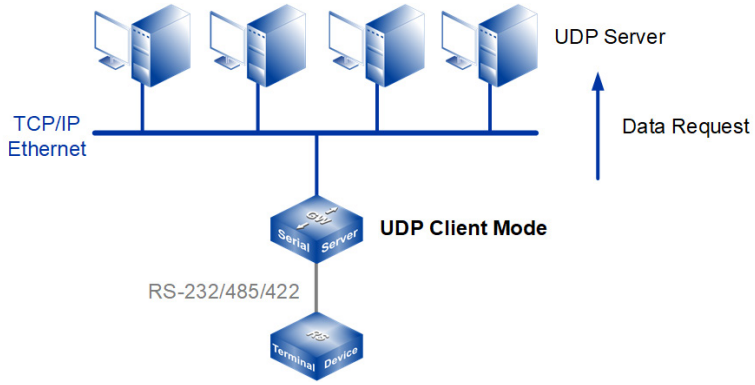
| Interface Element | Description |
|---|---|
| | • Telnet Mode<br>• Reverse Telnet Mode<br>• RFC2217 Mode<br>• Redundant COM Mode<br>• DRDAS RealCom Mode<br>• DRDAS TCP Server Mode<br>• SSH<br>• Reverse SSH<br>• Disable Mode |
| **UDP Server Mode** | **TCP Server Mode Configuration Bar** |
| Serial data logging (128K) | Serial data log enable, and the options are as follows:<br>• Enable: after enabling it, the log page will be displayed to monitor serial communication data, and the log can display up to 128K serial data.<br>• Disable: the serial port data log is disabled by default. |
| Max connection | The number of host that one serial port has session with.<br>• Each host communicates with serial port in the order of first-in first-out;<br>• The system supports up to 8 sessions. |
| Local listen port | The network receives the listening port of UDP data. The user must assign a unique listening port to each serial port so that the system can normally receive UDP data. |
| **Advanced Settings** | **Advanced Settings Configuration Bar** |
| Packing mode | Serial port data packaging Ethernet data time, the options are as follows:<br>• Interval: after sending the last Ethernet packet for some time, the system packages the received serial port data into Ethernet packets and sends them out;<br>• Forced time: the system packages serial port data received within a specified time into Ethernet packets and transmit them. |
| Packing length | For the frame length of the serial data to Ethernet data, the data frame is forwarded within the set time range when it is greater than or equal to the set frame length, and the value ranges from 0 to 1024. It means no limit on data transmission length when it' set to 0. |


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| Interface Element | Description |
|---|---|
| | Notes:<br><br>There are some slight deviations between the actual package<br><br>length value and the set value. |
| Delimiter | Select the number of delimited characters, the options are as follows:<br>• Disable: disable delimiter function;<br>• 1: Enable Delimiter 1<br>• 2: enable Delimiter 2.<br>Notes:<br>If the packaging length or the forced transfer time is 0 and the number of delimited character is greater than 0, the system would detect and process the delimiter after receiving serial data. Every time it receives matched delimiter (or combination of characters), the system would send out all cached serial data via network. |
| Delimiter 1 | The Delimiter 1 is expressed in hexadecimal, value range is 00-FF. |
| Delimiter 2 | The Delimiter 2 is expressed in hexadecimal, value range is 00-FF. |
| Delimiter process | Select the delimiter processing method. Options:<br>• Retain: the system would send out the received delimiter and other data via network.<br>• Delimiter+1: the system transfers data after receiving a delimiter and an extra byte.<br>• Delimiter+2: the system transfers data after receiving a delimiter and 2 extra byte.<br>• Delete: the matched delimiter (or combination of delimiter) would be deleted. The system only transmits data except delimiter. |
| Force transmit | If the transmission time is greater than 0, the system sends the serial data received within the specified time through a packet, in the range of 0 to 65535 ms. When the transfer time is 0, it means that the data transmission interval is not restricted. |
| Apply to All Ports | Check the “Apply to all port” check box to apply the current settings to all serial ports. |


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## 5.1.6 UDP Client Mode




Notes:

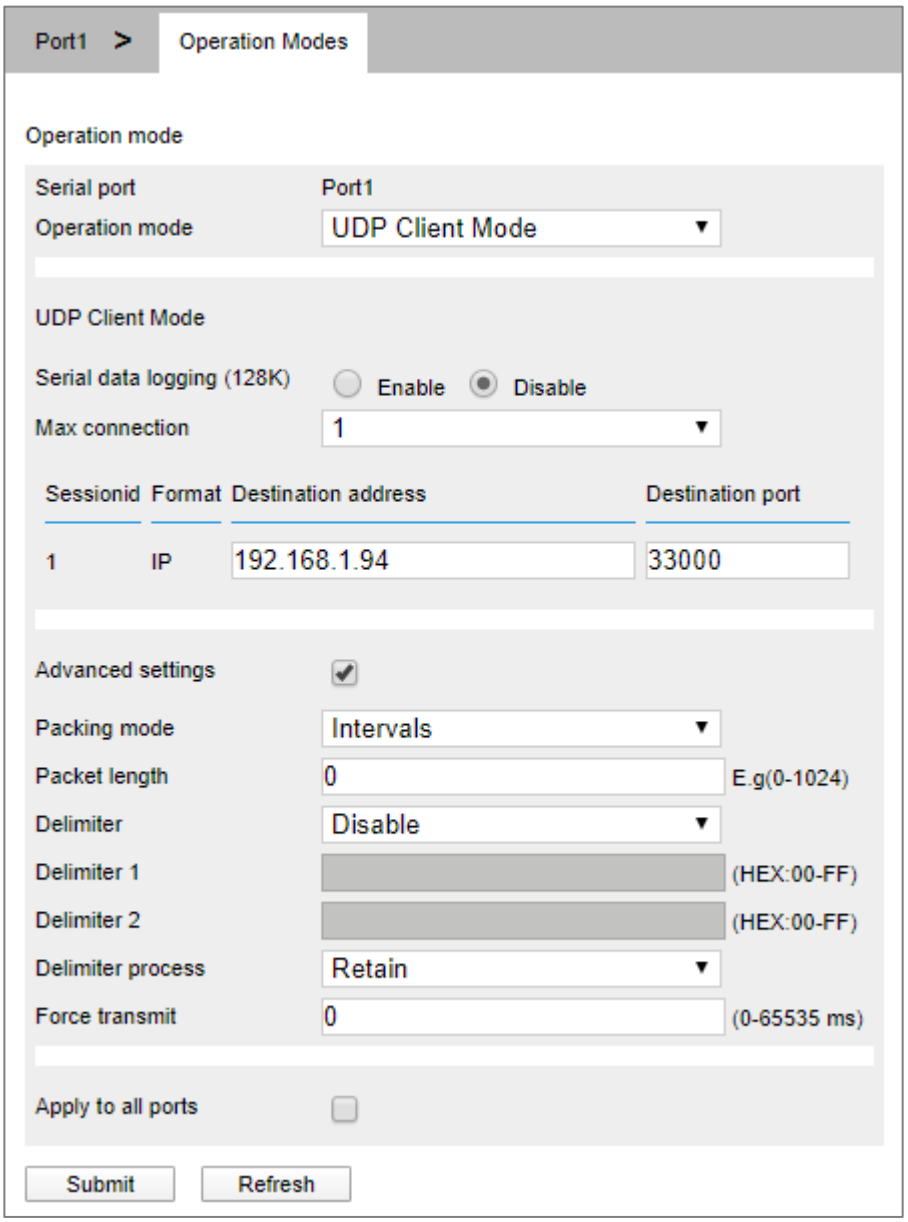
The device picture mentioned in above figure is only an example, and the actual appearance of the device and serial port type is subject to the device obtained.

In UDP mode, the device can be either a server or a client, and transmit serial data with the host designated by the user through UDP protocol. Devices in UDP mode can transmit data from serial devices to one or more hosts, and serial devices can also receive data from one or more hosts. Compared with TCP mode, UDP protocol is faster and more efficient.

### Interface Description

UDP Client Mode interface is as follows:


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UDP Client Mode interface main element configuration instructions:

| Interface Element | Description |
|---|---|
| **Operation mode** | **Working Mode Configuration Bar** |
| Serial port | Displays the serial number of the device currently configured. |
| Operation mode | The working modes of serial port of the device are as follows:<br>• RealCom Mode<br>• Reverse RealCom Mode<br>• TCP Server Mode<br>• TCP Client Mode<br>• UDP Server Mode<br>• UDP Client Mode<br>• UDP Rang Mode<br>• UDP Multicast Mode |


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| Interface Element | Description |
|---|---|
| | • Pair Slave Mode<br>• Pair Master Mode<br>• Telnet Mode<br>• Reverse Telnet Mode<br>• RFC2217 Mode<br>• Redundant COM Mode<br>• DRDAS RealCom Mode<br>• DRDAS TCP Server Mode<br>• SSH<br>• Reverse SSH<br>• Disable Mode |
| **UDP Client Mode** | **UDP Client Mode Configuration Bar** |
| Serial data logging (128K) | Serial data log enable, and the options are as follows:<br>• Enable: after enabling it, the log page will be displayed to monitor serial communication data, and the log can display up to 128K serial data.<br>• Disable: the serial port data log is disabled by default. |
| Max connection | The number of host that one serial port has session with.<br>• Each host communicates with serial port in the order of first-in first-out;<br>• The system supports up to 8 sessions. |
| Session id | The sessions corresponds to the maximum number of connections. |
| Format | Destination address format. |
| Destination IP addresses. | Enter the IPv4 or IPv6 address of the server to which the device is connected. |
| Destination Port | Enter the UDP port number of the server to which the device is connected. |
| **Advanced Settings** | **Advanced Settings Configuration Bar** |
| Packing mode | Serial port data packaging Ethernet data time, the options are as follows:<br>• Interval: after sending the last Ethernet packet for some time, the system packages the received serial port data into Ethernet packets and sends them out;<br>• Forced time: the system packages serial port data received within a specified time into Ethernet packets and transmit them. |

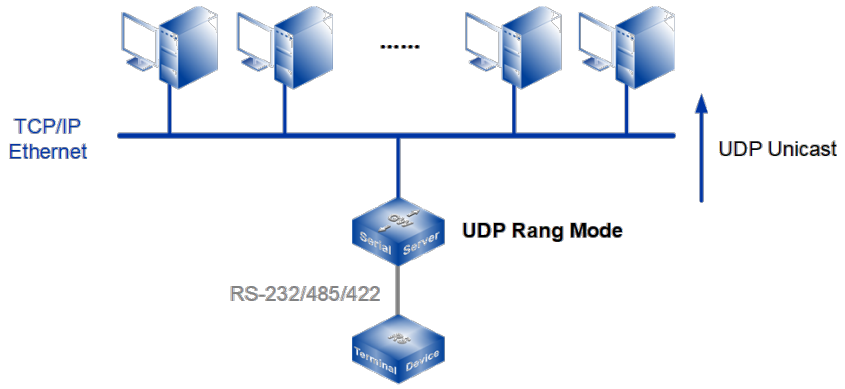

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| Interface Element | Description |
|---|---|
| Packing length | The frame length of serial data to Ethernet data. In the set time range, the data forwards when it is greater than or equals to the set frame length. The value range is 0~1460. It means no limit on data transmission length when it' set to 0.<br>Notes:<br>There are some slight deviations between the actual package length value and the set value. |
| Delimiter | Select the number of delimited characters, the options are as follows:<br>• Disable: disable delimiter function;<br>• 1: Enable Delimiter 1<br>• 2: enable Delimiter 2.<br>Notes:<br>If the packaging length or the forced transfer time is 0 and the number of delimited character is greater than 0, the system would detect and process the delimiter after receiving serial data. Every time it receives matched delimiter (or combination of characters), the system would send out all cached serial data via network. |
| Delimiter 1 | The Delimiter 1 is expressed in hexadecimal, value range is 00-FF. |
| Delimiter 2 | The Delimiter 2 is expressed in hexadecimal, value range is 00-FF. |
| Delimiter process | Select the delimiter processing method. Options:<br>• Retain: the system would send out the received delimiter and other data via network.<br>• Delimiter+1: the system transfers data after receiving a delimiter and an extra byte.<br>• Delimiter+2: the system transfers data after receiving a delimiter and 2 extra byte.<br>• Delete: the matched delimiter (or combination of delimiter) would be deleted. The system only transmits data except delimiter. |
| Force transmit | If the transmission time is greater than 0, the system sends the serial data received within the specified time through a packet, in the range of 0 to 65535 ms. When the transfer time is 0, it means that the data transmission interval is not restricted. |


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| Interface Element | Description |
| --- | --- |
| Apply to all port | Check the “Apply to all port” check box to apply the current settings to all serial ports. |

## 5.1.7 UDP Rang Mode




Notes:

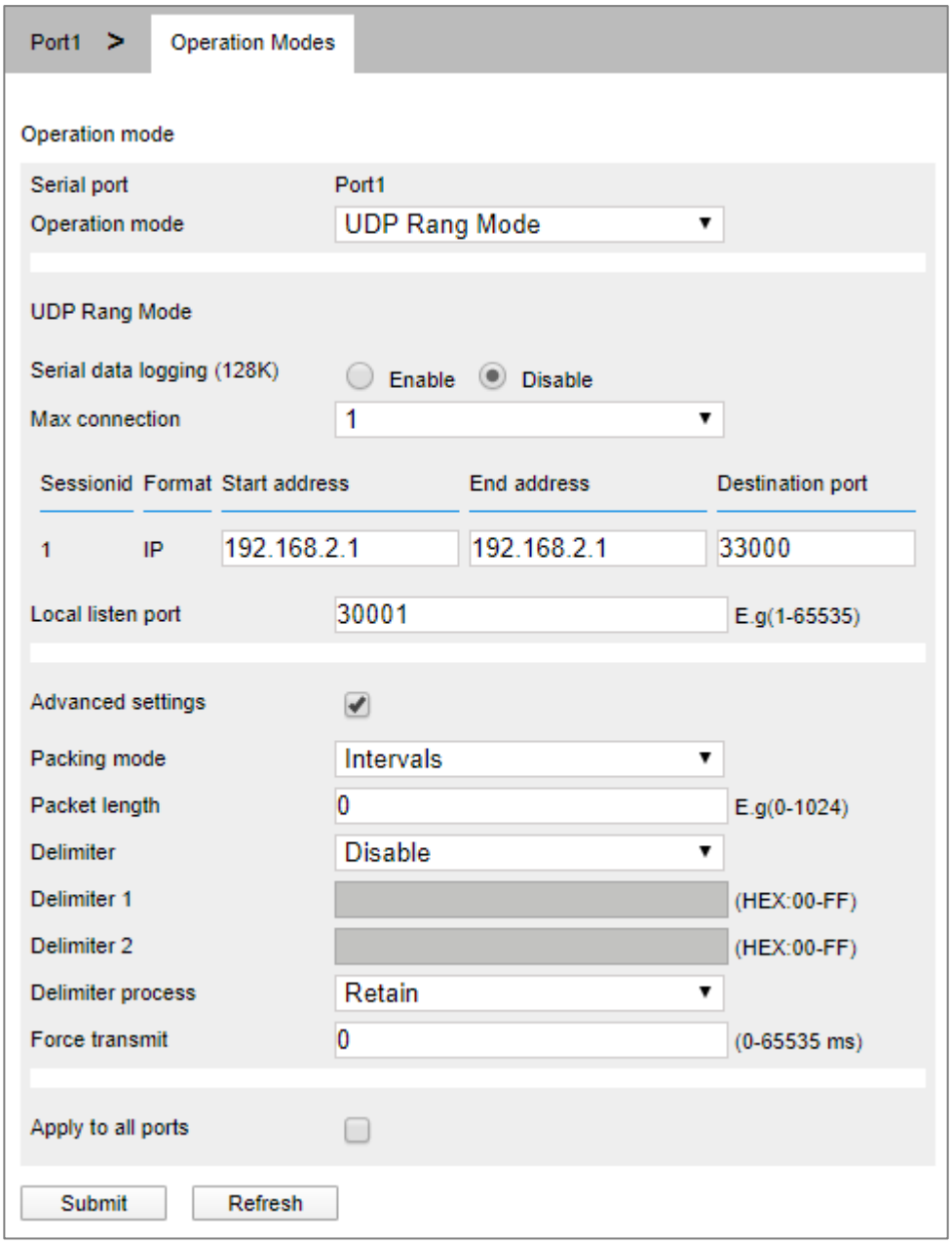
The device picture mentioned in above figure is only an example, and the actual appearance of the device and serial port type is subject to the device obtained.

When routers, switches and other devices do not support multicast, they can work in UDP segment mode to realize multicast function. In this mode, the device transmits serial data with multiple hosts in the same network segment designated by the user through UDP protocol, which can realize point-to-many data communication. UDP port mode serial device can also receive data from one or more hosts.

### Interface Description

UDP Rang Mode interface as follows:


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UDP Rang Mode interface main element configuration instructions:

| Interface Element | Description |
|---|---|
| **Operation mode** | **Working Mode Configuration Bar** |
| Serial port | Displays the serial number of the device currently configured. |
| Operation mode | The working modes of serial port of the device are as follows:<br>• RealCom Mode<br>• Reverse RealCom Mode<br>• TCP Server Mode<br>• TCP Client Mode<br>• UDP Server Mode<br>• UDP Client Mode |


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| Interface Element | Description |
|---|---|
| | • UDP Rang Mode<br>• UDP Multicast Mode<br>• Pair Slave Mode<br>• Pair Master Mode<br>• Telnet Mode<br>• Reverse Telnet Mode<br>• RFC2217 Mode<br>• Redundant COM Mode<br>• DRDAS RealCom Mode<br>• DRDAS TCP Server Mode<br>• SSH<br>• Reverse SSH<br>• Disable Mode |
| **UDP Rang Mode** | **UDP Rang Mode Configuration Bar** |
| Serial data logging (128K) | Serial data log enable, and the options are as follows:<br>• Enable: after enabling it, the log page will be displayed to monitor serial communication data, and the log can display up to 128K serial data.<br>• Disable: the serial port data log is disabled by default. |
| Max connection | The number of host that one serial port has session with.<br>• Each host communicates with serial port in the order of first-in first-out;<br>• The system supports up to 8 sessions. |
| Session id | The sessions corresponds to the maximum number of connections. |
| Format | Destination address format. |
| Start Address | Enter the start IPv4 or IPv6 address of the UDP rang destination address. |
| End address | Enter the end IPv4 or IPv6 address of the UDP rang destination address. |
| Destination Port | Enter the port number of the opposite host that the device needs to be connected to. |
| Local listen port | The network receives the listening port of UDP data. The user must assign a unique listening port to each serial port so that the system can normally receive UDP data. |
| **Advanced Settings** | **Advanced Settings Configuration Bar** |

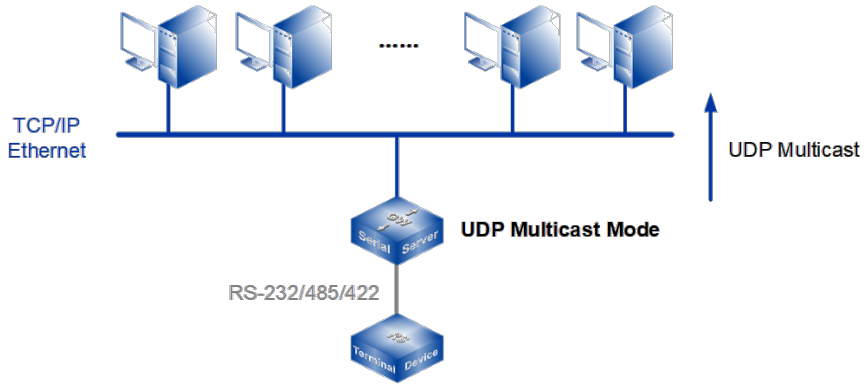

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| Interface Element | Description |
|---|---|
| Packing mode | Serial port data packaging Ethernet data time, the options are as follows:<br>• Interval: after sending the last Ethernet packet for some time, the system packages the received serial port data into Ethernet packets and sends them out;<br>• Forced time: the system packages serial port data received within a specified time into Ethernet packets and transmit them. |
| Packing length | For the frame length of the serial data to Ethernet data, the data frame is forwarded within the set time range when it is greater than or equal to the set frame length, and the value ranges from 0 to 1024. It means no limit on data transmission length when it' set to 0.<br>Notes:<br>There are some slight deviations between the actual package length value and the set value. |
| Delimiter | Select the number of delimited characters, the options are as follows:<br>• Disable: disable delimiter function;<br>• 1: Enable Delimiter 1<br>• 2: enable Delimiter 2.<br>Notes:<br>If the packaging length or the forced transfer time is 0 and the number of delimited character is greater than 0, the system would detect and process the delimiter after receiving serial data. Every time it receives matched delimiter (or combination of characters), the system would send out all cached serial data via network. |
| Delimiter 1 | The Delimiter 1 is expressed in hexadecimal, value range is 00-FF. |
| Delimiter 2 | The Delimiter 2 is expressed in hexadecimal, value range is 00-FF. |
| Delimiter process | Select the delimiter processing method. Options:<br>• Retain: the system would send out the received delimiter and other data via network.<br>• Delimiter+1: the system transfers data after receiving a delimiter and an extra byte.<br>• Delimiter+2: the system transfers data after receiving a delimiter and 2 extra byte.<br>• Delete: the matched delimiter (or combination of delimiter) would be deleted. The system only transmits |


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| Interface Element | Description |
|---|---|
| | data except delimiter. |
| Force transmit | If the transmission time is greater than 0, the system sends the serial data received within the specified time through a packet, in the range of 0 to 65535 ms. When the transfer time is 0, it means that the data transmission interval is not restricted. |
| Apply to All Ports | Check the “Apply to all port” check box to apply the current settings to all serial ports. |

## 5.1.8 UDP Multicast Mode




Notes:

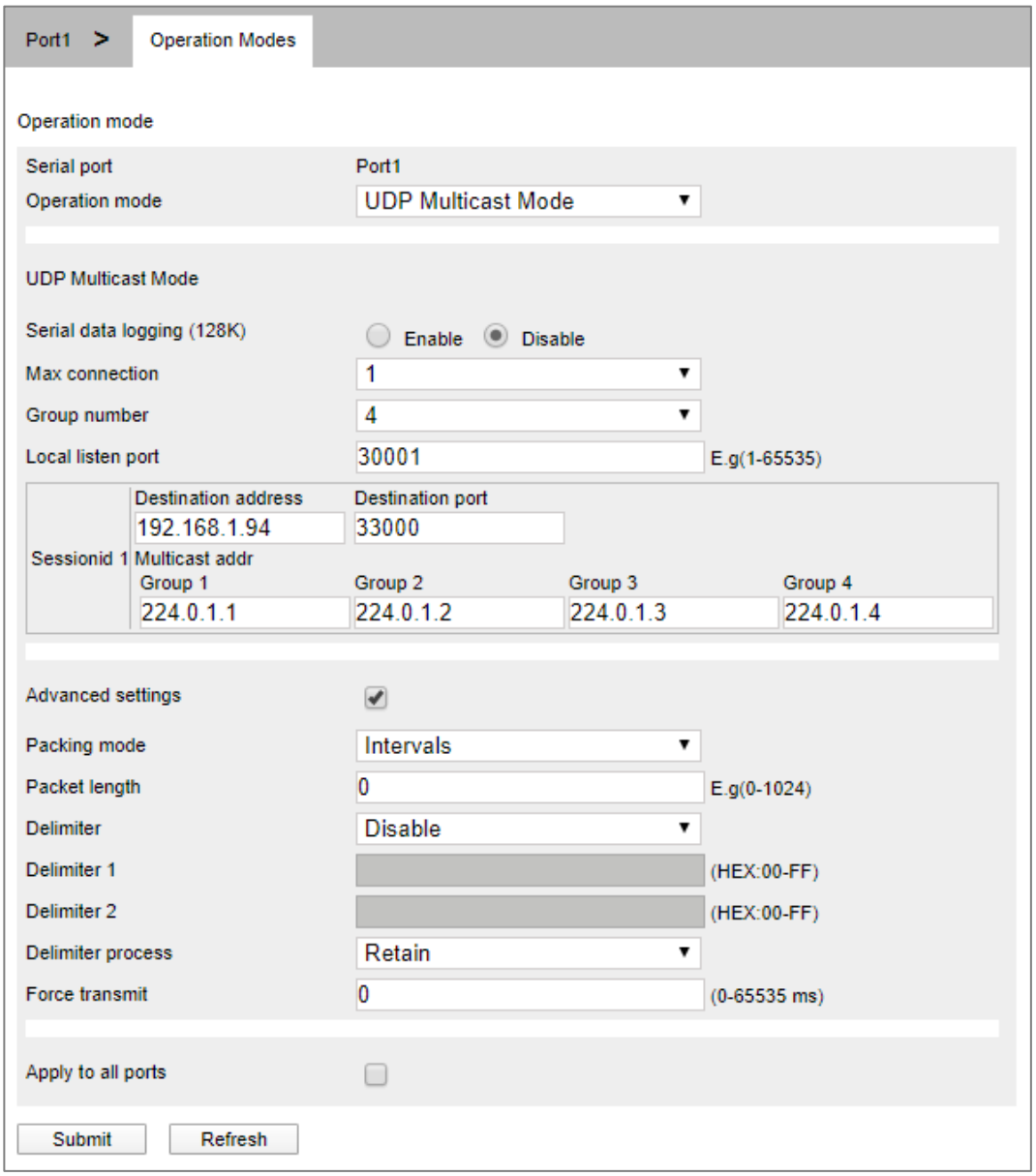
The device picture mentioned in above figure is only an example, and the actual appearance of the device and serial port type is subject to the device obtained.

Under UDP multicast mode, devices can unicast or multicast the data of serial devices to one or more hosts designated by users through UDP protocol, and can also receive unicast and multicast data from one or more devices, thus realizing many-to-many communication.

### Interface Description

UDP Multicast Mode interface as follows:


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UDP Multicast Mode interface main element configuration instructions:

| Interface Element | Description |
|---|---|
| **Operation mode** | **Working Mode Configuration Bar** |
| Serial port | Displays the serial number of the device currently configured. |
| Operation mode | The working modes of serial port of the device are as follows:<br>• RealCom Mode<br>• Reverse RealCom Mode<br>• TCP Server Mode<br>• TCP Client Mode<br>• UDP Server Mode<br>• UDP Client Mode |


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| Interface Element | Description |
|---|---|
| | • UDP Rang Mode<br>• UDP Multicast Mode<br>• Pair Slave Mode<br>• Pair Master Mode<br>• Telnet Mode<br>• Reverse Telnet Mode<br>• RFC2217 Mode<br>• Redundant COM Mode<br>• DRDAS RealCom Mode<br>• DRDAS TCP Server Mode<br>• SSH<br>• Reverse SSH<br>• Disable Mode |
| **UDP Multicast Mode** | **UDP Multicast Mode Configuration Bar** |
| Serial data logging (128K) | Serial data log enable, and the options are as follows:<br>• Enable: after enabling it, the log page will be displayed to monitor serial communication data, and the log can display up to 128K serial data.<br>• Disable: the serial port data log is disabled by default. |
| Max connection | The number of host that one serial port has session with.<br>• Each host communicates with serial port in the order of first-in first-out;<br>• The system supports up to 8 sessions. |
| Multicast Number | Select the number of multicast groups and support up to four multicast groups. |
| Local listen port | The network receives the listening port of UDP data. The user must assign a unique listening port to each serial port so that the system can normally receive UDP data. |
| Destination IP addresses. | Enter the IPv4 or IPv6 address of the opposite host that the device needs to be connected to. |
| Destination Port | Enter the port number of the opposite host that the device needs to be connected to. |
| Multicast address | Multicast address is used to identify an IPv4 or IPv6 multicast group. The range of IPv4 multicast address is: 224.0.0 ~ 239.255.255.255; The address prefix of IPv6 multicast address is FF02::/16. The device can send or receive group data to or from multiple hosts.<br>Notice: |

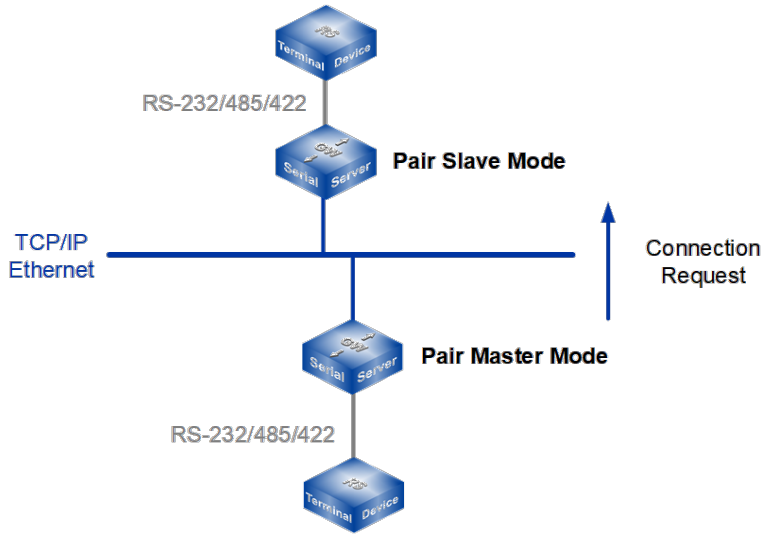

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| Interface Element | Description |
|---|---|
| | Avoid public multicast addresses when using IPv6 multicast addresses, such as FF02::1, FF02::2, FF02::5, FF02::9 and other public multicast addresses. |
| **Advanced Settings** | **Advanced Settings Configuration Bar** |
| Packing mode | Serial port data packaging Ethernet data time, the options are as follows:<br>• Interval: after sending the last Ethernet packet for some time, the system packages the received serial port data into Ethernet packets and sends them out;<br>• Forced time: the system packages serial port data received within a specified time into Ethernet packets and transmit them. |
| Packing length | For the frame length of the serial data to Ethernet data, the data frame is forwarded within the set time range when it is greater than or equal to the set frame length, and the value ranges from 0 to 1024. It means no limit on data transmission length when it' set to 0.<br>Notes:<br>There are some slight deviations between the actual package length value and the set value. |
| Delimiter | Select the number of delimited characters, the options are as follows:<br>• Disable: disable delimiter function;<br>• 1: Enable Delimiter 1<br>• 2: enable Delimiter 2.<br>Notes:<br>If the packaging length or the forced transfer time is 0 and the number of delimited character is greater than 0, the system would detect and process the delimiter after receiving serial data. Every time it receives matched delimiter (or combination of characters), the system would send out all cached serial data via network. |
| Delimiter 1 | The Delimiter 1 is expressed in hexadecimal, value range is 00-FF. |
| Delimiter 2 | The Delimiter 2 is expressed in hexadecimal, value range is 00-FF. |
| Delimiter process | Select the delimiter processing method. Options:<br>• Retain: the system would send out the received delimiter and other data via network.<br>• Delimiter+1: the system transfers data after receiving a delimiter and an extra byte. |


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| Interface Element | Description |
|---|---|
| | • Delimiter+2: the system transfers data after receiving a delimiter and 2 extra byte.<br>• Delete: the matched delimiter (or combination of delimiter) would be deleted. The system only transmits data except delimiter. |
| Force transmit | If the transmission time is greater than 0, the system sends the serial data received within the specified time through a packet, in the range of 0 to 65535 ms. When the transfer time is 0, it means that the data transmission interval is not restricted. |
| Apply to All Ports | Check the “Apply to all port” check box to apply the current settings to all serial ports. |

## 5.1.9 Pair Slave Mode




Notes:

The device picture mentioned in above figure is only an example, and the actual appearance of the device and serial port type is subject to the device obtained.

Pair Slave mode requires two devices to work together to break through the data transmission distance limit of serial port. In this mode, two devices establish network connection with each other through Ethernet, and transparently transmit data from their respective serial ports to each other.

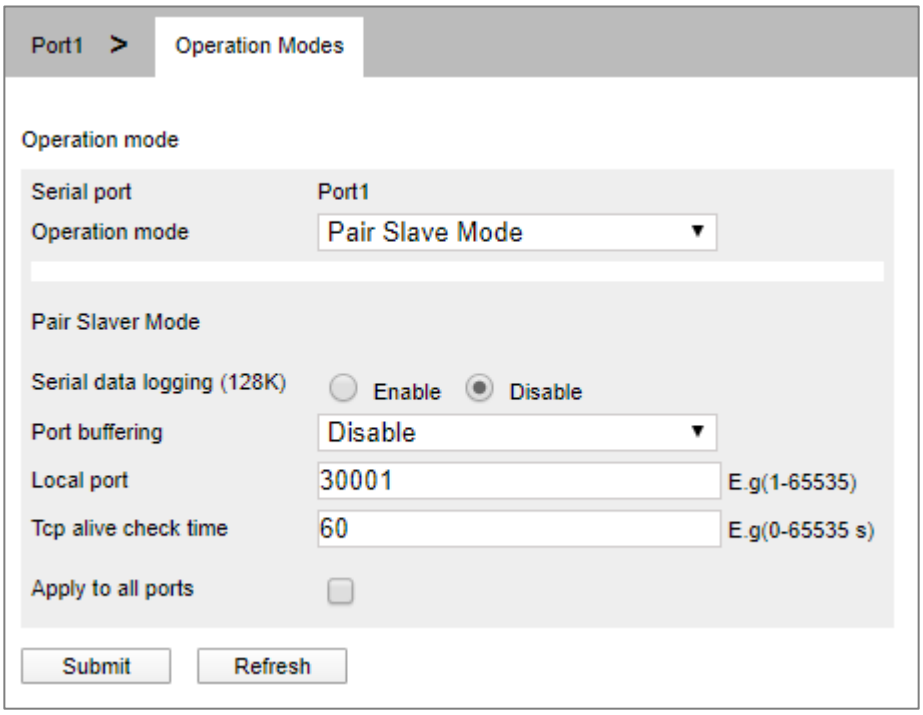
A device in Pair Slave mode works as the slave, which is in passive mode, listening to a user-specified port and passively waiting for connection; the other device is the


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Master, which is in active mode. It actively connects the devices in passive Pair Slave mode according to the IP address and port set by the user. Its destination address is the IP address of Slave and its destination port is the listening port of Slave.

## Interface Description

Pair Slave Mode interface as follows:




Pair Slave Mode interface main element configuration instructions:

| Interface Element | Description |
|---|---|
| **Operation mode** | **Working Mode Configuration Bar** |
| Serial port | Displays the serial number of the device currently configured. |
| Operation mode | The working modes of serial port of the device are as follows:<br>• RealCom Mode<br>• Reverse RealCom Mode<br>• TCP Server Mode<br>• TCP Client Mode<br>• UDP Server Mode<br>• UDP Client Mode<br>• UDP Rang Mode<br>• UDP Multicast Mode<br>• Pair Slave Mode<br>• Pair Master Mode<br>• Telnet Mode<br>• Reverse Telnet Mode<br>• RFC2217 Mode |


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| Interface Element | Description |
|---|---|
| | • Redundant COM Mode<br>• DRDAS RealCom Mode<br>• DRDAS TCP Server Mode<br>• SSH<br>• Reverse SSH<br>• Disable Mode |
| **Pair Slaver Mode** | **Pair Slave Mode Configuration Bar** |
| Serial data logging (128K) | Serial data log enable, and the options are as follows:<br>• Enable: after enabling it, the log page will be displayed to monitor serial communication data, and the log can display up to 128K serial data.<br>• Disable: the serial port data log is disabled by default. |
| Port buffering | Port data cache, which can cache serial port data after the network is abnormal. When the network returns to normal, the cached data is forwarded. The tick options are as follows:<br>• Enable<br>• Disable |
| Storage location | After the network is abnormal, the storage location of serial cache data can be selected as follows:<br>• Memory (128k)<br>• SD Card<br>Notes:<br>• Saving serial cache through SD card requires the device to support SD interface and install SD card. Some rack-mounted devices of this series support SD interface, which is subject to the actual device.<br>• After serial cache is enabled, the storage location and SD card cache file size configuration are displayed. |
| SD card cache file size | The file size of serial port cache data is stored by SD card, and the value range is 1-32768MB. |
| Local port | Applied to the pair salve mode, that is, the destination port of the pair master mode device. |
| TCP Alive Check Time | The device sends a heartbeat packet by setting the time interval. If the device sends a heartbeat packet three times without receiving a response, the existing connection is disconnected. If set TCP Alive Time to "0", the function will be disabled. |


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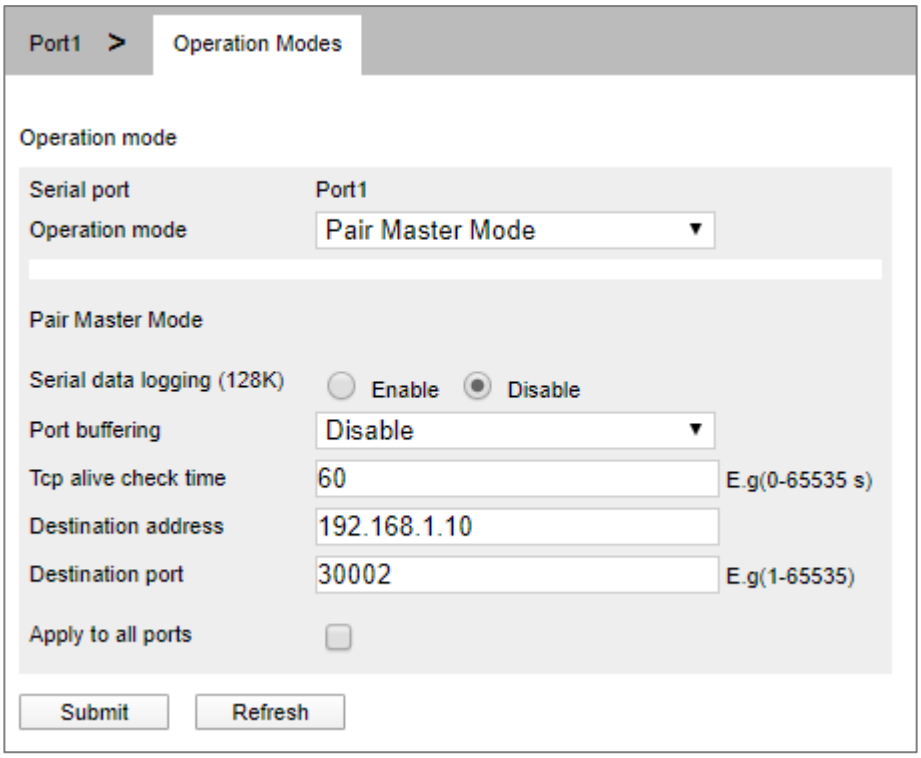
| Interface Element | Description |
|---|---|
| Apply to All Ports | Check the “Apply to all port” check box to apply the current settings to all serial ports. |

## 5.1.10 Pair Master Mode

Refer to the previous section on Pair Slave Mode.

### Interface Description

Pair Master Mode interface as follows:




Pair Master Mode interface main element configuration instructions:

| Interface Element | Description |
|---|---|
| **Operation mode** | **Working Mode Configuration Bar** |
| Serial port | Displays the serial number of the device currently configured. |
| Operation mode | The working modes of serial port of the device are as follows:<br>• RealCom Mode<br>• Reverse RealCom Mode<br>• TCP Server Mode<br>• TCP Client Mode<br>• UDP Server Mode<br>• UDP Client Mode |

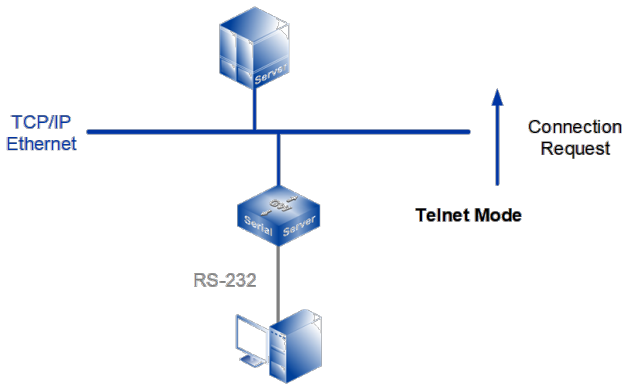

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| Interface Element | Description |
|---|---|
| | • UDP Rang Mode<br>• UDP Multicast Mode<br>• Pair Slave Mode<br>• Pair Master Mode<br>• Telnet Mode<br>• Reverse Telnet Mode<br>• RFC2217 Mode<br>• Redundant COM Mode<br>• DRDAS RealCom Mode<br>• DRDAS TCP Server Mode<br>• SSH<br>• Reverse SSH<br>• Disable Mode |
| **Pair Master Mode** | **Pair Master Mode Configuration Bar** |
| Serial data logging (128K) | Serial data log enable, and the options are as follows:<br>• Enable: after enabling it, the log page will be displayed to monitor serial communication data, and the log can display up to 128K serial data.<br>• Disable: the serial port data log is disabled by default. |
| Port buffering | Port data cache, which can cache serial port data after the network is abnormal. When the network returns to normal, the cached data is forwarded. The tick options are as follows:<br>• Enable<br>• Disable |
| Storage location | After the network is abnormal, the storage location of serial cache data can be selected as follows:<br>• Memory (128k)<br>• SD Card<br>Notes:<br>• Saving serial cache through SD card requires the device to support SD interface and install SD card. Some rack-mounted devices of this series support SD interface, which is subject to the actual device.<br>• After serial cache is enabled, the storage location and SD card cache file size configuration are displayed. |
| SD card cache file size | The file size of serial port cache data is stored by SD card, and the value range is 1-32768MB. |
| TCP Alive Check | The device sends a heartbeat packet by setting the time |


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| Interface Element | Description |
|---|---|
| Time | interval. If the device sends a heartbeat packet three times without receiving a response, the existing connection is disconnected. If set TCP Alive Time to "0", the function will be disabled. |
| Destination IP addresses. | Applied to the pair master mode, that is, the IPv4 or IPv6 address of the pair slave mode device. |
| Destination Port | Applied to the pair master mode, that is, the listen port of the pair slave mode device. |
| Apply to All Ports | Check the “Apply to all port” check box to apply the current settings to all serial ports. |

## 5.1.11 Telnet Mode




Notes:

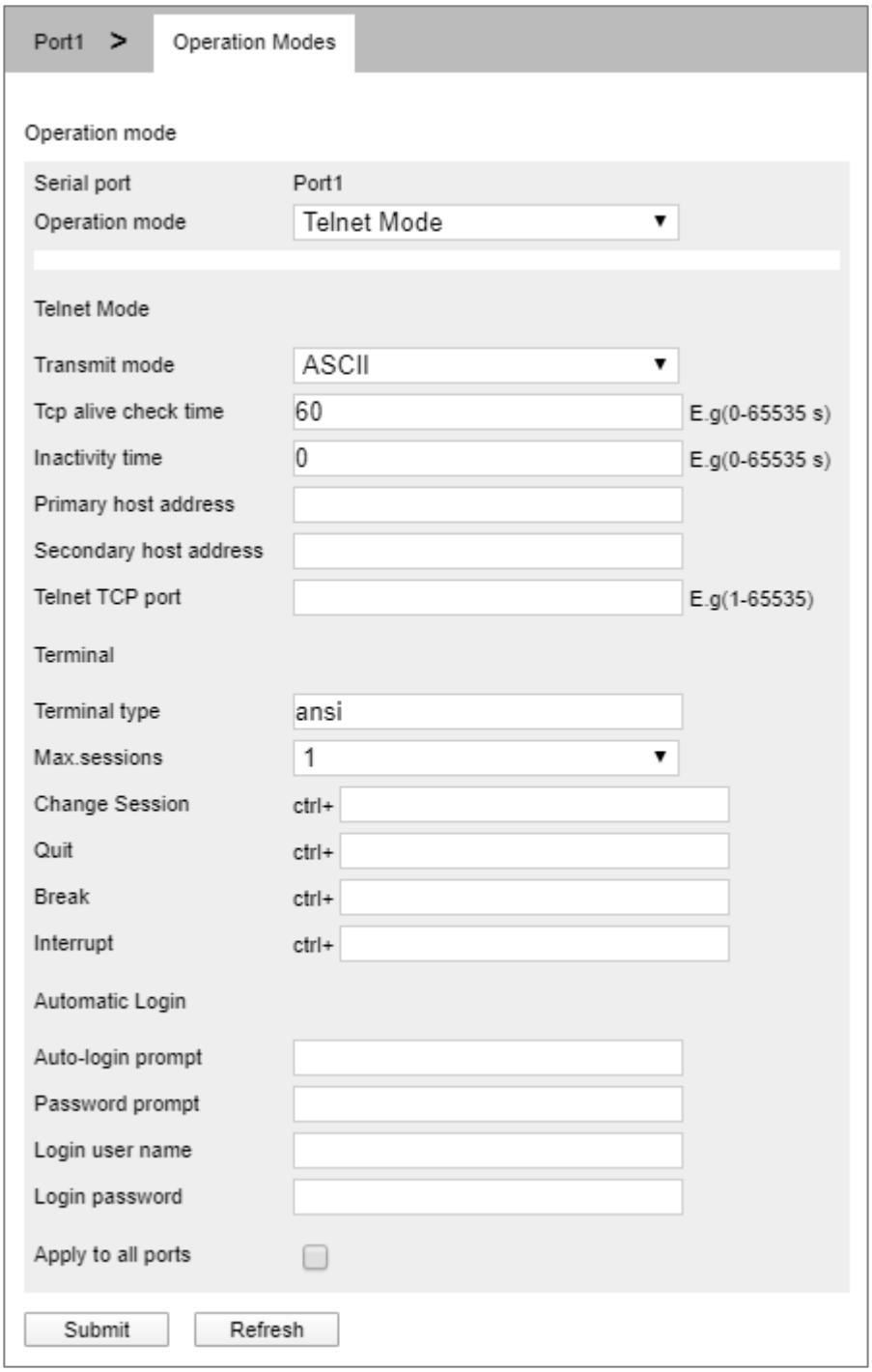
The device picture mentioned in above figure is only an example, and the actual appearance of the device and serial port type is subject to the device obtained.

In Telnet mode, the device can connect serial terminal device and Ethernet transmission server device, realizing RS-232 terminal device to access the server through Telnet. The Ethernet server device needs to support the Telnet server function, and the device can automatically initiate access connection as a Telnet client. After establishing the connection, the serial terminal device can communicate with the server directly.

### Interface Description

The interface of Telnet Mode is as follows:


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Main element configuration instructions in Telnet Mode interface

| Interface Element | Description |
|---|---|
| **Operation mode** | **Working Mode Configuration Bar** |
| Serial port | Displays the serial number of the device currently configured. |
| Operation mode | The working modes of serial port of the device are as follows:<br>• RealCom Mode |

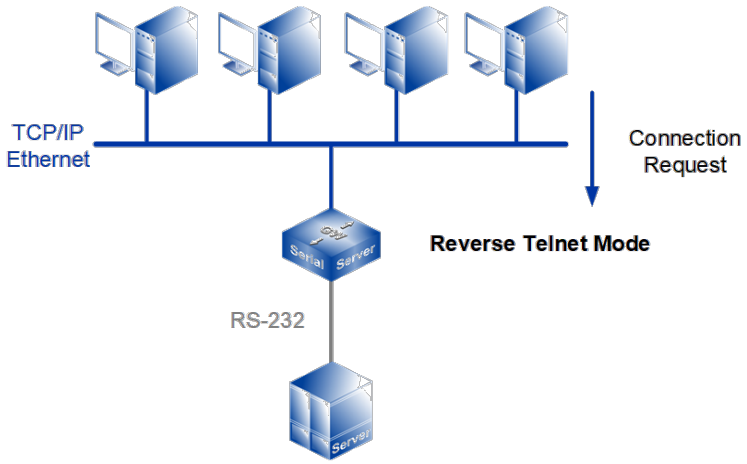

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| Interface Element | Description |
|---|---|
| | • Reverse RealCom Mode<br>• TCP Server Mode<br>• TCP Client Mode<br>• UDP Server Mode<br>• UDP Client Mode<br>• UDP Rang Mode<br>• UDP Multicast Mode<br>• Pair Slave Mode<br>• Pair Master Mode<br>• Telnet Mode<br>• Reverse Telnet Mode<br>• RFC2217 Mode<br>• Redundant COM Mode<br>• DRDAS RealCom Mode<br>• DRDAS TCP Server Mode<br>• SSH<br>• Reverse SSH<br>• Disable Mode |
| **Telnet Mode** | **RealCom Mode configuration bar** |
| Transmit mode | Terminal data transmission mode, options are as follows:<br>• ASCII: ASCII code general session mode.<br>• BINARY: binary transmission mode, which can use ZMODEM protocol to transmit files. |
| TCP Alive Check Time | The device sends a heartbeat packet by setting the time interval. If the device sends a heartbeat packet three times without receiving a response, the existing connection is disconnected. If set TCP Alive Time to "0", the function will be disabled. |
| Inactivity time | Set the idle time of current data communication link of the device. If the idle time-out during communication is larger than 0, the system would close the TCP connection without any data transmission activity occurring in the specified time automatically. 0 means the free TCP connection would not be closed automatically. |
| Primary host address | IP address of the main Telnet server device. |
| Secondary host address | IP address of the backup Telnet server device. |
| Telnet TCP port | The port number of the Telnet server device. The Telnet |


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| Interface Element | Description |
|---|---|
| | protocol default port is 23. |
| Terminal | Terminal type, the default is ansi. Some older terminals may require the transmission of the terminal type before the connection is established, so it is necessary to refer to the documentation of the server to determine the appropriate terminal type. For most terminals, this setting is unnecessary and will not have any impact. |
| Max sessions | The maximum number of sessions allowed by serial port, ranging from 1 to 8. |
| Change session | This field defines the shortcut key for changing the session. |
| Quit | This field defines the shortcut key for exiting the session, which is used to disconnect the link between the current terminal session and the remote host. |
| Break | This field defines the shortcut key for sending an interrupt signal. |
| Interrupt | This field defines the shortcut key for program termination. |
| Auto-login prompt | Prompting character for Telnet server username input. |
| Password prompt | Prompting character for Telnet server password input. |
| Login user name | Username for logging into the Telnet server. |
| Login password | Password for logging into the Telnet server. |
| Apply to All Ports | Check the “Apply to all port” check box to apply the current settings to all serial ports. |

## 5.1.12 Reverse Telnet Mode





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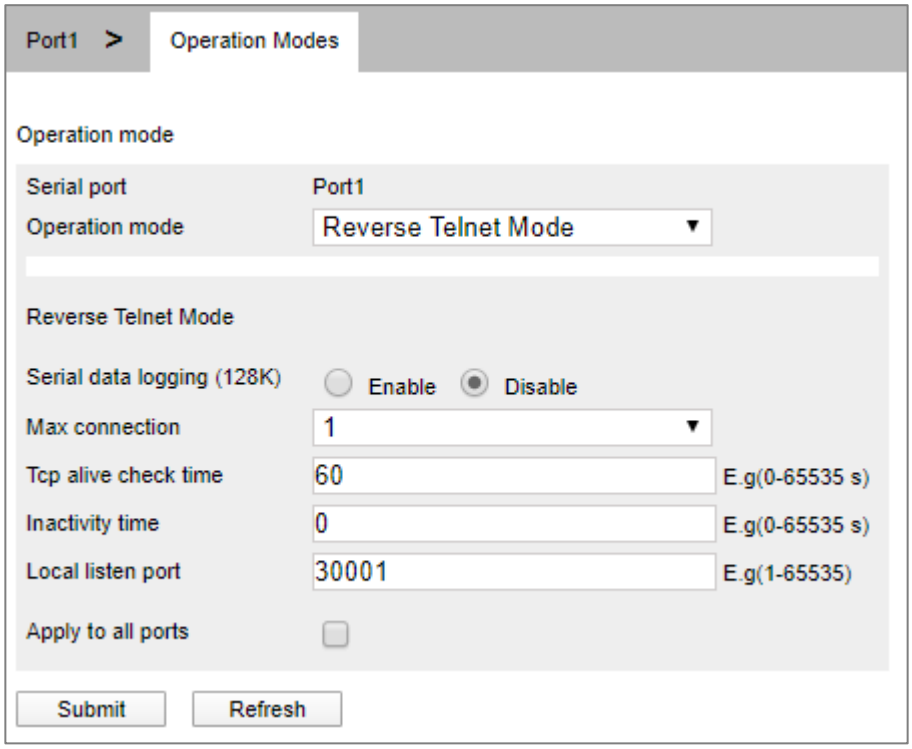
Notes:

The device picture mentioned in above figure is only an example, and the actual appearance of the device and serial port type is subject to the device obtained.

In the reverse Telnet mode, opposite to how the Telnet mode works, the device can realize Ethernet terminal device to access RS-232 serial port device through Telnet mode. The network terminal device initiates access to the device as a Telnet client, and the device responds as a Telnet server, and then establishes the connection.

## Interface Description

Reverse Telnet Mode interface is as follows:




Reverse Telnet Mode interface main element configuration instructions:

| Interface Element | Description |
|---|---|
| **Operation mode** | **Working Mode Configuration Bar** |
| Serial port | Displays the serial number of the device currently configured. |
| Operation mode | The working modes of serial port of the device are as follows:<br>• RealCom Mode<br>• Reverse RealCom Mode<br>• TCP Server Mode<br>• TCP Client Mode<br>• UDP Server Mode |

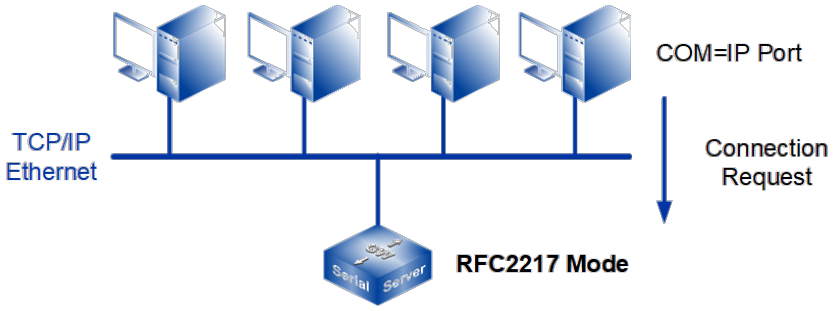

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| Interface Element | Description |
|---|---|
| | • UDP Client Mode<br>• UDP Rang Mode<br>• UDP Multicast Mode<br>• Pair Slave Mode<br>• Pair Master Mode<br>• Telnet Mode<br>• Reverse Telnet Mode<br>• RFC2217 Mode<br>• Redundant COM Mode<br>• DRDAS RealCom Mode<br>• DRDAS TCP Server Mode<br>• SSH<br>• Reverse SSH<br>• Disable Mode |
| **Reverse Telnet Mode** | **Reverse Telnet Mode Configuration Bar** |
| Serial data logging (128K) | Serial data log enable, and the options are as follows:<br>• Enable: after enabling it, the log page will be displayed to monitor serial communication data, and the log can display up to 128K serial data.<br>• Disable: the serial port data log is disabled by default. |
| Max connection | The number of host that one serial port connects to.<br>• Each host communicates with serial port in the order of first-in first-out;<br>• The system supports up to 8 connections. |
| TCP Alive Check Time | The device sends a heartbeat packet by setting the time interval. If the device sends a heartbeat packet three times without receiving a response, the existing connection is disconnected. If set TCP Alive Time to "0", the function will be disabled. |
| Inactivity time | Set the idle time of current data communication link of the device. If the idle time-out during communication is larger than 0, the system would close the TCP connection without any data transmission activity occurring in the specified time automatically. 0 means the free TCP connection would not be closed automatically. |
| Local listen port | The device acts as the local port number used by the Telnet server. |
| Apply to All Ports | Check the “Apply to all port” check box to apply the |


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| Interface Element | Description |
|---|---|
| | current settings to all serial ports. |

## 5.1.13 RFC2217 Mode




Notes:

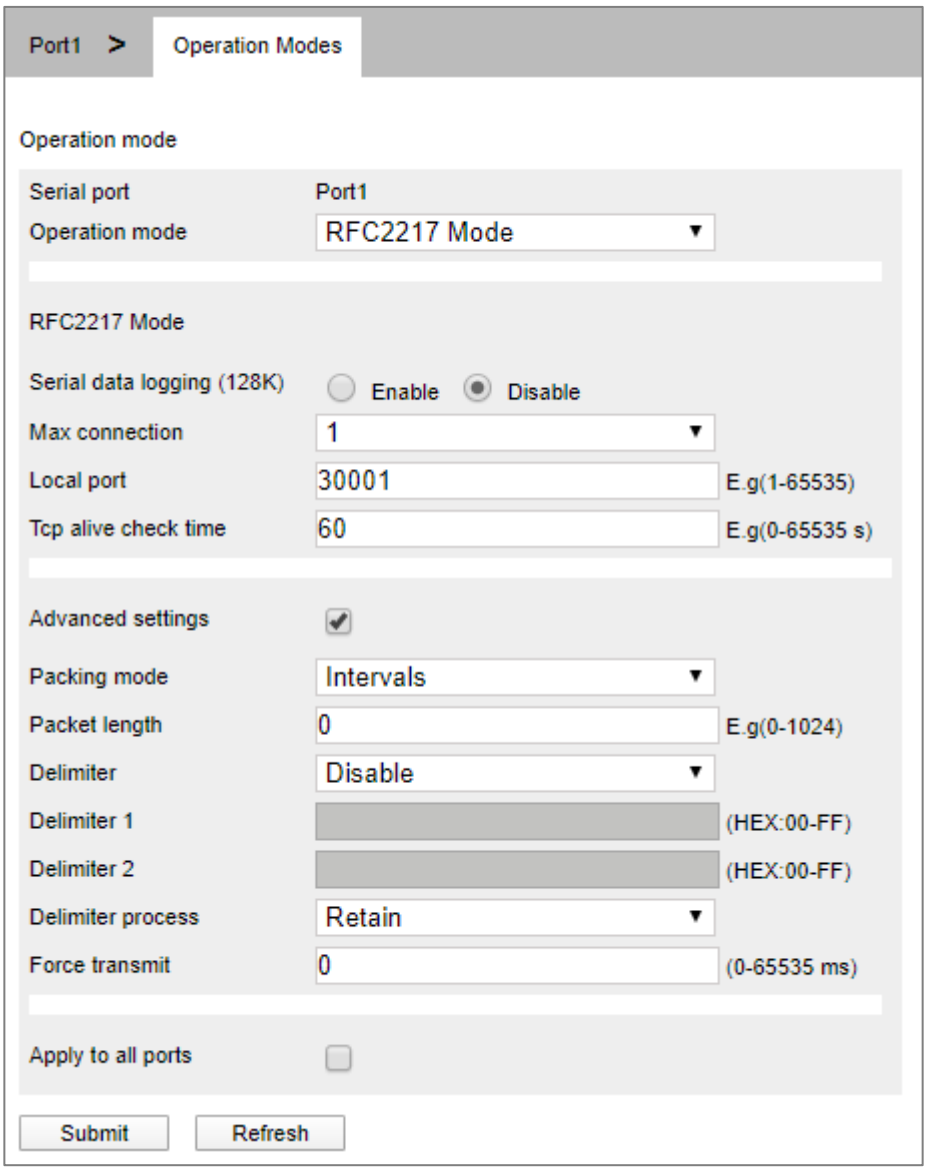
The device picture mentioned in above figure is only an example, and the actual appearance of the device and serial port type is subject to the device obtained.

The RFC2217 mode is similar to the RealCom mode, it defines the COM port control options based on the Telnet protocol. In RFC2217 mode, the device supports RFC2217 protocol specification. The host of network terminal connected by the device can map the serial port of the device to the COM port local to the host through installing compatible RFC2217 protocol program. In this way, the host can use COM port form to realize transparent transmission with the serial port device connected to the device.

### Interface Description

The interface of RFC2217 Mode is as follows:


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The main elements configuration description of RFC2217 Mode interface:

| Interface Element | Description |
|---|---|
| **Operation mode** | **Working Mode Configuration Bar** |
| Serial port | Displays the serial number of the device currently configured. |
| Operation mode | The working modes of serial port of the device are as follows:<br>• RealCom Mode<br>• Reverse RealCom Mode<br>• TCP Server Mode<br>• TCP Client Mode<br>• UDP Server Mode<br>• UDP Client Mode<br>• UDP Rang Mode |


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| Interface Element | Description |
|---|---|
| | • UDP Multicast Mode<br>• Pair Slave Mode<br>• Pair Master Mode<br>• Telnet Mode<br>• Reverse Telnet Mode<br>• RFC2217 Mode<br>• Redundant COM Mode<br>• DRDAS RealCom Mode<br>• DRDAS TCP Server Mode<br>• SSH<br>• Reverse SSH<br>• Disable Mode |
| **RFC2217 Mode** | **RFC2217 Mode Configuration Bar** |
| Serial data logging (128K) | Serial data log enable, and the options are as follows:<br>• Enable: after enabling it, the log page will be displayed to monitor serial communication data, and the log can display up to 128K serial data.<br>• Disable: the serial port data log is disabled by default. |
| Max connection | The number of hosts connected to a serial port at the same time.<br>• Each host communicates with serial port in the order of first-in first-out;<br>• The system supports up to 8 connections. |
| Local port | The device acts as the local port number used by the Telnet server. |
| TCP Alive Check Time | The device sends a heartbeat packet by setting the time interval. If the device sends a heartbeat packet three times without receiving a response, the existing connection is disconnected. If set TCP Alive Time to "0", the function will be disabled. |
| **Advanced Settings** | **Advanced Settings Configuration Bar** |
| Packing mode | Serial port data packaging Ethernet data time, the options are as follows:<br>• Interval: after sending the last Ethernet packet for some time, the system packages the received serial port data into Ethernet packets and sends them out;<br>• Forced time: the system packages serial port data received within a specified time into Ethernet packets |

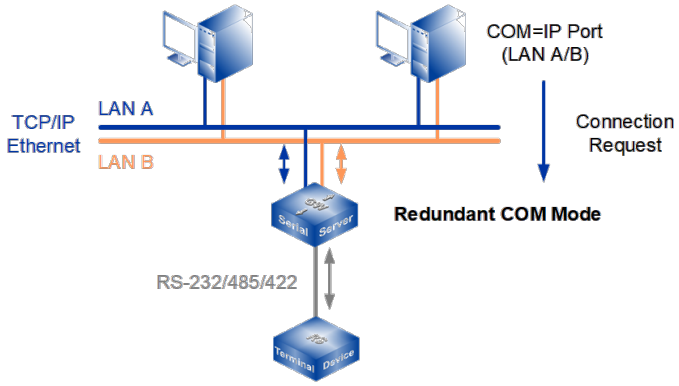

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| Interface Element | Description |
|---|---|
| | and transmit them. |
| Packing length | For the frame length of the serial data to Ethernet data, the data frame is forwarded within the set time range when it is greater than or equal to the set frame length, and the value ranges from 0 to 1024. It means no limit on data transmission length when it' set to 0.<br>Notes:<br>There are some slight deviations between the actual package length value and the set value. |
| Delimiter | Select the number of delimited characters, the options are as follows:<br>• Disable: disable delimiter function;<br>• 1: Enable Delimiter 1;<br>• 2: enable Delimiter 2.<br>Notes:<br>If the packaging length or the forced transfer time is 0 and the number of delimited character is greater than 0, the system would detect and process the delimiter after receiving serial data. Every time it receives matched delimiter (or combination of characters), the system would send out all cached serial data via network. |
| Delimiter 1 | The Delimiter 1 is expressed in hexadecimal, value range is 00-FF. |
| Delimiter 2 | The Delimiter 2 is expressed in hexadecimal, value range is 00-FF. |
| Delimiter process | Select the delimiter processing method. Options:<br>• Retain: the system would send out the received delimiter and other data via network.<br>• Delimiter+1: the system transfers data after receiving a delimiter and an extra byte.<br>• Delimiter+2: the system transfers data after receiving a delimiter and 2 extra byte.<br>• Delete: the matched delimiter (or combination of delimiter) would be deleted. The system only transmits data except delimiter. |
| Force transmit | If the transmission time is greater than 0, the system sends the serial data received within the specified time through a packet, in the range of 0 to 65535 ms. When the |


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| Interface Element | Description |
|---|---|
| | transfer time is 0, it means that the data transmission interval is not restricted. |
| Apply to All Ports | Check the “Apply to all port” check box to apply the current settings to all serial ports. |

## 5.1.14 Redundant COM Mode




Notes:

The device picture mentioned in above figure is only an example, and the actual appearance of the device and serial port type is subject to the device obtained.

The dual-port device accesses two different LANs through two independent ports. In Redundant COM mode, the host that has installed COM/TTY driver establishes 2 transparent or safe network transmission connections between host and serial device via dual network port. According to the IP address and serial port number of the device configured by the user, the serial port information of the device is mapped into the local COM/TTY device of the host at the same time in two ways. When one of the network disconnects, the host still can communicate with serial device through another network.

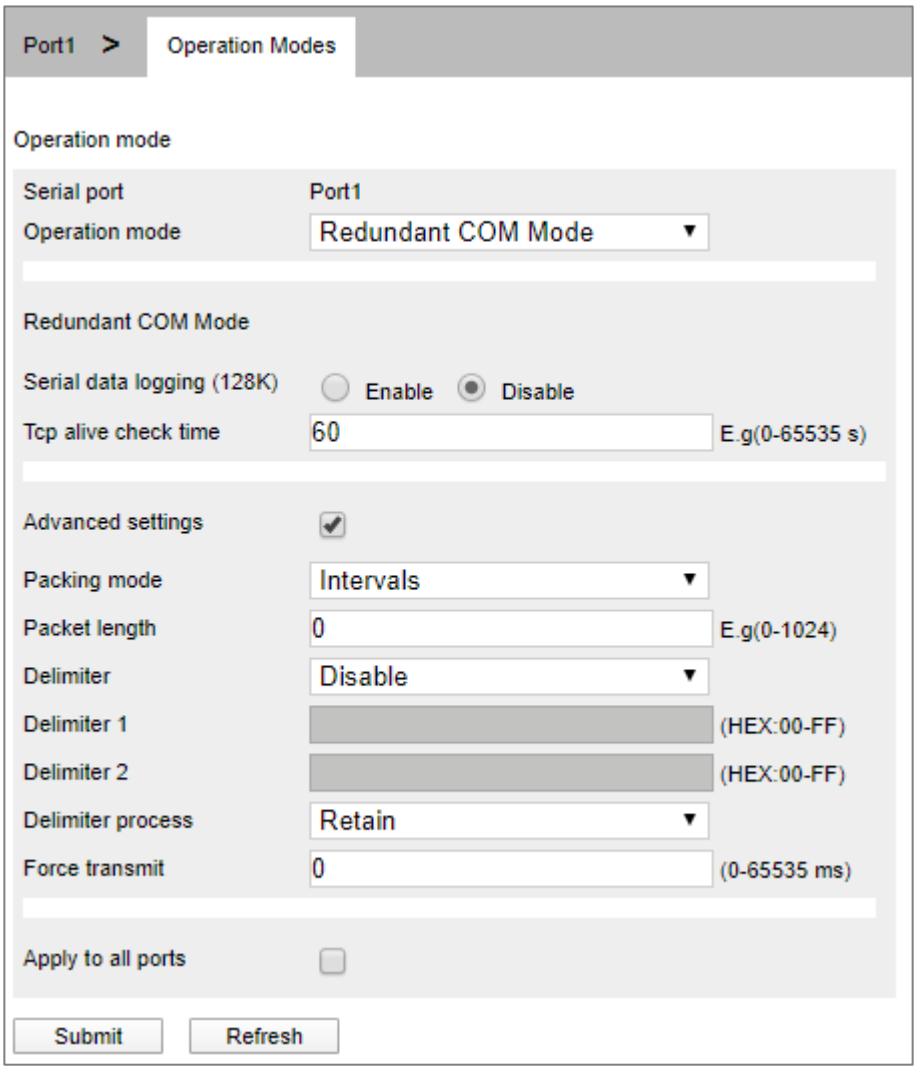
Note

The host needs to install two independent network cards, and the two network cards are in different local area networks.

### Interface Description

Redundant COM Mode interface is as follows:


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Main element configuration description in Redundant Com Mode interface:

| Interface Element | Description |
|---|---|
| **Operation mode** | **Working Mode Configuration Bar** |
| Serial port | Displays the serial number of the device currently configured. |
| Operation mode | The working modes of serial port of the device are as follows:<br>• RealCom Mode<br>• Reverse RealCom Mode<br>• TCP Server Mode<br>• TCP Client Mode<br>• UDP Server Mode<br>• UDP Client Mode<br>• UDP Rang Mode<br>• UDP Multicast Mode<br>• Pair Slave Mode |


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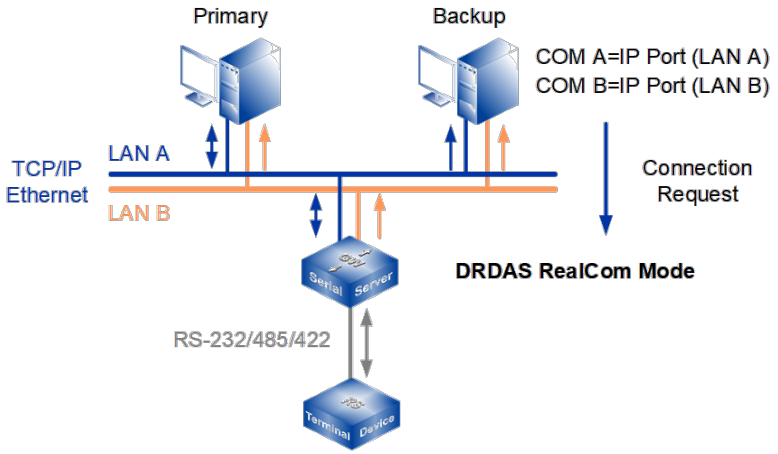
| Interface Element | Description |
|---|---|
| | • Pair Master Mode<br>• Telnet Mode<br>• Reverse Telnet Mode<br>• RFC2217 Mode<br>• Redundant COM Mode<br>• DRDAS RealCom Mode<br>• DRDAS TCP Server Mode<br>• SSH<br>• Reverse SSH<br>• Disable Mode |
| **Redundant Com Mode** | **Redundant COM Mode Configuration Bar** |
| Serial data logging (128K) | Serial data log enable, and the options are as follows:<br>• Enable: after enabling it, the log page will be displayed to monitor serial communication data, and the log can display up to 128K serial data.<br>• Disable: the serial port data log is disabled by default. |
| TCP Alive Check Time | If there isn't any TCP activity within schedule time, the system will automatically send connection detection message and check whether the TCP connection is valid. If the reply packet of opposite side hasn't been received after sending probe packet for 3 times, system will regard the opposite side as down and forwardly close the communication connection. |
| **Advanced Settings** | **Advanced Settings Configuration Bar** |
| Packing mode | Serial port data packaging Ethernet data time, the options are as follows:<br>• Interval: after sending the last Ethernet packet for some time, the system packages the received serial port data into Ethernet packets and sends them out;<br>• Forced time: the system packages serial port data received within a specified time into Ethernet packets and transmit them. |
| Packing length | The frame length of serial data to Ethernet data. In the set time range, the data forwards when it is greater than or equals to the set frame length. The value range is 0~1460. It means no limit on data transmission length |


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| Interface Element | Description |
|---|---|
| | when it' set to 0.<br>Notes:<br>There are some slight deviations between the actual package length value and the set value. |
| Delimiter | Select the number of delimited characters, the options are as follows:<br>• Disable: disable delimiter function;<br>• 1: Enable Delimiter 1;<br>• 2: enable Delimiter 2.<br>Notes:<br>If the packaging length or the forced transfer time is 0 and the number of delimited character is greater than 0, the system would detect and process the delimiter after receiving serial data. Every time it receives matched delimiter (or combination of characters), the system would send out all cached serial data via network. |
| Delimiter 1 | The Delimiter 1 is expressed in hexadecimal, value range is 00-FF. |
| Delimiter 2 | The Delimiter 2 is expressed in hexadecimal, value range is 00-FF. |
| Delimiter process | Select the delimiter processing method. Options:<br>• Retain: the system would send out the received delimiter and other data via network.<br>• Delimiter+1: the system transfers data after receiving a delimiter and an extra byte.<br>• Delimiter+2: the system transfers data after receiving a delimiter and 2 extra byte.<br>• Delete: the matched delimiter (or combination of delimiter) would be deleted. The system only transmits data except delimiter. |
| Force transmit | If the transmission time is greater than 0, the system sends the serial data received within the specified time through a packet, in the range of 0 to 65535 ms. When the transfer time is 0, it means that the data transmission interval is not restricted. |
| Apply to All Ports | Check the "Apply to all port" check box to apply the current settings to all serial ports. |


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## 5.1.15 DRDAS RealCom Mode




Notes:

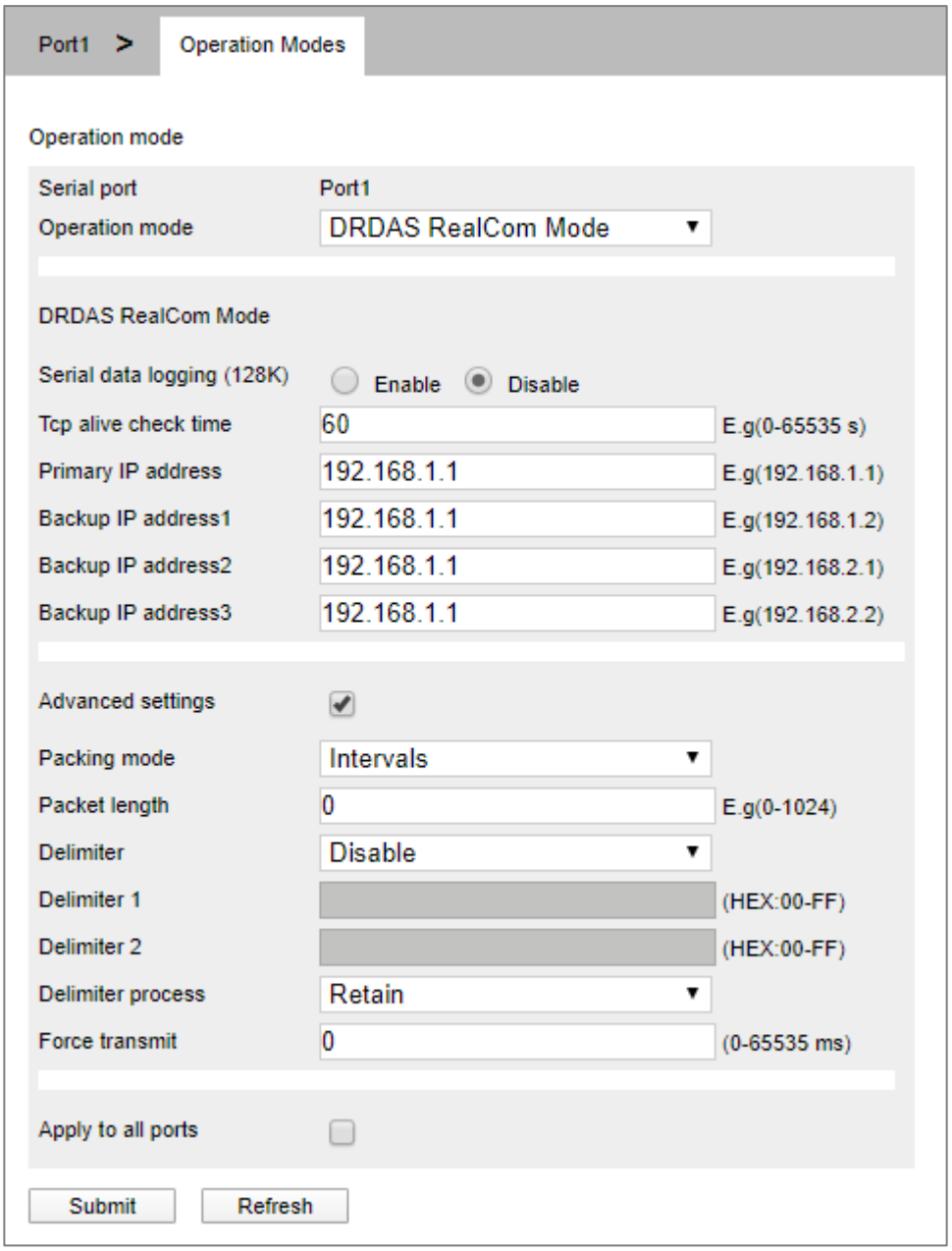
The device picture mentioned in above figure is only an example, and the actual appearance of the device and serial port type is subject to the device obtained.

DRDAS（Dual-host Redundant Data Acquisition System）RealCOM mode can implement dual-host data collection redundancy backup function. Two independent ports of dual-port device can access two different local area networks respectively and establish connection with 2 remote hosts. Each host that has installed COM/TTY driver could create the redundancy backup of RealCOM in 2 local area networks respectively via DRDAS RealCOM mode. At this point, the host that serves as the master device and send and receive data; while the host that serves as the backup device can receive or monitor data, but cannot send data.

### Interface Description

The interface of DRDAS RealCom Mode is as follows:


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Main element configuration instructions in DRDAS RealCom Mode interface

| Interface Element | Description |
|---|---|
| **Operation mode** | **Working Mode Configuration Bar** |
| Serial port | Displays the serial number of the device currently configured. |
| Operation mode | The working modes of serial port of the device are as follows:<br>• RealCom Mode<br>• Reverse RealCom Mode<br>• TCP Server Mode<br>• TCP Client Mode<br>• UDP Server Mode<br>• UDP Client Mode |


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| Interface Element | Description |
|---|---|
| | • UDP Rang Mode<br>• UDP Multicast Mode<br>• Pair Slave Mode<br>• Pair Master Mode<br>• Telnet Mode<br>• Reverse Telnet Mode<br>• RFC2217 Mode<br>• Redundant COM Mode<br>• DRDAS RealCom Mode<br>• DRDAS TCP Server Mode<br>• SSH<br>• Reverse SSH<br>• Disable Mode |
| **DRDAS RealCom Mode** | **DRDAS RealCom Mode configuration bar** |
| Serial data logging (128K) | Serial data log enable, and the options are as follows:<br>• Enable: after enabling it, the log page will be displayed to monitor serial communication data, and the log can display up to 128K serial data.<br>• Disable: the serial port data log is disabled by default. |
| TCP Alive Check Time | If there isn't any TCP activity within schedule time, the system will automatically send connection detection message and check whether the TCP connection is valid. If the reply packet of opposite side hasn't been received after sending probe packet for 3 times, system will regard the opposite side as down and forwardly close the communication connection. |
| Primary IP address | The IPv4 or IPv6 address of remote host that establishes RealCOM connection with the device can send and receive device's data. |
| Backup IP Address 1 | The IPv4 or IPv6 address of remote backup host 1 that establishes RealCOM connection with the device can only receive device's data but not send data to it. |
| Backup IP Address 2 | The IPv4 or IPv6 address of remote backup host 2 that establishes RealCOM connection with the device can only receive device's data but not send data to it. |
| Backup IP Address 3 | The IPv4 or IPv6 address of remote backup host 3 that establishes RealCOM connection with the device can only |

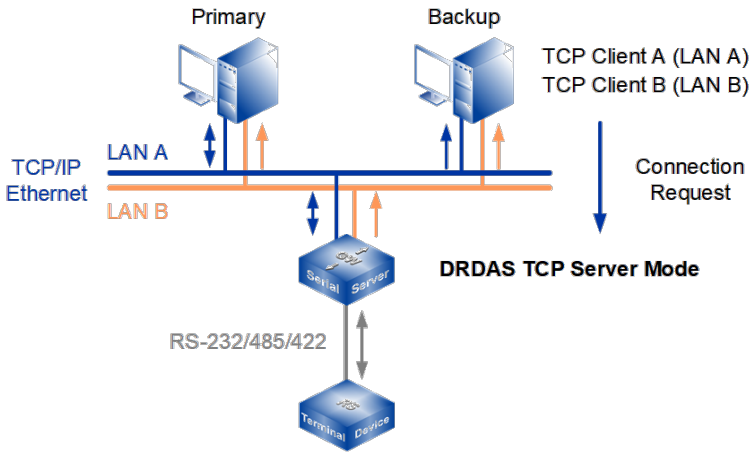

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| Interface Element | Description |
|---|---|
| | receive device's data but not send data to it. |
| **Advanced Settings** | **Advanced Settings Configuration Bar** |
| Packing mode | Serial port data packaging Ethernet data time, the options are as follows:<br>• Interval: after sending the last Ethernet packet for some time, the system packages the received serial port data into Ethernet packets and sends them out;<br>• Forced time: the system packages serial port data received within a specified time into Ethernet packets and transmit them. |
| Packing length | The frame length of serial data to Ethernet data. In the set time range, the data forwards when it is greater than or equals to the set frame length. The value range is 0~1460. It means no limit on data transmission length when it' set to 0.<br>Notes:<br>There are some slight deviations between the actual package length value and the set value. |
| Delimiter | Select the number of delimited characters, the options are as follows:<br>• Disable: disable delimiter function;<br>• 1: enable delimiter 1;<br>• 2: enable Delimiter 2.<br>Notes:<br>If the packaging length or the forced transfer time is 0 and the number of delimited character is greater than 0, the system would detect and process the delimiter after receiving serial data. Every time it receives matched delimiter (or combination of characters), the system would send out all cached serial data via network. |
| Delimiter 1 | The Delimiter 1 is expressed in hexadecimal, value range is 00-FF. |
| Delimiter 2 | The Delimiter 2 is expressed in hexadecimal, value range is 00-FF. |
| Delimiter process | Select the delimiter processing method. Options:<br>• Retain: the system would send out the received delimiter and other data via network.<br>• Delimiter+1: the system transfers data after receiving a delimiter and an extra byte.<br>• Delimiter+2: the system transfers data after receiving a delimiter and 2 extra byte.<br>• Delete: the matched delimiter (or combination of |


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| Interface Element | Description |
|---|---|
| | delimiter) would be deleted. The system only transmits data except delimiter. |
| Force transmit | If the transmission time is greater than 0, the system sends the serial data received within the specified time through a packet, in the range of 0 to 65535 ms. When the transfer time is 0, it means that the data transmission interval is not restricted. |
| Apply to All Ports | Check the “Apply to all port” check box to apply the current settings to all serial ports. |

## 5.1.16 DRDAS TCP Server Mode




Notes:

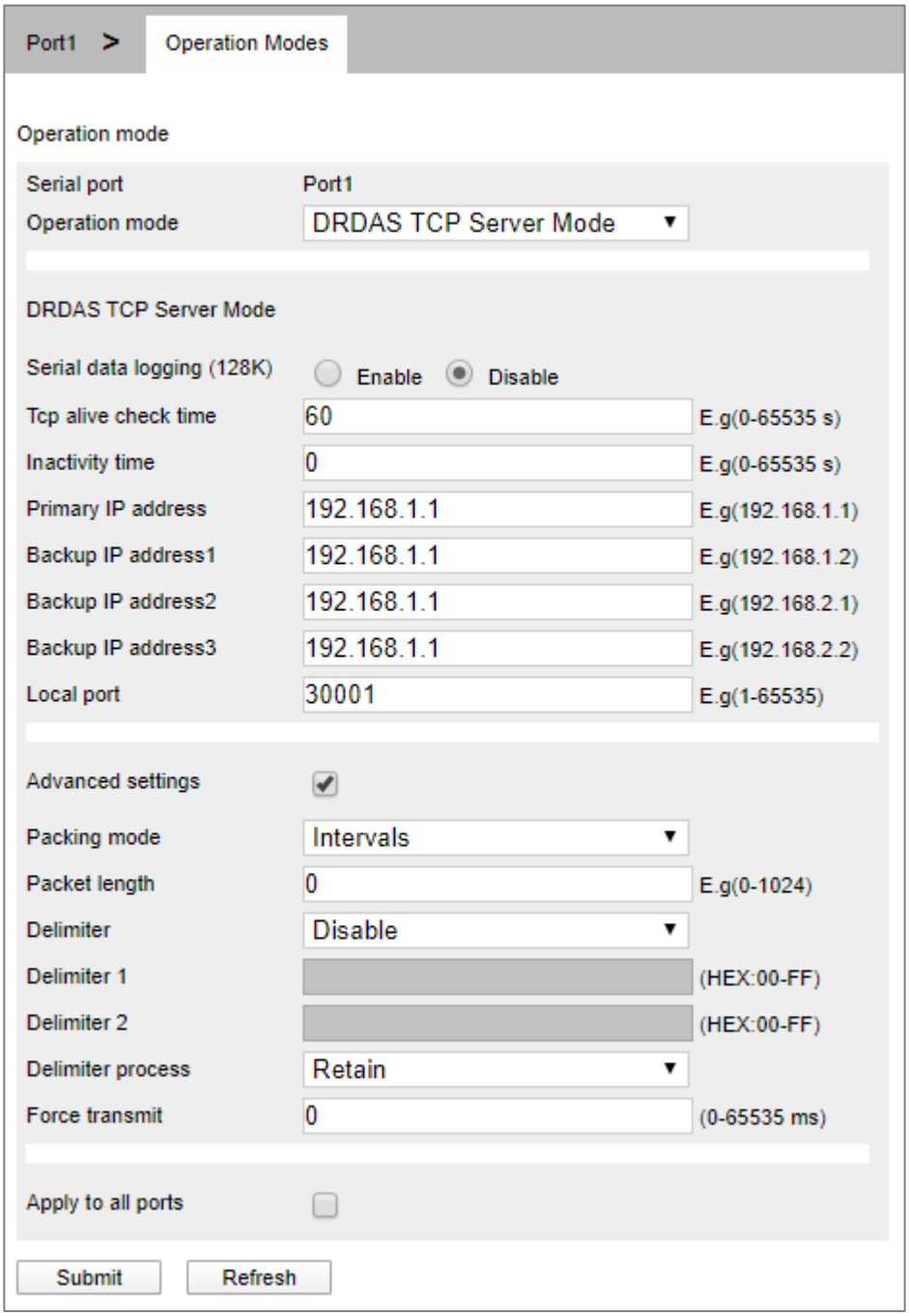
The device picture mentioned in above figure is only an example, and the actual appearance of the device and serial port type is subject to the device obtained.

DRDAS (Dual-host Redundant Data Acquisition System) TCP Server mode can implement dual-host data collection redundancy backup function. Two independent ports of dual-port device can access two different local area networks or establish connection with 2 remote hosts. Each host create the redundancy backup of TCP Socket in 2 local area networks respectively via DRDAS TcpServer mode. At this time, the device acts as a TCP server and the host acts as a TCP client. The host that serves as the master device can send and receive data; while the host that serves as the backup device can receive or monitor data, but cannot send data.

### Interface Description

DRDAS TCP Server Mode interface as follows:


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The main element configuration description of DRDAS TCP Server Mode interface:

| Interface Element | Description |
|---|---|
| **Operation mode** | **Working Mode Configuration Bar** |
| Serial port | Displays the serial number of the device currently configured. |
| Operation mode | The working modes of serial port of the device are as follows:<br>• RealCom Mode<br>• Reverse RealCom Mode<br>• TCP Server Mode<br>• TCP Client Mode |


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| Interface Element | Description |
|---|---|
| | • UDP Server Mode<br>• UDP Client Mode<br>• UDP Rang Mode<br>• UDP Multicast Mode<br>• Pair Slave Mode<br>• Pair Master Mode<br>• Telnet Mode<br>• Reverse Telnet Mode<br>• RFC2217 Mode<br>• Redundant COM Mode<br>• DRDAS RealCom Mode<br>• DRDAS TCP Server Mode<br>• SSH<br>• Reverse SSH<br>• Disable Mode |
| **DRDAS TCP Server Mode** | **DRDAS TCP Server Mode Configuration bar** |
| Serial data logging (128K) | Serial data log enable, and the options are as follows:<br>• Enable: after enabling it, the log page will be displayed to monitor serial communication data, and the log can display up to 128K serial data.<br>• Disable: the serial port data log is disabled by default. |
| TCP Alive Check Time | If there isn't any TCP activity within schedule time, the system will automatically send connection detection message and check whether the TCP connection is valid. If the reply packet of opposite side hasn't been received after sending probe packet for 3 times, system will regard the opposite side as down and forwardly close the communication connection. |
| Inactivity time | Set the idle time of current data communication link of the device. If the idle time-out during communication is larger than 0, the system would close the TCP connection without any data transmission activity occurring in the specified time automatically. 0 means the free TCP connection would not be closed automatically. |
| Primary IP address | The IPv4 or IPv6 address of remote host that establishes TCP connection with the device can send and receive device's data. |

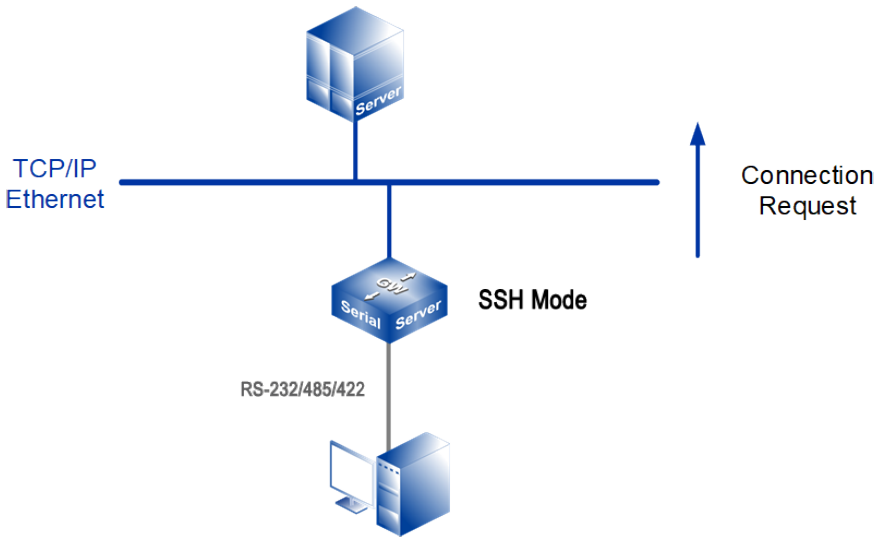

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| Interface Element | Description |
|---|---|
| Backup IP Address 1 | The IPv4 or IPv6 address of remote backup host 1 that establishes TCP connection with the device can only receive device's data but not send data to it. |
| Backup IP Address 2 | The IPv4 or IPv6 address of remote backup host 2 that establishes TCP connection with the device can only receive device's data but not send data to it. |
| Backup IP Address 3 | The IPv4 or IPv6 address of remote backup host 3 that establishes TCP connection with the device can only receive device's data but not send data to it. |
| Local port | The destination connection port of TCP client. |
| **Advanced Settings** | **Advanced Settings Configuration Bar** |
| Packing mode | Serial port data packaging Ethernet data time, the options are as follows:<br>• Interval: after sending the last Ethernet packet for some time, the system packages the received serial port data into Ethernet packets and sends them out;<br>• Forced time: the system packages serial port data received within a specified time into Ethernet packets and transmit them. |
| Packing length | The frame length of serial data to Ethernet data. In the set time range, the data forwards when it is greater than or equals to the set frame length. The value range is 0~1460. It means no limit on data transmission length when it' set to 0.<br>Notes:<br>There are some slight deviations between the actual package length value and the set value. |
| Delimiter | Select the number of delimited characters, the options are as follows:<br>• Disable: disable delimiter function;<br>• 1: Enable Delimiter 1;<br>• 2: enable Delimiter 2.<br>Notes:<br>If the packaging length or the forced transfer time is 0 and the number of delimited character is greater than 0, the system would detect and process the delimiter after receiving serial data. Every time it receives matched delimiter (or combination of characters), the system would send out all cached serial data via network. |
| Delimiter 1 | The Delimiter 1 is expressed in hexadecimal, value range is 00-FF. |


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| Interface Element | Description |
|---|---|
| Delimiter 2 | The Delimiter 2 is expressed in hexadecimal, value range is 00-FF. |
| Delimiter process | Select the delimiter processing method. Options:<br>• Retain: the system would send out the received delimiter and other data via network.<br>• Delimiter+1: the system transfers data after receiving a delimiter and an extra byte.<br>• Delimiter+2: the system transfers data after receiving a delimiter and 2 extra byte.<br>• Delete: the matched delimiter (or combination of delimiter) would be deleted. The system only transmits data except delimiter. |
| Force transmit | If the transmission time is greater than 0, the system sends the serial data received within the specified time through a packet, in the range of 0 to 65535 ms. When the transfer time is 0, it means that the data transmission interval is not restricted. |
| Apply to All Ports | Check the “Apply to all port” check box to apply the current settings to all serial ports. |

## 5.1.17 SSH Mode




Notes:

The device picture mentioned in above figure is only an example, and the actual appearance

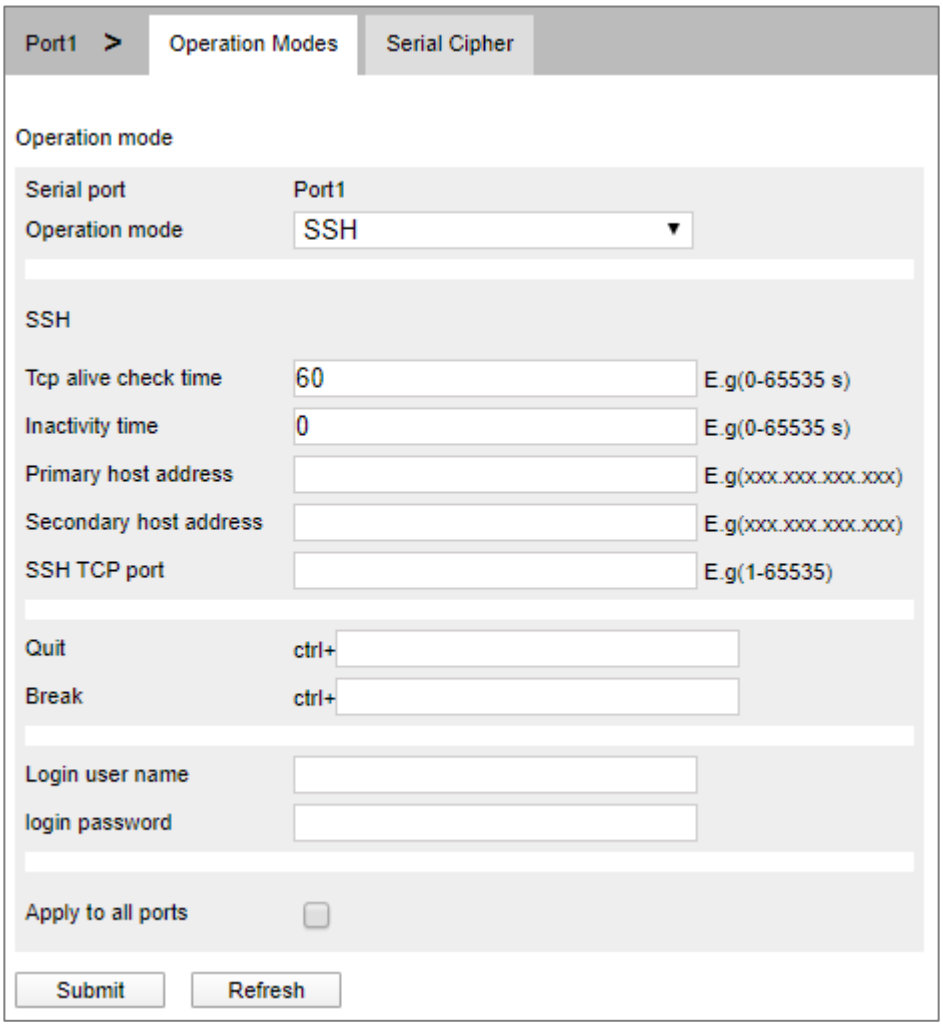

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of the device or serial port type is subject to the device obtained.

In SSH mode, the device can connect serial port terminal device and Ethernet transmission server device, realizing serial port terminal device to access the server through SSH encryption. The Ethernet server device needs to support the SSH server function, and the device can automatically initiate access connection as a SSH client. After establishing the connection, the serial terminal device can communicate with the server directly.

## Interface Description

SSH interface is as below:




The main element configuration descriptions of SSH interface:

| Interface Element | Description |
|---|---|
| **Operation mode** | **Working Mode Configuration Bar** |
| Serial port | Displays the serial number of the device currently configured. |
| Operation mode | The working modes of serial port of the device are as follows:<br>• RealCom Mode |

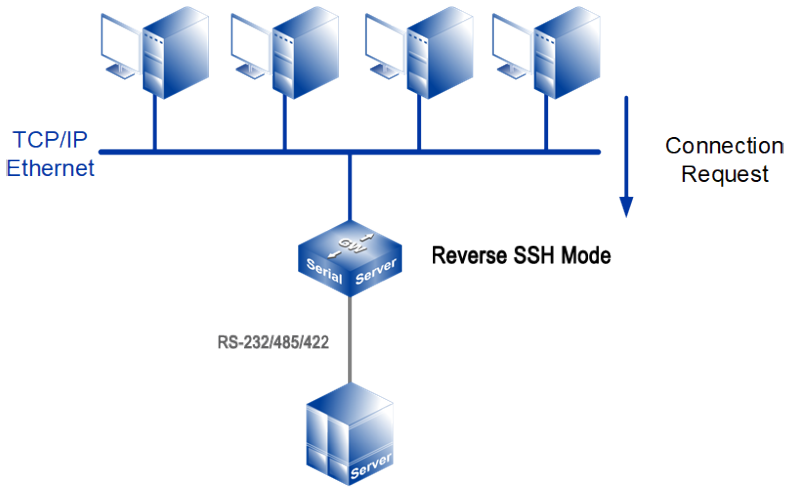

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| Interface Element | Description |
|---|---|
| | • Reverse RealCom Mode<br>• TCP Server Mode<br>• TCP Client Mode<br>• UDP Server Mode<br>• UDP Client Mode<br>• UDP Rang Mode<br>• UDP Multicast Mode<br>• Pair Slave Mode<br>• Pair Master Mode<br>• Telnet Mode<br>• Reverse Telnet Mode<br>• RFC2217 Mode<br>• Redundant COM Mode<br>• DRDAS RealCom Mode<br>• DRDAS TCP Server Mode<br>• SSH<br>• Reverse SSH<br>• Disable Mode |
| **SSH** | **SSH Configuration Bar** |
| TCP Alive Check Time | The device sends a heartbeat packet by setting the time interval. If the device sends a heartbeat packet three times without receiving a response, the existing connection is disconnected. If set TCP Alive Time to "0", the function will be disabled. |
| Inactivity time | Set the idle time of current data communication link of the device. If the idle time-out during communication is larger than 0, the system would close the TCP connection without any data transmission activity occurring in the specified time automatically. 0 means the free TCP connection would not be closed automatically. |
| Primary host address | IP address of SSH main server device. |
| Backup Host Address | IP address of SSH backup server device. |
| SSH TCP port | The SSH TCP port number of the SSH server device. The SSH protocol default port is 22. |
| Quit | Define the shortcut key for exiting the session. |
| Break | Define the shortcut key for sending the interrupt signal. |


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| Interface Element | Description |
|---|---|
| Login username | The user name used to log in to the SSH server. |
| Login password | The password used to log in to the SSH server. |
| Apply to All Ports | Check the “Apply to all port” check box to apply the current settings to all serial ports. |

## 5.1.18 Reverse SSH Mode




Notes:

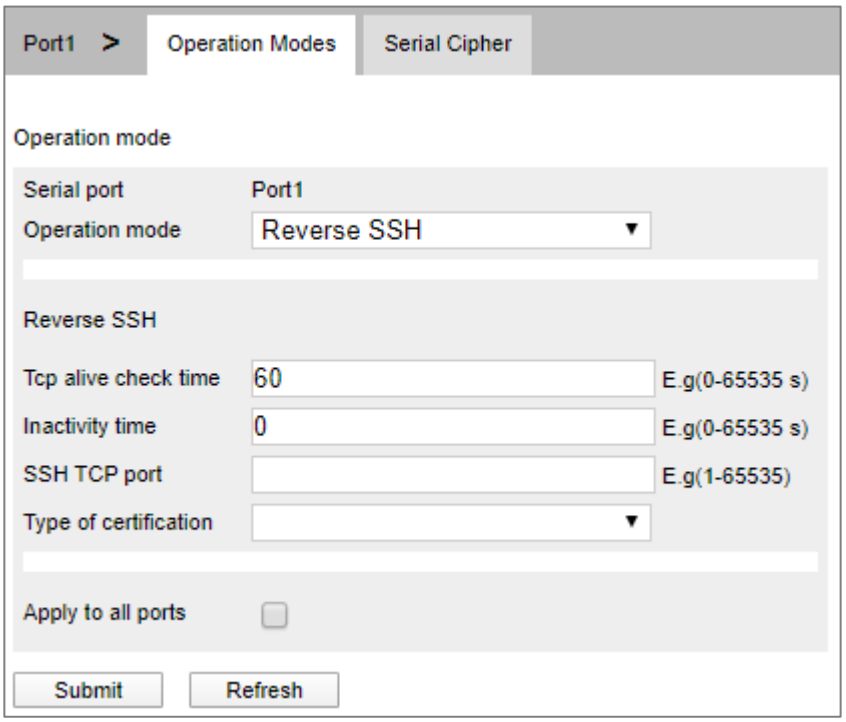
The device picture mentioned in above figure is only an example, and the actual appearance of the device or serial port type is subject to the device obtained.

In the reverse SSH mode, opposite to how the SSH mode works, the device can realize Ethernet terminal device to access serial port terminal device through SSH encryption. The network terminal device initiates access to the device as a SSH client, and the device responds as a SSH server, and then establishes the connection.

### Interface Description

Reverse SSH interface is as below:


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The main elements configuration description of Reverse SSH interface:

| Interface Element | Description |
|---|---|
| **Operation mode** | **Working Mode Configuration Bar** |
| Serial port | Displays the serial number of the device currently configured. |
| Operation mode | The working modes of serial port of the device are as follows:<br>• RealCom Mode<br>• Reverse RealCom Mode<br>• TCP Server Mode<br>• TCP Client Mode<br>• UDP Server Mode<br>• UDP Client Mode<br>• UDP Rang Mode<br>• UDP Multicast Mode<br>• Pair Slave Mode<br>• Pair Master Mode<br>• Telnet Mode<br>• Reverse Telnet Mode<br>• RFC2217 Mode<br>• Redundant COM Mode<br>• DRDAS RealCom Mode<br>• DRDAS TCP Server Mode<br>• SSH |


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| Interface Element | Description |
|---|---|
| | • Reverse SSH<br>• Disable Mode |
| **Reverse SSH** | **Reverse SSH configuration bar** |
| TCP Alive Check Time | The device sends a heartbeat packet by setting the time interval. If the device sends a heartbeat packet three times without receiving a response, the existing connection is disconnected. If set TCP Alive Time to "0", the function will be disabled. |
| Inactivity time | Set the idle time of current data communication link of the device. If the idle time-out during communication is larger than 0, the system would close the TCP connection without any data transmission activity occurring in the specified time automatically. 0 means the free TCP connection would not be closed automatically. |
| SSH TCP port | The device acts as the local port number used by the SSH server. |
| Type of certification | Configure the method used to verify the user ID and authorization, with the following options:<br>• None: no authentication is required.<br>• Local: authenticate according to the user name and password in the local “User Table”. |
| Apply to All Ports | Check the “Apply to all port” check box to apply the current settings to all serial ports. |

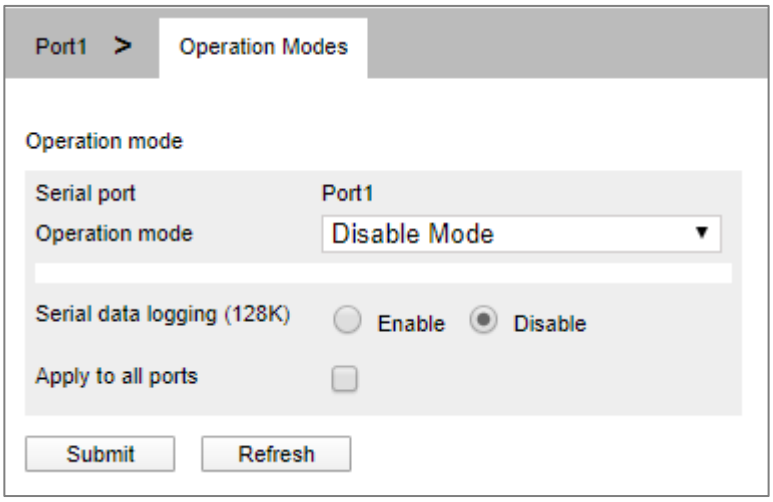
## 5.1.19 Disable Mode

In Disable Mode, the serial port will be closed and cannot be used normally.

### Interface Description

The interface of Disable Mode is as follows:


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Main element configuration instructions in Disable Mode interface

| Interface Element | Description |
|---|---|
| **Operation mode** | **Working Mode Configuration Bar** |
| Serial port | Displays the serial number of the device currently configured. |
| Operation mode | The working modes of serial port of the device are as follows:<br>• RealCom Mode<br>• Reverse RealCom Mode<br>• TCP Server Mode<br>• TCP Client Mode<br>• UDP Server Mode<br>• UDP Client Mode<br>• UDP Rang Mode<br>• UDP Multicast Mode<br>• Pair Slave Mode<br>• Pair Master Mode<br>• Telnet Mode<br>• Reverse Telnet Mode<br>• RFC2217 Mode<br>• Redundant COM Mode<br>• DRDAS RealCom Mode<br>• DRDAS TCP Server Mode<br>• SSH<br>• Reverse SSH<br>• Disable Mode |
| Serial data logging (128K) | Serial data log enable, and the options are as follows:<br>• Enable: after enabling it, the log page will be displayed |


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| Interface Element | Description |
|---|---|
| | to monitor serial communication data, and the log can display up to 128K serial data.<br>• Disable: the serial port data log is disabled by default. |
| Apply to All Ports | Check the “Apply to all port” check box to apply the current settings to all serial ports. |

# 5.2 Log

## Function Description

You can monitor the serial port communication data. When the serial port enables the function of "Serial port data log (128K)", the log page will be displayed.

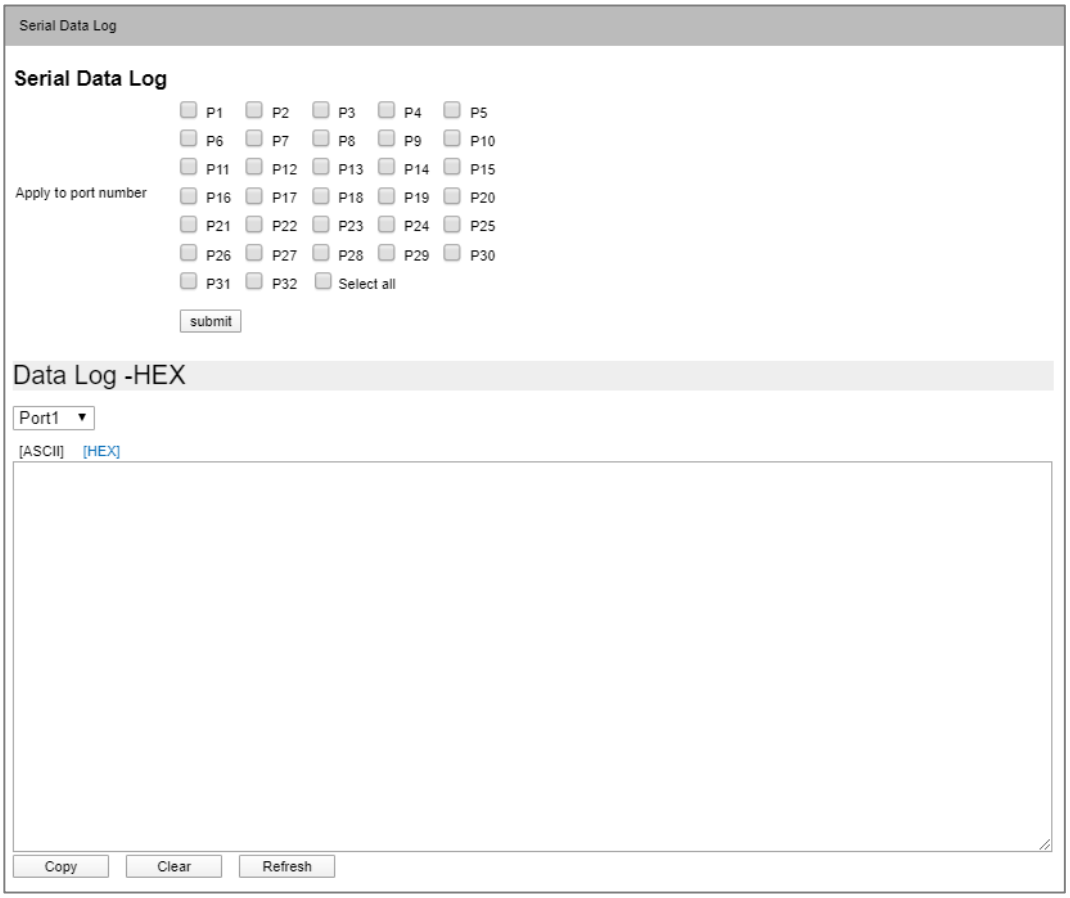
## Operation Path

Open in order “COM Mode > Port1 > Log”. Under the menu of "COM Mode", the corresponding serial port information can be configured by entering different serial ports. The configuration operation mode of all serial ports' WEB interfaces is the same.

## Interface Description

Log interface is as follows:


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Main elements configuration description of log interface:

| Interface Element | Description |
|---|---|
| Apply to port number | Check the serial port check box and click Apply to apply the serial data log to the corresponding serial port. |
| Serial port | The drop-down list of serial number, you can choose the corresponding serial number. |
| [ASCII] [HEX] | Click to display the communication data in the serial port log in ASCII characters or HEX. |
| Copy | Click “Copy” to copy the current serial port log information. |
| Clear | Click the “Clear” button to clear the current serial log information. |
| Refresh | Click “Refresh” to manually refresh the serial log information of the page. |


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# 5.3 Serial Port Encryption

## Function Description

The algorithm priority in the loading security mode (SSL/TLS) encryption suite of the corresponding serial port number and SSH/reverse SSH encryption suite could be adjusted. After setting encryption in serial port mode, the data transmitted through Ethernet would go through SSL/TLS encryption suite and filter encryption algorithm from top to bottom.

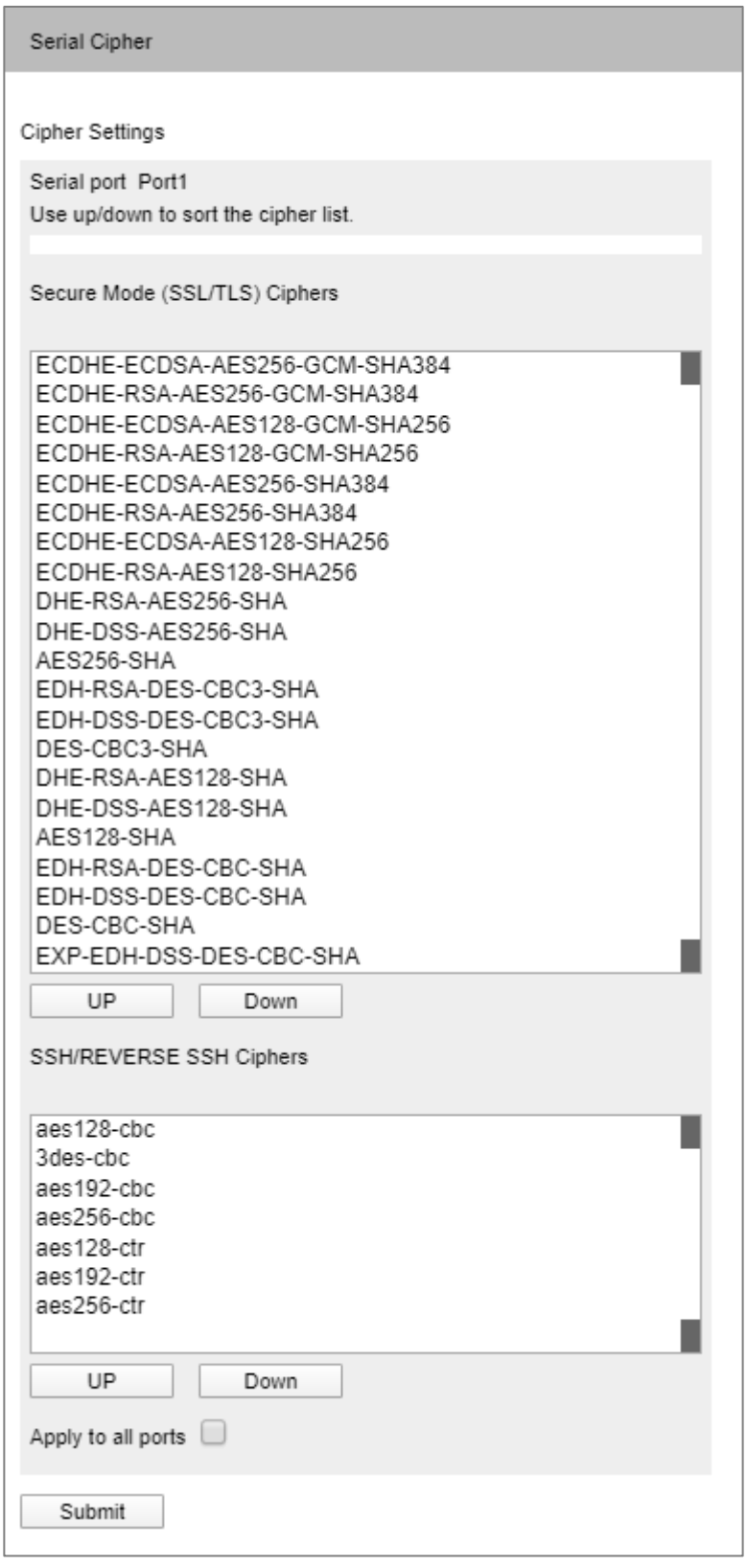
## Operation Path

Open in order “COM Mode > Port1 > COM Encryption”. Under the menu of "COM Mode", the corresponding serial port information can be configured by entering different serial ports. The configuration operation mode of all serial ports' WEB interfaces is the same.

## Interface Description

COM encryption interface as follows:


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Main elements configuration description ofCOM encryption interface:

| Interface Element | Description |
|---|---|
| Serial port | Display corresponding device serial port number. |


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| Interface Element | Description |
|---|---|
| Secure mode (SSL/TLS) encryption suite | After selecting encryption algorithm, move the position of algorithms by clicking UP/DOWN button. When loading SSL/TLS encryption algorithms, filter the corresponding encryption algorithms in turn from top to bottom. Optional algorithms are as follows:<br>• ECDHE-ECDSA-AES256-GCM-SHA384<br>• ECDHE-RSA-AES256-GCM-SHA384<br>• ECDHE-ECDSA-AES128-GCM-SHA256<br>• ECDHE-RSA-AES128-GCM-SHA256<br>• ECDHE-ECDSA-AES256-SHA384<br>• ECDHE-RSA-AES256-SHA384<br>• ECDHE-ECDSA-AES128-SHA256<br>• ECDHE-RSA-AES128-SHA256<br>• DHE-RSA-AES256-SHA<br>• DHE-DSS-AES256-SHA<br>• AES256-SHA<br>• EDH-RSA-DES-CBC3-SHA<br>• EDH-DSS-DES-CBC3-SHA<br>• DES-CBC3-SHA<br>• DHE-RSA-AES128-SHA<br>• DHE-DSS-AES128-SHA<br>• AES128-SHA<br>• EDH-RSA-DES-CBC-SHA<br>• EDH-DSS-DES-CBC-SHA<br>• DES-CBC-SHA<br>• EXP-EDH-DSS-DES-CBC-SHA |
| SSH/REVERSE SSH Ciphers | After selecting encryption algorithm, move the position of algorithms by clicking UP/DOWN button. When loading SSH/Reverse SSH encryption algorithms, filter the corresponding encryption algorithms in turn from top to bottom. Optional algorithms are as follows:<br>• aes128-cbc<br>• 3des-cbc<br>• aes192-cbc<br>• aes256-cbc<br>• aes128-ctr<br>• aes192-ctr<br>• aes256-ctr |
| Apply to all ports | Check the “Apply to all port” check box to apply the |


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| Interface Element | Description |
| --- | --- |
| | current settings to all serial ports. |

# 5.4 User Table

## Function Description

You can configure the authentication ID and password of the user accessing the reverse SSH terminal, and store up to 32 pieces of user information, including user name, password and telephone number.

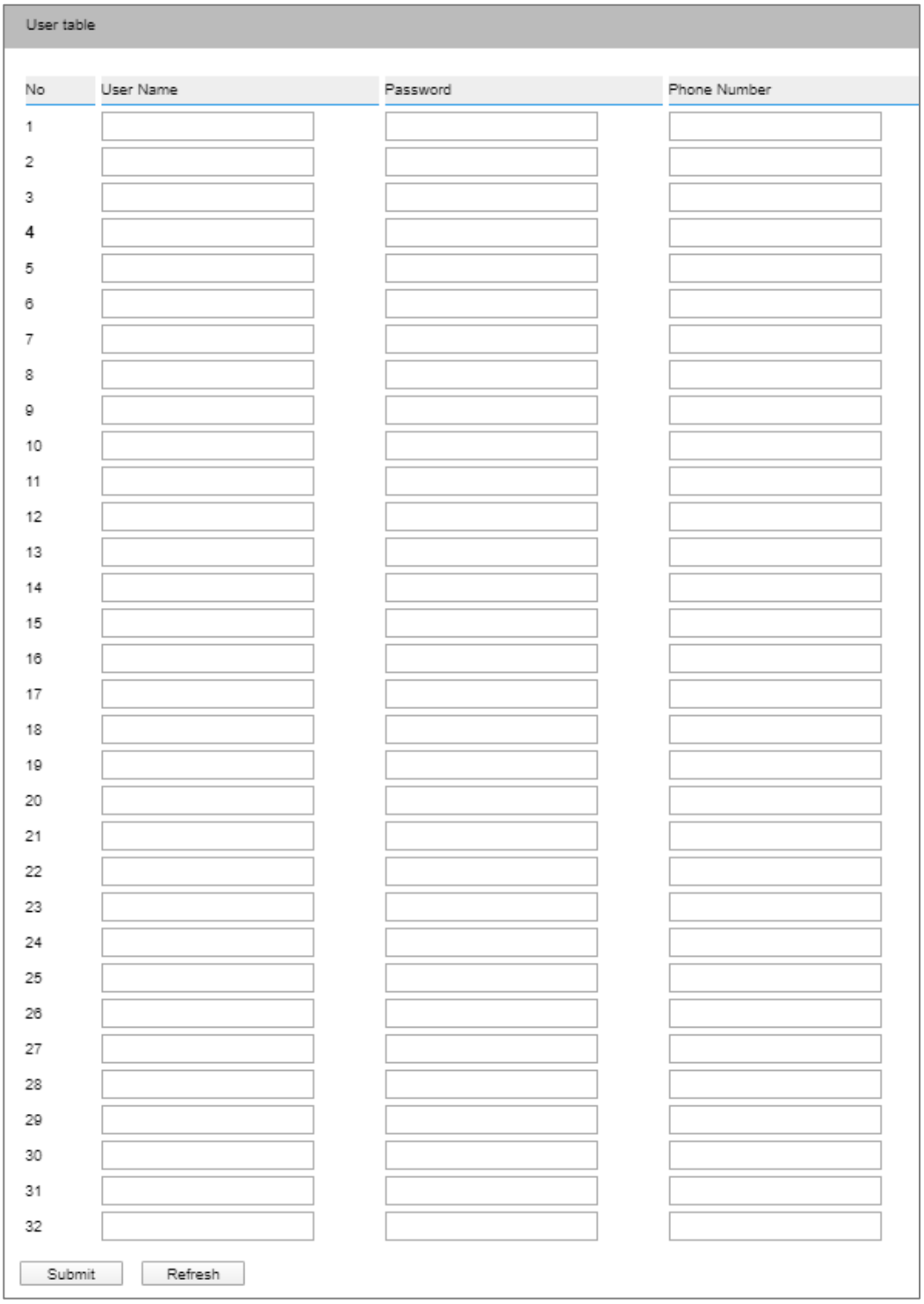
## Operation Path

Open in order “COM Mode > User Table”.

## Interface Description

User table interface is as follows:


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The main element configuration description of user table interface:

| Interface Element | Description |
|---|---|
| No | User serial number. |
| User Name | User name for reverse SSH local authentication, supporting 5-32 digits of letters, numbers or combinations. |
| Password | User password for reverse SSH local authentication, |


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| Interface Element | Description |
| --- | --- |
| | supporting 5-32 valid characters. |
| Phone Number | Telephone contact information of users (optional). |


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# 6 COM State

## About this chapter

| Content | Link |
| --- | --- |
| This Chapter | 6.1 Serial Port Communication Statistics<br>6.2 Serial Port Status<br>6.3 Network Connection State<br>6.4 Serial Port Error Count<br>6.5 Usage of Key Algorithm |

## 6.1 Serial Port Communication Statistics

### Function Description

View the statistics of the number of bytes received and sent during the conversion between each serial port and the network.

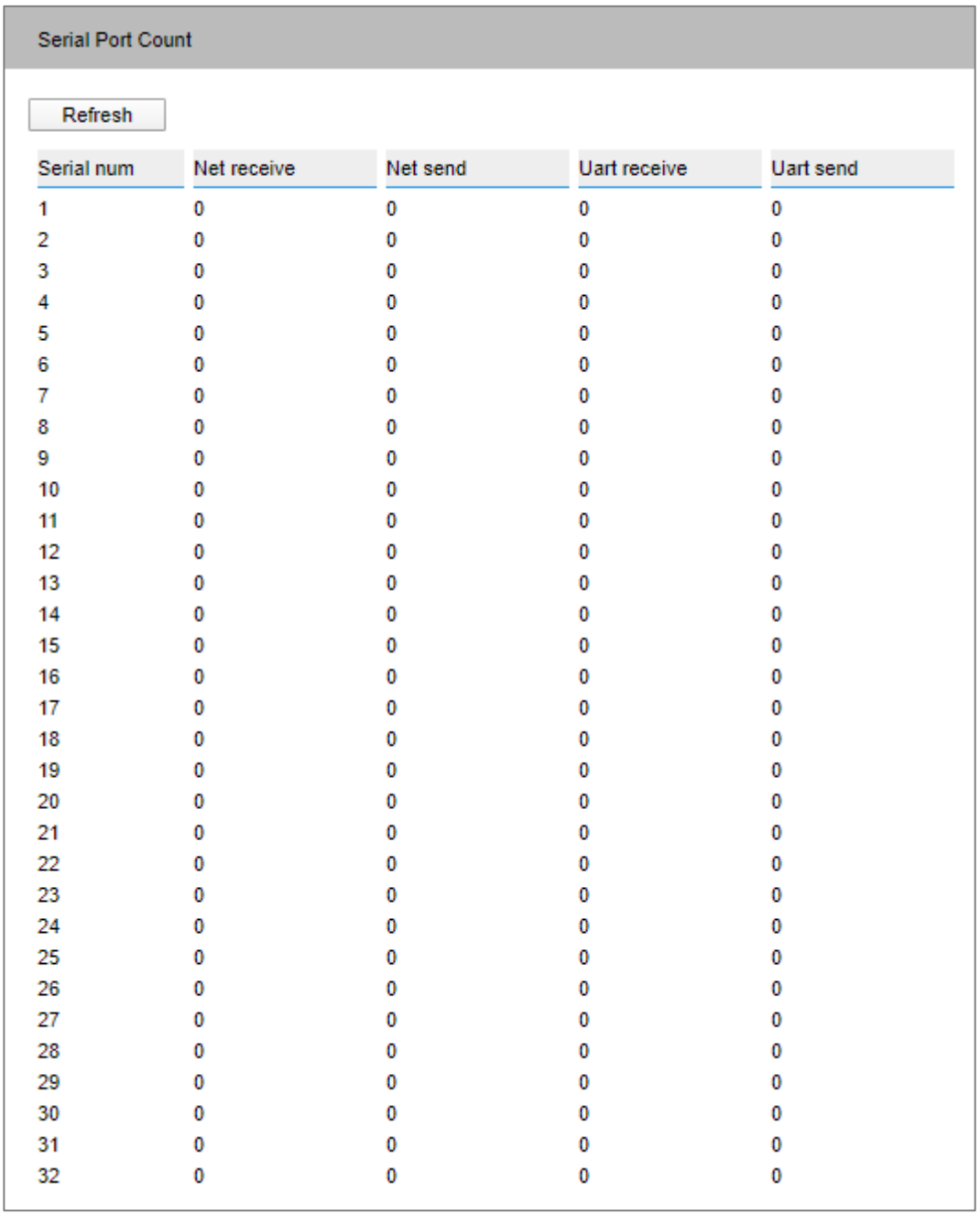
### Operation Path

Open in order: "COM Status> COM Communication Statistics".

### Interface Description

The interface of COM Communication Statistics is as follows:


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The main element configuration description of Serial Port Count interface:

| Interface Element | Description |
|---|---|
| Serial number | Display corresponding device serial port number. |
| Net receive | Number of bytes received by the device network interface. |
| Net send | Number of bytes sent by the device network interface. |
| Uart receive | Number of bytes received by the serial port of the device. |
| Uart send | Number of bytes sent by serial port of device. |


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# 6.2 Serial Port Status

## Function Description

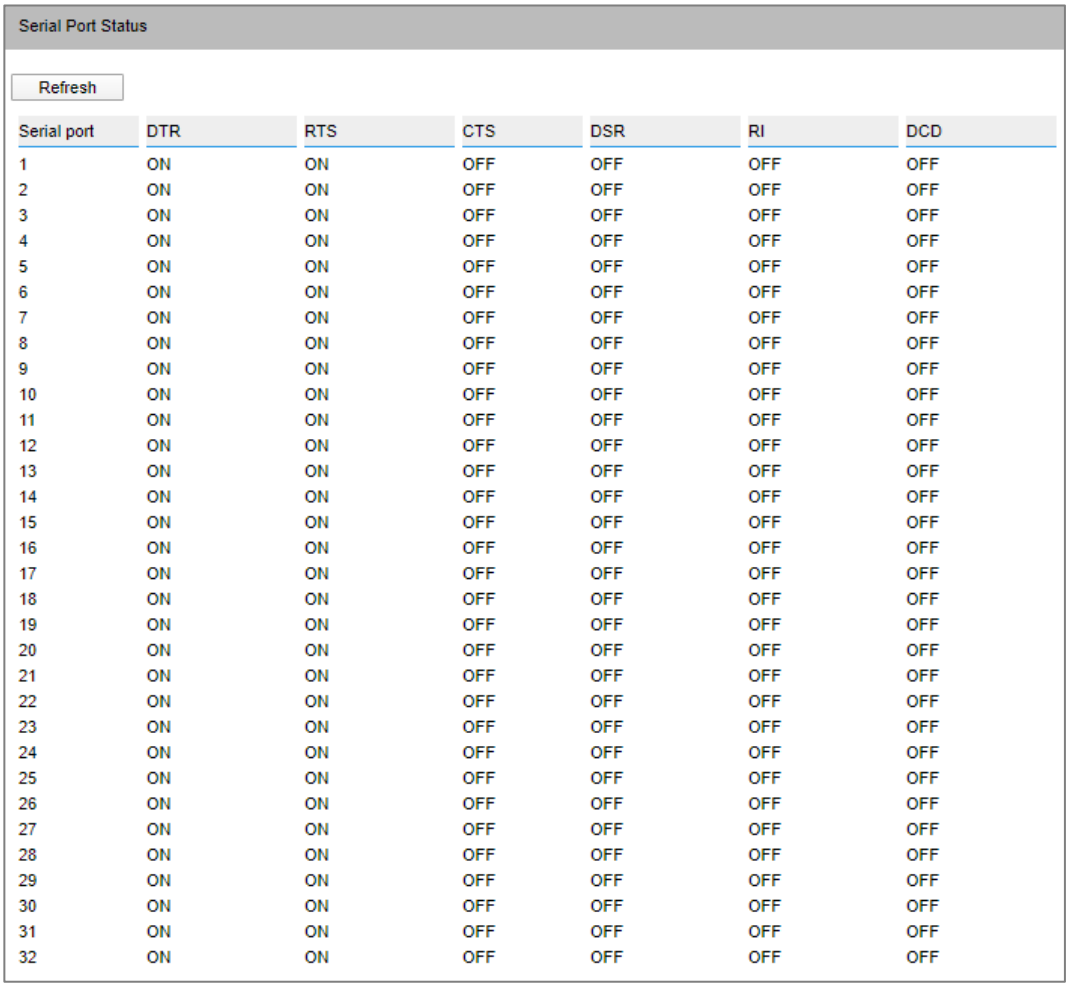
You can view the pin status of each serial port of the device.

## Operation Path

Open in order: "COM Status > Serial Port Status".

## Interface Description

Serial Port Status interface is as follows:




| Serial port | DTR | RTS | CTS | DSR | RI | DCD |
|---|---|---|---|---|---|---|
| 1 | ON | ON | OFF | OFF | OFF | OFF |
| 2 | ON | ON | OFF | OFF | OFF | OFF |
| 3 | ON | ON | OFF | OFF | OFF | OFF |
| 4 | ON | ON | OFF | OFF | OFF | OFF |
| 5 | ON | ON | OFF | OFF | OFF | OFF |
| 6 | ON | ON | OFF | OFF | OFF | OFF |
| 7 | ON | ON | OFF | OFF | OFF | OFF |
| 8 | ON | ON | OFF | OFF | OFF | OFF |
| 9 | ON | ON | OFF | OFF | OFF | OFF |
| 10 | ON | ON | OFF | OFF | OFF | OFF |
| 11 | ON | ON | OFF | OFF | OFF | OFF |
| 12 | ON | ON | OFF | OFF | OFF | OFF |
| 13 | ON | ON | OFF | OFF | OFF | OFF |
| 14 | ON | ON | OFF | OFF | OFF | OFF |
| 15 | ON | ON | OFF | OFF | OFF | OFF |
| 16 | ON | ON | OFF | OFF | OFF | OFF |
| 17 | ON | ON | OFF | OFF | OFF | OFF |
| 18 | ON | ON | OFF | OFF | OFF | OFF |
| 19 | ON | ON | OFF | OFF | OFF | OFF |
| 20 | ON | ON | OFF | OFF | OFF | OFF |
| 21 | ON | ON | OFF | OFF | OFF | OFF |
| 22 | ON | ON | OFF | OFF | OFF | OFF |
| 23 | ON | ON | OFF | OFF | OFF | OFF |
| 24 | ON | ON | OFF | OFF | OFF | OFF |
| 25 | ON | ON | OFF | OFF | OFF | OFF |
| 26 | ON | ON | OFF | OFF | OFF | OFF |
| 27 | ON | ON | OFF | OFF | OFF | OFF |
| 28 | ON | ON | OFF | OFF | OFF | OFF |
| 29 | ON | ON | OFF | OFF | OFF | OFF |
| 30 | ON | ON | OFF | OFF | OFF | OFF |
| 31 | ON | ON | OFF | OFF | OFF | OFF |
| 32 | ON | ON | OFF | OFF | OFF | OFF |

Main element configuration instructions in Serial Port Status interface:

| Interface Element | Description |
|---|---|
| Serial port | Display corresponding device serial port number. |
| DTR | the status of DTR(Data Terminal Ready) pin of serial port can be displayed as follows:<br>• ON Status<br>• OFF |


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| Interface Element | Description |
|---|---|
| RTS | At present, the status of RTS(Request To Send) pin of serial port can be displayed as follows:<br>• ON Status<br>• OFF |
| CTS | At present, the status of CTS(Clear To Send) pin of serial port can be displayed as follows:<br>• ON Status<br>• OFF |
| DSR | The current status of DSR(Data Set Ready) pin of serial port can be displayed as follows:<br>• ON Status<br>• OFF |
| RI | The current status of RI(Ring Indicator) pin of serial port can be displayed as follows:<br>• ON Status<br>• OFF |
| DCD | The current status of DCD(Data Carrier Detect) pin of serial port can be displayed as follows:<br>• ON Status<br>• OFF |

## 6.3 Network Connection State

### Function Description

View the working mode and network session connection status of each serial port of the device.

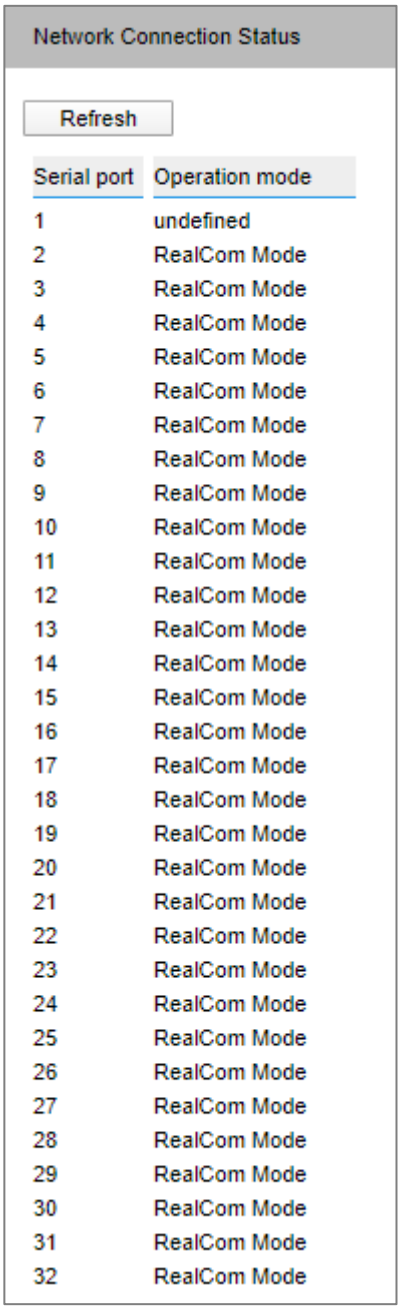
### Operation Path

Open in order: "COM Status > Network Connection Status".

### Interface Description

The network connection status interface is as follows:


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The main elements configuration descriptions of the network connection status interface:

| Interface Element | Description |
|---|---|
| Serial port | Display corresponding device serial port number. |
| Operation mode | The operation mode of current serial port are as follows:<br>• RealCom Mode<br>• Reverse RealCom Mode<br>• TCP Server Mode<br>• TCP Client Mode<br>• UDP Server Mode |


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| Interface Element | Description |
|---|---|
| | • UDP Client Mode<br>• UDP Rang Mode<br>• UDP Multicast Mode<br>• Pair Slave Mode<br>• Pair Master Mode<br>• Telnet Mode<br>• Reverse Telnet Mode<br>• RFC2217 Mode<br>• Redundant Com Mode<br>• DRDAS RealCom Mode<br>• DRDAS TCP Server Mode<br>• SSH<br>• Reverse SSH<br>• Disable Mode(undefined) |
| Session1-8 | The connection status of the current serial network session, which can support up to 8 sessions, can be shown as follows:<br>• Connected<br>• Connecting<br>• Listening<br>• (None): the session is not enabled or UDP is not connected |

# 6.4 Serial Port Error Count

## Function Description

User can check the error statistics of each serial port of the device.

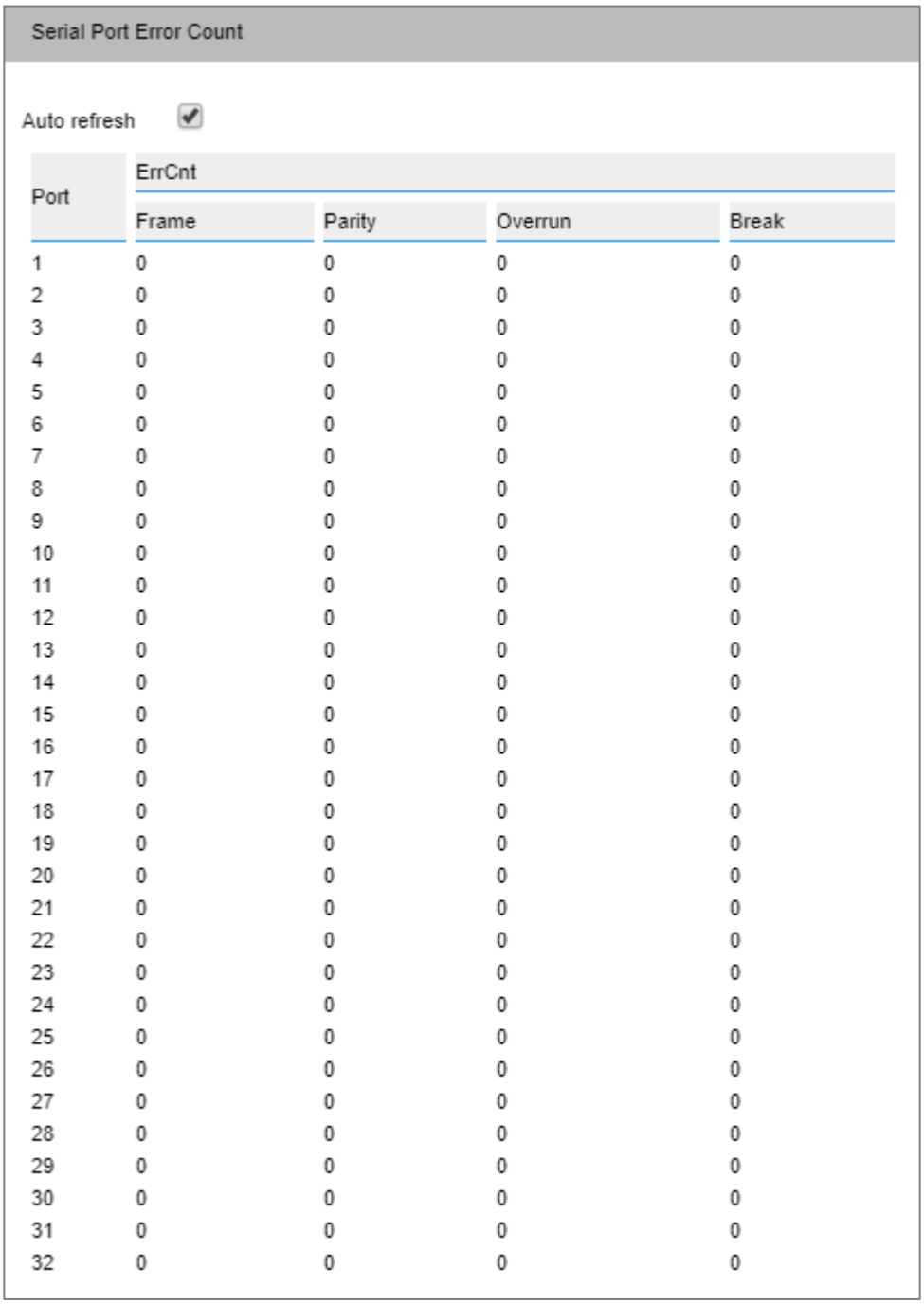
## Operation Path

Open in order: "COM Status > Serial Port Error Count".

## Interface Description

Serial Port Error Count interface as follows:


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The main element configuration description of serial port error count:

| Interface Element | Description |
|---|---|
| Serial port number | Display corresponding device serial port number. |
| Frame | The number of data frames with wrong stop bits, the received data characters have no valid stop bits. |
| Parity | The number of data frames with wrong check mode, and the received data characters do not match the configured check bits. |
| Overrun | The number of overrun data frames, and the received data |


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| Interface Element | Description |
| --- | --- |
| | characters exceeded the processing speed of the device and caused the buffer overflow. |
| Break | The number of interrupted data frames, and the time that the received data characters remain low level exceeds the transmission time of one complete data frame (the total time of transmission start bit, data bit, check bit and stop bit). |

## 6.5 Usage of Key Algorithm

### Function Description

You can view the key algorithm used by each serial port of the device.

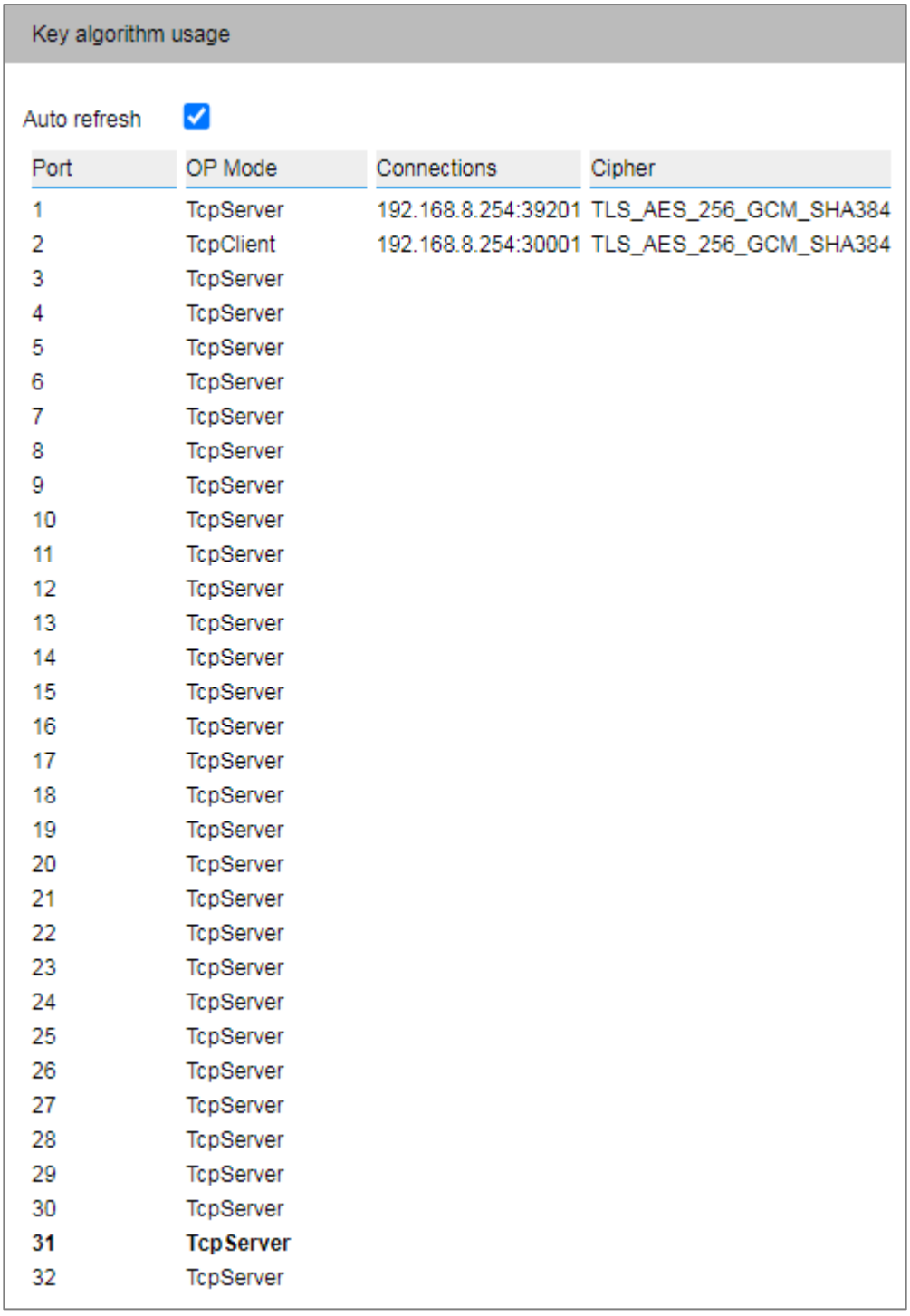
### Operation Path

Open in order: "Serial port status > Key algorithm usage".

### Interface Description

The interface of key algorithm usage is as follows:


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The main element configuration description of Usage of Key Algorithm interface:

| Interface Element | Description |
|---|---|
| Auto-refresh | When checked, the page will be automatically refreshed every 5 seconds. |
| Port | Display corresponding device serial port number. |
| OP Mode | Display the work mode of current serial port. |
| Connection | Displays the connection status of session. |


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| Interface Element | Description |
| --- | --- |
| Cipher | Display the key algorithm used by the serial port. |


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# 7 SNMP

## About this chapter

| Content | Link |
| --- | --- |
| This Chapter | 7.1 SNMP Agent Settings |

SNMP (Simple Network Management Protocol) is a network management standard protocol widely used in TCP/IP networks. SNMP provides a way to manage devices by running network management software on a central computer (or network management workstation).

SNMP System consists of NMS (Network Management System), Agent Process, Management Object and MIB (Management Information Base) four parts. Agent: Agent is an agent process in the managed device, which is used to maintain the information data of the managed device and respond to the request from the NMS, and report the administration data to the NMS that sending the request.

## 7.1 SNMP Agent Settings

### Function Description

The SNMP function can be enabled and disabled, and other related parameters such as SNMP community name, version and user information can be configured.

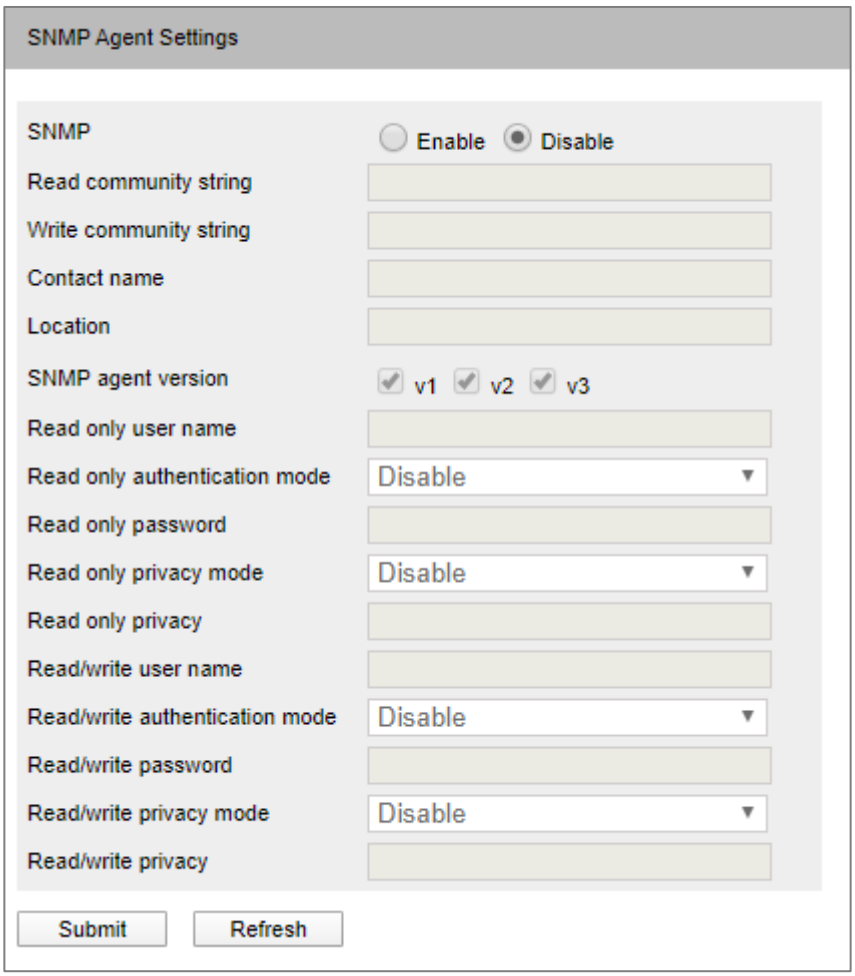
### Operation Path

Open in order: "SNMP > SNMP Agent Settings".

### Interface Description

SNMP agent settings interface as follows:


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Main elements configuration description of SNMP agent settings interface:

| Interface Element | Description |
|---|---|
| SNMP | The radio box of enable/disable SNMP function, the options are as follows:<br>• Enable<br>• Disable |
| Read community string | The text box of readable community name, supporting 0-32bit character string input. The readable community name is used for authentication of Get operation between Agent and NMS. |
| Write community string | The text box of writable community name, supporting 0-32bit character string input. The writable community name is used to complete Set operation authentication between Agent and NMS. |
| Contact name | The text box of SNMP contact information, supporting 0-32bit character string input. |


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| Interface Element | Description |
|---|---|
| Location | The text box of position information, supporting 0-32bit character string input. |
| SNMP agent version | The check box of the SNMP agent version, which supports optional v1, v2 and v3 versions. Compared with v1/v2, version v3 mainly adds authentication and encryption. |
| Read only user name | The text box of read-only user name, supporting 0-32bit character string input. |
| Read only authentication mode | The drop-down list of read-only user authentication mode, the options are as follows:<br>• Disable<br>• MD5: message digest algorithm 5;<br>• SHA: Secure Hash Standard. |
| Read only password | The text box of read-only user authentication key, supporting 0-32bit character string input. |
| Read only privacy Mode | The drop-down list of read-only user data encryption mode, the options are as follows:<br>• Disable<br>• DES_CBC: The system encrypts the data by using the cipher group link code of the data encryption standard. |
| Read-only privacy | Read-only user data encryption key text box, supporting 0-32bit character string input. |
| Read/Write-user name | The text box of read/write user name, supporting 0-32bit character string input. |
| Read/Write authentication mode | The drop-down list of read/write user authentication mode, the options are as follows:<br>• Disable<br>• MD5 (message digest algorithm 5);<br>• SHA: Secure Hash Standard. |
| Read/Write password | The text box of read/write user authentication key, supporting 0-32bit character string input. |
| Read/Write privacy mode | The drop-down list of read/write user data encryption mode, the options are as follows:<br>• Disable<br>• DES_CBC: The system encrypts the data by using the cipher group link code of the data encryption standard. |


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| Interface Element | Description |
| --- | --- |
| Read/Write privacy | The text box of read/write user data encryption key, supporting 0-32bit character string input. |


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# 8 Alarm Settings

## About this chapter

| Content | Link |
| --- | --- |
| This Chapter | 8.1 Mail Alarm Configuration<br>8.2 SNMP Trap Alarm Configuration<br>8.3 System Alert Settings |

## 8.1 Mail Alarm Configuration

### Function Description

Users can configure parameters such as mail sender, recipient and mailbox server. The system can inform the hot start, cold start, login failure, static IP modification and password modification of the device by email.

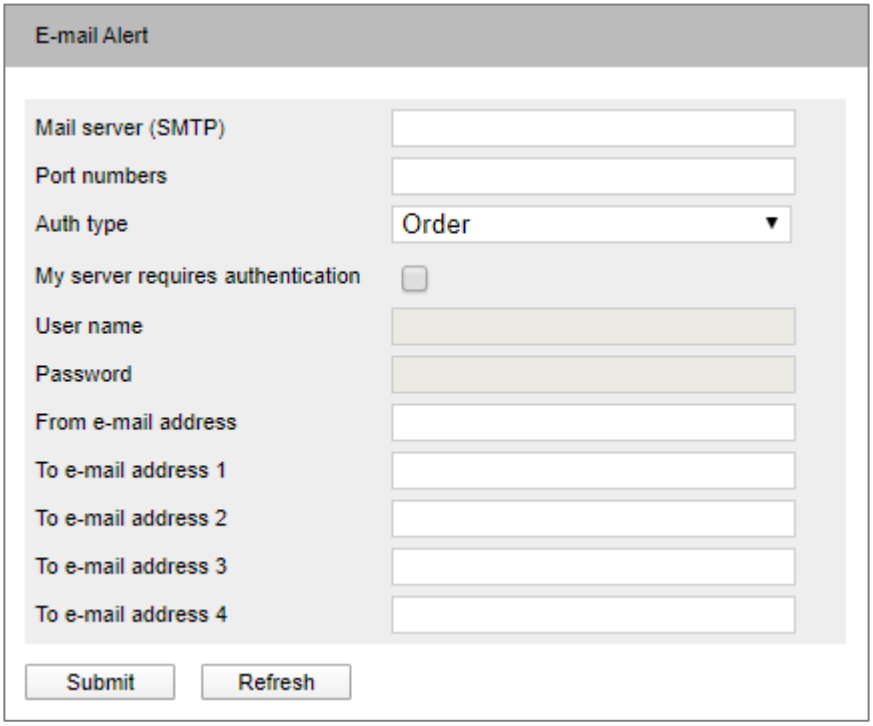
### Operation Path

Open in order: "Alarm Configuration > Mail Alarm Settings".

### Interface Description

Mail Alarm Settings configuration interface is as follows:


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Main element configuration instructions in E-mail alert interface:

| Interface Element | Description |
|---|---|
| SMTP server. | Mailbox server address using SMTP simple mail transfer protocol provided by mailbox service provider, and mailbox server address used by sender when sending mail. |
| Port number | Port number of mailbox server. |
| Auth type | The drop-down list of authentication method, the options are as follows:<br>• Plaintext: no encryption;<br>• SSL: encryption protocol of Secure Sockets Layer;<br>• TLS: encryption protocol of Transport Layer Security. |
| My server requires authentication | The check box of mailbox server authentication. Check the configuration according to the authentication requirements of mailbox server. |
| Username | The user name of the sender's mailbox server. |
| Password | Login password or authorization code of sender's mailbox server. |
| From e-mail address | The email address from which the sender sends a warning message. |
| To e-mail address 1 | The input text box of Address 1, which is used to fill in the email address of receiving alarm mails. |


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| Interface Element | Description |
|---|---|
| To e-mail address 2 | The input text box of Address 2, which is used to fill in the email address of receiving alarm mails. |
| To e-mail address 3 | The input text box of Address 3, which is used to fill in the email address of receiving alarm mails. |
| To e-mail address 4 | The input text box of Address 4, which is used to fill in the email address of receiving alarm mails. |

# 8.2 SNMP Trap Alarm Configuration

## Function Description

You can configure the IP address or domain name of the server that receives SNMP Trap information.

## Operation Path

Open in order: "Advanced Config > SNMP Trap Alarm Configuration".

## Interface Description

The SNMP Trap Alarm Configuration interface as follows:




The main elements configuration description of SNMP Trap alarm interface:

| Interface Element | Description |
|---|---|
| SNMP trap server IP or domain name | The text box of IP address or domain name of SNMP Trap server. The server is used to receive SNMP Trap information sent by devices. |
| Trap Version | The radio box of SNMP Trap version, which supports optional v1 and v2c versions. |
| Trap community | The text box of SNMP Trap community name, which specifies SNMP community name. |


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# 8.3 System Alert Settings

## Function Description

The alarm type of system events can be configured.

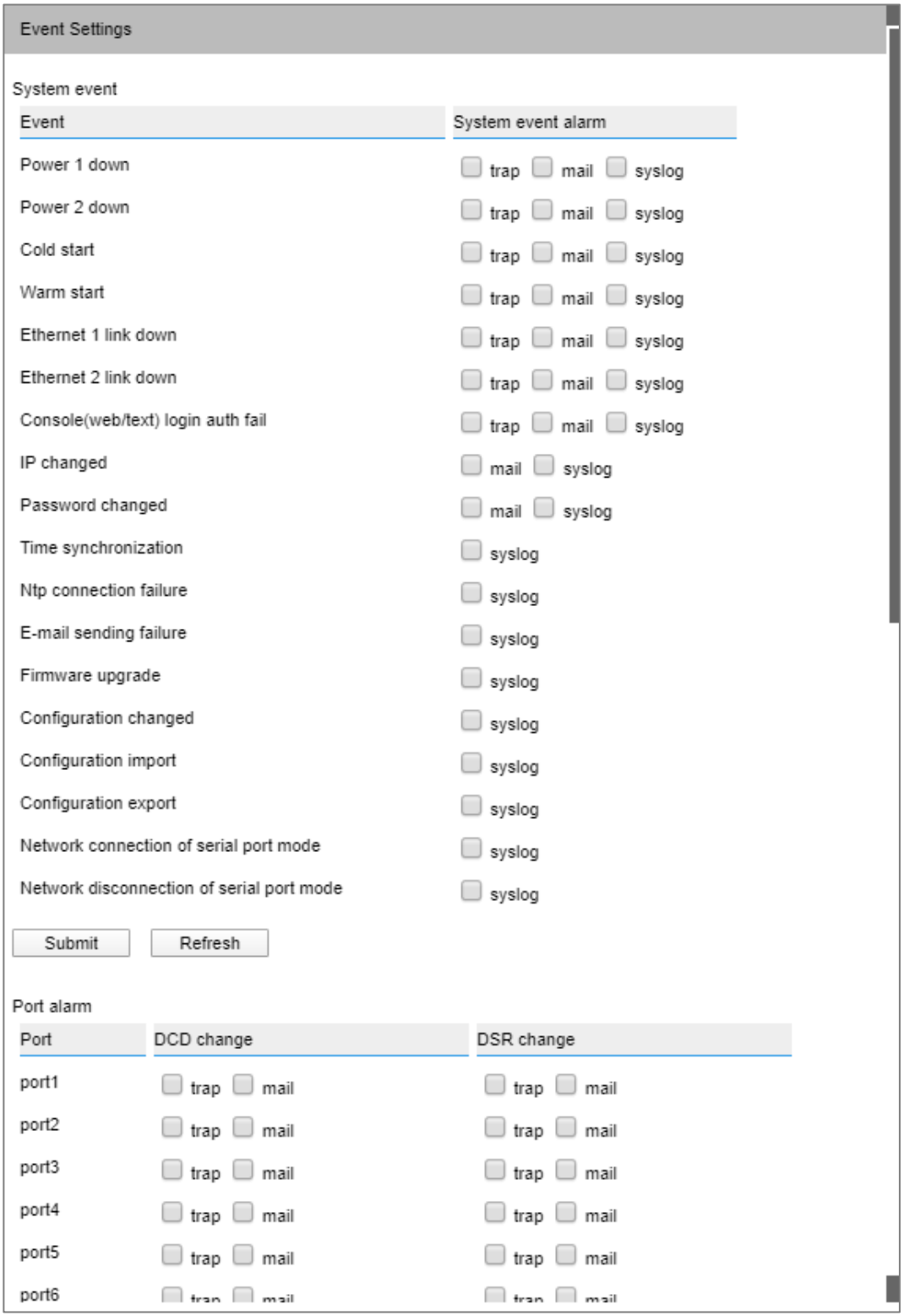
## Operation Path

Open in order: "Alarm Configuration >System Alarm Settings".

## Interface Description

System Alert Settings interface is as follows:

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Main elements configuration description of system alarm interface:

| Interface Element | Description |
|---|---|
| **System event** | **System event alert configuration bar** |
| Event | System event alert types, shown as follows:<br>• Power 1: When dual power supplies are input, device |

| Interface Element | Description |
|---|---|
| | will send alarm if power1 is off.<br>• Power 2: When dual power supplies are input, device will send alarm if power2 is off.<br>• Cold start: device will send alarm after it is powered off and restarted.<br>• Warm start: In the case of uninterrupted power supply, the device will send alarm after restarting the device via the Web or CLI configuration.<br>• Ethernet 1: device will send alarm when lan1 loses connection.<br>• Ethernet 2: device will send alarm when lan2 loses connection.<br>• Console (web/text) login auth fail: device will send alarm when web login password authentication fails.<br>• IP changed: device will send alarm when “Network Configuration” is modified.<br>• Password changed: device will send alarm when “User Configuration” is modified.<br>• Time synchronization: device will send alarm when “Time Setting” is modified.<br>• NTP Connection Failure: device will send alarm when NTP sever connection fails.<br>• E-mail Sending Failure: device will send alarm when mail sending fails due to network or other problems.<br>• Firmware Upgrade: device will send alarm when the firmware is upgraded.<br>• Configuration changed: device will send alarm when part of webpage configuration is modified.<br>• Configuration Import: device will send alarm when configuration file is imported.<br>• Configuration Export: device will send alarm when configuration file is exported.<br>• Network connection of serial port mode: when the TCP/IP connection in serial port mode is established, the device will give an alarm.<br>• Network disconnection of serial port mode: when the |


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| Interface Element | Description |
|---|---|
| | TCP/IP connection in serial port mode is disconnected, the device will give an alarm. |
| System alert | System alert mode check box, the options are as follows:<br>• Trap: after checked, device will send SNMP Trap message for alarm according to “SNMP Trap Alarm Configuration” information when the corresponding system event sends an alarm.<br>• Mail: after checked, device will send mail for alarm according to “Mail Alarm Configuration” information when the corresponding system event sends an alarm.<br>• Sys log: after checked, device will record alarm message in “System Log” information when the corresponding system event sends an alarm; device will send log message for alarm to remote syslog if it is enabled. |
| **Port Alarm Settings** | **Port Alarm Settings Configuration Bar** |
| Serial port | Serial number corresponding to the serial port of device. |
| DCD change | The state change alert of DCD data carrier monitoring signal of serial port, indicating that the connection state of serial port device on the other end has changed. If DCD becomes low, the serial port connection may be disconnected. Alert mode check box, the options are as follows:<br>• trap: SNMP trap alert;<br>• mail: mail alarm. |
| DSR change | The DSR data of the serial port is ready for signal state change alert, indicating that the serial port device on the end without power supply. If the DSR becomes low, the serial port device will lose power supply. Alert mode check box, the options are as follows:<br>• trap: SNMP trap alert;<br>• mail: mail alarm. |


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# 9 System Status

## About this chapter

| Content | Link |
|---|---|
| This Chapter | 9.1 Routing Table<br>9.2 System Network Status<br>9.3 System Log |

## 9.1 Routing Table

### Function Description

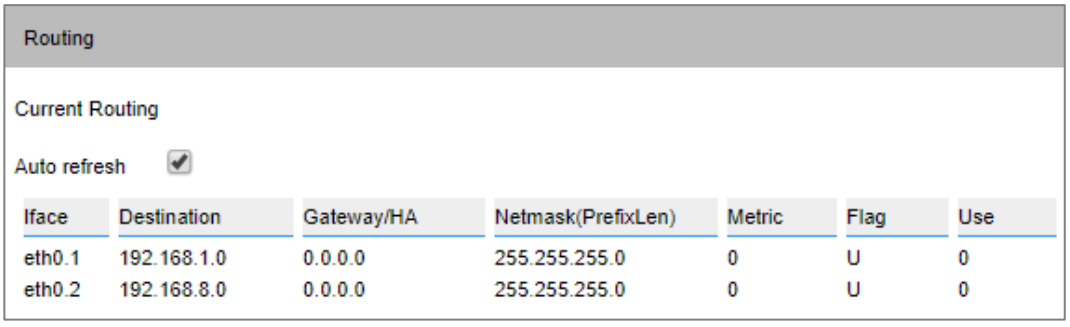
Display current route information.

### Operation Path

Open in order: “System Status > Routing".

### Interface Description

Route Table Interface Screenshot:




The main elements configuration description of routing interface:


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| Interface Element | Description |
|---|---|
| Iface | Display the interface name of physical network. |
| Destination | Display the IPv4&IPv6 address of destination host or the network address of destination routing. |
| Gateway/HA | Display gateway IPv4&IPv6 address or next hop router IP address of. |
| Netmask(PrefixLen) | Displays the IPv4 subnet mask or IPv6 prefix length of the destination network. |
| Metric | Display the router hops from source terminal to destination terminal. |
| Flags | Display routing status, valid status is:<br>• U: UP<br>• D: DOWN<br>• G: Route to gateway<br>• H: Route to host computer<br>• T: Routing settings<br>• R: RIP is dynamic |
| Use | The quantity of data packet which is sent correctly via the router. |

# 9.2 System Network Status

## Function Description

User can check TCP connection information of the device.

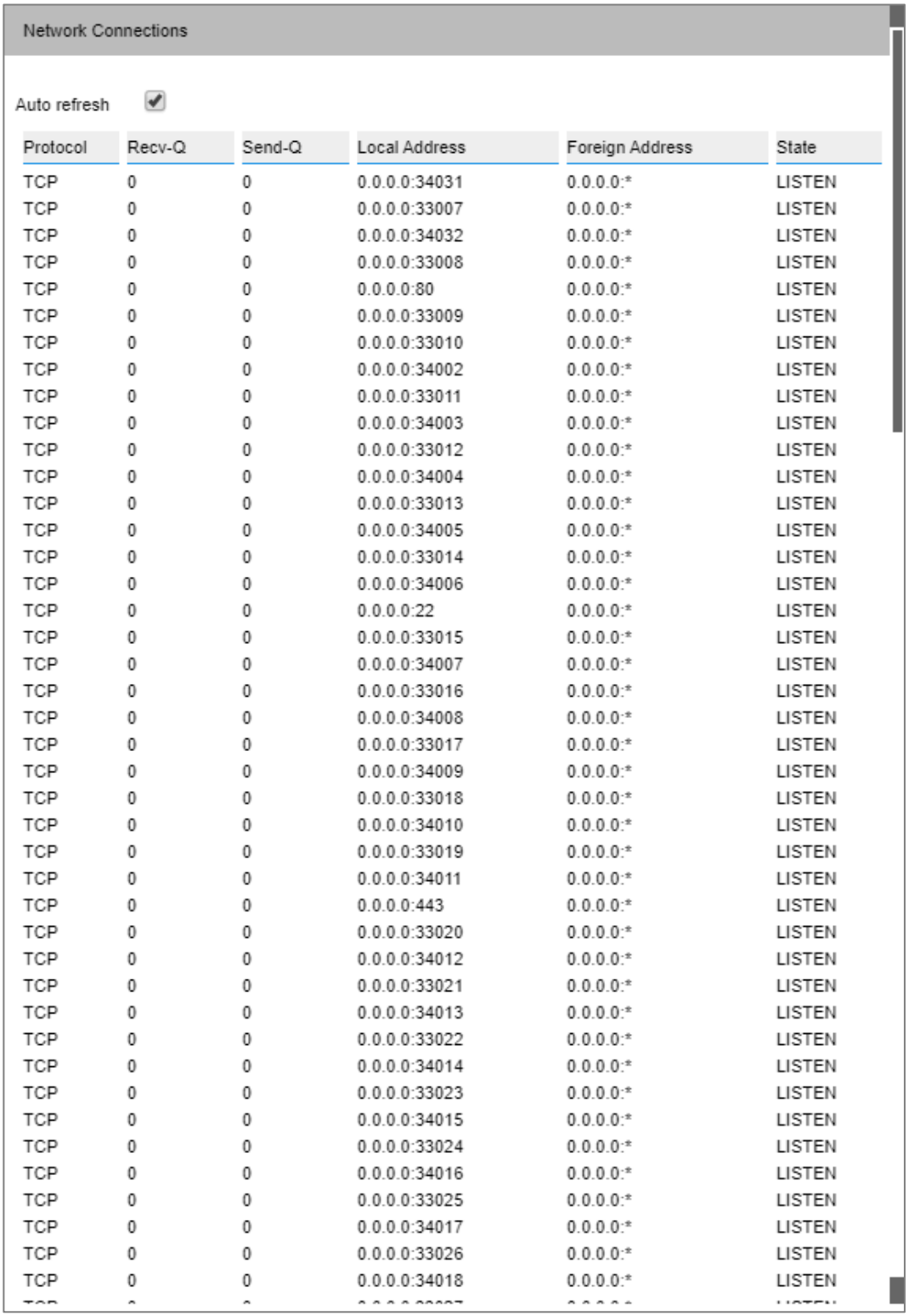
## Operation Path

Open in order: “System Status > System Network Status”.

## Interface Description

The system network status interface is as follows:


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| Protocol | Recv-Q | Send-Q | Local Address | Foreign Address | State |
|---|---|---|---|---|---|
| TCP | 0 | 0 | 0.0.0.0:34031 | 0.0.0.0:* | LISTEN |
| TCP | 0 | 0 | 0.0.0.0:33007 | 0.0.0.0:* | LISTEN |
| TCP | 0 | 0 | 0.0.0.0:34032 | 0.0.0.0:* | LISTEN |
| TCP | 0 | 0 | 0.0.0.0:33008 | 0.0.0.0:* | LISTEN |
| TCP | 0 | 0 | 0.0.0.0:80 | 0.0.0.0:* | LISTEN |
| TCP | 0 | 0 | 0.0.0.0:33009 | 0.0.0.0:* | LISTEN |
| TCP | 0 | 0 | 0.0.0.0:33010 | 0.0.0.0:* | LISTEN |
| TCP | 0 | 0 | 0.0.0.0:34002 | 0.0.0.0:* | LISTEN |
| TCP | 0 | 0 | 0.0.0.0:33011 | 0.0.0.0:* | LISTEN |
| TCP | 0 | 0 | 0.0.0.0:34003 | 0.0.0.0:* | LISTEN |
| TCP | 0 | 0 | 0.0.0.0:33012 | 0.0.0.0:* | LISTEN |
| TCP | 0 | 0 | 0.0.0.0:34004 | 0.0.0.0:* | LISTEN |
| TCP | 0 | 0 | 0.0.0.0:33013 | 0.0.0.0:* | LISTEN |
| TCP | 0 | 0 | 0.0.0.0:34005 | 0.0.0.0:* | LISTEN |
| TCP | 0 | 0 | 0.0.0.0:33014 | 0.0.0.0:* | LISTEN |
| TCP | 0 | 0 | 0.0.0.0:34006 | 0.0.0.0:* | LISTEN |
| TCP | 0 | 0 | 0.0.0.0:22 | 0.0.0.0:* | LISTEN |
| TCP | 0 | 0 | 0.0.0.0:33015 | 0.0.0.0:* | LISTEN |
| TCP | 0 | 0 | 0.0.0.0:34007 | 0.0.0.0:* | LISTEN |
| TCP | 0 | 0 | 0.0.0.0:33016 | 0.0.0.0:* | LISTEN |
| TCP | 0 | 0 | 0.0.0.0:34008 | 0.0.0.0:* | LISTEN |
| TCP | 0 | 0 | 0.0.0.0:33017 | 0.0.0.0:* | LISTEN |
| TCP | 0 | 0 | 0.0.0.0:34009 | 0.0.0.0:* | LISTEN |
| TCP | 0 | 0 | 0.0.0.0:33018 | 0.0.0.0:* | LISTEN |
| TCP | 0 | 0 | 0.0.0.0:34010 | 0.0.0.0:* | LISTEN |
| TCP | 0 | 0 | 0.0.0.0:33019 | 0.0.0.0:* | LISTEN |
| TCP | 0 | 0 | 0.0.0.0:34011 | 0.0.0.0:* | LISTEN |
| TCP | 0 | 0 | 0.0.0.0:443 | 0.0.0.0:* | LISTEN |
| TCP | 0 | 0 | 0.0.0.0:33020 | 0.0.0.0:* | LISTEN |
| TCP | 0 | 0 | 0.0.0.0:34012 | 0.0.0.0:* | LISTEN |
| TCP | 0 | 0 | 0.0.0.0:33021 | 0.0.0.0:* | LISTEN |
| TCP | 0 | 0 | 0.0.0.0:34013 | 0.0.0.0:* | LISTEN |
| TCP | 0 | 0 | 0.0.0.0:33022 | 0.0.0.0:* | LISTEN |
| TCP | 0 | 0 | 0.0.0.0:34014 | 0.0.0.0:* | LISTEN |
| TCP | 0 | 0 | 0.0.0.0:33023 | 0.0.0.0:* | LISTEN |
| TCP | 0 | 0 | 0.0.0.0:34015 | 0.0.0.0:* | LISTEN |
| TCP | 0 | 0 | 0.0.0.0:33024 | 0.0.0.0:* | LISTEN |
| TCP | 0 | 0 | 0.0.0.0:34016 | 0.0.0.0:* | LISTEN |
| TCP | 0 | 0 | 0.0.0.0:33025 | 0.0.0.0:* | LISTEN |
| TCP | 0 | 0 | 0.0.0.0:34017 | 0.0.0.0:* | LISTEN |
| TCP | 0 | 0 | 0.0.0.0:33026 | 0.0.0.0:* | LISTEN |
| TCP | 0 | 0 | 0.0.0.0:34018 | 0.0.0.0:* | LISTEN |

The main element configuration description of system network status interface:

| Interface Element | Description |
|---|---|
| Protocol | Network protocol type. |
| Recv-Q | Number of network receiving queues. |
| Send-Q | Number of network sending queues. |


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| Interface Element | Description |
|---|---|
| Local Address | Device IPv4, IPv6 address and network port number. |
| Foreign Address | IPv4, IPv6 address and network port number of remote host. |
| State | The status of the network socket is as follows:<br>• LISTEN: listening state.<br>• SYN_SENT: sending connection request.<br>• SYN_RECV: the server should send an ACK to acknowledge the client's SYN and send a SYN of its own to the client.<br>• ESTABLISHEN: represents an open connection, in which two parties can or have data interaction.<br>• FIN_WAIT1: sending FIN actively to request to close connection state.<br>• CLOSE_WAIT: when the passive close terminal receives FIN, it will send ACK to answer FIN request and enter CLOSE_WAIT state.<br>• FIN_WAIT2: when the active close terminal receives ACK, it will enter FIN_WAIT2status.<br>• LAST_ACK: After some time the passive close terminal receives end-of-file character, it will call CLOSE to close connection. Thus its TCP also sends a FIN and waits the opposite ACK. It enters LAST-ACK status.<br>• TIME_WAIT: when the active close terminal receives FIN, it will send ACK and enter CLOSE_WAIT state.<br>• CLOSING: wait the remote terminal to confirm the connection interruption.<br>• CLOSED: when the passive close terminal receives ACK package, it will enter CLOSED status.<br>• UNKNOWN: unknown Socket status. |


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# 9.3 System Log

## Function Description

You can view the log information of the device and upload the log information to the syslog server. During the operation of the device, the system will record all kinds of situations in operation, thus forming log information. The log information is mainly used to check the running status of device, analyze the status of network and locate the causes of problems, and provide basis for system diagnosis and maintenance. The generated log information can be saved on the device, and the log information can be output to the log server by using syslog protocol.

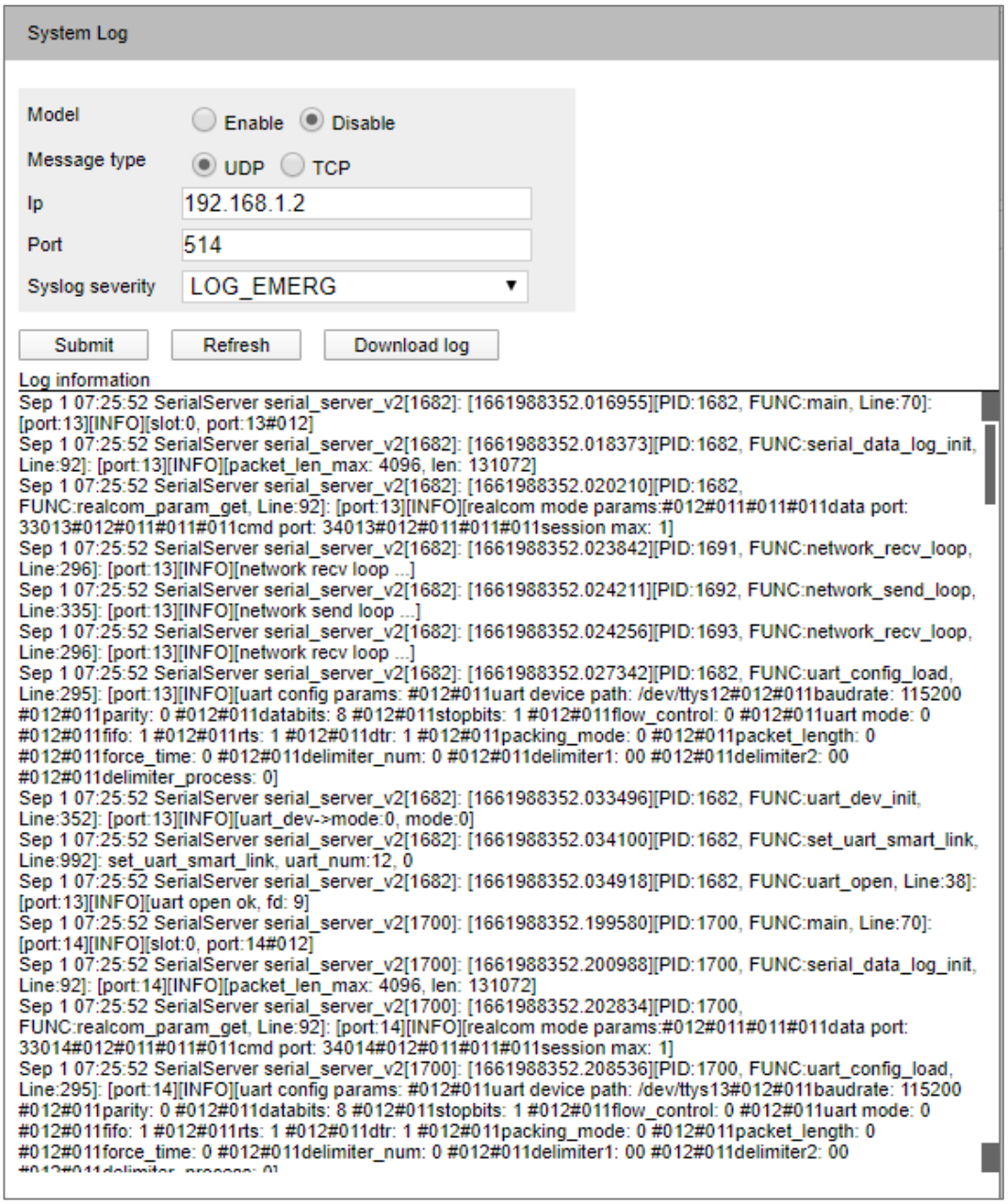
## Operation Path

Open in order: “System Management > System Log”.

## Interface Description

The system log interface is as follows:


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The main elements configuration description of system log interface:

| Interface Element | Description |
|---|---|
| Mode | System log server configuration type, which can be checked as follows:<br>• Enable: when enabled, the system log will be saved to the remote system log server.<br>• Disable: Disable the syslog server function. |
| Message Type | System log information transmission protocol, which can be selected as follows:<br>• TCP: system log information is sent to the log server by |


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| Interface Element | Description |
|---|---|
| | TCP protocol. TCP (transmission control protocol), connection-oriented and reliable transmission-layer communication protocol;<br>• UDP: the system log information is sent to the log server by UDP protocol. UDP (user datagram protocol), connectionless-oriented transmission-layer communication protocol. |
| IP | IPv4 or IPv6 address of the syslog server. |
| Port | The port number of syslog server, and the default port of syslog protocol is 514. |
| Syslog severity | The level of system log can be selected as follows:<br>• LOG_EMERG: extremely urgent error;<br>• LOG_ALERT: an error that needs to be corrected immediately;<br>• LOG_CRIT: a more serious error;<br>• LOG_ERR: An error occurred;<br>• LOG_WARNING: warning, there may be some error;<br>• LOG_NOTICE: information to be noticed;<br>• LOG_INFO: general prompt information;<br>• LOG_DEBUG: debug information. |
| Download log | Click the "Download Log" button to export the current log file “messages” locally. |

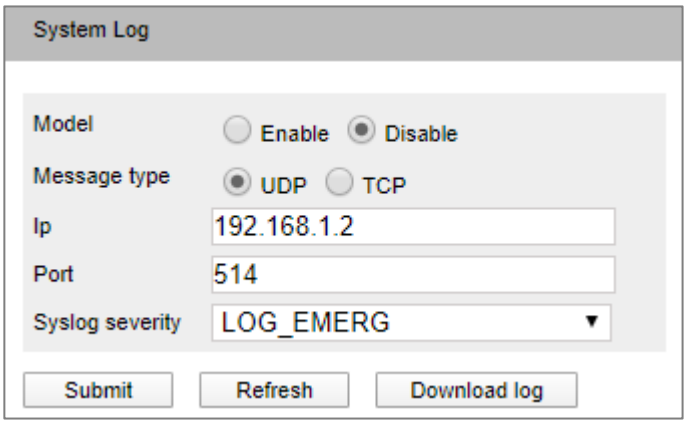
## Configuration Instance

"Visual Sys log Server" is a free open source software for receiving and viewing syslog messages. At present, the host with "Visual Sys log Server" installed is used as the system log server, and the IP address of the host is 192.168.1.101. The device transmits log information to the host server through TCP protocol. The configuration steps are as follows:

**Step 1** Log in to the device WEB interface.

**Step 2** On the "System log" page, configure relevant parameters, as shown in the following figure:


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1 Check “Enable” in the “Model” checkbox;

2 Check “TCP“ protocol in “Message Type” checkbox;

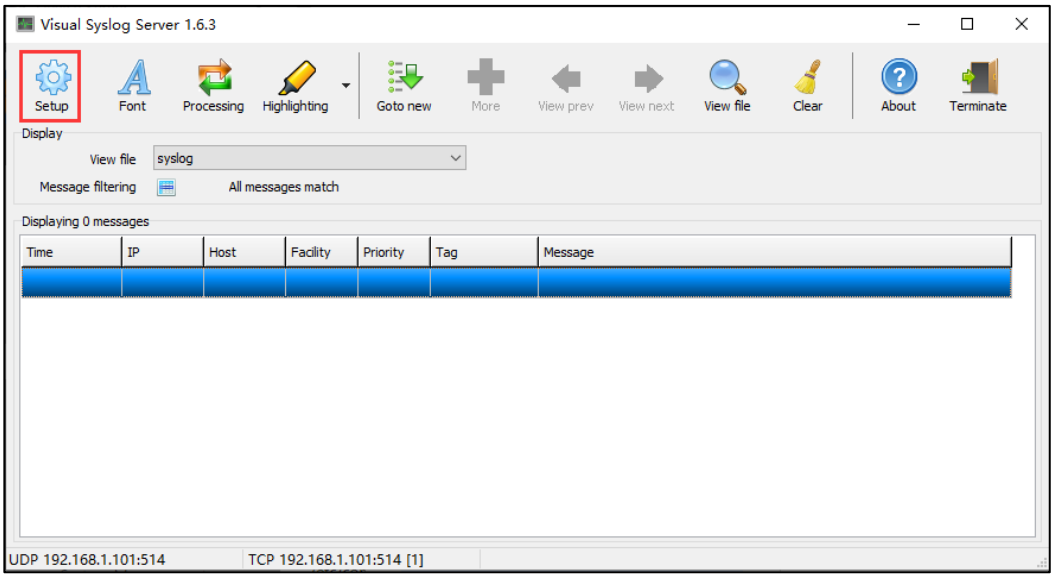
3 In the IP text box, enter the IP address "192.168.1.101" of the server.

4 In the "Port" text box, enter the port number of the server, and the default port of syslog protocol is 514;

5 In the “Log Level” drop-down list, select “LOG_INFO”;

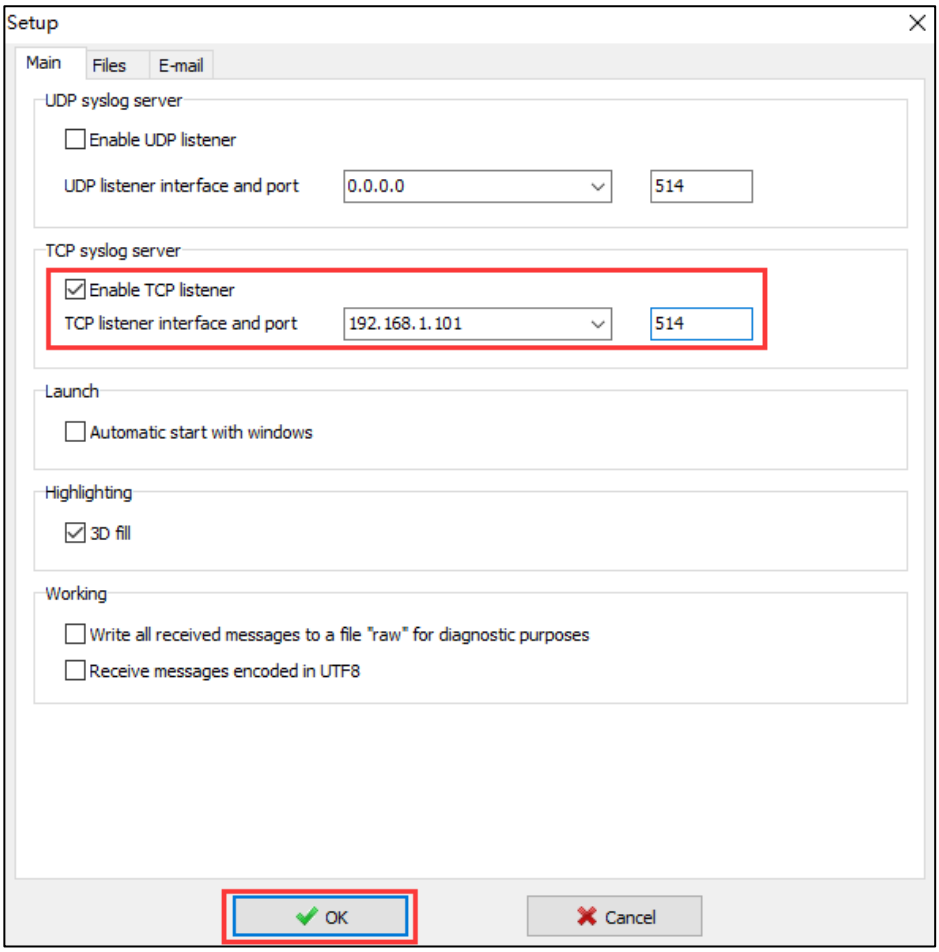
6 Click “Apply” button.

**Step 3** Run "Visual Sys log Server" on the host to complete the configuration of relevant parameters, as shown below.




1 Click the "Setup" button, as shown in the above figure;


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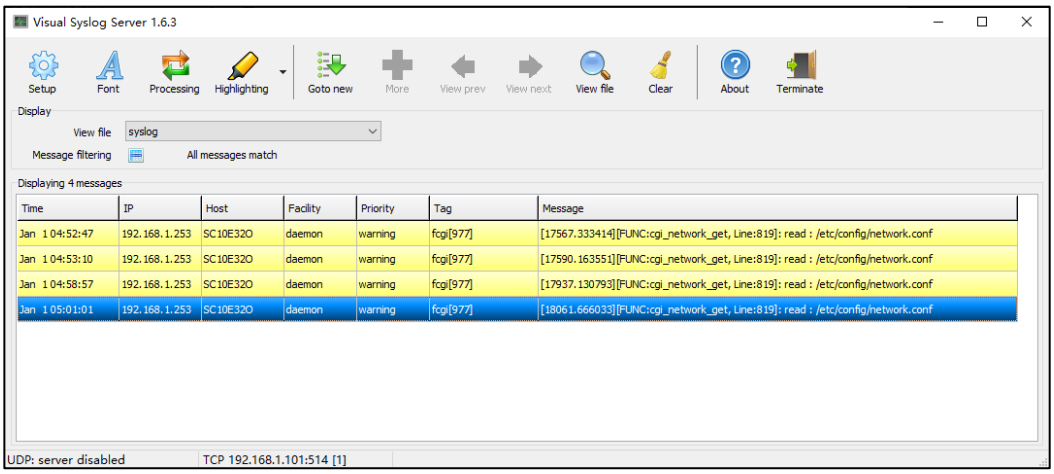



2 On the "Setup" page, in the Main configuration area, check "Enable TCP Listener", as shown in the above figure;

3 Select the IP address "192.168.1.101" and port number "514" of the server from the "TCP listener interface and port" drop-down list;

4 Click “OK” button.

**Step 4** Check the log information in the "Visual Sys log Server" configuration interface, as shown in the following figure.





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**Step 5** End.

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# 10 System Management

## About this chapter

| Content | Link |
| --- | --- |
| This Chapter | 10.1 Device Information Configuration<br>10.2 Time Setting<br>10.3 Certificate Configuration<br>10.4 Remote Management<br>10.5 User Configuration<br>10.6 IP Address Filtering<br>10.7 MAC Filtering<br>10.8 Static Routing Configuration<br>10.9 Free ARP<br>10.10 Diagnostic Test<br>10.11 System Maintenance |

## 10.1 Device Information Configuration

### Function Description

You can configure the device name, device description, and maintenance contact information.

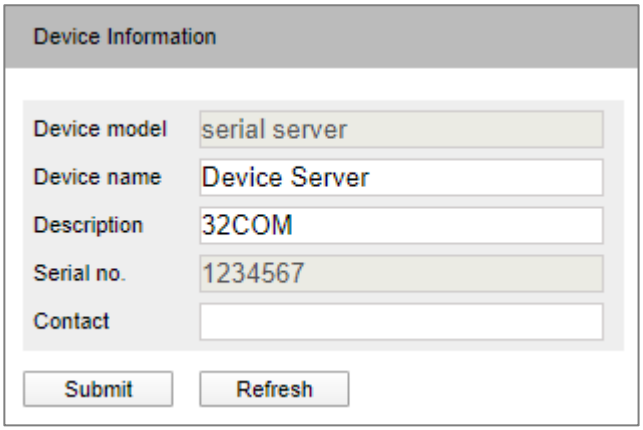
### Operation Path

Open in order: "System Management > Device Information Settings".


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## Interface Description

The screenshot of device information configuration interface:




The main elements configuration description of device information interface:

| Interface Element | Description |
|---|---|
| Device model. | Device model information, the input box is grayed and cannot be entered by default. |
| Device name | Enter the device name in the “Name” text box. To identify each device in the network, give the device a different name. |
| Description | Enter the device description in the “Description” text box. |
| Serial no. | Device serial information, the input box is grayed and cannot be entered by default. |
| Contact | Enter the contact information of the equipment maintenance personnel in the "Contact information" text box. |

# 10.2 Time Setting

The full name of NTP protocol is Network Time Protocol. Its destination is to transmit uniform and standard time in international Internet. Specific implementation scheme is appointing several clock source websites in the network to provide user with timing service, and these websites should be able to mutually compare to improve the accuracy. It can provide millisecond time correction, and is confirmed by the encrypted way to prevent malicious protocol attacks.

## Function Description

You can configure the device time and NTP server information.

## Operation Path

Open in order: "System manage > Time setting".


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## Interface Description

Time setting interface as follows:




The main elements configuration description of time settings interface:

| Interface Element | Description |
|---|---|
| Time Zone | Time standard of different global regions. |
| Local Time | The device's own time. Click the "Change" button to manually modify the device time or synchronize it to the current computer time. |
| Time Server | IP address or domain name of NTP server. The device will automatically synchronize NTP server time. |

# 10.3 Certificate Configuration

## Function Description

You can view, export and delete SSL/TLS certificates in HTTPS, SSH and security mode.

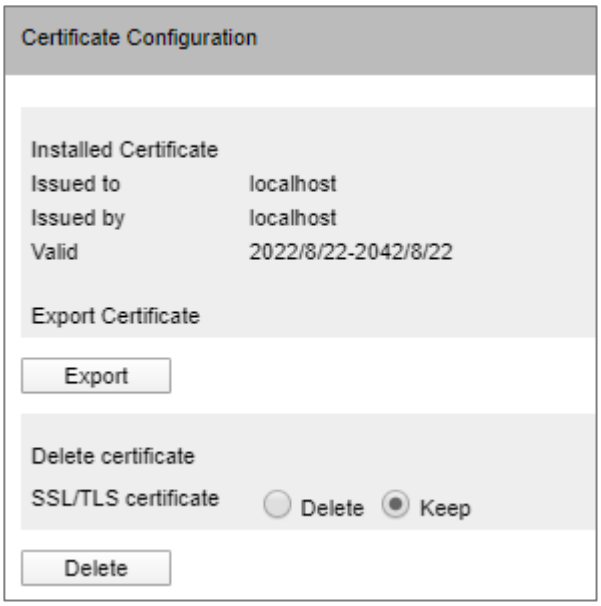
## Operation Path

Open in order: "System Management > Certificate Configuration".

## Interface Description

Certificate Configuration interface is as follows:


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The main element configuration description of Certificate Configuration interface:

| Interface Element | Description |
|---|---|
| Installed Certificate | Display the installation information of the certificate. |
| Export | Click the “Export” button to export the certificate file in ".crt" format. |
| Delete | Select the "Delete" radio box and click the "Delete" button to delete the SSL/TLS certificate and regenerate it. |

# 10.4 Remote Management

HTTPS (Full name: Hypertext Transfer Protocol over Secure Socket Layer), is the HTTP channel which takes safety as the goal, is simply a safe version of HTTP. HTTPS provides data encryption services to prevent the attacker to intercept the transmitted message between the Web browser and web server, obtain some sensitive information, such as credit card numbers, passwords, etc.

The full English name of SSH is Secure Shell. SSH is the security protocol based on the application layer and transport layer. Telnet is transmitted in plaintext, while SSH is transmitted in ciphertext, which is more secure. SSH is a reliable protocol which provides security for remote login sessions and other network services. Using SSH protocol can effectively prevent information leakage in the process of remote management, and can also prevent DNS and IP spoofing. In addition, the transmitted data is compressed so that the transmission speed can be increased.

## Function Description

Restrict access methods such as TELNET, HTTP, HTTPS and SSHD.

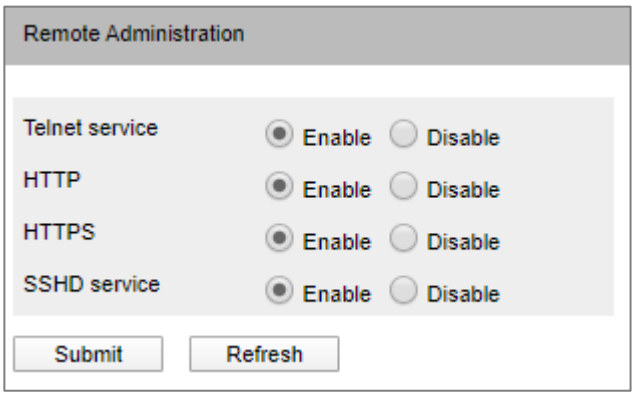

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## Operation Path

Open in order: "System Management > Remote Management".

## Interface Description

The Remote management interface is as follows:




The main elements configuration description of Remote management interface:

| Interface Element | Description |
|---|---|
| TELNET service | TELNET service function status, the options are as follows:<br>• Enable;<br>• Disable.<br>Note:<br>When enabled, the TELNET client can access the CLI interface of the device. |
| HTTP | Device HTTP protocol function status, options are as follows:<br>• Enable;<br>• Disable.<br>Note:<br>When enabled, when using HTTP to access the WEB interface, the format is HTTP://192.168.1.254, and the address is the IP address of the corresponding device. |
| HTTPS | Device HTTPS protocol function status, options are as follows:<br>• Enable;<br>• Disable.<br>Note:<br>When enabled, when using HTTPS to access the WEB interface, the format is HTTPS://192.168.1.254, and the address is the IP address of the corresponding device. |
| SSHD service | SSH service function status, the options are as follows:<br>• Enable;<br>• Disable.<br>Note:<br>When enabled, the SSH client can access the CLI interface of the |


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| Interface Element | Description |
|---|---|
| | device. |

# 10.5 User Configuration

## Function Description

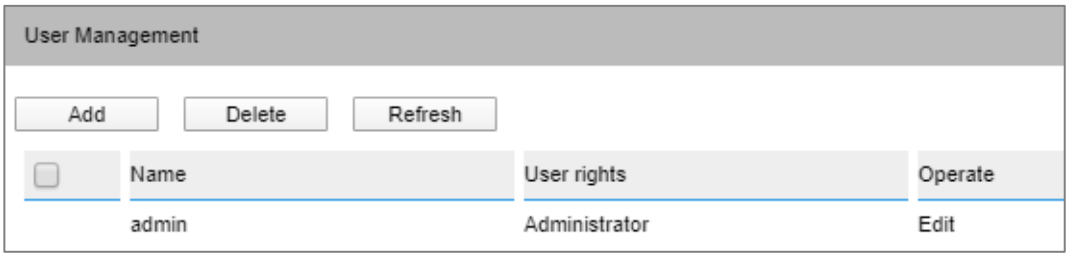
Users can add and delete users freely. Users need to access the device by login with user name and password. The initial user name and password are both: admin.

## Operation Path

Open in order: "System Management > User Configuration".

## Interface Description

The user configuration interface is as follows:




The main elements configuration description of user configuration interface:

| Interface Element | Description |
|---|---|
| Name | Identification of the visitor.<br>Notes:<br>User names and passwords can support up to 32 characters. |
| User rights | The user's access rights are shown as follows:<br>• Administrator: has administrator authority and can configure parameters of device;<br>• General user: has viewing authority, and can view device configuration parameters and network diagnosis operations. |
| Operate | Click Edit to modify the password and user rights of the current user. |


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# 10.6 IP Address Filtering

## Function Description

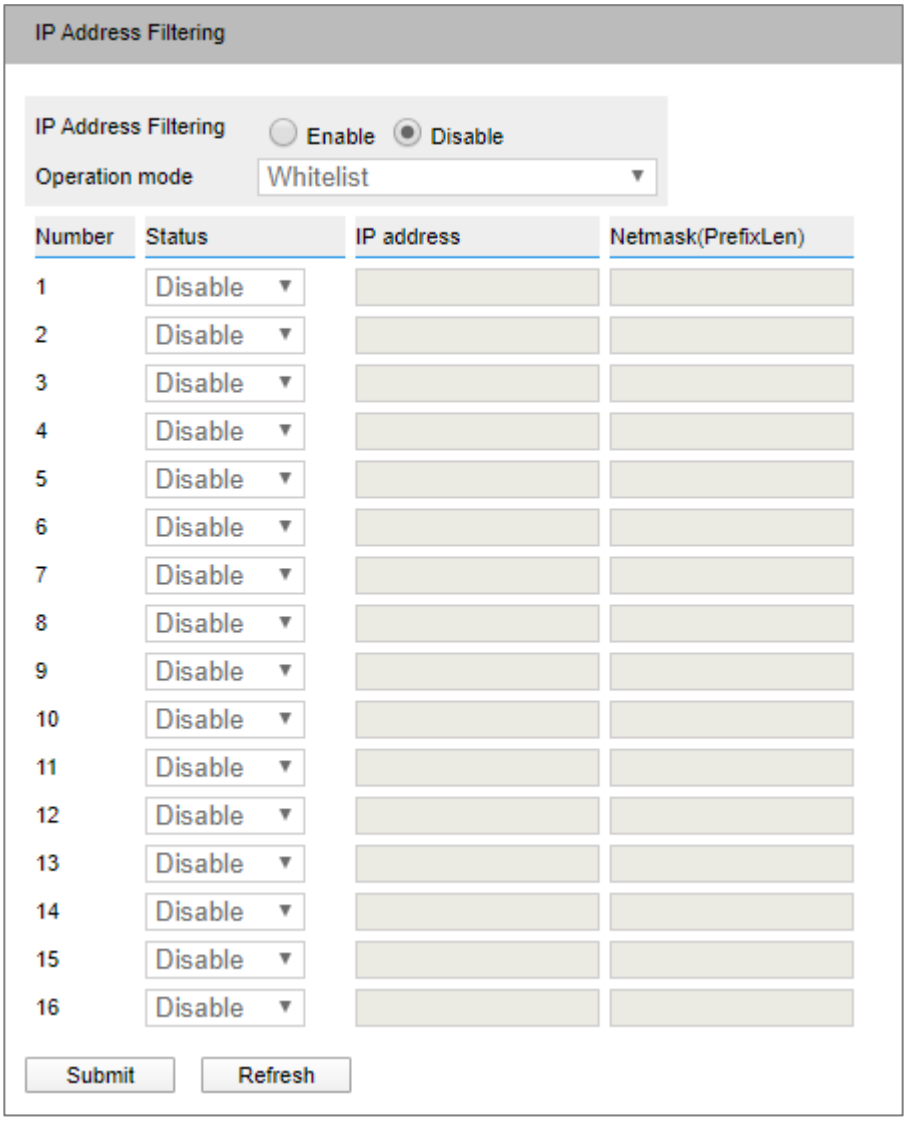
Limit the ongoing access or connected host IPv4, IPv6 address and subnet mask via setting access rules

## Operation Path

Open in order: “System Management> IP Address Filtering”.

## Interface Description

IP filter interface shown as follows:




Main element configuration instructions in IP Filtering interface:

| Interface Element | Description |
|---|---|
| IP Address Filtering | Enable or disable IP filtering rules.<br>• Enable |


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| Interface Element | Description |
|---|---|
| | • Disable |
| Operation Mode | Set filtering rules for IP addresses.<br>• White list: the IP address set in the filtering rule is allowed to access the device.<br>• Blacklist: IP addresses set in filtering rules are prohibited from accessing devices.<br>Notice:<br>• When the white list is enabled, IP addresses outside the white list will not be able to access the device.<br>• If the IP address in the white list cannot access the device, please clean the browser cache and access it again.<br>• When the blacklist is enabled, the IP addresses covered by the blacklist will not be able to access the device. |
| Number | Displays the IP address filtering rule number. |
| Status | Enable or disable filtering rules.<br>• Enable<br>• Disable |
| IP address | Set the IPv4 or IPv6 network address within the filtering rule. |
| Netmask | Set the IPv4 subnet mask or IPv6 prefix length within the filtering rule. |

# 10.7 MAC Filtering

## Function Description

Restrict the host MAC address to access or connect by setting access rules.

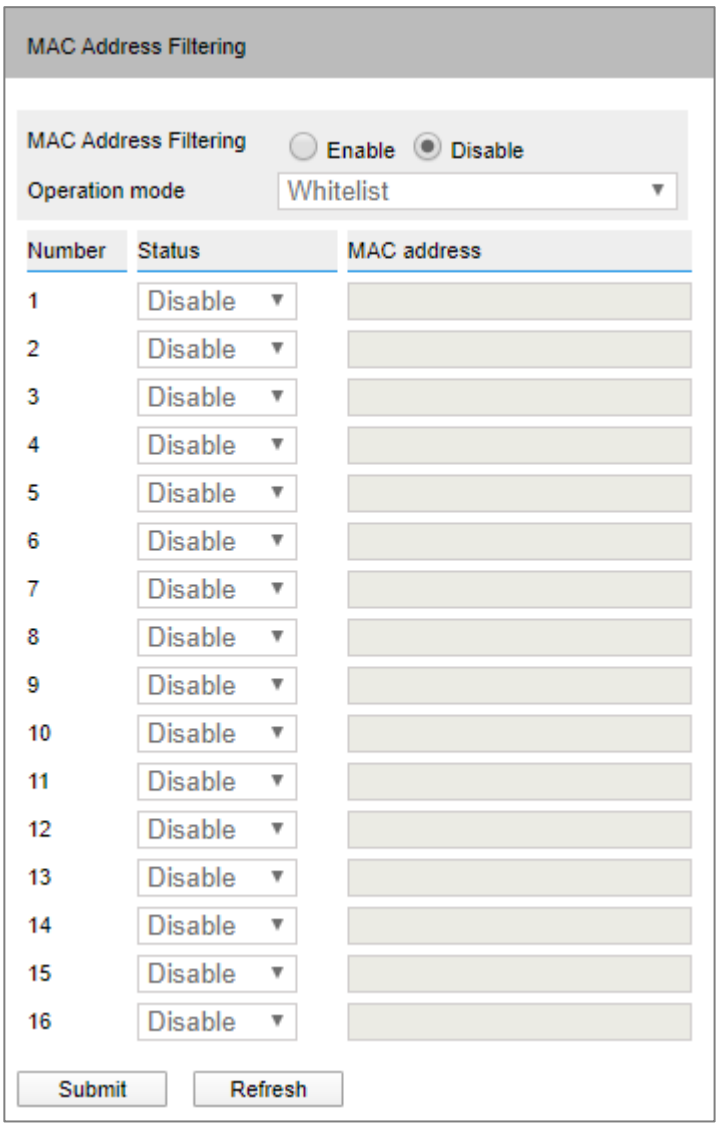
## Operation Path

Open in order: “System Management > MAC Address Filtering”.

## Interface Description

MAC Filter interface as follow:


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Main element configuration instructions in MAC address filtering interface:

| Interface Element | Description |
|---|---|
| MAC Address Filtering | Enables or disables MAC address filtering rules.<br>• Enable<br>• Disable |
| Operation Mode | Set filtering rules for MAC addresses.<br>• White list: the MAC address set in the filtering rule is allowed to access the device.<br>• Blacklist: MAC addresses set in filtering rules are prohibited from accessing devices.<br>Notice:<br>• When the white list is enabled, MAC addresses outside the white list will not be able to access the device.<br>• When the blacklist is enabled, the MAC addresses covered by the blacklist will not be able to access the device. |


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| Interface Element | Description |
|---|---|
| Number | Display the MAC address filtering rule number. |
| Status | Enable or disable filtering rules.<br>• Enable<br>• Disable |
| MAC address; | Set the hexadecimal format MAC address in the filter rule, such as "00-22-6F-03-BD-52". |

# 10.8 Static Routing Configuration

## Function Description

You can configure how the device connects to an external network. In the dual IP mode, the data egress interface can be specified via static routing configuration when device is communicating across network segment. Device supports up to 32 routing entries, every entry must provide gateway, destination address, subnet mask, egress interface and other information.

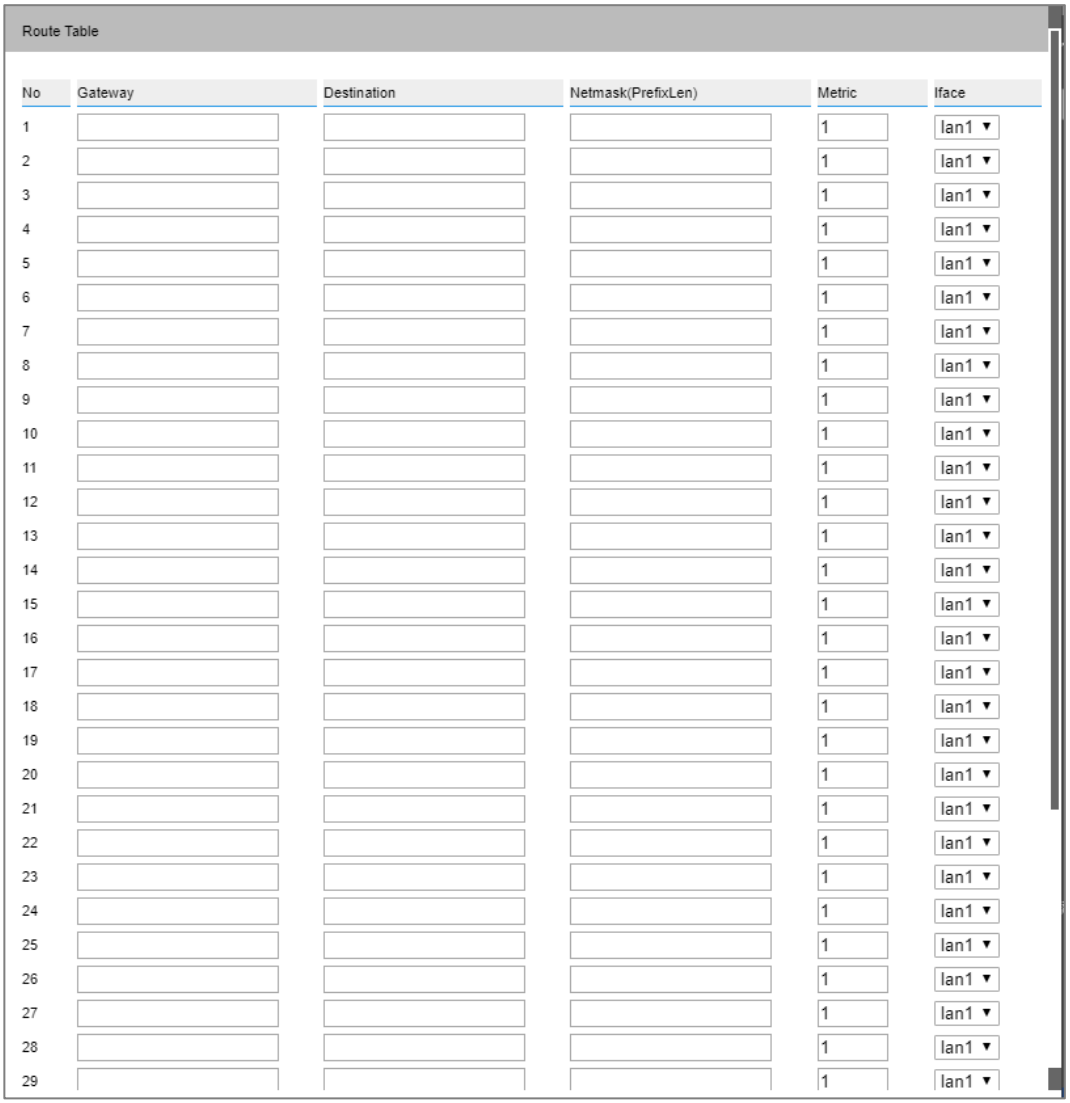
## Operation Path

Open in order: "System Management > Static Routing Configuration".

## Interface Description

The static routing configuration interface as follows:


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The main elements configuration description of static routing configuration interface:

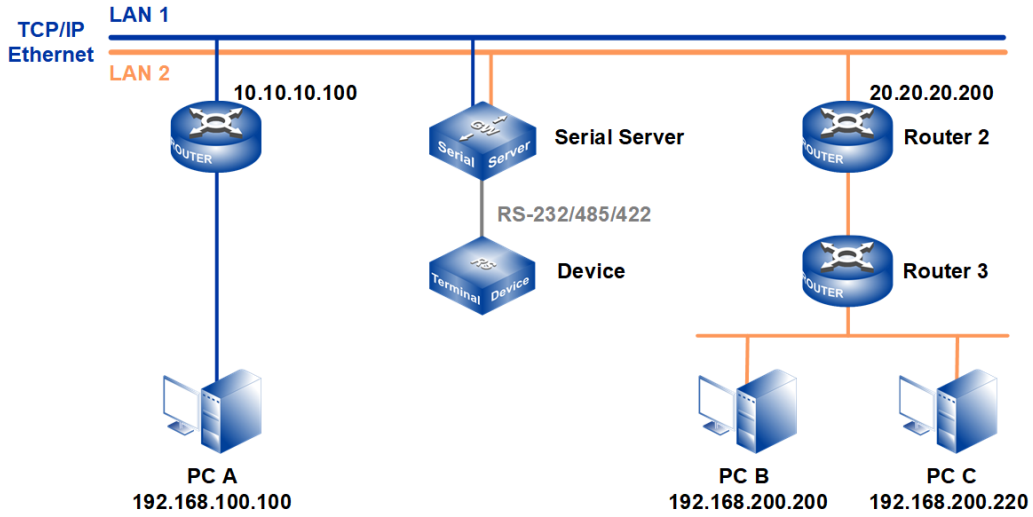
| Interface Element | Description |
|---|---|
| No | The entry number of static routing table. |
| Gateway | Gateway IPv4, IPv6 address or IP address of next hop router. |
| Destination | The IPv4, IPv6 address of destination host or the network address of destination routing. |
| Netmask(PrefixLen) | The IPv4 subnet mask or IPv6 prefix length of the destination network. |
| Metric | The number of routers from source terminal to destination terminal is hop. Device will prioritize the routing of data packets if more than one router is available to reach a given destination. |
| Iface | Network data egress, options are as follows: |


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| Interface Element | Description |
|---|---|
| | • lan1<br>• lan2 |

## Configuration Instance

Configure the static route of the serial server to communicate with PC A, PC B and PC C. Assume that the serial server LAN1 is connected with router 1 and communicates with PC A; Serial server LAN2 is connected with router 2 and communicates with PC B/PC C through router 3, as shown in the following figure.




Notes:

The device picture mentioned in above figure is only an example , and the actual appearance of the device and serial port type is subject to the device obtained.

The device communicates with PC A, the network parameters are as follows:

- IP address of network port 1 of serial server (LAN 1): 10.10.10.10
- Router1 IP address (LAN 1) : 10.10.10.100
- PC A IP address: 192.168.100.100

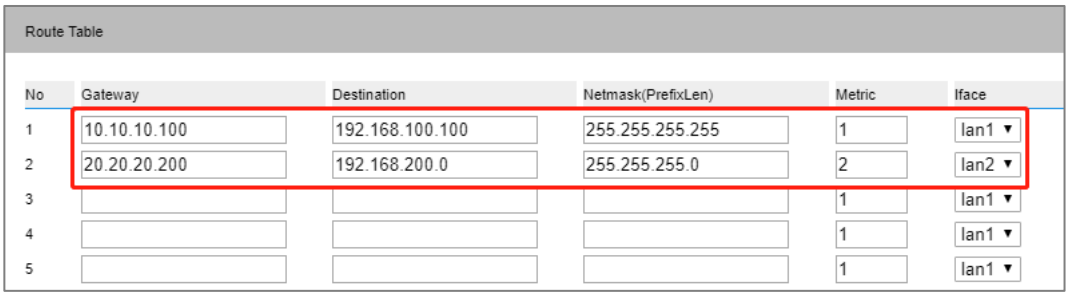
The device communicates with PC B/C, and the network parameters are as follows:

- IP address of network port 2 of serial server (LAN 2): 20.20.20.20
- Router2 IP address (LAN 2) : 20.20.20.200
- PC B IP address 192.168.200.200
- PC C IP address 192.168.200.200

When the device communicates with PC A, it passes through a router, and the hop count is 1, so a static routing table needs to be added, as shown in item 1 in the following figure. When the device communicates with PC B or PC C, it passes through


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two routers with a hop count of 2, so a static routing table needs to be added, as shown in item 2 in the following figure.




# 10.9 ARP Setting

## Function Description

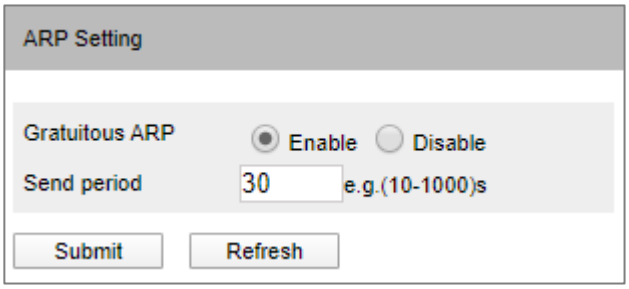
You can enable free ARP function and set parameter of sending period. Free ARP function can avoid the failure of communication due to device MAC address being aged by switch or router.

## Operation Path

Open in order: “System Management > ARP Setting”.

## Interface Description

Free ARP interface is as below:




Main elements configuration descriptions of free ARP interface:

| Interface Element | Description |
|---|---|
| Gratuitous ARP | Free ARP function status, options as follows:<br>• Enable<br>• Disable |
| Send period | The interval between sending Gratuitous ARP network packets, the value range is 10-1000s. |


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# 10.10Diagnostic Test

## 10.10.1 Ping

### Function Description

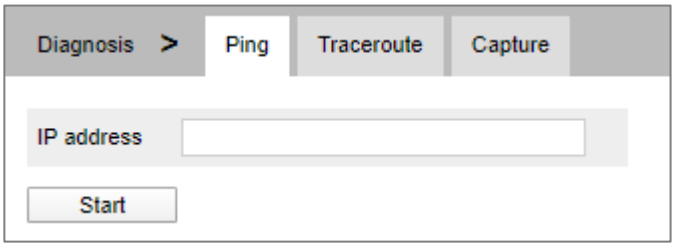
Ping can be used to check whether the network is open or network connection speed. Ping utilizes the uniqueness of network machine IP address to send a data packet to the target IP address, and then ask the other side to return a similarly sized packet to determine whether two network machines are connected and communicated, and confirm the time delay.

### Operation Path

Open in order: “System Management > Diagnosis > Ping".

### Interface Description

The Ping interface is as follows:




The main elements configuration description of Ping configuration interface:

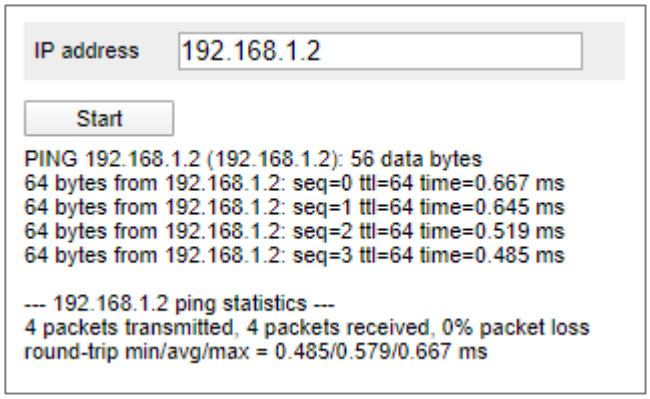
| Interface Element | Description |
|---|---|
| IP Address | The IPv4 or IPv6 address of the detected device, that is, the destination address. The device can check the network intercommunity to other devices via the ping command. |

### Ping Configuration Steps:

**Step 1** Fill in the IP address that needs ping in the IP address text box;

**Step 2** Click the "Start” button to check the ping results;


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**Step 3** End.

## 10.10.2 Traceroute

### Function Description

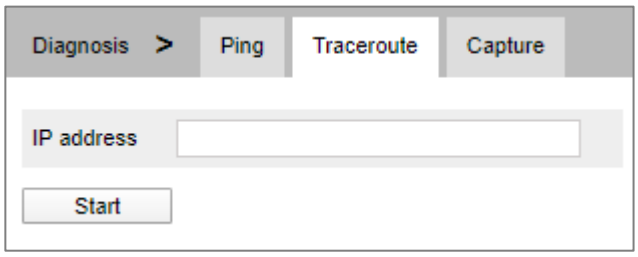
User can test the network conditions between the device and the target host. Traceroute sends the small data packet to destination device until it retures and measure the time. Each device on a path Traceroute returns three test results. Output result includes each test time (ms), device name (if exists) and the IP address.

### Operation Path

Open in order: “System Management > Diagnose Test > Traceroute".

### Interface Description

TRACEROUTE interface as follows:




The main element configuration description of Traceroute interfaces:

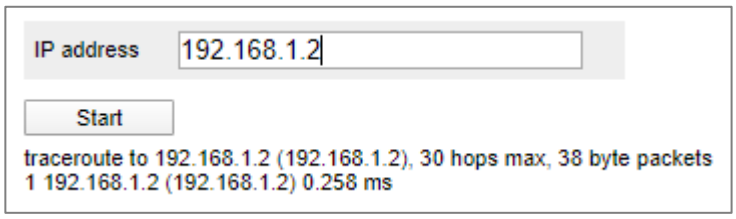
| Interface Element | Description |
|---|---|
| IP Address | Destination device IPv4 or IPv6 address, fill in the opposite device IP address that needs test. |

### TRACEROUTE Configuration Steps:

**Step 1** Fill in the destination IP address in the "IP address" text box;

**Step 2** Click the "Start" to see the results, as the picture below.


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Notes:

The above figure shows the time from the device to IP address 192.168.1.61, which takes 0.633ms after one hop.

**Step 3** End.

## 10.10.3 Packet Capture Diagnosis

### Function Description

User can obtain the data packets sent and received by the Ethernet port of the device for network debugging and data analysis.

### Operation Path

Open in order: “System Management > Diagnose Test > Packet Capture Diagnosis".

### Interface Description

The Packet Capture Diagnosis interface screenshot is as follows:




Main elements configuration description of Packet Capture Diagnosis interface:

| Interface Element | Description |
|---|---|
| Start | Click the “Start” button, and the device will start capturing network packets. |
| Stop | Click the "End" button, the device stops capturing network packets, and saves the network packets captured during this period to the local client in ".pcap" format.<br>Notes:<br>Users can use Wireshark or other third-party software to open the captured packets. |


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# 10.11System Maintenance

## 10.11.1 Configuration File Management

### Function Description

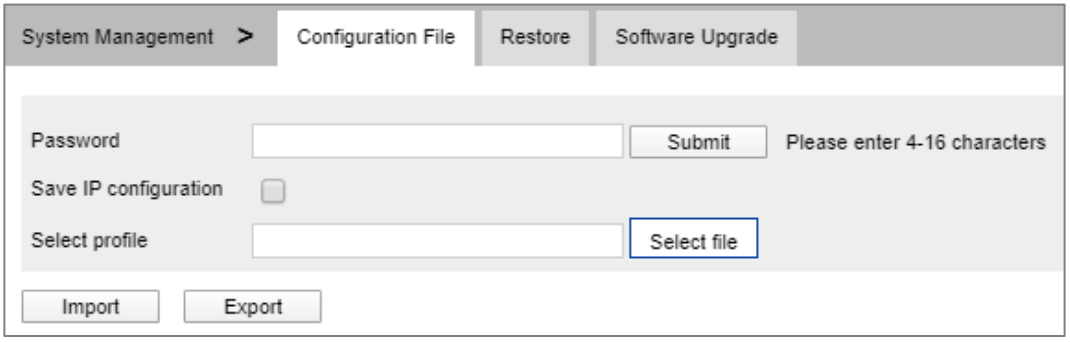
Download and upload configuration file.

### Operation Path

Open in order: “System Management > System Maintenance > Configuration File Management”.

### Interface Description

Configuration file management interface is as follows:




The main elements configuration description of configure file management interface:

| Interface Element | Description |
|---|---|
| Password | Configuration file encryption or decryption password, supporting 4-16 characters; After setting, the configuration file cannot be imported if the passwords do not match. |
| Save IP configuration | When checked, the device can keep the current IP configuration after importing the configuration file. |
| Select profile | Select the path to upload configuration file locally, click "Select File" to select required configuration file.<br>Notes:<br>Uploaded configuration files need to be exported by devices of the same model. |
| Import | Upload configuration file. |
| Export | Download the configuration file of the current device in the format of “. tar”.<br>Notes:<br>The downloaded configuration file will be saved in the format of ".tar", which is encrypted, so please do not decompress or |


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| Interface Element | Description |
| --- | --- |
| | modify it. |

Note

- After finishing update, the device will automatically open a new page to "System Information", and the uploaded configuration file will be valid after the device is reset.
- After uploading the configuration file, if the static IP in the configuration file and the computer IP are not in the same network segment, the webpage cannot be opened.
- While uploading configuration file, if dynamic IP is used in the configuration file and there is no DHCP server in the network segment, relative IP portion won't be updated.
- Do not click on or configure other WEB pages of the device or restart the device when uploading configuration files or upgrading software. Otherwise, the configuration file upload or software update will fail, or the device system will crash.

## 10.11.2 Restore Factory Settings

### Function Description

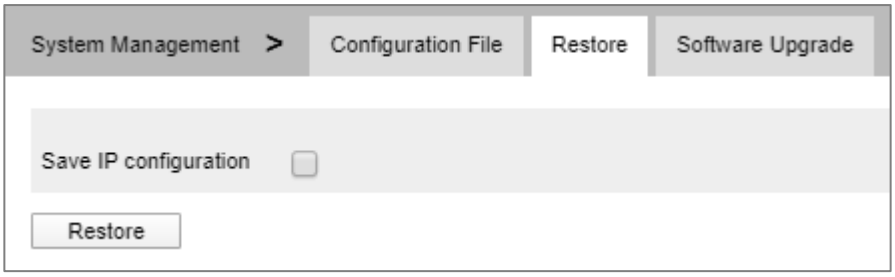
Restore device to factory settings.

### Operation Path

Open in order: "System management > System Maintenance > Restore".

### Interface Description

Restore Factory Settings interface is as follows:




The main element configuration description of restore factory settings interface:

| Interface Element | Description |
| --- | --- |
| Save IP configuration | When checked, the device can keep the current IP address after restoring the factory settings. |
| Restore | Click this button, the device will lose all existing configurations and reverts to factory settings. |


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Note
Restoring factory value settings will cause all configurations to be in the factory state, where the IP address is the static IP address "192.168.1.254", and the user name and password default to "admin".

## 10.11.3 Upgrade

### Function Description

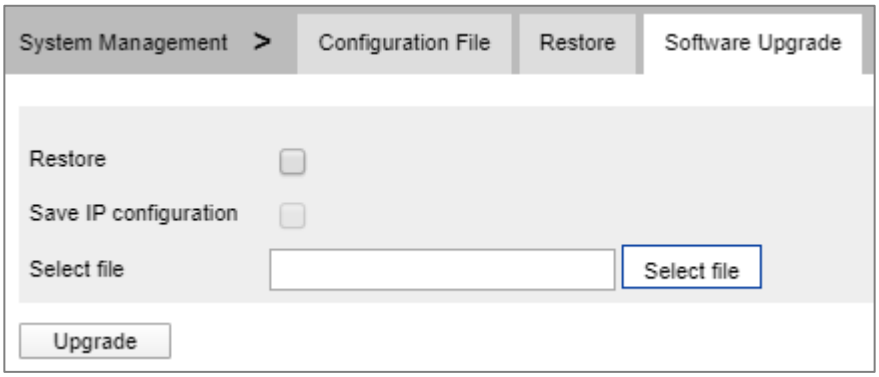
Update and upgrade the device program.

### Operation Path

Open in order: "System management > System Maintenance > Software Upgrade".

### Interface Description

The software update interface as follows:




The main elements configuration description of software update interface:

| Interface Element | Description |
|---|---|
| Restore | When checked, the device will be restored to the factory settings after upgrading. After unchecking, the configuration parameters will be kept after the device software is upgraded. |
| Save IP configuration | After the software upgrade is checked to restore the factory configuration, the IP configuration can be checked to keep the current IP address and other parameters will be restored to the factory configuration. |
| Select file | Select the path of the local upgrade file, and click “Select file” to select the required configuration file. |
| Upgrade | Click “upgrade” button to start the program upgrade. |


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Note

- Do not click on or configure other WEB pages of the device or restart the device or power off the device when upgrading software. Otherwise, the software update will fail, or the device system will crash.
- Keep a reliable wired connection during upgrading.
- When the online upgrade is complete, the device will restart automatically.


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# 11 Operation Mode Configuration Instance

## About this chapter

| Content | Link |
| --- | --- |
| This Chapter | 11.1 RealCom Mode<br>11.2 Reverse RealCom Mode<br>11.3 TCP Server Mode<br>11.4 TCP Client Mode<br>11.5 UDP Server Mode<br>11.6 UDP Client Mode<br>11.7 UDP Rang Mode<br>11.8 UDP Multicast Mode<br>11.9 Pair Slave & Master Mode<br>11.10 Telnet Mode (Telnet mode)<br>11.11 Reverse Telnet Mode<br>11.12 RFC2217 Mode (RFC2217 Mode)<br>11.13 Redundant Com Mode<br>11.14 DRDAS RealCom Mode<br>11.15 DRDAS TCP Server Mode<br>11.16 SSH Mode<br>11.17 Reverse SSH Mode |

Note

Interface elements, operation paths and some functions involved in the serial server and test


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software in the configuration example shall be subject to the actually acquired device and software. Because the software version is not updated or upgraded regularly, the configuration examples are for reference only.

# 11.1 RealCom Mode

## Background Introduction

Assume that the IP address of the serial server is: 192.168.1.250; COM1 is a real serial port, need to establish a connection with the virtual serial port COM2 in the management software VSP Manager.

The serial port information is as follows:

- Baud rate: 115200
- Parity bit: None
- Data bit: 8
- Stop bit: 1

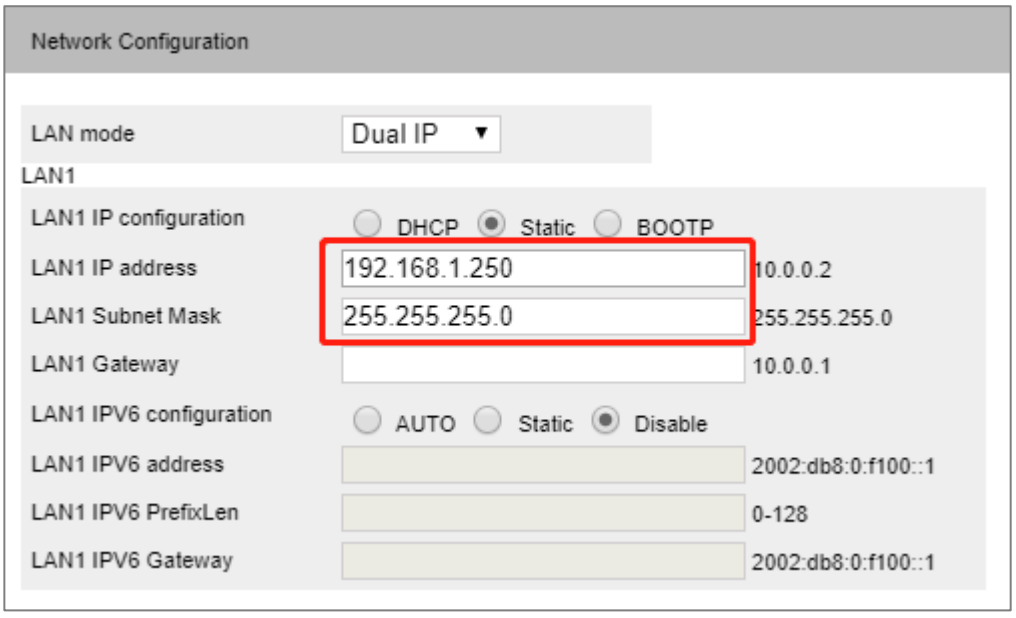
## Operation Steps

**Step 1** Configure the IP address of the serial server.

1 Login in the Web configuration interface, choose "Network Setting".

2 In the "Network port 1" area, select "Network port 1 Configuration" as "Manual Setting", and enter the corresponding network address information such as "Network port 1 Address", "Network port 1 Subnet Mask" and "Network port 1 Gateway".

3 Other parameters remain the default, click "Submit".



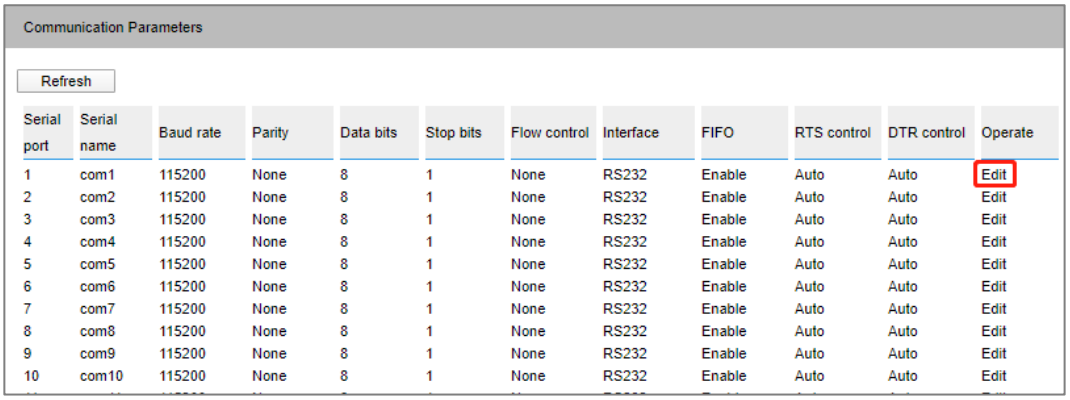


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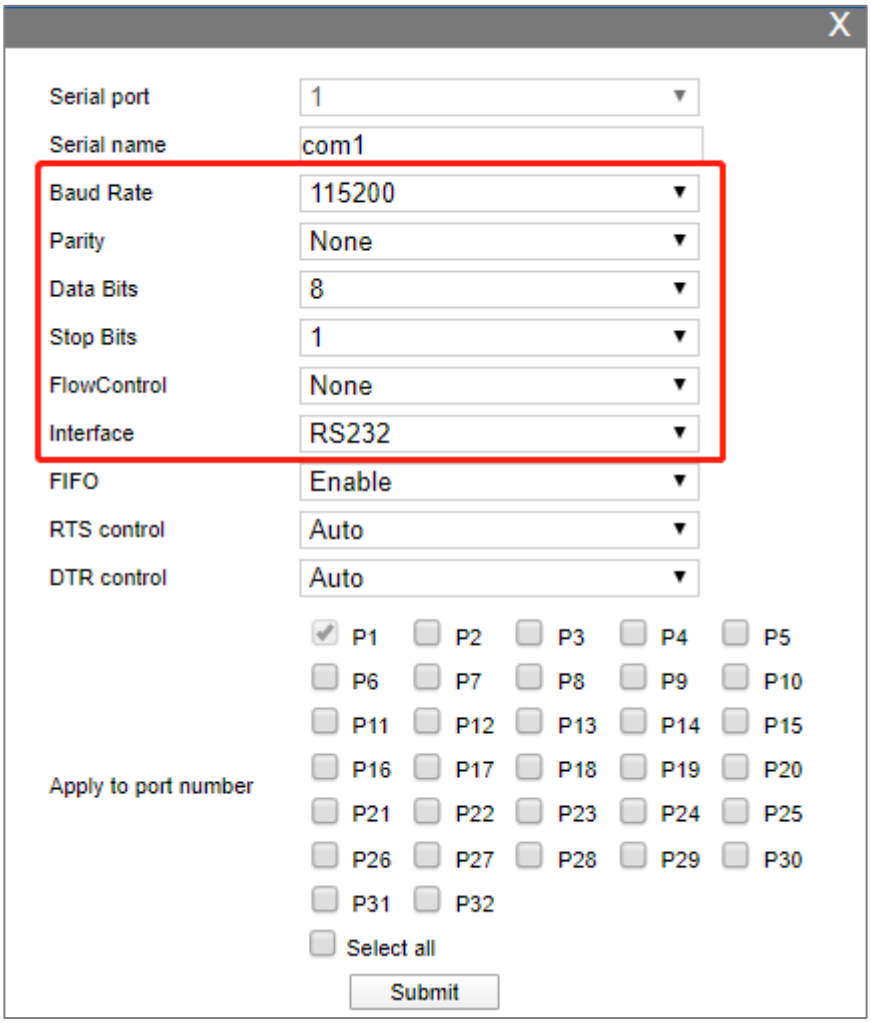
**Step 2** Configure the serial port parameter information.

1 Log in to the Web configuration interface and select "Serial Settings".

2 In the serial port 1 entry, click the "Edit" button under the operation, as shown in the following figure.




3 In the “Edit” window, set “baud rate”, “parity bit”, “data bit” and “stop bit” respectively, as shown in the following figure.



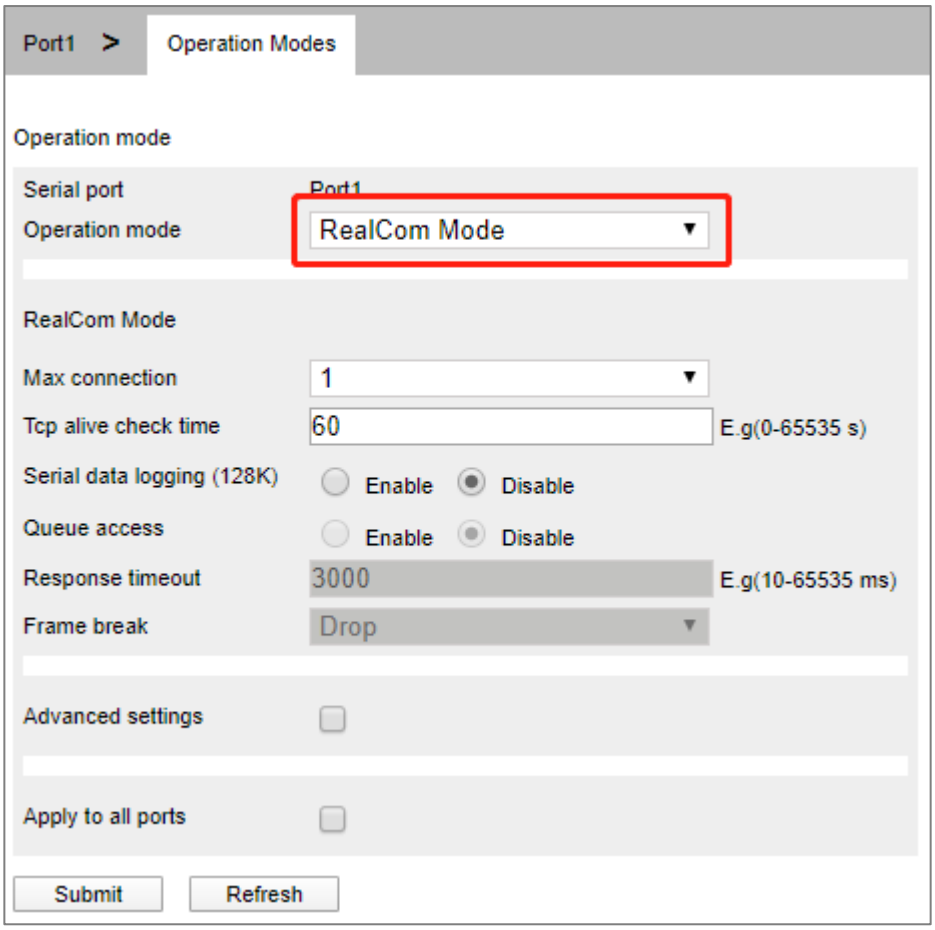


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4 Other parameters remain the default, click "Submit".

**Step 3** Configure the working mode of the serial server.

1 Log in to the WEB configuration interface and select "COM mode > Port1".




2 Click the "Work Mode" drop-down list box and select "RealCom Mode".

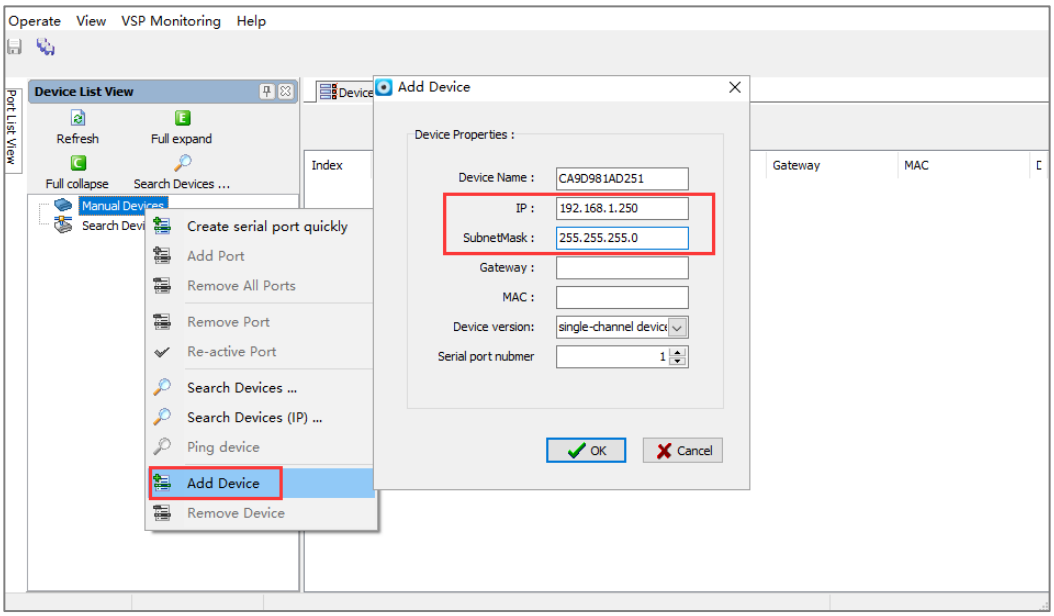
3 Click "Max Connection" drop-down list box, select "1".

4 Other parameters remain the default, click "Submit".

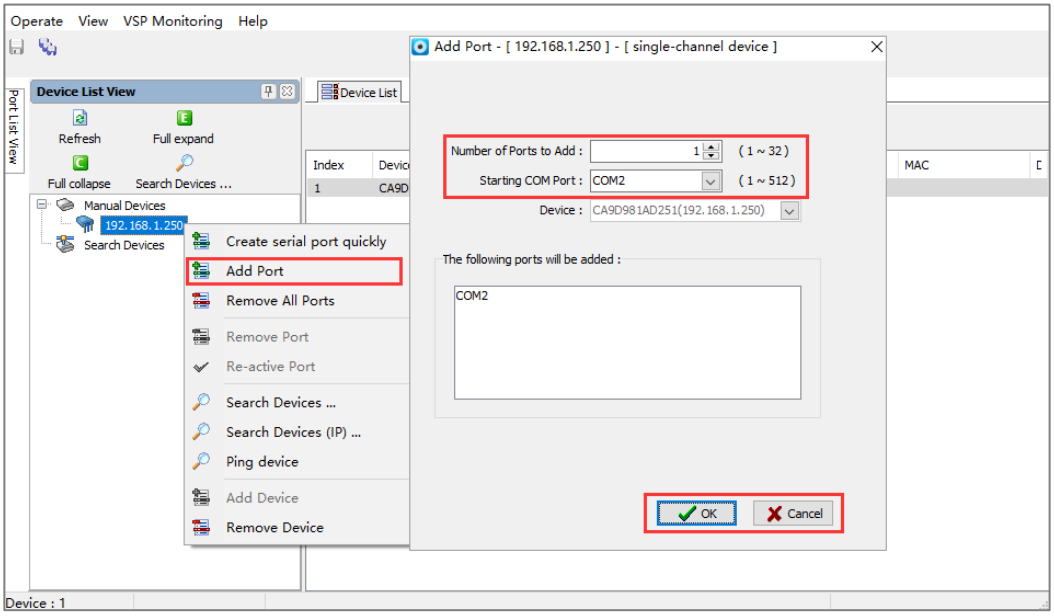
**Step 4** Run "VSP Manager" software, configure the virtual serial port COM2.

1 Run the virtual serial port management software "VSP Manager", click "add device manually" in the left navigation bar, and select "add device". Enter the IP address and subnet mask of the serial server and click “OK”.


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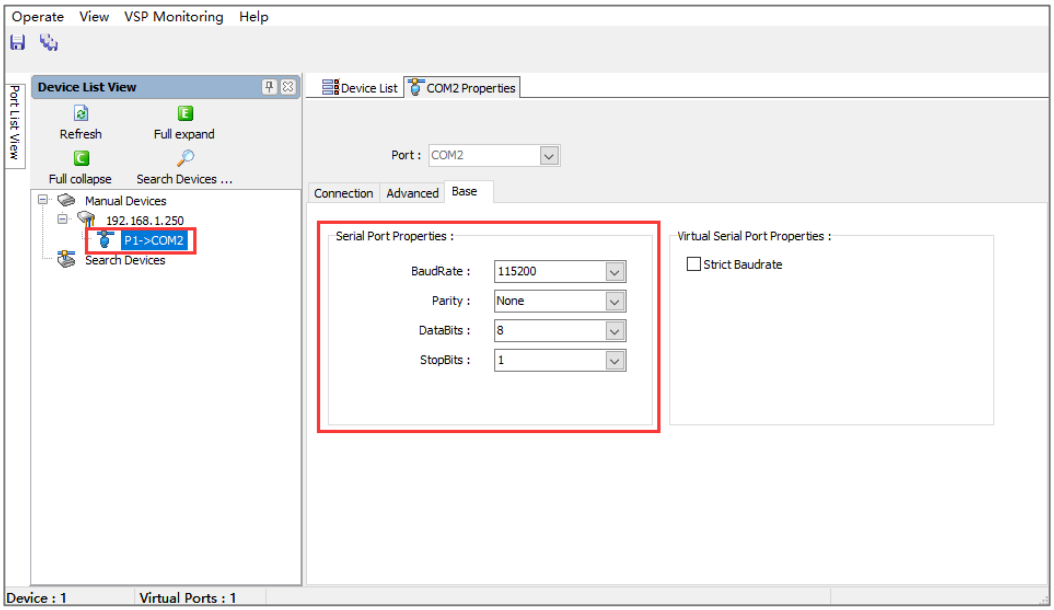



2 Click "192.168.1.250" and select "Create Serial Port". After creating the virtual serial port COM2, click “OK”.




3 Click "Base" in the “COM2 Properties” option box, configure the virtual serial port COM2 parameter information and real COM1 match the same.


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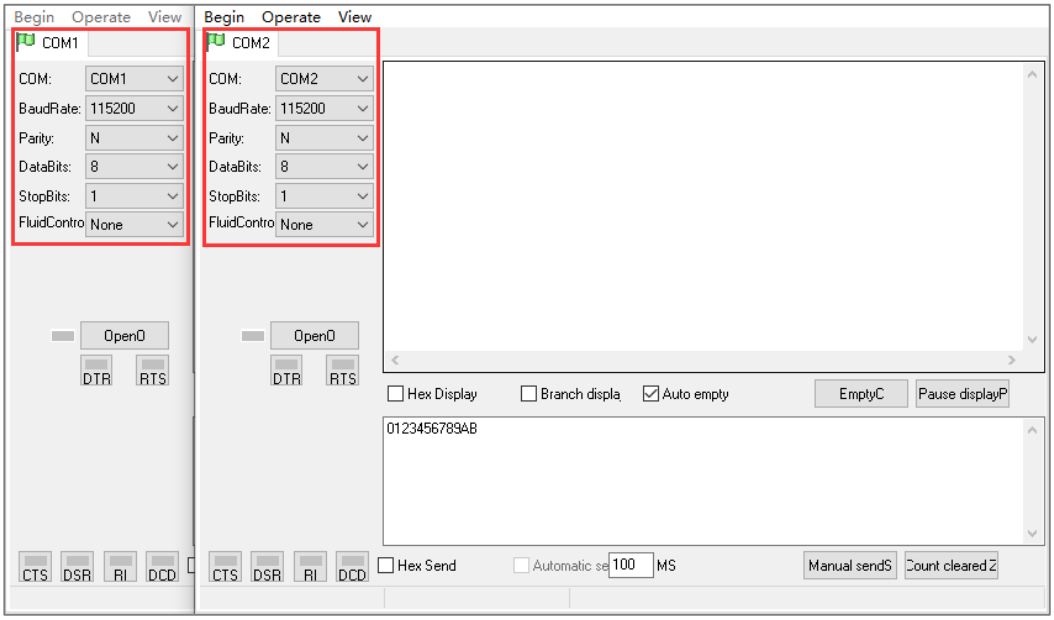



After the completion of the above configuration, between the real serial port COM1 and virtual COM2 connection can be successfully established to send data to each other.

**Step 5** Run "ComTest" software to test the communication between real serial port COM1 and virtual serial port COM2.

1 Install and run "ComTest" software, and click "Add Window" in the "Start" menu.

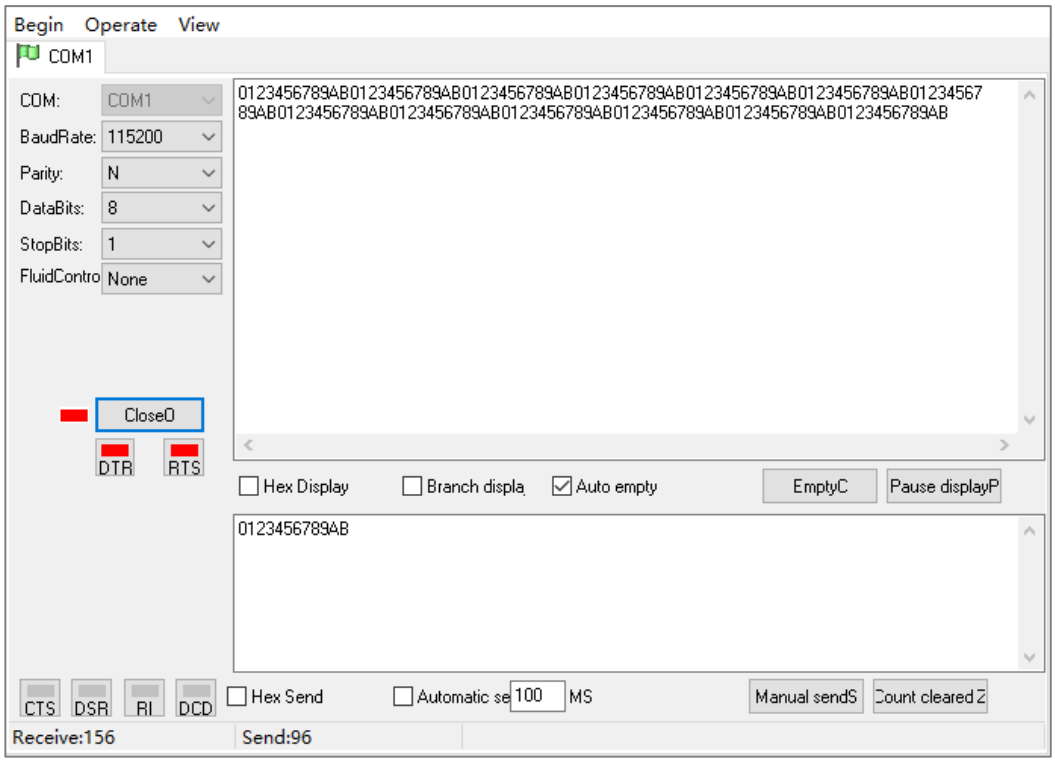
2 Add the real serial "COM1" and virtual serial "COM2" two windows, the "COM1" and "COM2" serial port parameter information match.

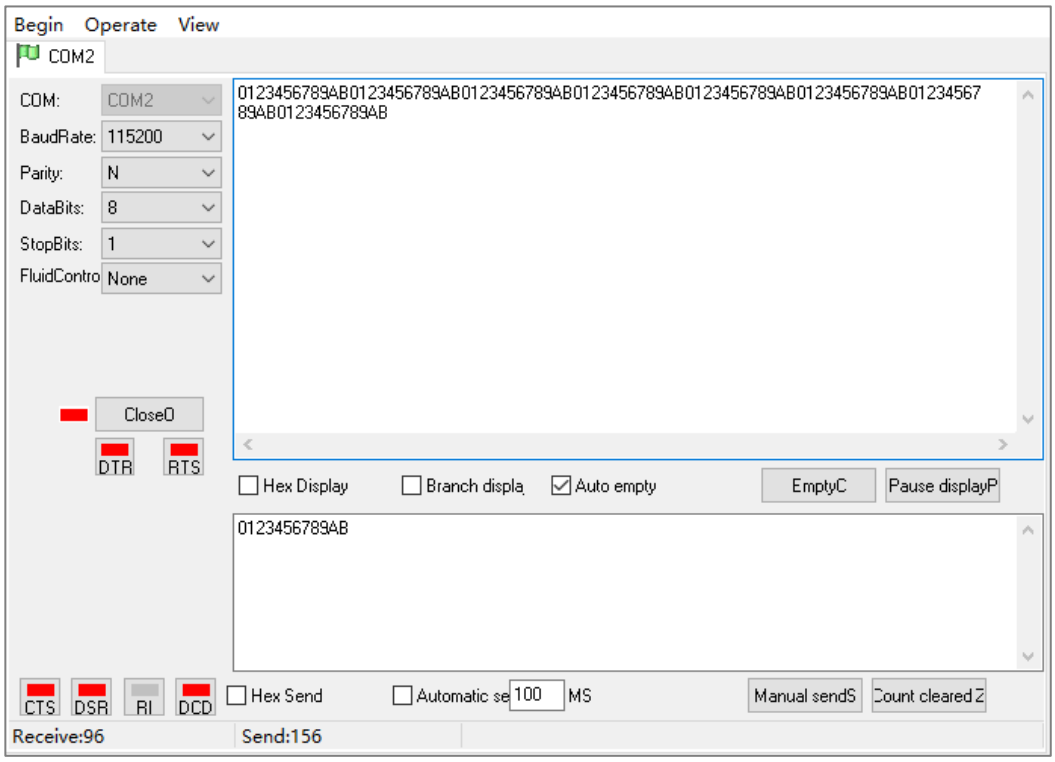



3 Turn on the serial signals of "COM1" and "COM2" respectively, and click the "send manually" button to test and check the data receiving and sending status


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between the real serial port COM1 and the virtual serial port COM2.




**Step 6** End.


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# 11.2 Reverse RealCom Mode

## Background Introduction

Assume that the IP address of the serial server needs to be automatically assigned by DHCP or BOOTP, and the host manages the serial terminal device through the serial server. Now connect the host's own RS-232 serial port, COM1, to the Port1 of the serial server, and install ComTest software to simulate the serial terminal device. At the same time, the host computer installs VSP software, maps the serial port terminal device connected to the serial port server Port1 to the local COM2 of the host computer, and simulates the management terminal by ComTest software. When the IP address of the serial server changes, the communication between the management terminal (COM2) and the terminal (COM1) can still be normal.

Parameter information of serial terminal is as follows:

- Baud rate: 115200
- Parity bit: None
- Data bit: 8
- Stop bit: 1

Host parameter information as follow:

- IP address: 192.168.1.61
- Data port: 33000
- Command port: 34000

The parameters of the serial server are as follows:

- IP address: DHCP (assuming that the automatically acquired IP address is 192.168.1.250)
- Communication parameters: Port1 is consistent with serial terminal parameters
- Operation mode: Reverse RealCom Mode

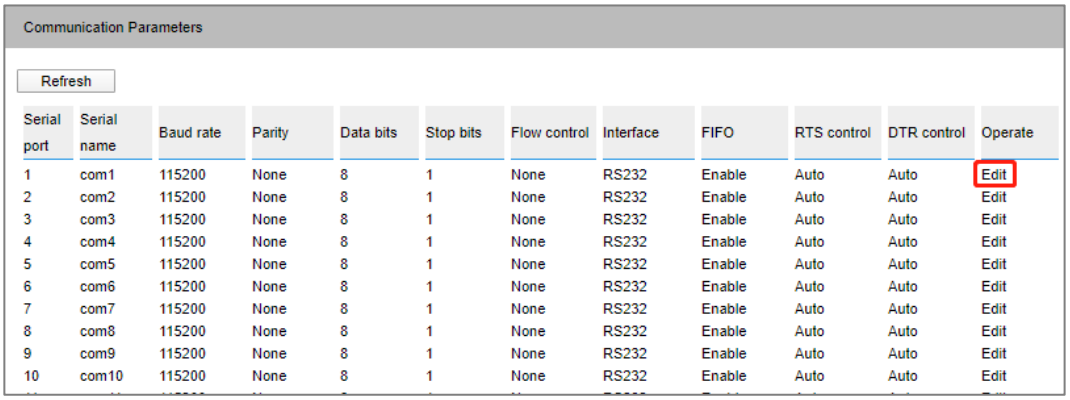
## Operation Steps

**Step 1** Configure the serial port parameter information.

1 Log in to the Web configuration interface and select "Serial Settings".

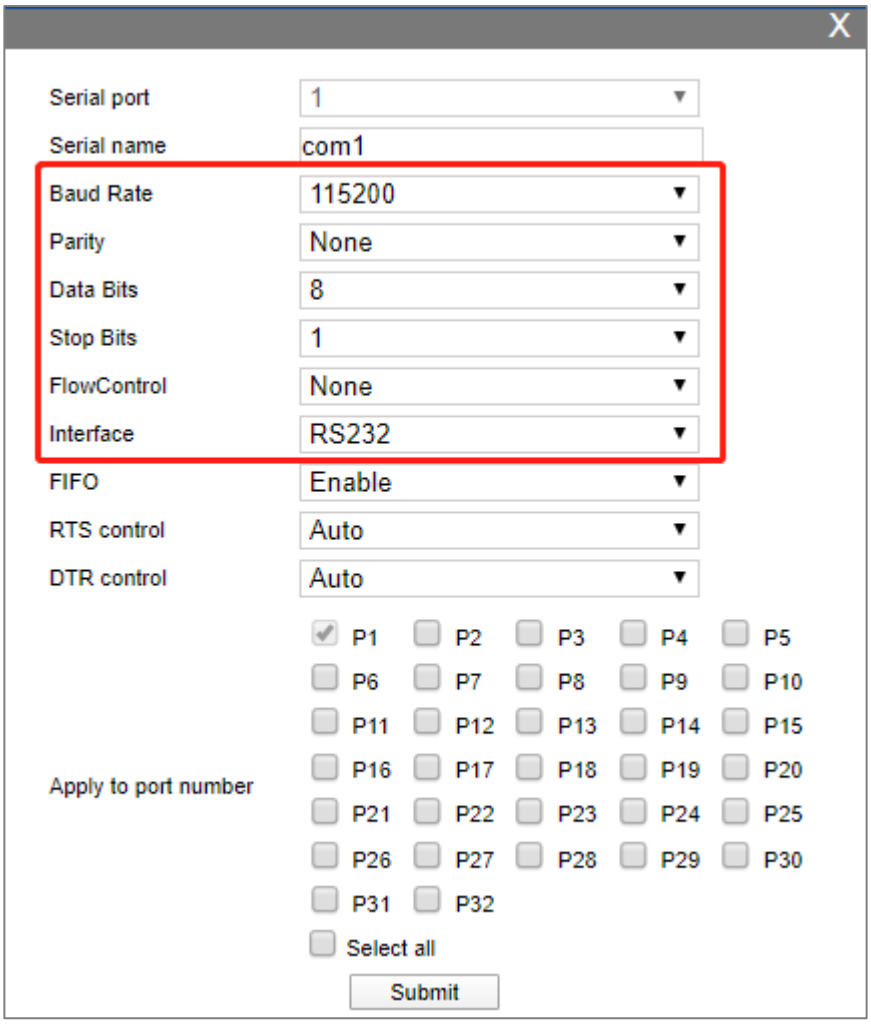
2 In the serial port 1 entry, click the "Edit" button under the operation, as shown in the following figure.


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| Serial port | Serial name | Baud rate | Parity | Data bits | Stop bits | Flow control | Interface | FIFO | RTS control | DTR control | Operate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | com1 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 2 | com2 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 3 | com3 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 4 | com4 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 5 | com5 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 6 | com6 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 7 | com7 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 8 | com8 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 9 | com9 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 10 | com10 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |

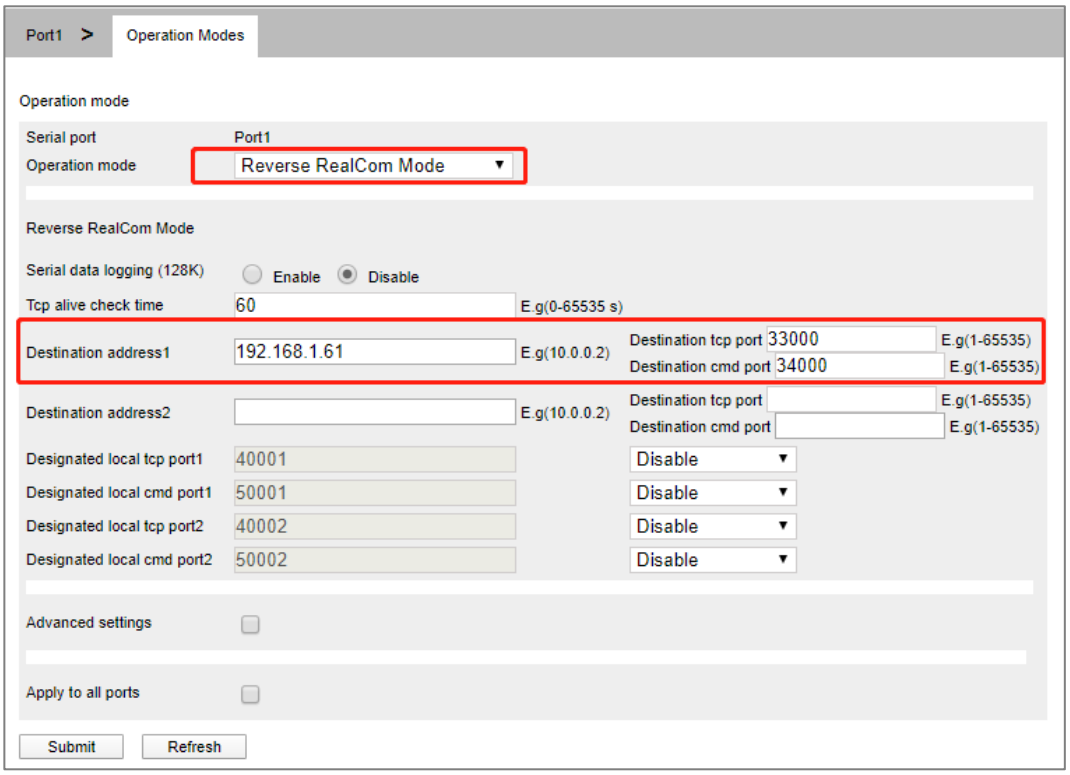
3 In the “Edit” window, set “baud rate”, “parity bit”, “data bit” and “stop bit” respectively, as shown in the following figure.




4 Other parameters remain the default, click "Submit".

**Step 2** Configure the working mode of the serial server, as shown in the following figure.


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1 Log in to the WEB configuration interface and select "COM mode > Port1".

2 Click the "Work Mode" drop-down list and select "Reverse RealCom Mode".

3 Enter the host's IP address "192.168.1.61" in the “Destination address 1” text box.

4 Enter the data port "33000" in the "Destination tcp port" text box of address 1.

5 Enter the command port "34000" in the "Destination cmd port" text box of address 1.

6 Other parameters remain the default, click "Submit".

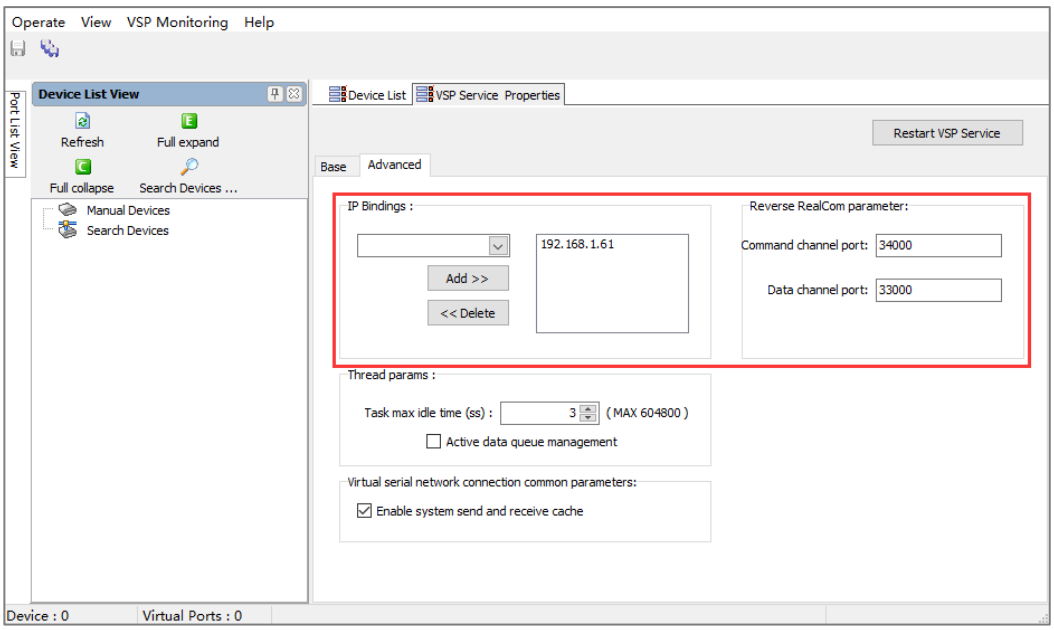
**Step 3** Run "VSP Manager" software, configure the virtual serial port COM2.

1 Install and run the "VSP Manager" software on the host, and refer to the VSP user manual for the installation process.

2 On the menu bar, click “Display > Display VSP service properties”, and then click the “Advanced configuration” tab.

3 In the “IP Binding” area, click the drop-down list to select the host IP address "192.168.1.61", and then click the "Add" button, as shown in the following figure.


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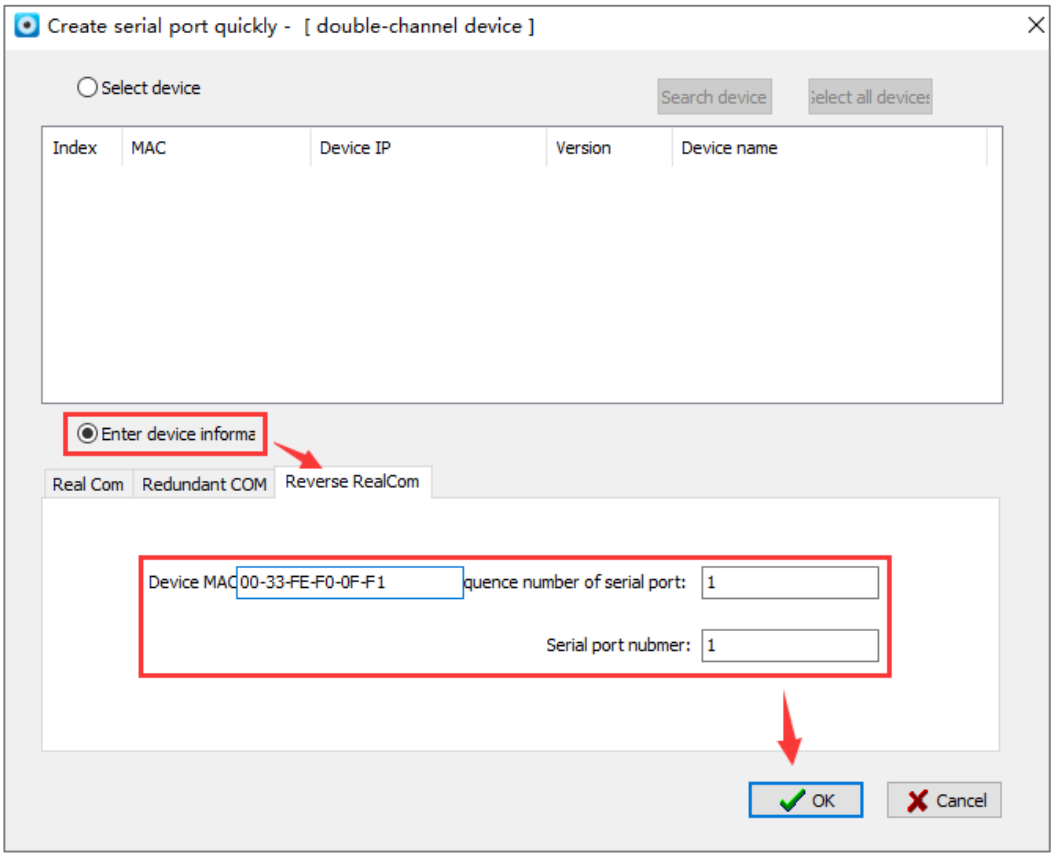



4 Enter the host command port "34000" in the "Command Channel Port" text box under the "Reverse RealCom Parameters" area; in the “Data Channel Port” text box, enter the host data port “33000”.

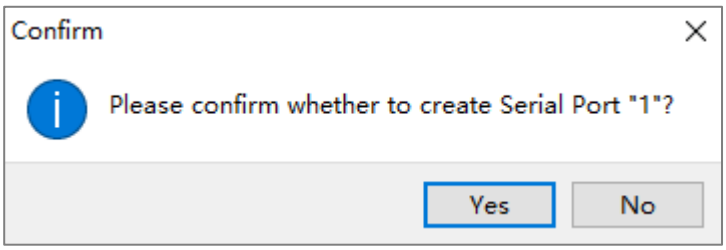
5 In the blank space of "Device List" on the left, right-click and select "Create Serial Port Quickly".

6 Create COM2 in the "Create Serial Port Quickly" window, and the configuration is shown in the following figure.


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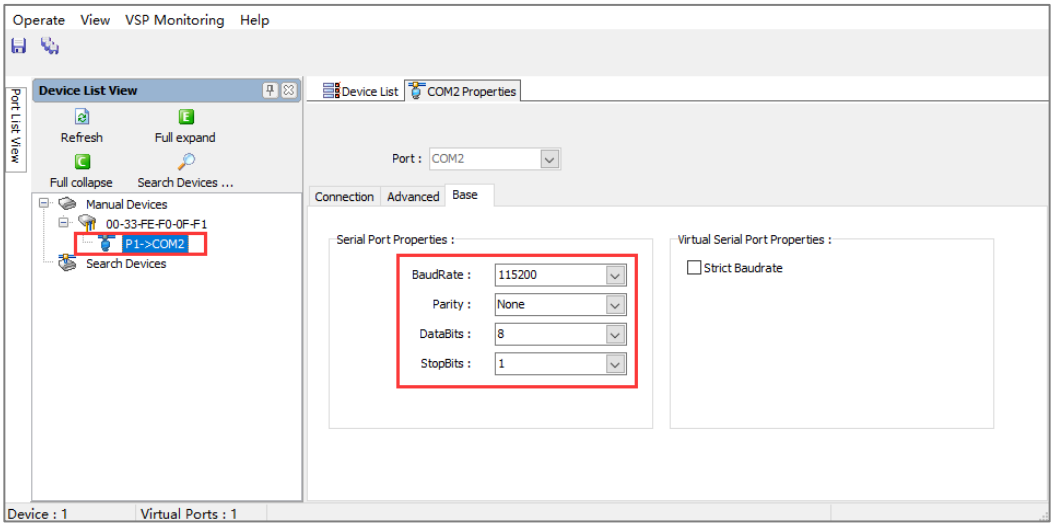



- Click the "Enter Device Information" radio box.
- Click the “Reverse RealCom” tab and enter the MAC address, start serial port number and serial port quantity of the device.
- Click “OK”.
- In the Confirm window, click the Yes button, as shown in the following figure.




7 Double-click the created COM2, enter the COM2 property page, and then click the “Basic” tab. In the "Serial Port Parameters" area, configure the serial port COM2 parameters to be consistent with COM1 communication parameters, as shown in the following figure.

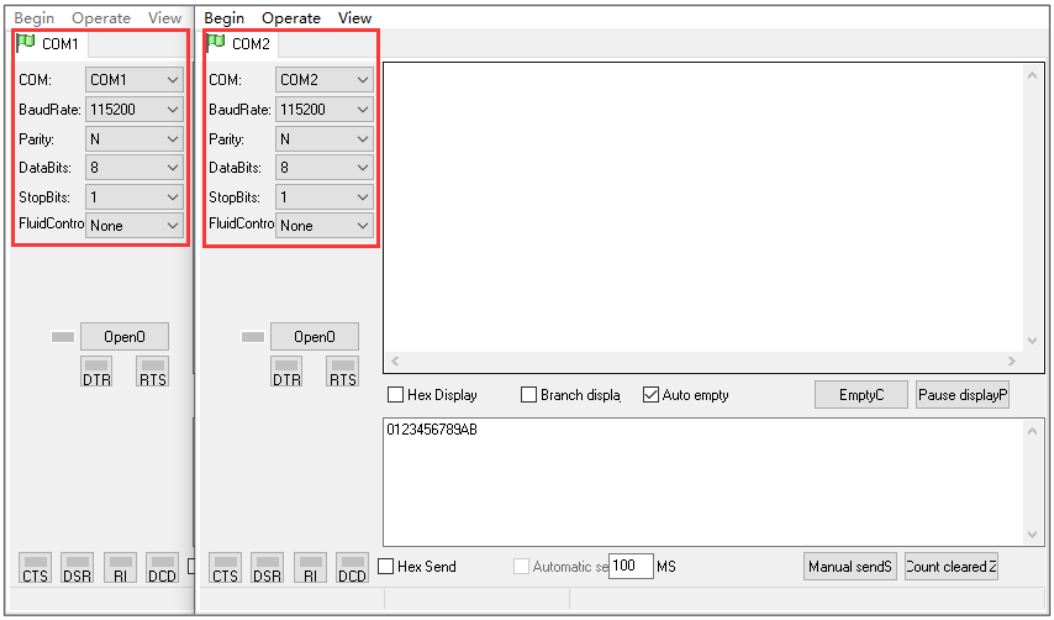

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**Step 4** Run "ComTest" software to test the communication between terminal COM1 and management terminal COM2.

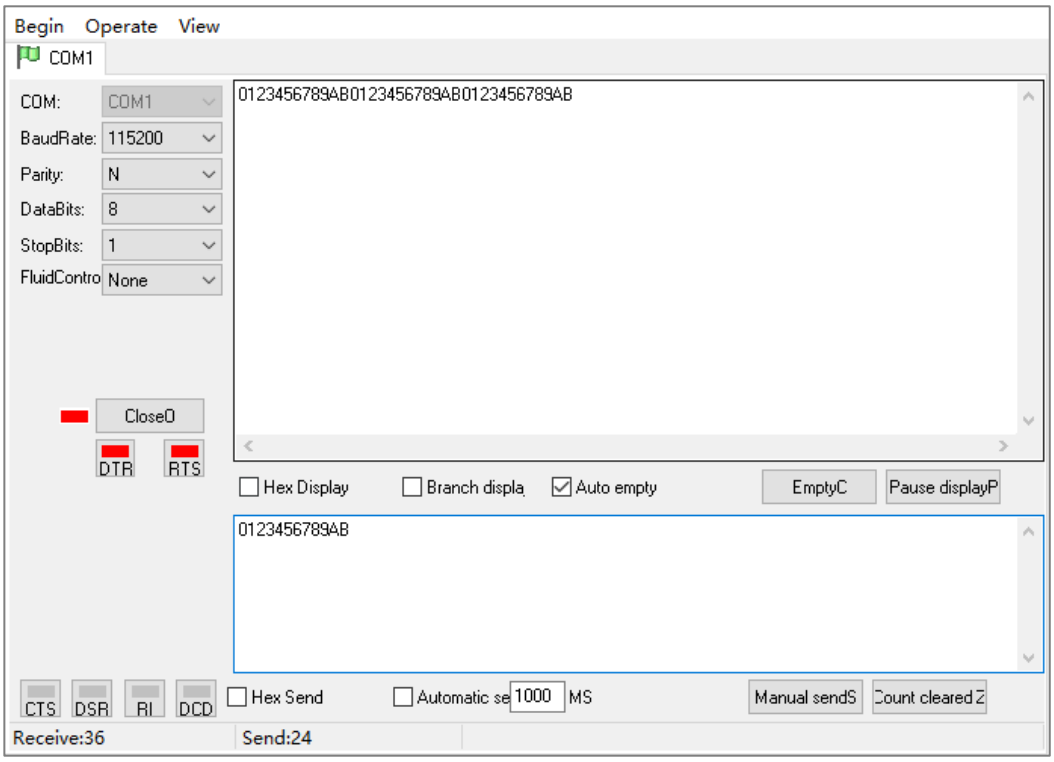
1 Install and run "ComTest" software on the host, click "Start" in the menu bar and select "Add Window".

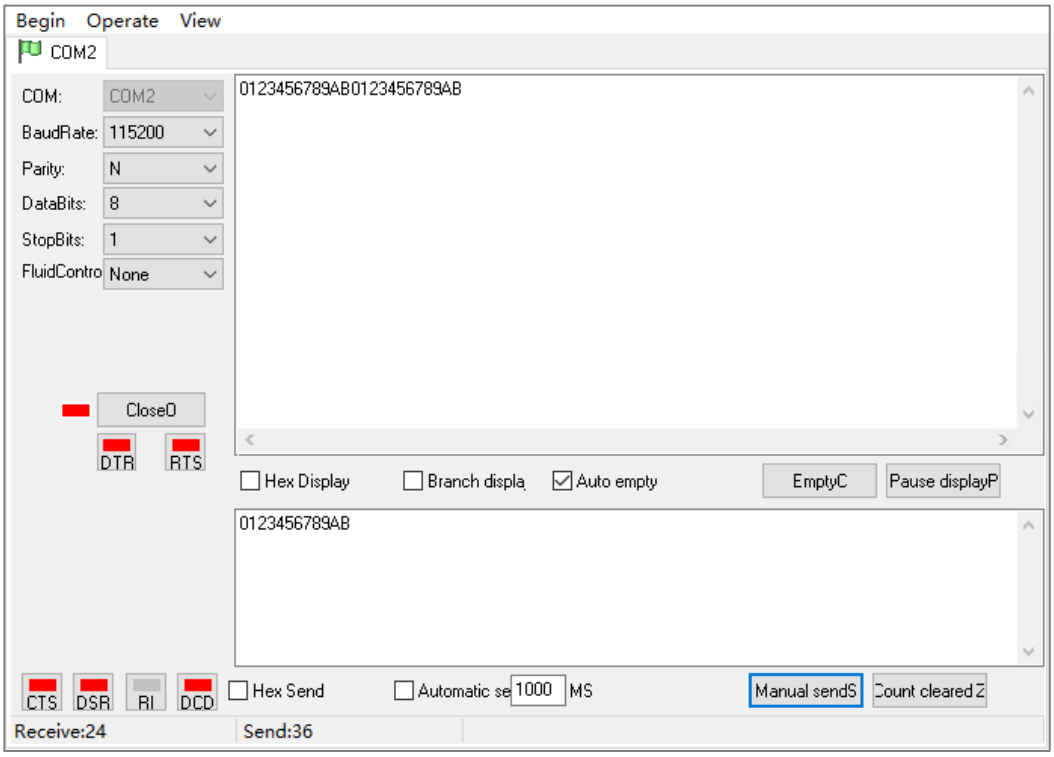
2 Add the real serial "COM1" and virtual serial "COM2" two windows, the "COM1" and "COM2" serial port parameter information match.




3 Turn on the serial signals of "COM1" and "COM2" respectively, and click the "send manually" button to test and check the data receiving and sending status between the real serial port COM1 and the virtual serial port COM2.


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Notes:

You can simulate dynamic IP by manually modifying the static IP address of the device, and then view the data communication between COM1 and COM2.

**Step 5** End.


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# 11.3 TCP Server Mode

## Background Introduction

Assuming that the serial port "COM1" of the serial server is operating in the "TCP server mode", passively waiting for one host PC to connect, and the host can read or send Ethernet data to a serial device.

The parameters of the serial server (TCP server) are as follows:

- IP address: 192.168.1.250
- Local Port: 30000
- Baud rate: 115200
- Parity bit: None
- Data bit: 8
- Stop bit: 1

Host PC (TCP client) parameter information is as follow:

- IP address: 192.168.1.61

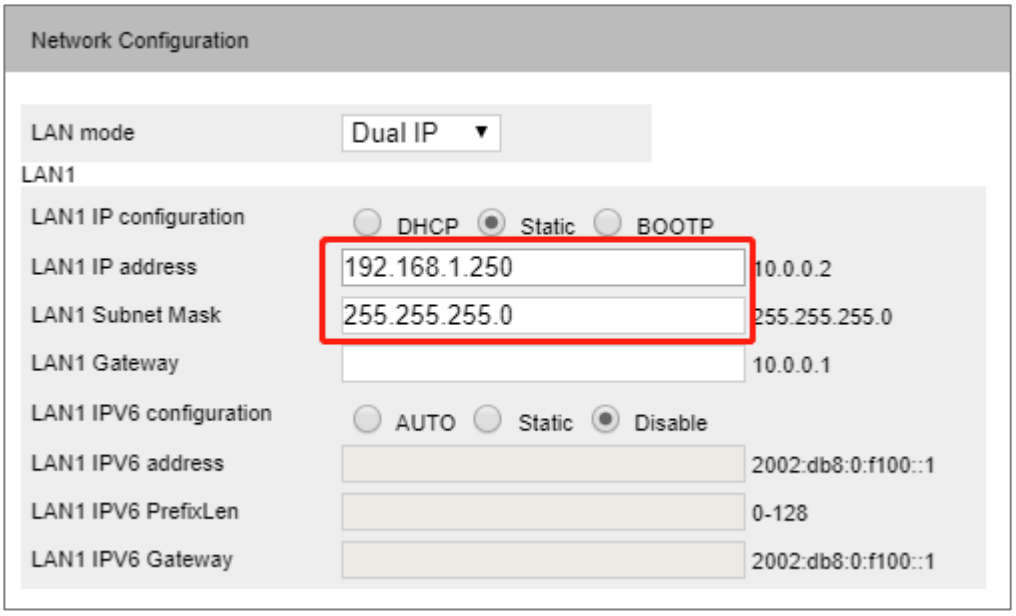
## Operation Steps

**Step 1** Configure the IP address of the serial server.

1 Login in the Web configuration interface, choose "Network Setting".

2 In the "Network port 1" area, select "Network port 1 Configuration" as "Manual Setting", and enter the corresponding network address information such as "Network port 1 Address", "Network port 1 Subnet Mask" and "Network port 1 Gateway".

3 Other parameters remain the default, click "Submit".



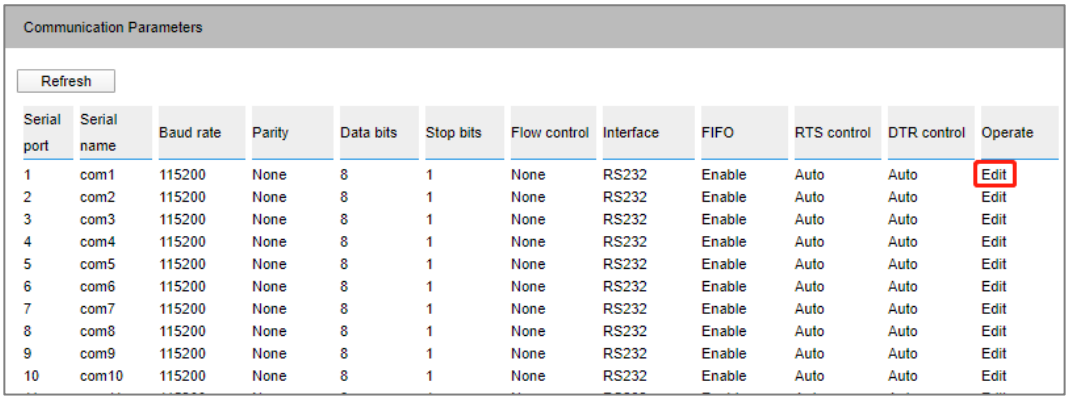


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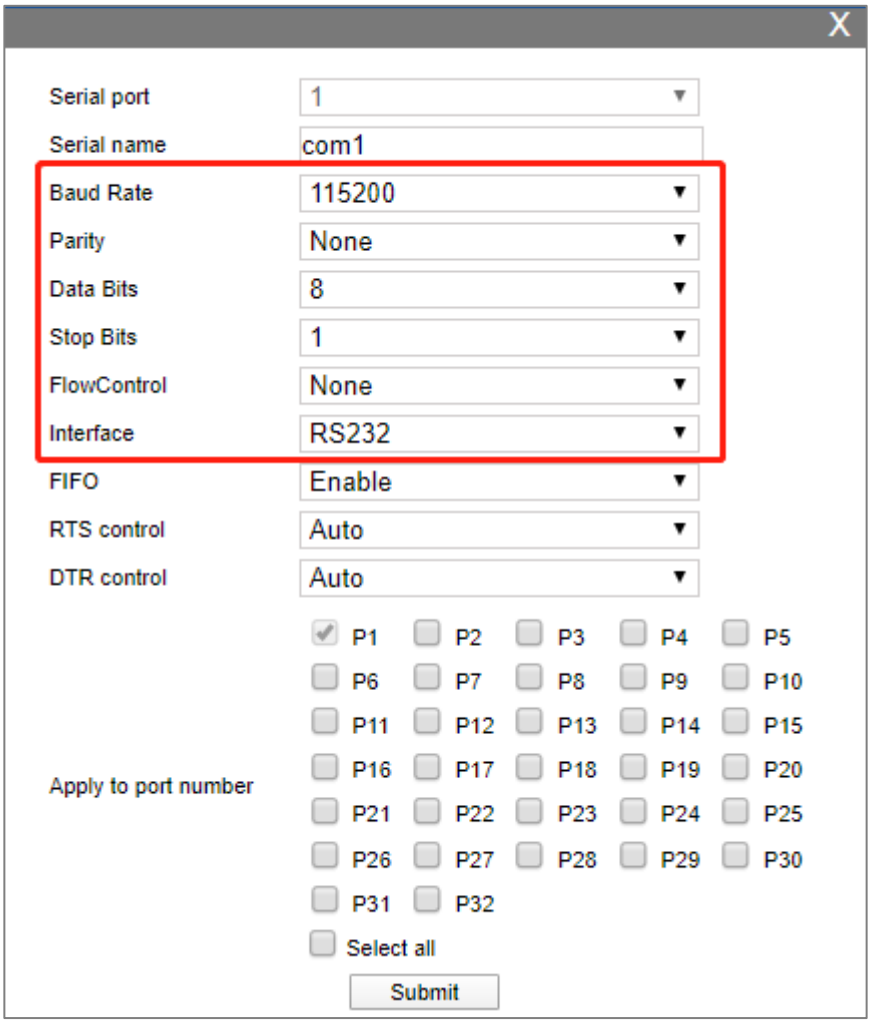
**Step 2** Configure the serial port parameter information.

1 Log in to the Web configuration interface and select "Serial Settings".

2 In the serial port 1 entry, click the "Edit" button under the operation, as shown in the following figure.




3 In the “Edit” window, set “baud rate”, “parity bit”, “data bit” and “stop bit” respectively, as shown in the following figure.



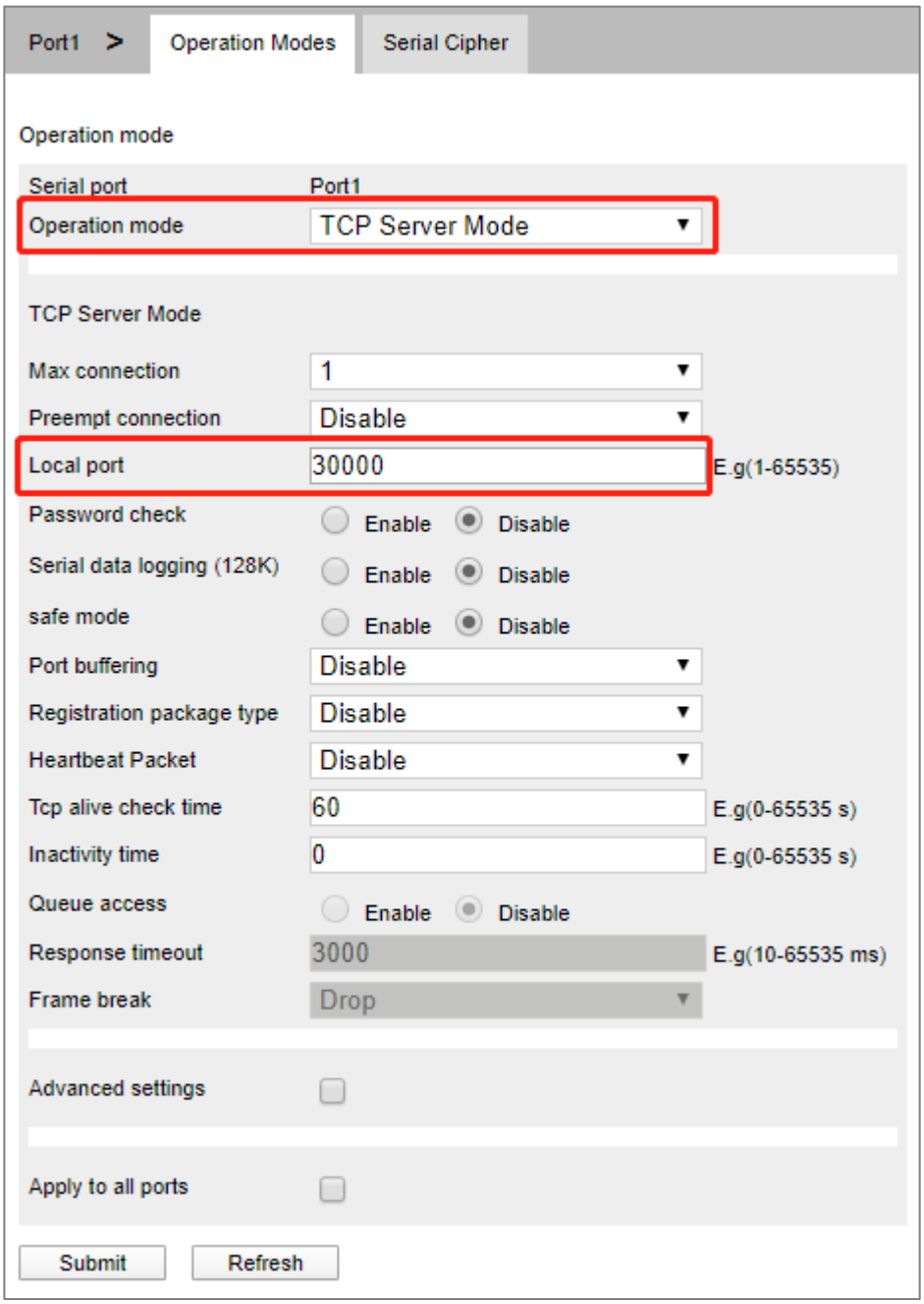


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4 Other parameters remain the default, click "Submit".

**Step 3** Configure the working mode of the serial server.

1 Log in to the WEB configuration interface and select "COM mode > Port1".




2 Click the "Work Mode" drop-down list box and select "TCP Server Mode".

3 Click "Max Connection" drop-down list box, select "1".

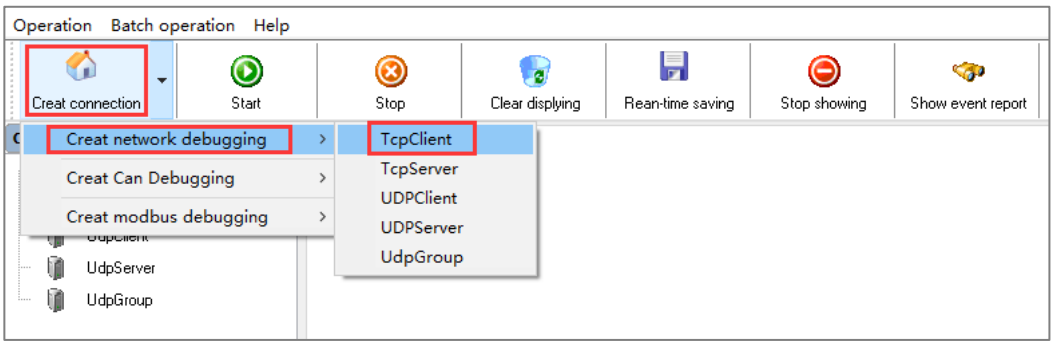
4 Enter "30000" in the "Local Port" text box.

5 Other parameters remain the default, click "Submit".

**Step 4** Run the "DebugTool" software to create a TCP client for the host.


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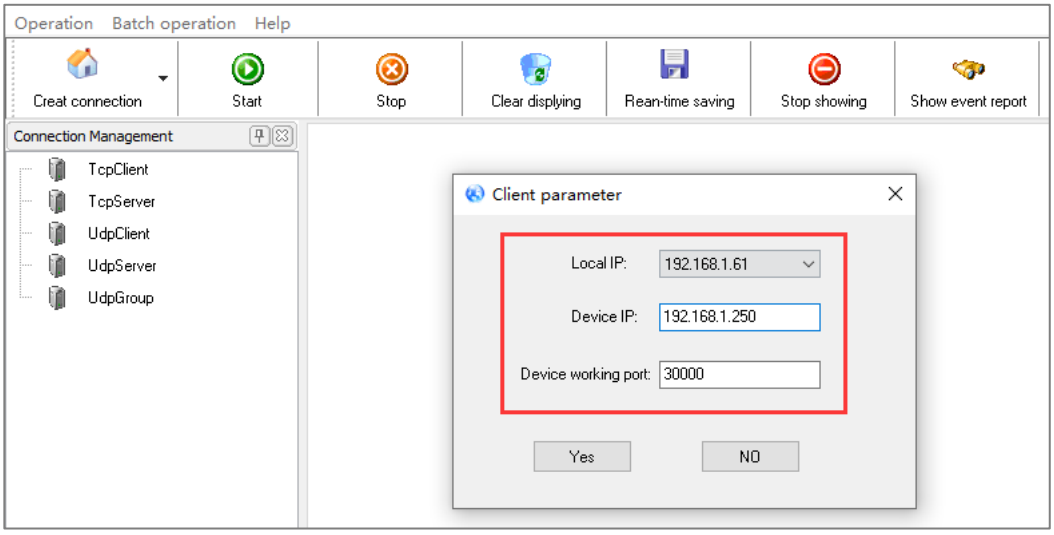
1 Install and run "DebugTool" software, click "create connection" drop-down list box, and select "create network debugging > TcpClient".



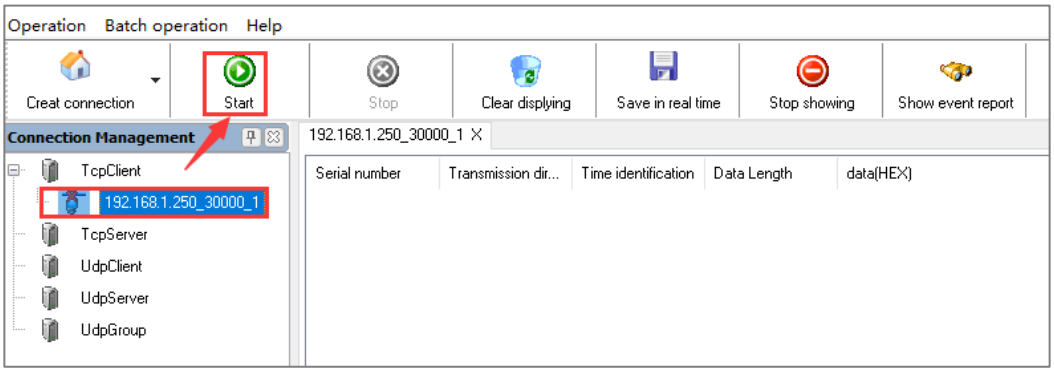

2 In the "Local IP" drop-down list box, select the IP address "192.168.1.61" of the host PC (that is, the TCP client).

3 In the "Device IP" text box, enter the IP address "192.168.1.250" of the serial server (that is, the TCP server).

4 In the “Device Working Port” text box, enter the local port "30000" of the serial server (that is, the TCP server), and click “OK”.




5 Select the TcpClient connection you created and click “Start”.





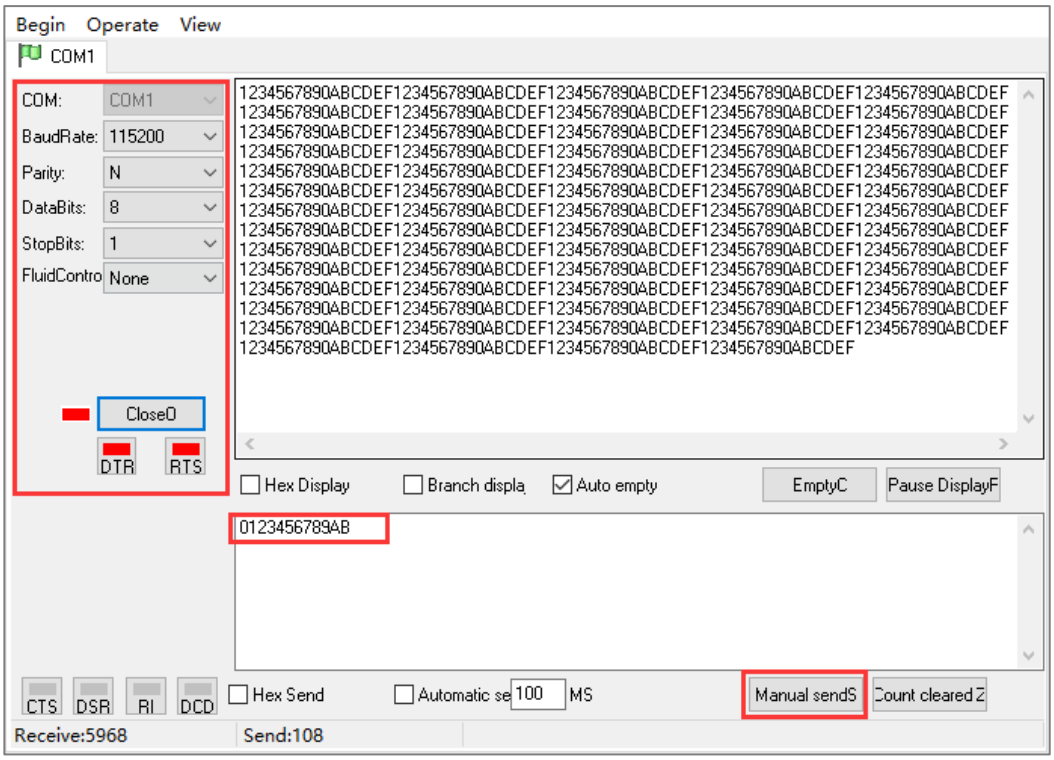
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**Step 5** Run "DebugTool" and "ComTest" software synchronously to test the communication between serial port server (i.e. TCP server) and host PC (i.e. TCP client).

1 Install and run "ComTest" software, and click "Add Window" in the "Start" menu.

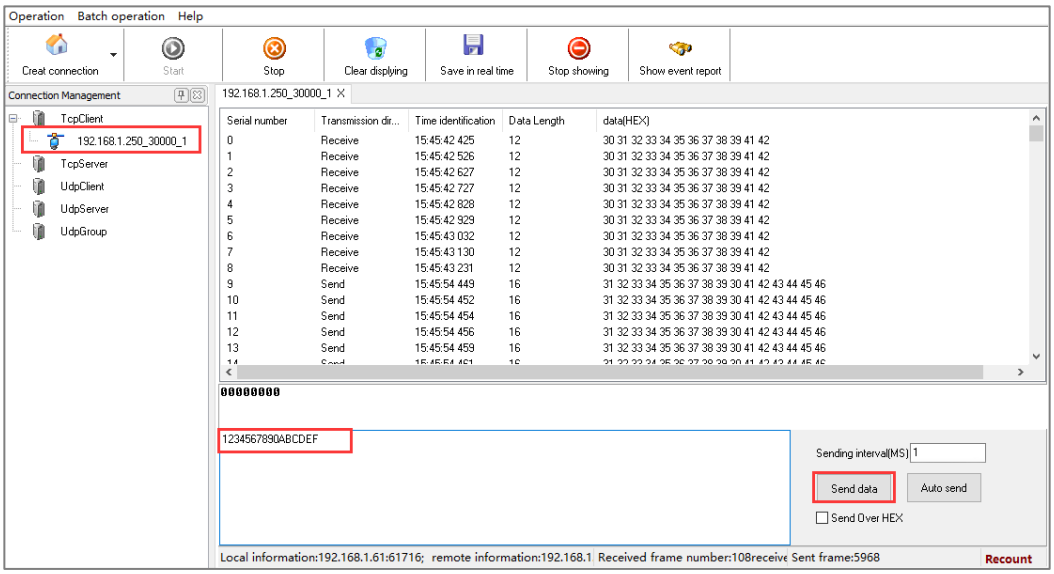
2 Add serial port "COM1" window, and configure serial port number, baud rate, check bit and data bit and other parameters consistent with "serial port configuration" of WEB interface.

3 Open the serial port signal of "COM1", for example, enter the serial port information "0123456789AB", and click "send manually".




4 Run the “DebugTool” software and view the serial port information received by the host PC in the TcpClient option box. Similarly, the host PC can also send messages to serial port devices.


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**Step 6** End.

# 11.4 TCP Client Mode

## Background Introduction

Assuming that the serial port "COM1" of the serial server is working in "TCP client mode", it initiates a connection with a host PC, and the host can read or send Ethernet data to a serial device.

When the data transfer is completed, the serial server will automatically shut down the network connection after 30 seconds.

The parameters of the serial server (TCP client) are as follows:

- IP address: 192.168.1.250
- Local Port: 30000
- Baud rate: 115200
- Parity bit: None
- Data bit: 8
- Stop bit: 1

Host PC (TCP server mode) parameter information as follow:

- IP address: 192.168.1.61
- Local Port: 31000

## Operation Steps

**Step 1** Configure the IP address of the serial server.

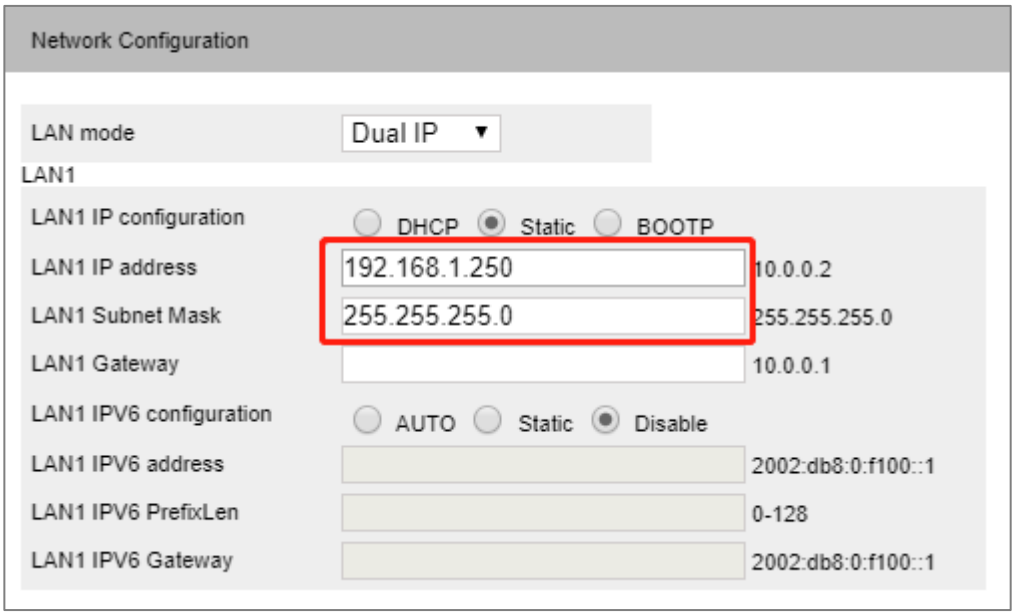
1 Login in the Web configuration interface, choose "Network Setting".

2 In the "Network port 1" area, select "Network port 1 Configuration" as "Manual


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Setting", and enter the corresponding network address information such as "Network port 1 Address", "Network port 1 Subnet Mask" and "Network port 1 Gateway".

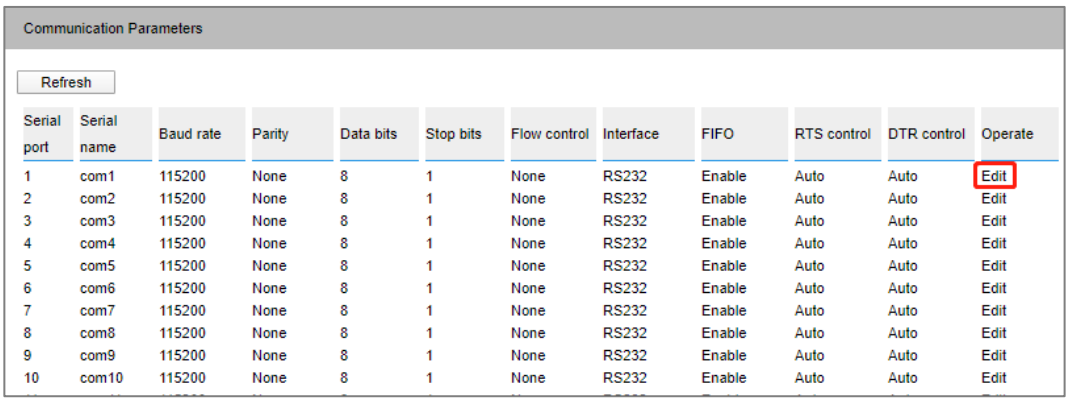
3 Other parameters remain the default, click "Submit".




**Step 2** Configure the serial port parameter information.

1 Log in to the Web configuration interface and select "Serial Settings".

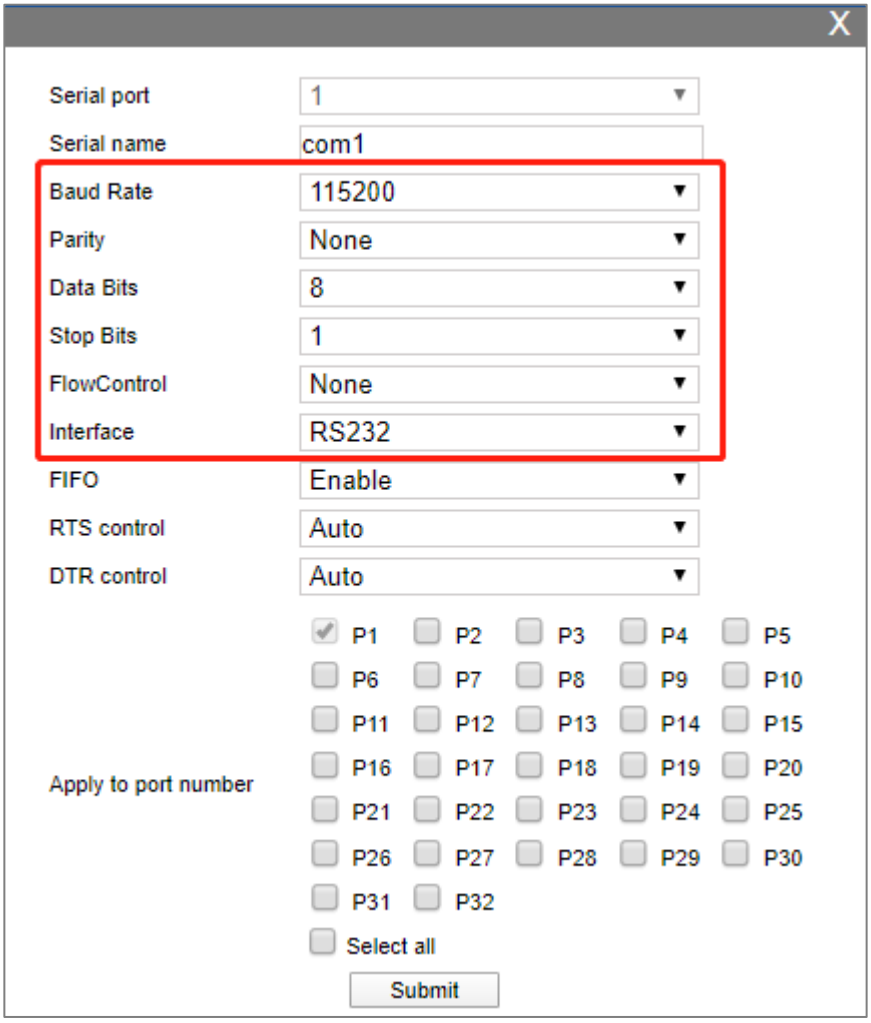
2 In the serial port 1 entry, click the "Edit" button under the operation, as shown in the following figure.




| Serial port | Serial name | Baud rate | Parity | Data bits | Stop bits | Flow control | Interface | FIFO | RTS control | DTR control | Operate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | com1 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 2 | com2 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 3 | com3 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 4 | com4 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 5 | com5 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 6 | com6 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 7 | com7 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 8 | com8 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 9 | com9 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 10 | com10 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |

3 In the “Edit” window, set “baud rate”, “parity bit”, “data bit” and “stop bit” respectively, as shown in the following figure.


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4 Other parameters remain the default, click "Submit".

**Step 3** Configure the working mode of the serial server.

1 Click the "Work Mode" drop-down list box and select "TCP Client Mode".

2 Click “session number” drop-down list box, and select “1” to establish one session connection.

3 Enter the host PC's IP address "192.168.1.61" in the destination address text box.

4 Enter the host PC's local port number, 31000, in the destination port text box.

5 In the “port fixed” drop-down list, select “Enable”.

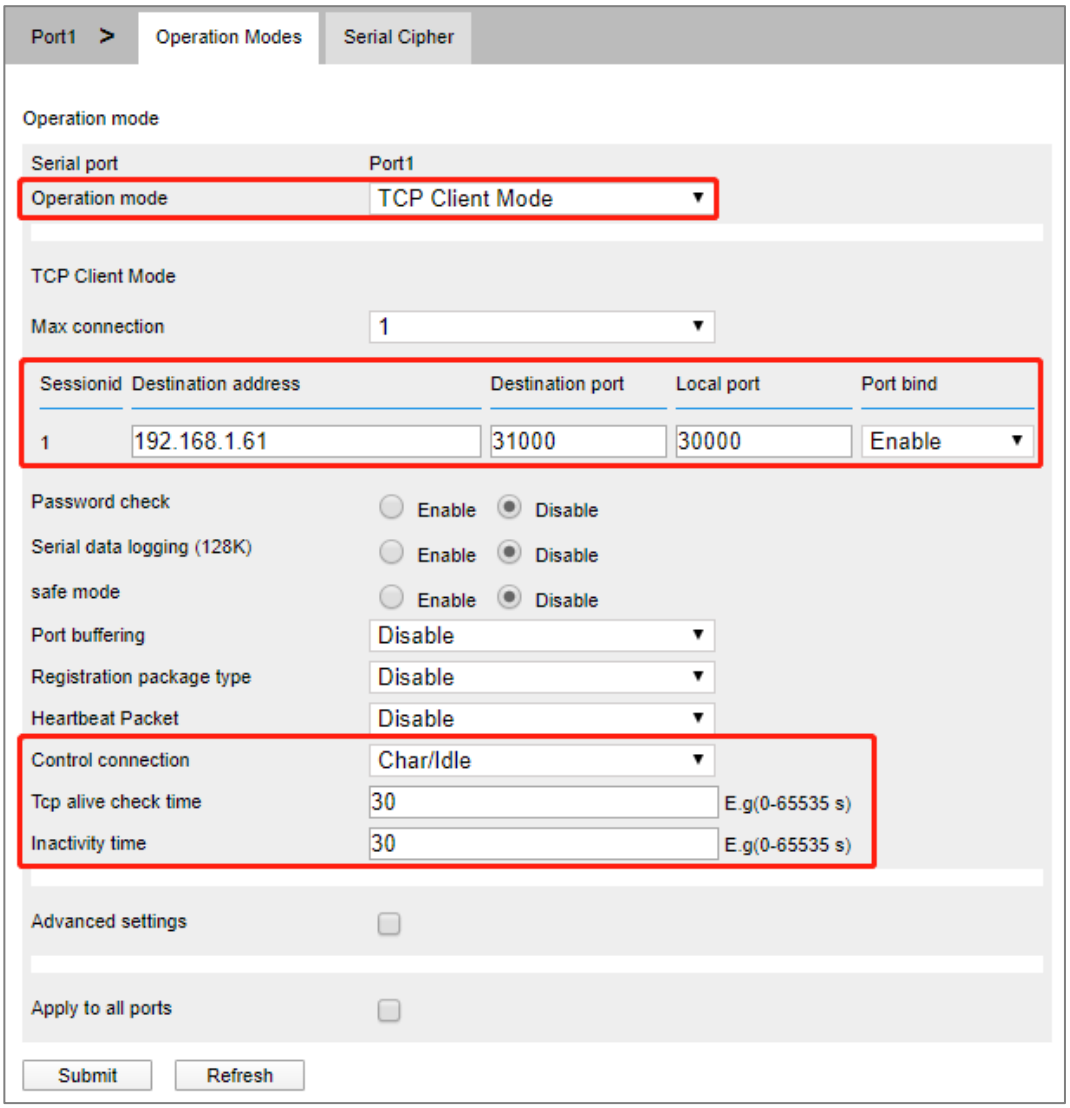
6 Enter the local port number "30000" of the serial server in the "Local port" text box.

7 Select “Char/Idle” in the drop-down list of “Connection Control”.

8 Enter "30" in the "TCP Alive Time" and "TCP Timeout" text boxes.

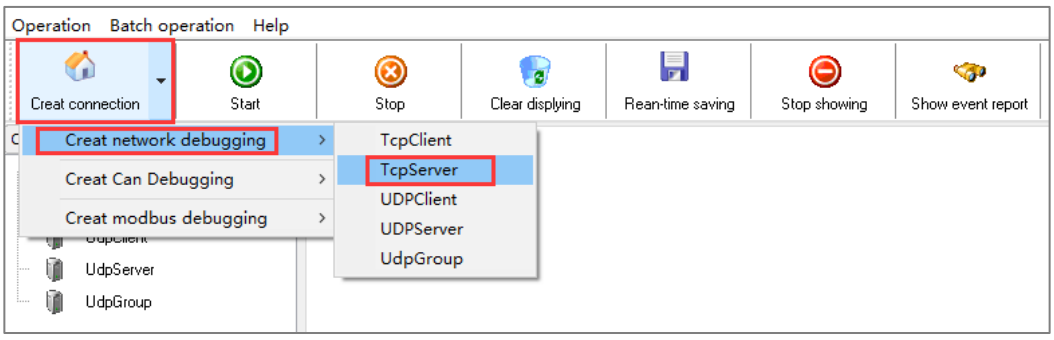
9 Other parameters remain the default, click "Submit".

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**Step 4** Run the "DebugTool" software to create a TCP server for the host.

1 Install and run “Debug Assistant” software, click “create connection” drop-down list, and select “Create Network Debug > UDPServer”.

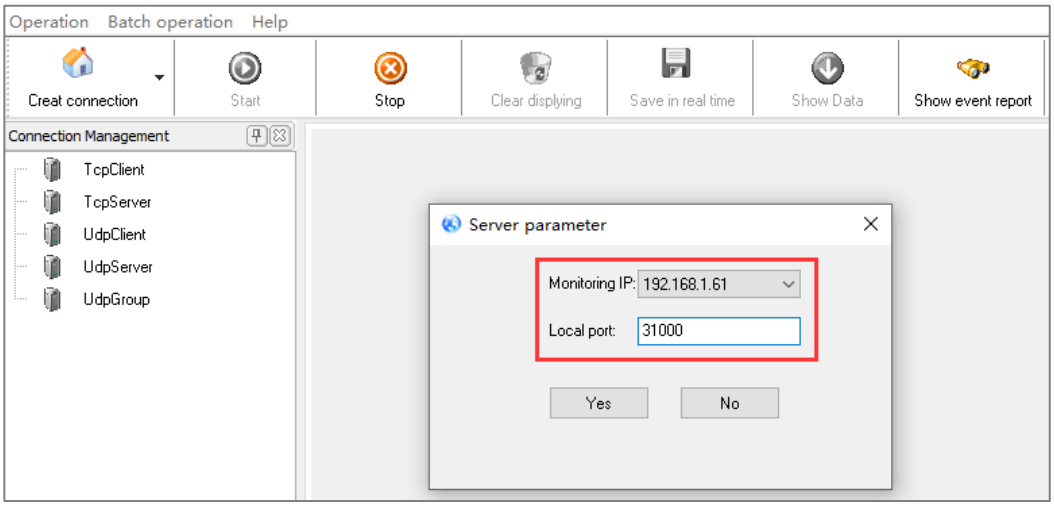



2 In the “Monitoring IP” drop-down list box, select the IP address "192.168.1.61" of the host PC (that is, the TCP server).

3 Enter the host PC (TCP server) local port "31000" on the "Local Port" text box,


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click "Yes".




4 Select the TcpServer connection you created and click “Start”.



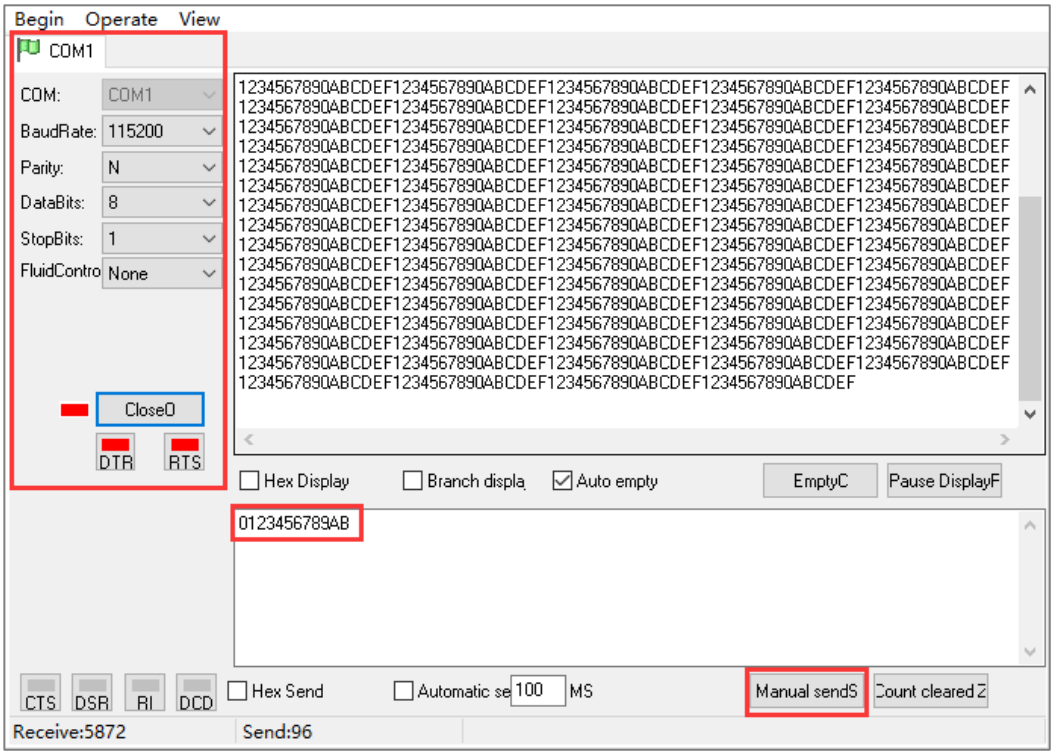

**Step 5** Run "ComTest" and "DebugTool" software synchronously to test the communication between serial server (i.e. TCP client) and host PC (i.e. TCP server).

1 Install and run "ComTest" software, and click "Add Window" in the "Start" menu.

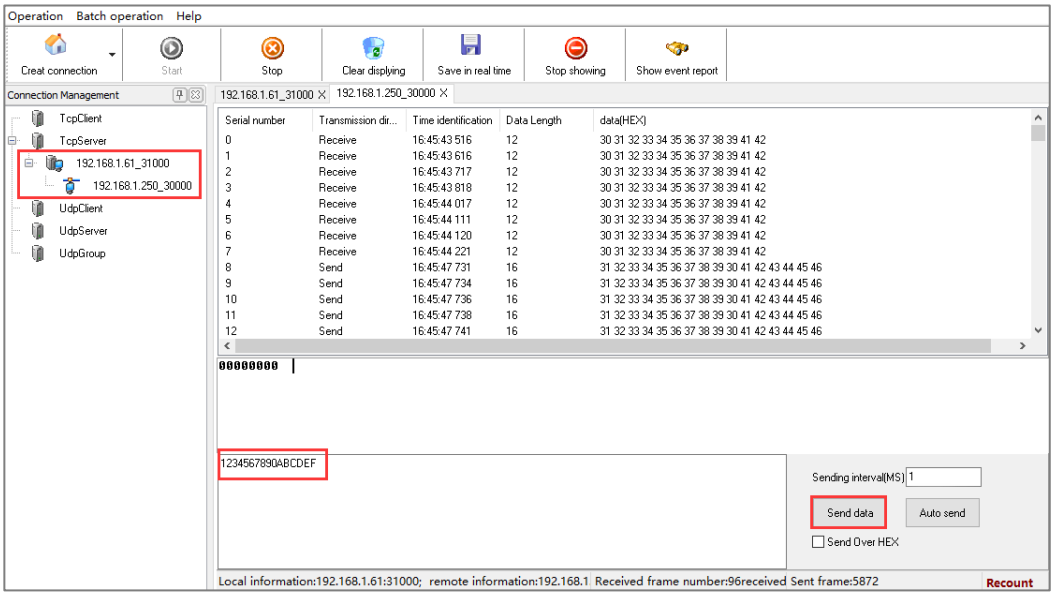
2 Add serial port "COM1" window, and configure serial port number, baud rate, check bit and data bit and other parameters consistent with "serial port configuration" of WEB interface.

3 Open the serial port signal of "COM1", for example, enter the serial port information "0123456789AB", and click "send manually".


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4 Run the “DebugTool” software and view the serial port information received by the host PC in the TcpServer option box. Similarly, the host PC can also send messages to serial port devices.




**Step 6** End.


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# 11.5 UDP Server Mode

## Background Introduction

Assuming that the serial port "COM1" of the serial server is operating under "UDP server mode", passively waiting for one host PC to connect, and the host can read or send Ethernet data to a serial device. Compared with TCP mode, UDP protocol is faster and more efficient.

The parameters of the serial server (UDP server) are as follows:

- IP address: 192.168.1.250
- Local Port: 30000
- Baud rate: 115200
- Parity bit: None
- Data bit: 8
- Stop bit: 1

Host PC (UDP client mode) parameter information as follow:

- IP address: 192.168.1.61
- Local Port: 31000

## Operation Steps

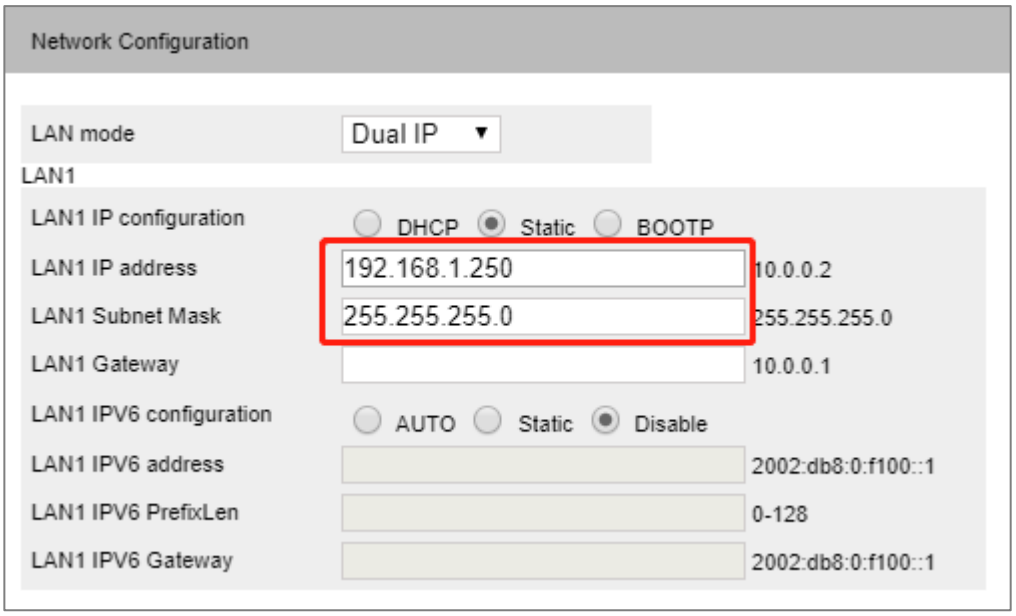
**Step 1** Configure the IP address of the serial server.

1 Login in the Web configuration interface, choose "Network Setting".

2 In the "Network port 1" area, select "Network port 1 Configuration" as "Manual Setting", and enter the corresponding network address information such as "Network port 1 Address", "Network port 1 Subnet Mask" and "Network port 1 Gateway".

3 Other parameters remain the default, click "Submit".

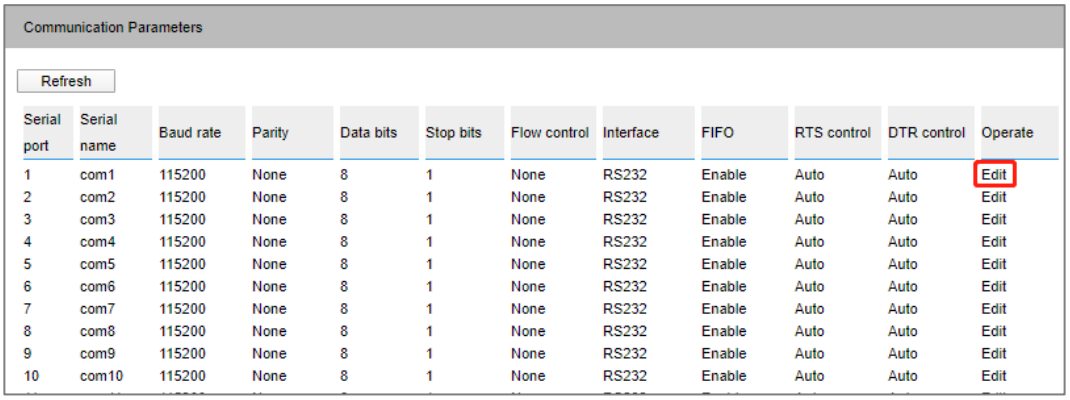

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**Step 2** Configure the serial port parameter information.

1 Log in to the Web configuration interface and select "Serial Settings".

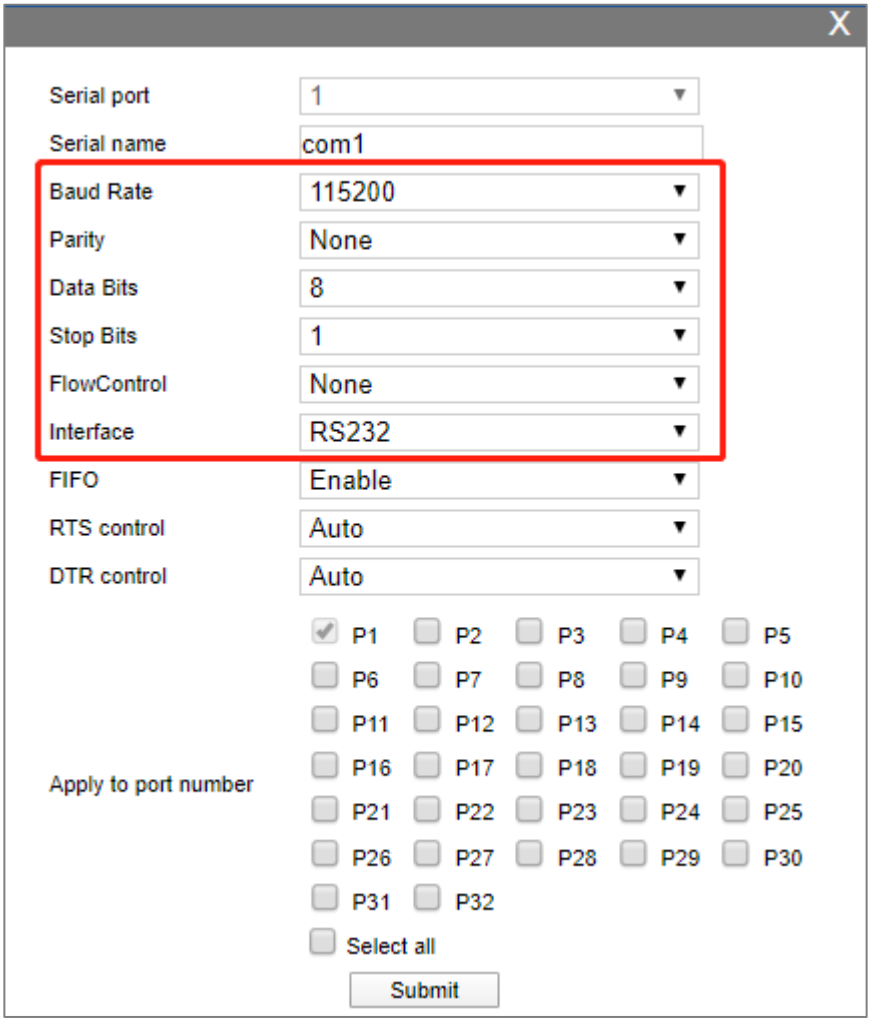
2 In the serial port 1 entry, click the "Edit" button under the operation, as shown in the following figure.




| Serial port | Serial name | Baud rate | Parity | Data bits | Stop bits | Flow control | Interface | FIFO | RTS control | DTR control | Operate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | com1 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 2 | com2 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 3 | com3 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 4 | com4 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 5 | com5 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 6 | com6 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 7 | com7 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 8 | com8 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 9 | com9 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 10 | com10 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |

3 In the “Edit” window, set “baud rate”, “parity bit”, “data bit” and “stop bit” respectively, as shown in the following figure.


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4 Other parameters remain the default, click "Submit".

**Step 3** Configure the working mode of the serial server.

1 Log in to the WEB configuration interface and select "COM mode > Port1".

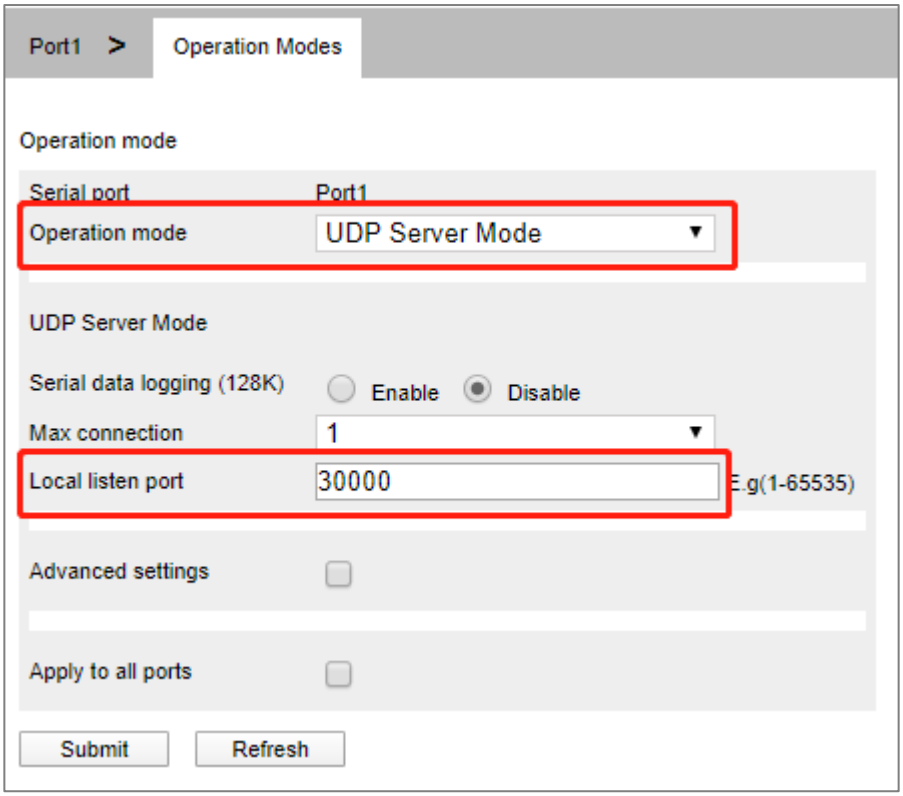
2 Click the "Work Mode" drop-down list box and select "UDP Server Mode".

3 Click "Max Connection" drop-down list box, select "1".

4 Enter "30000" in the "Local listen port" text box.

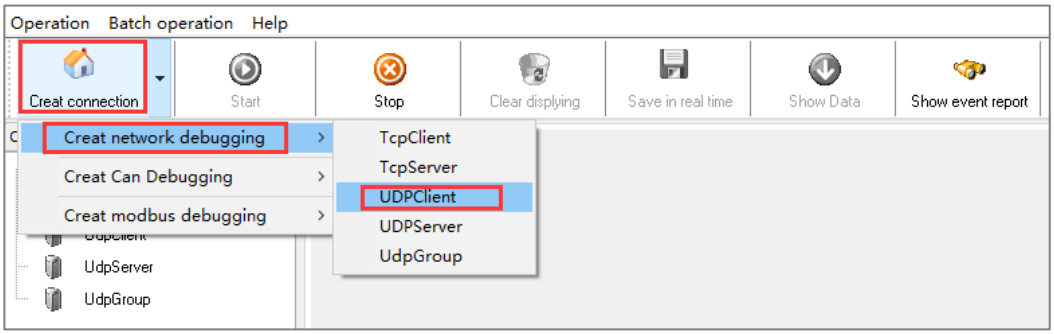
5 Other parameters remain the default, click "Submit".


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**Step 4** Run the "DebugTool" software to create a UDP client for the host.

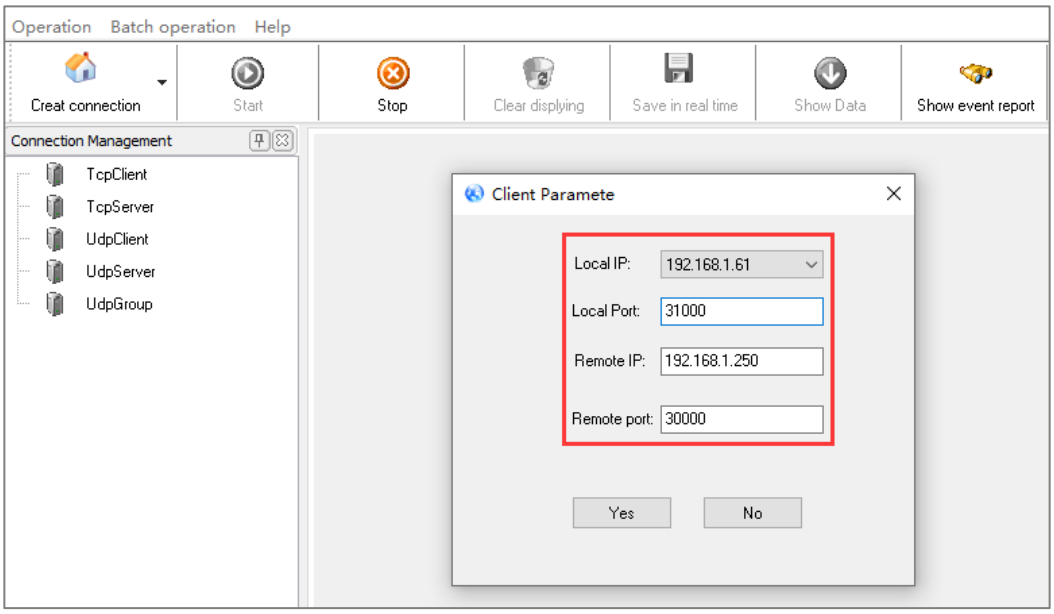
1 Install and run "DebugTool" software, click "create connection" drop-down list box, and select "create network debugging > UDPClient".




2 In the "Local IP" drop-down list box, select the IP address "192.168.1.61" of the host PC (that is, the UDP client).

3 Enter the port number "31000" for the host PC (that is, the UDP client) in the "Local Port" text box.

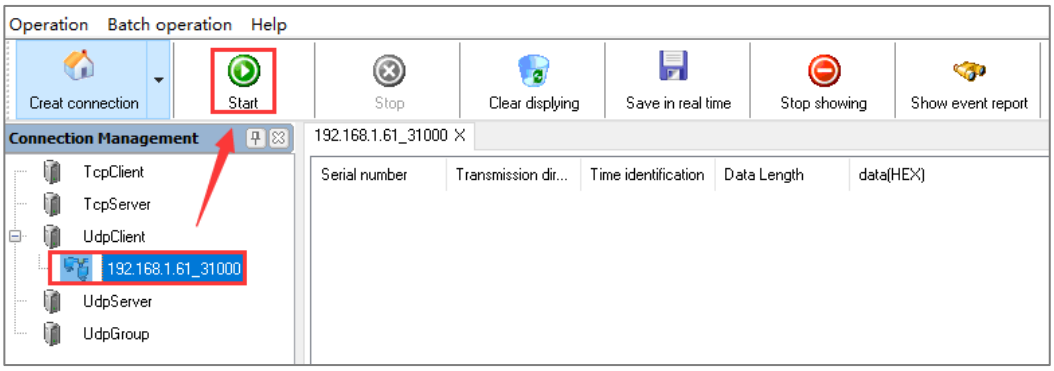

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4 Enter the IP address "192.168.1.250" of the serial server (that is, the UDP server) in the "Remote IP" text box.

5 In the “Remote Port” text box, enter the port number “30000” for the serial server (that is, the UDP server), and click “OK”.

6 Choose the UDPClient connection you created, click "Start".



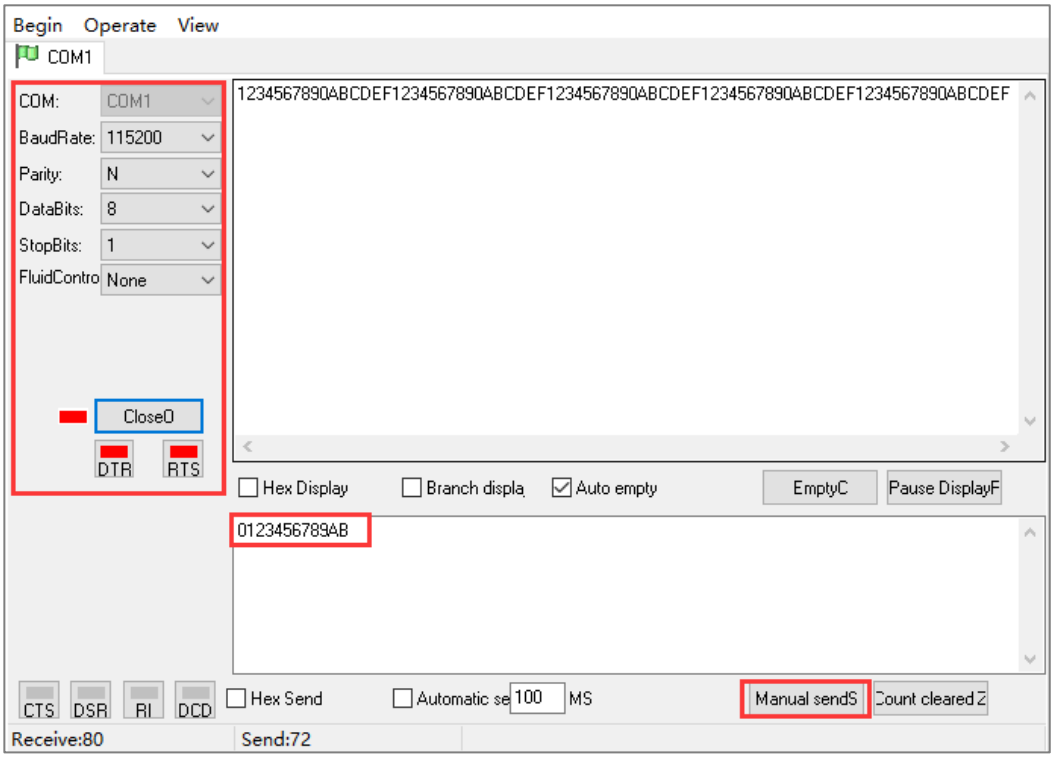

**Step 5** Run "ComTest" and "DebugTool" software synchronously to test the communication between serial server (i.e. UDP server) and host PC (i.e. UDP Client).

1 Install and run "ComTest" software, and click "Add Window" in the "Start" menu.

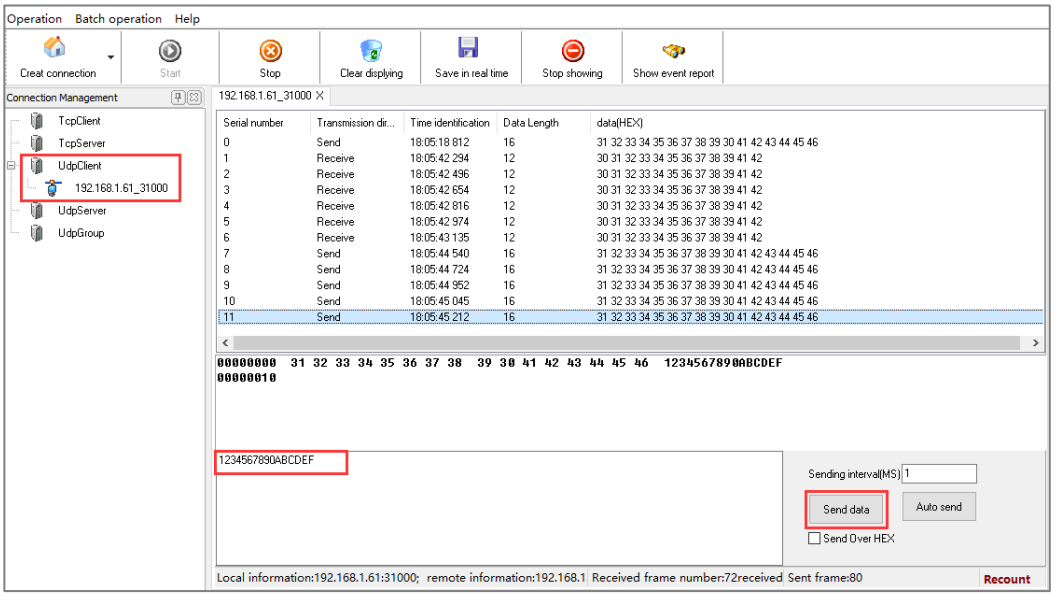
2 Add serial port "COM1" window, and configure serial port number, baud rate, check bit and data bit and other parameters consistent with "serial port configuration" of WEB interface.

3 Open the serial port signal of "COM1", for example, enter the serial port information "0123456789AB", and click "send manually".


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4 Run the “DebugTool” software and view the serial information received by the host PC in the UDPClient option box. Similarly, the host PC can also send messages to serial port devices.




**Step 6** End.

# 11.6 UDP Client Mode

## Background Introduction

Assuming that the serial port "COM1" of the serial server works in the "UDP client mode", it initiates a connection with a host PC, and the host can read or send Ethernet data to a serial device. Compared with TCP mode, UDP protocol is faster and more efficient.

The parameters of the serial server (UDP client) are as follows:

- IP address: 192.168.1.250
- Local Port: 30000
- Baud rate: 115200
- Parity bit: None
- Data bit: 8
- Stop bit: 1

Host PC (UDP server mode) parameter information as follow:

- IP address: 192.168.1.61
- Local Port: 31000

## Operation Steps

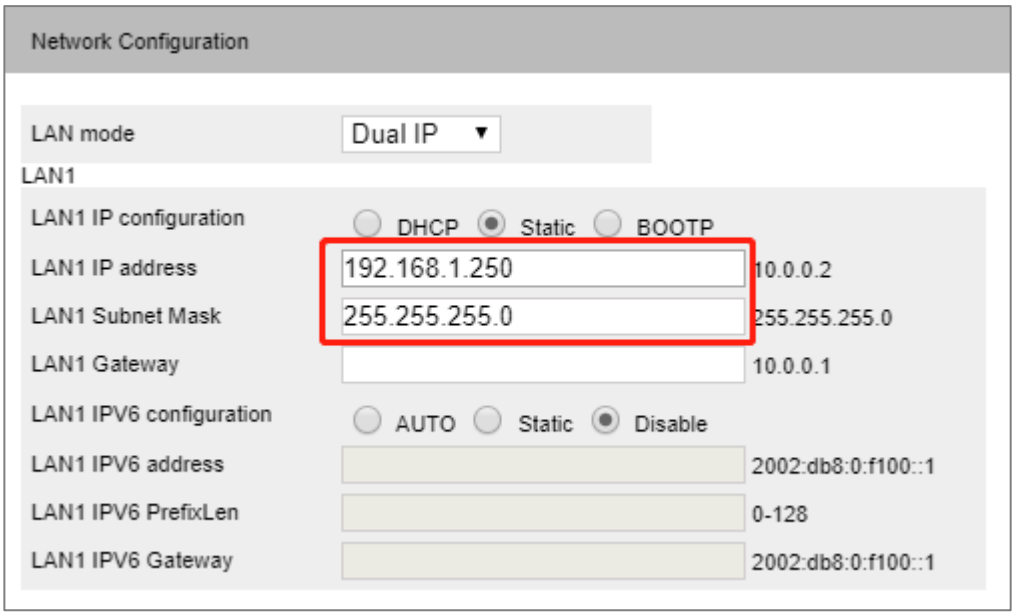
**Step 1** Configure the IP address of the serial server.

1 Login in the Web configuration interface, choose "Network Setting".

2 In the "Network port 1" area, select "Network port 1 Configuration" as "Manual Setting", and enter the corresponding network address information such as "Network port 1 Address", "Network port 1 Subnet Mask" and "Network port 1 Gateway".

3 Other parameters remain the default, click "Submit".

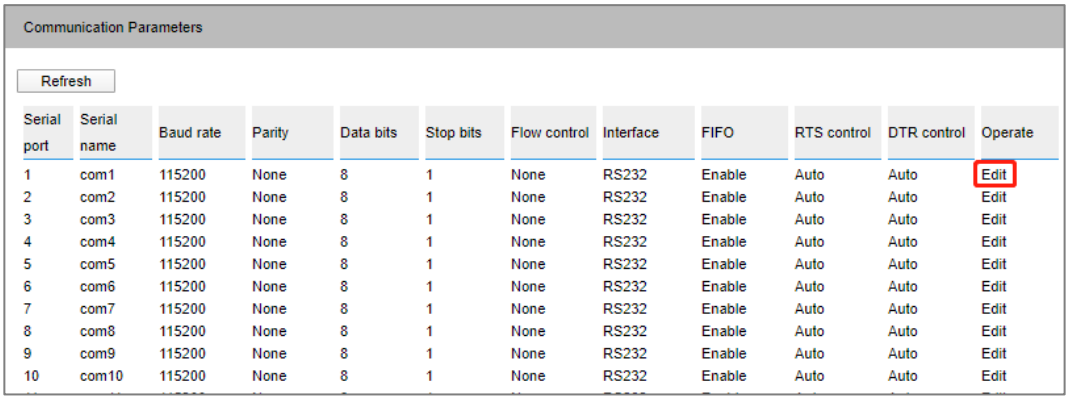
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**Step 2** Configure the serial port parameter information.

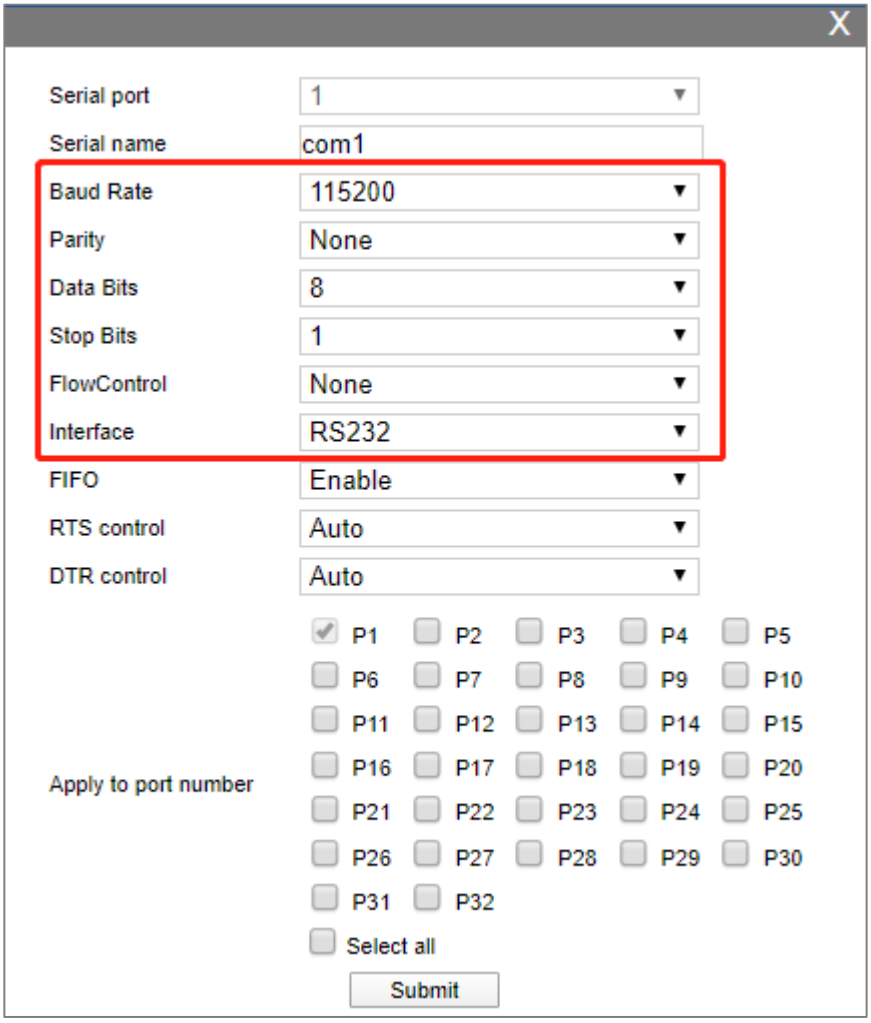
1 Log in to the Web configuration interface and select "Serial Settings".

2 In the serial port 1 entry, click the "Edit" button under the operation, as shown in the following figure.




3 In the “Edit” window, set “baud rate”, “parity bit”, “data bit” and “stop bit” respectively, as shown in the following figure.


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4 Other parameters remain the default, click "Submit".

**Step 3** Configure the working mode of the serial server.

1 Log in to the WEB configuration interface and select "COM mode > Port1".

2 Click the "Work Mode" drop-down list box and select "UDP Client Mode".

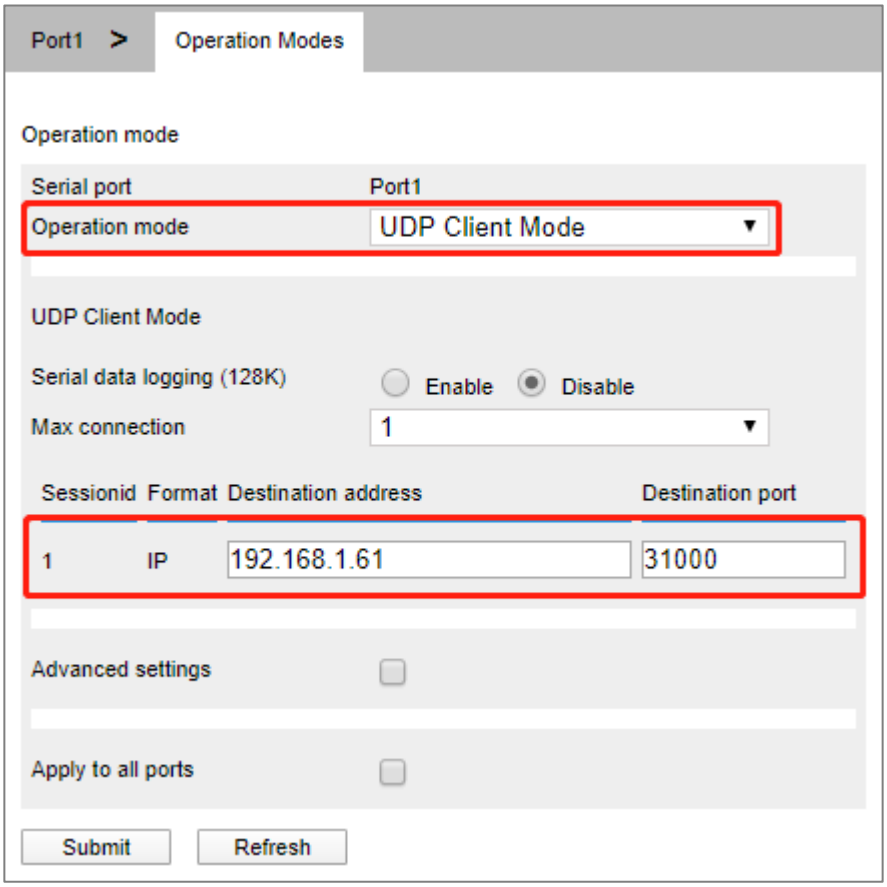
3 Click “session number” drop-down list box, and select “1” to establish one session connection.

4 Enter the host PC's IP address "192.168.1.61" in the destination address text box.

5 Enter the host PC's local port number, 31000, in the destination port text box.

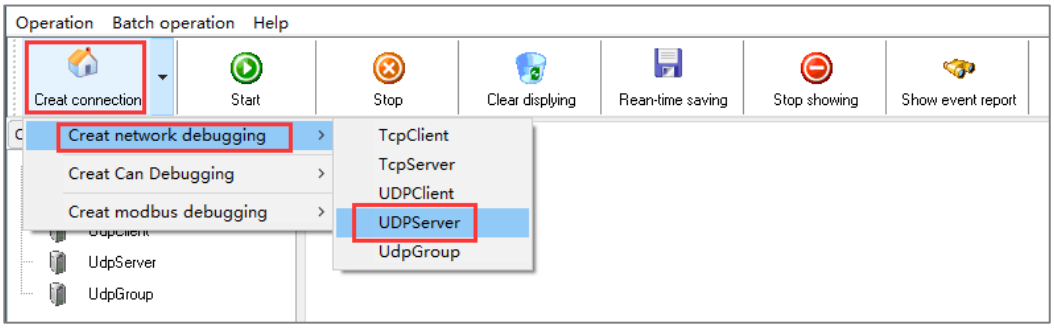
6 Other parameters remain the default, click "Submit".

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**Step 4** Run the "DebugTool" software to create a UDP server for the host.

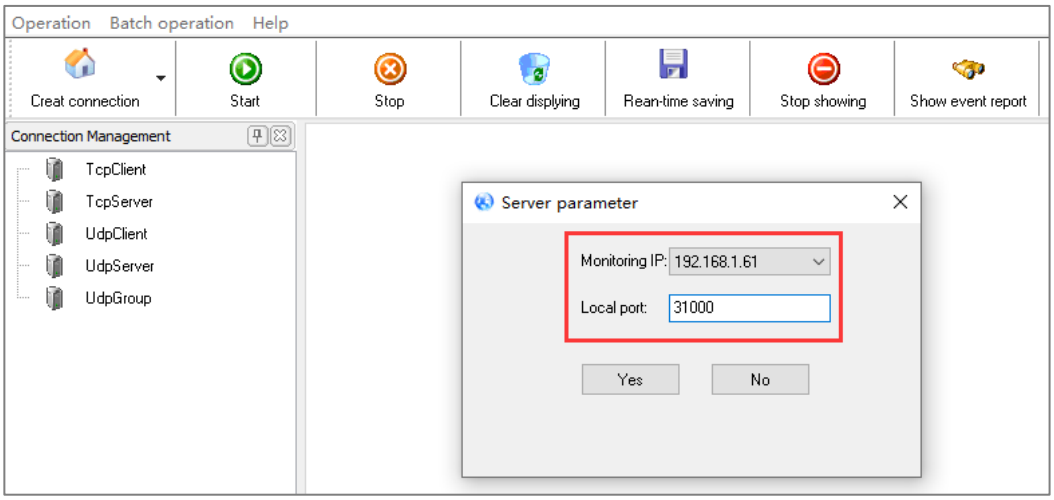
1 Install and run "DebugTool" software, click "create connection" drop-down list box, and select "Create network debugging > UDPServer".



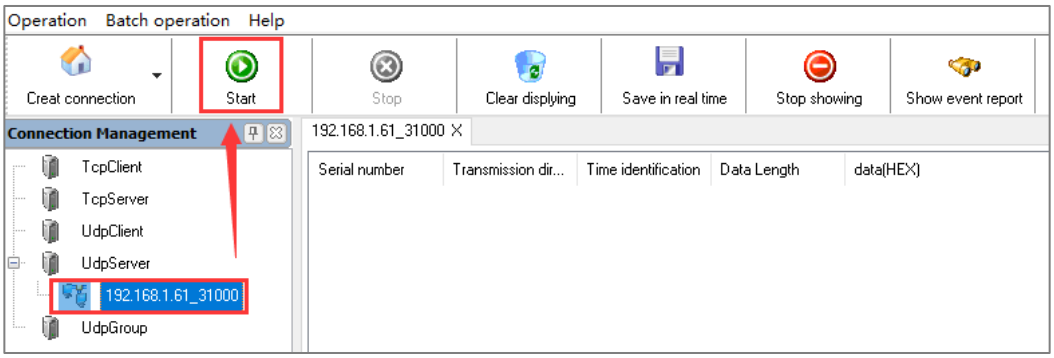

2 In the “Monitoring IP” drop-down list box, select the IP address "192.168.1.61" of the host PC (that is, the UDP server).

3 In the “Local Port” text box, enter the local port "31000" for the host PC (that is, the UDP server) and click “OK”.


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4 Select the UdpServer connection you created and click start.



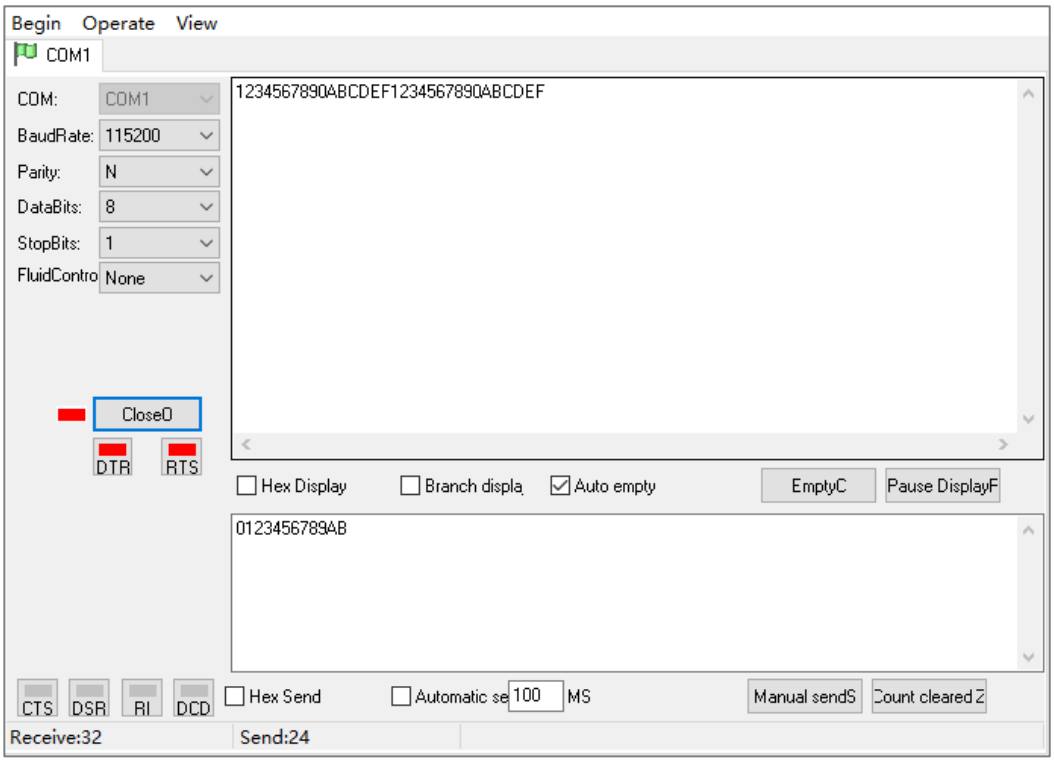

**Step 5** Run "ComTest" and "DebugTool" software synchronously to test the communication between serial server (i.e. UDP client) and host PC (i.e. UDP server).

1 Install and run "ComTest" software, and click "Add Window" in the "Start" menu.

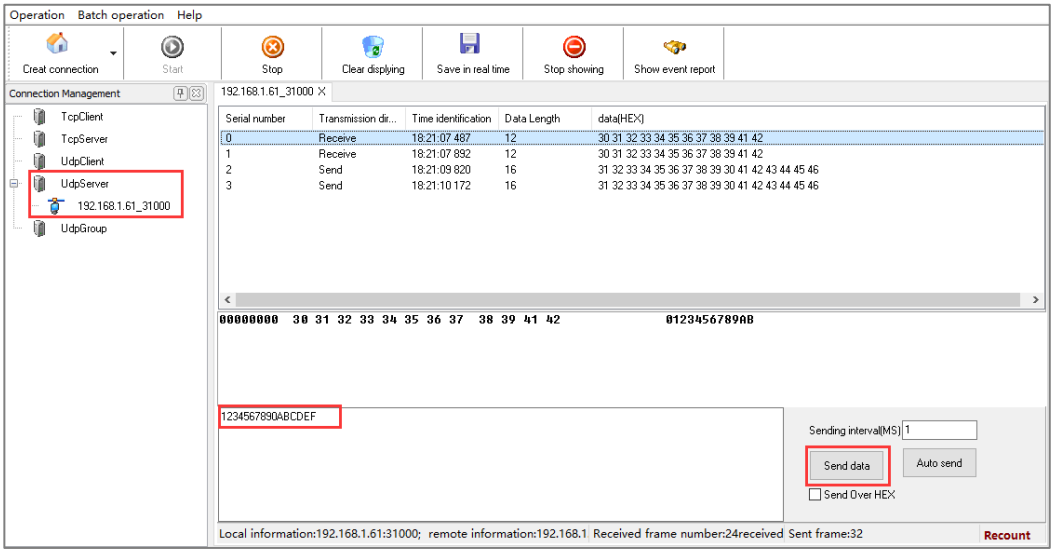
2 Add serial port "COM1" window, and configure serial port number, baud rate, check bit and data bit and other parameters consistent with "serial port configuration" of WEB interface.

3 Open the serial port signal of "COM1", for example, enter the serial port information "0123456789AB", and click "send manually".


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4 Run the “DebugTool” software and view the serial information received by the host PC in the TcpServer option box. Similarly, the host PC can also send messages to serial port devices.




**Step 6** End.


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# 11.7 UDP Rang Mode

## Background Introduction

When the routers and switches and other devices do not support multicast, but also need to achieve the multicast function, you can make the serial server in UDP rang mode. Assuming that the serial port COM1 of the serial device server is connected to the host computer, it needs to transmit the serial data to two hosts that specify the same network segment "192.168.1.61" to "192.168.1.62" through the UDP protocol at the same time.

The parameters of the serial server (UDP server) are as follows:

- IP address: 192.168.1.250
- Local Port: 30000
- Baud rate: 115200
- Parity bit: None
- Data bit: 8
- Stop bit: 1

Host A (UDP client A) parameter information as follow:

- IP address: 192.168.1.61
- Local Port: 31000

Host B (UDP client B) parameter information as follow:

- IP address: 192.168.1.62
- Local Port: 31000

## Operation Steps

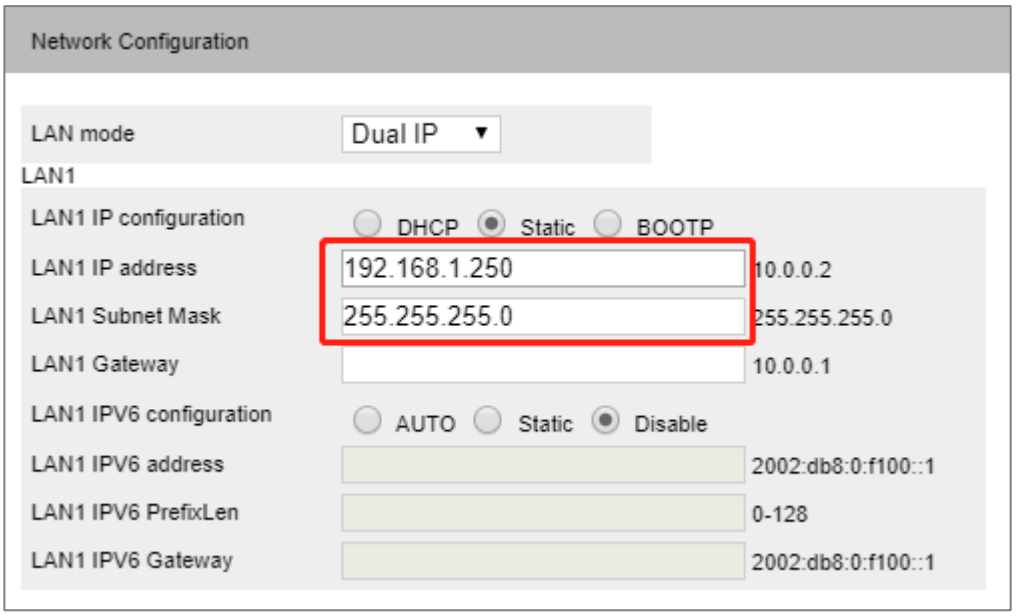
**Step 1** Configure the IP address of the serial server.

1 Login in the Web configuration interface, choose "Network Setting".

2 In the "Network port 1" area, select "Network port 1 Configuration" as "Manual Setting", and enter the corresponding network address information such as "Network port 1 Address", "Network port 1 Subnet Mask" and "Network port 1 Gateway".

3 Other parameters remain the default, click "Submit".

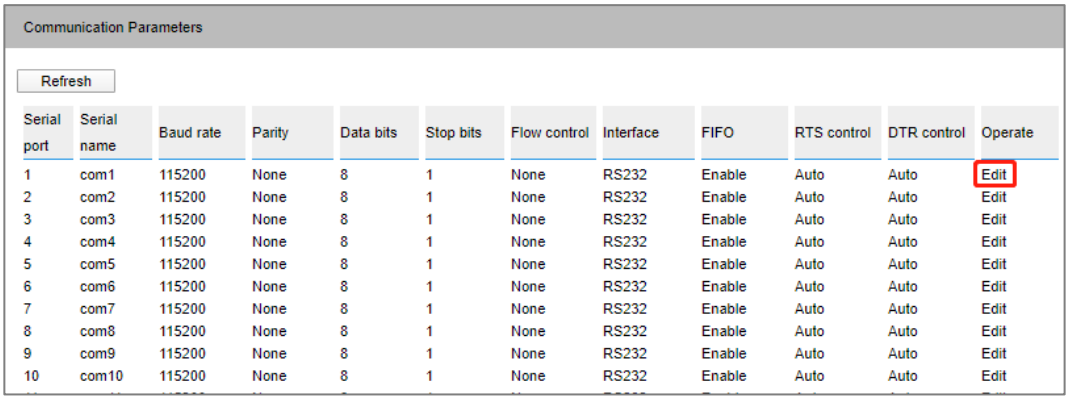

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**Step 2** Configure the serial port parameter information.

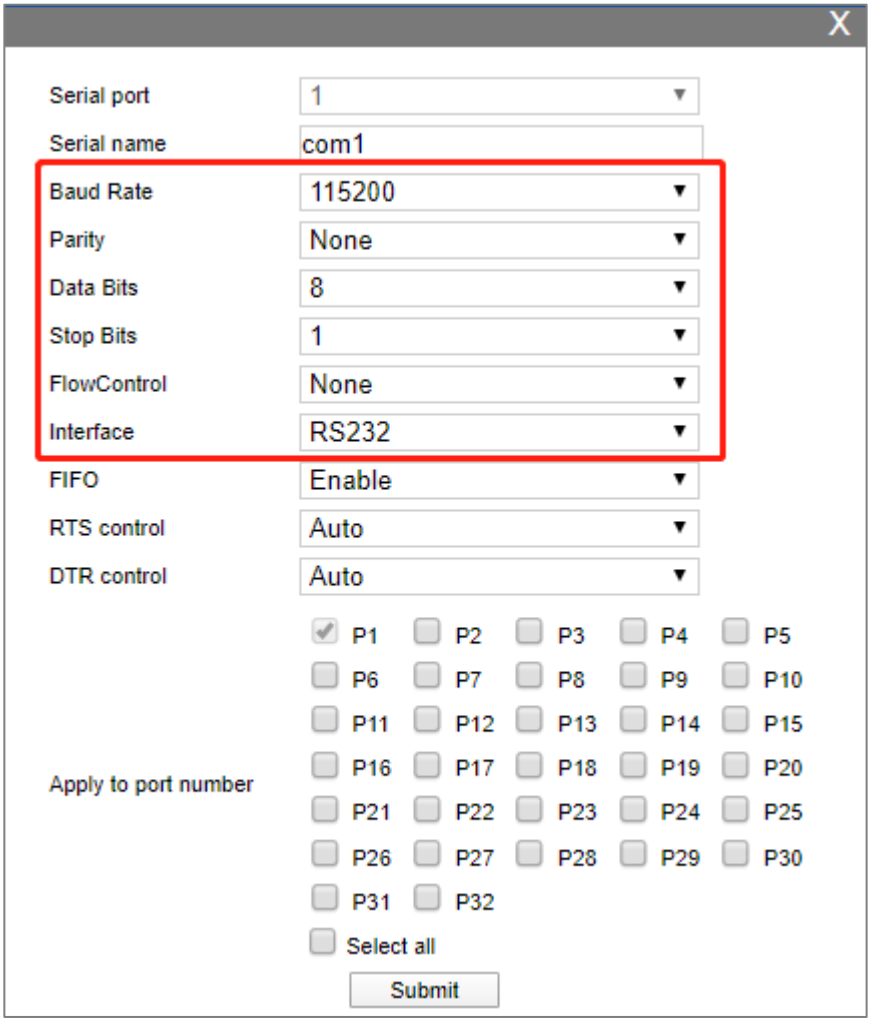
1 Log in to the Web configuration interface and select "Serial Settings".

2 In the serial port 1 entry, click the "Edit" button under the operation, as shown in the following figure.




3 In the “Edit” window, set “baud rate”, “parity bit”, “data bit” and “stop bit” respectively, as shown in the following figure.


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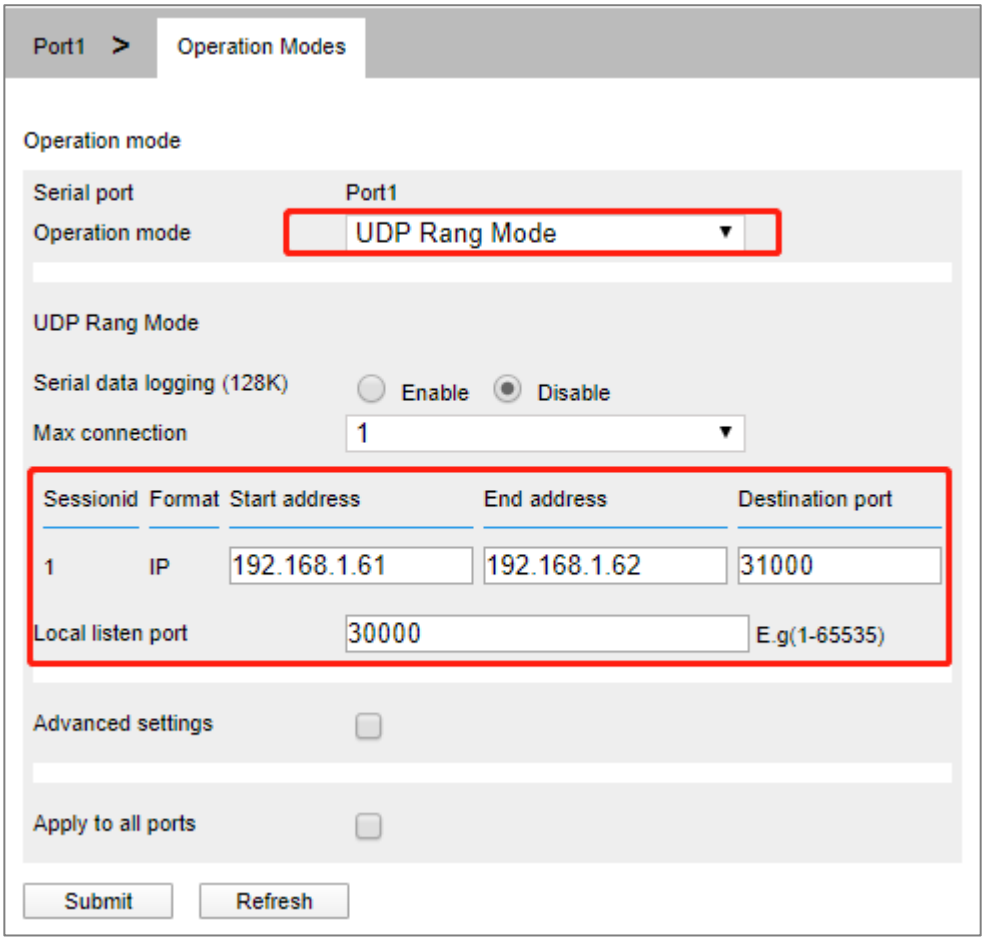



4 Other parameters remain the default, click "Submit".

**Step 3** Configure the working mode of the serial server.

1 Log in to the WEB configuration interface and select "COM mode > Port1".


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2 Click the “Work Mode” drop-down list box and select “UDP Rang Mode”.

3 Click "Max Connection" drop-down list box, select "1".

4 In the "Start Address" and "End Address" text boxes, enter the IP address "192.168.1.61" of Host A and the IP address "192.168.1.62" of Host B, respectively.

5 Enter the port number "31000" of the host in the "Dest Port" text box.

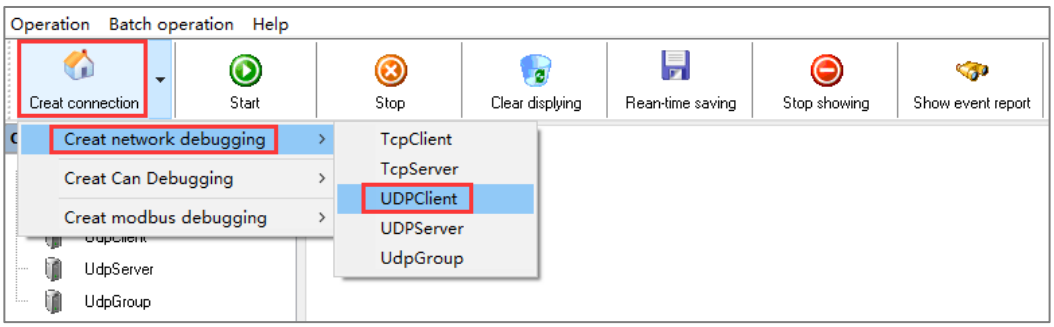
6 Enter the port number "30000" of the serial device server in the "Listen Port" text box.

7 Other parameters remain the default, click "Submit".

**Step 4** Run "DebugTool" software on host A to create UDP client A.

1 Install and run "DebugTool" software, click "create connection" drop-down list box, and select "create network debugging > UDPClient".


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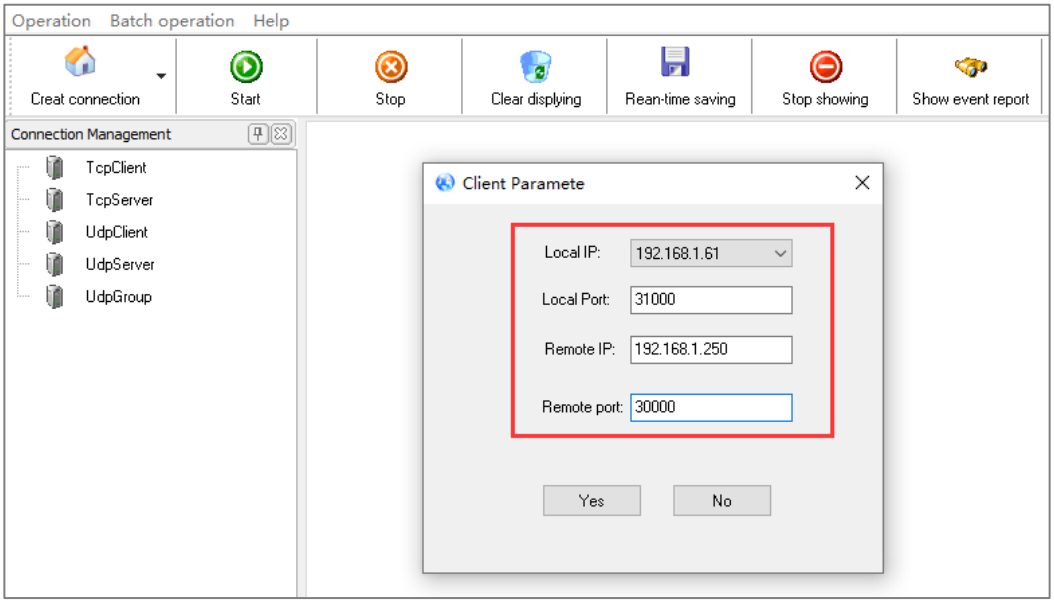



2 In the “Local IP” drop-down list box, select the IP address "192.168.1.61" of the host A (that is, the UDP client A).

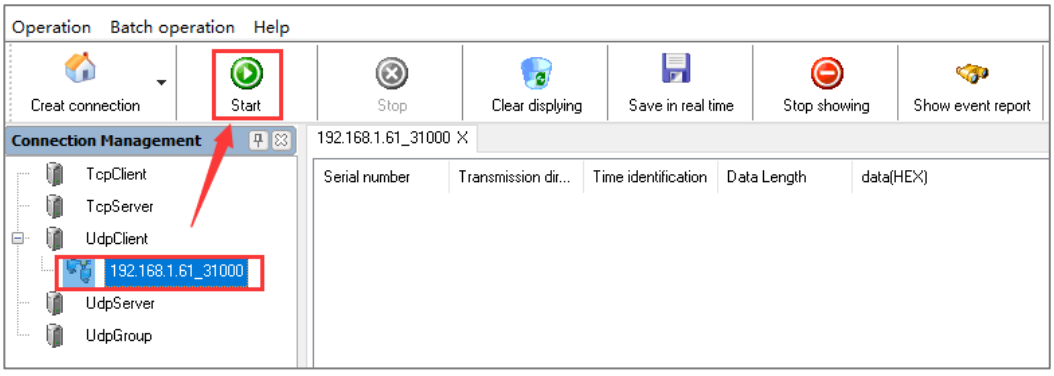
3 In the “Local Port” text box, enter the local port "31000" for the host A (that is, the UDP client A).

4 Enter the IP address "192.168.1.250" of the serial server (that is, the UDP server) in the "Remote IP" text box.

5 In the “Remote Port” text box, enter the port number “30000” for the serial server (that is, the UDP server), and click “OK”.




6 Choose the UDPClient connection you created, click "Start".

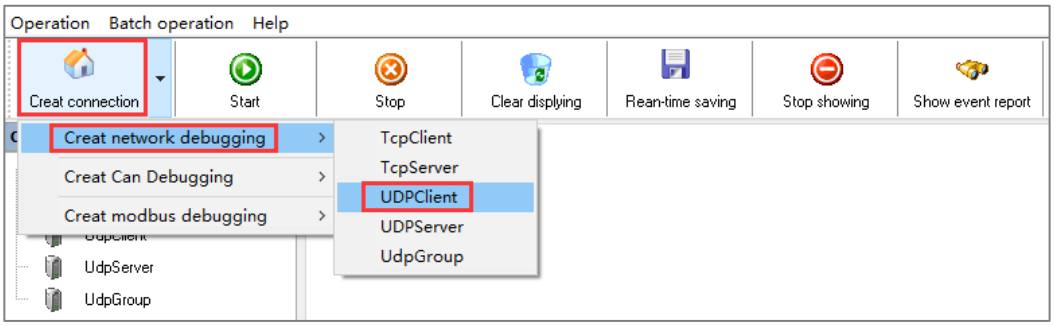




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**Step 5** Run the debug "3onedata Debugging Assistant" on host B to create UDP client B.

1 To install and run "Debug Tool" Software, click “Create Connection” drop-down list box and choose “Create Network Debugging> UDP Client”.

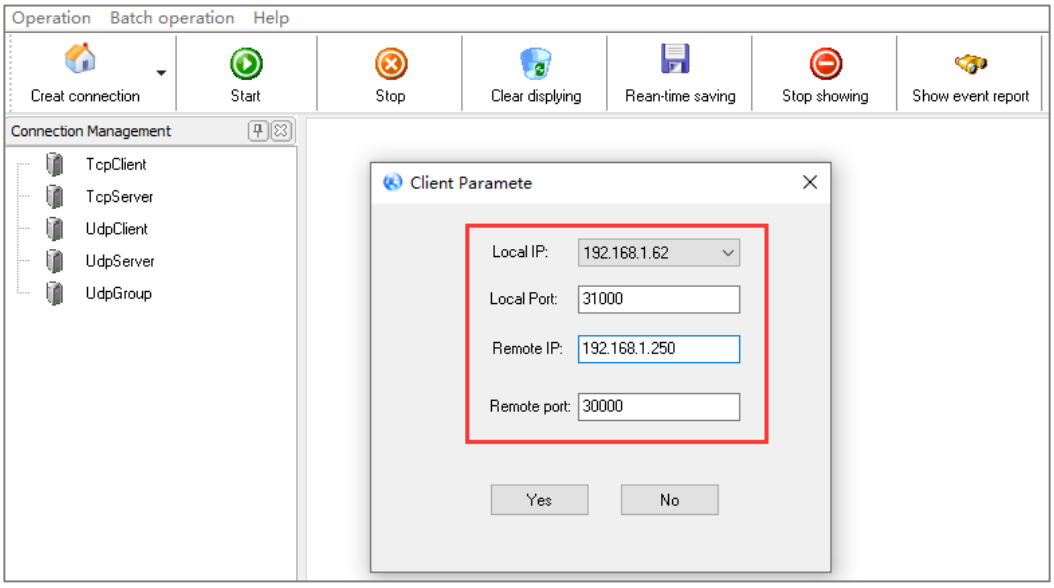



2 On the pop-up "Local IP" drop-down list box, choose the IP address of host B (UDP client B) "192.168.1.62".

3 Enter the host B (Udp client B) port "31000" on the "Local Port" text box.

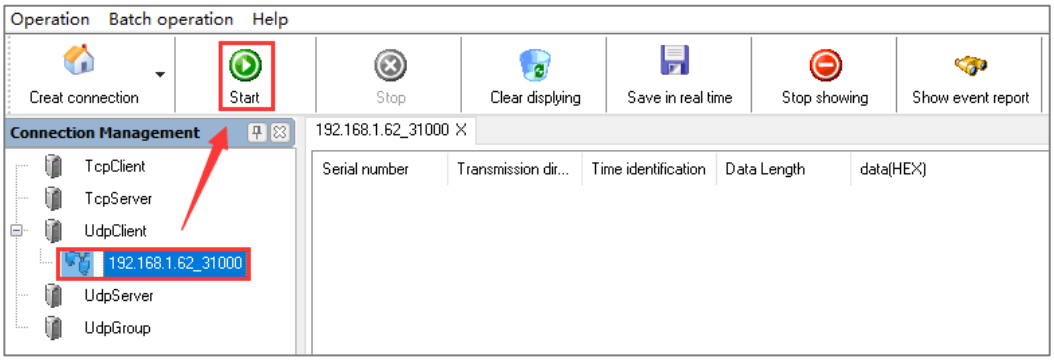
4 Enter the IP address "192.168.1.250" of the serial server (that is, the UDP server) in the "Remote IP" text box.

5 In the “Remote Port” text box, enter the port number “30000” for the serial server (that is, the UDP server), and click “OK”.




6 Choose the UDPClient connection you created, click "Start".


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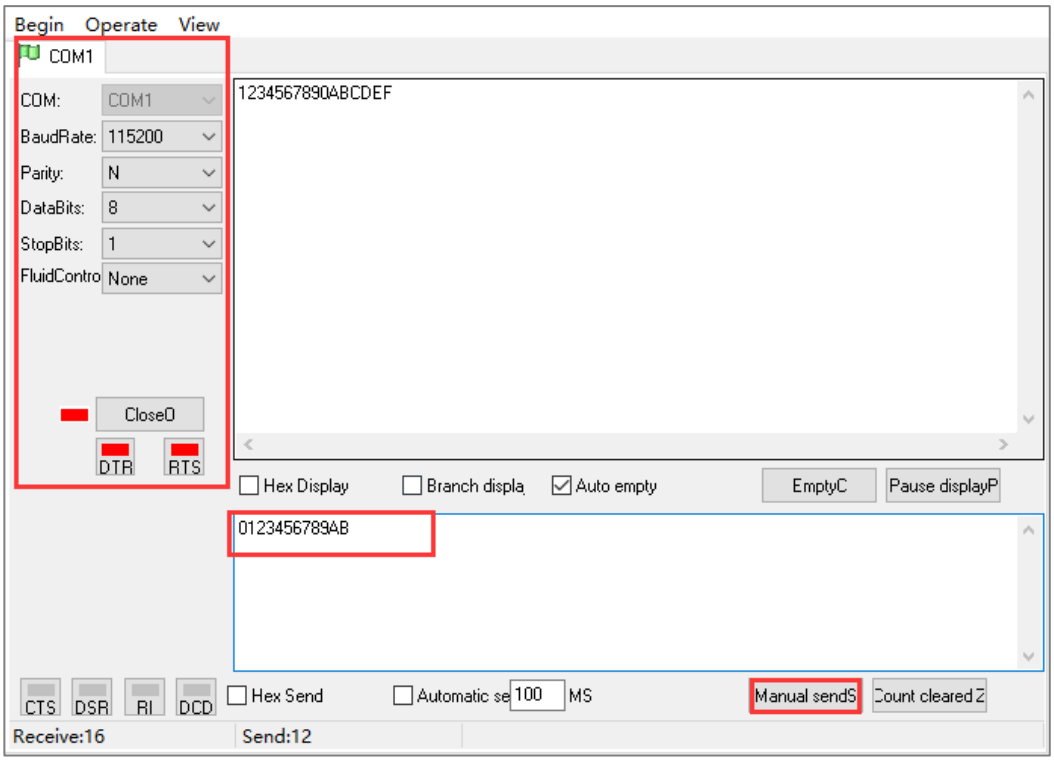



**Step 6** Run "ComTest" and "DebugTool" software synchronously to test the communication between serial server and host A and host B.

1 Install and run "ComTest" software, and click "Add Window" in the "Start" menu.

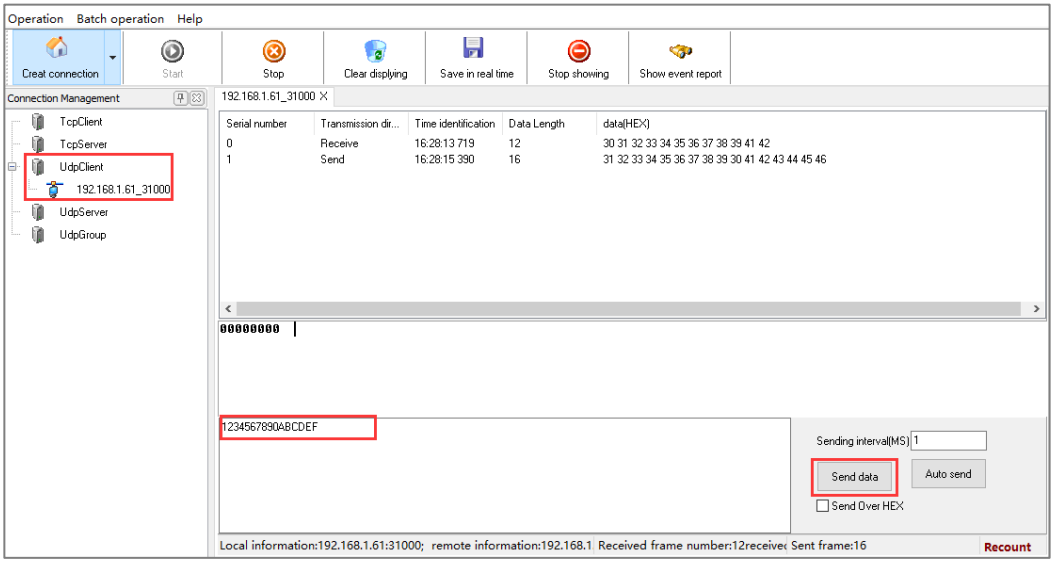
2 Add serial port "COM1" window, and configure serial port number, baud rate, check bit and data bit and other parameters consistent with "serial port configuration" of WEB interface.

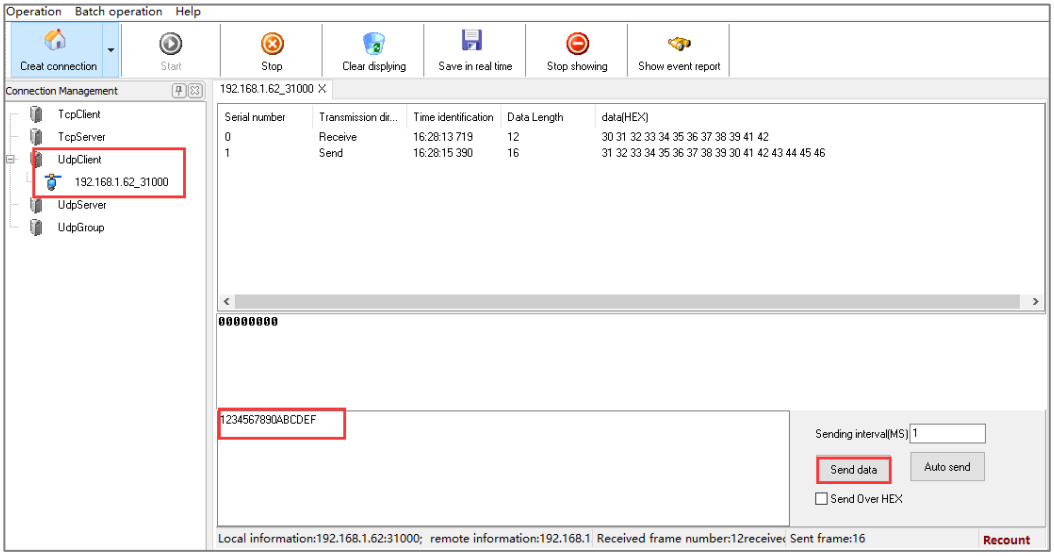
3 Open the serial port signal of "COM1", for example, enter the serial port information "0123456789AB", and click "send manually".




4 Run the “DebugTool” software and view the serial information received by the host A and host B in the UDPClient option box. Similarly, host A and host B can also send information to the serial device.


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**Step 7** End.

# 11.8 UDP Multicast Mode

## Background Introduction

It's assumed that serial server IP address is "192.168.1.250", user needs to add the serial server to the multicast address "239.0.0.0". So that the serial server through the UDP protocol can make the serial device data through unicast or multicast sent to one or more hosts, but also can receive from one or more host unicast or multicast data, complete multipoint-to-multipoint communication.

The parameters of the serial server are as follows:

- IP address: 192.168.1.250
- Local Port: 30000
- Baud rate: 115200


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- Parity bit: None
- Data bit: 8
- Stop bit: 1

Host PC parameter information as follow:

- IP address: 192.168.1.61
- Local Port: 31000

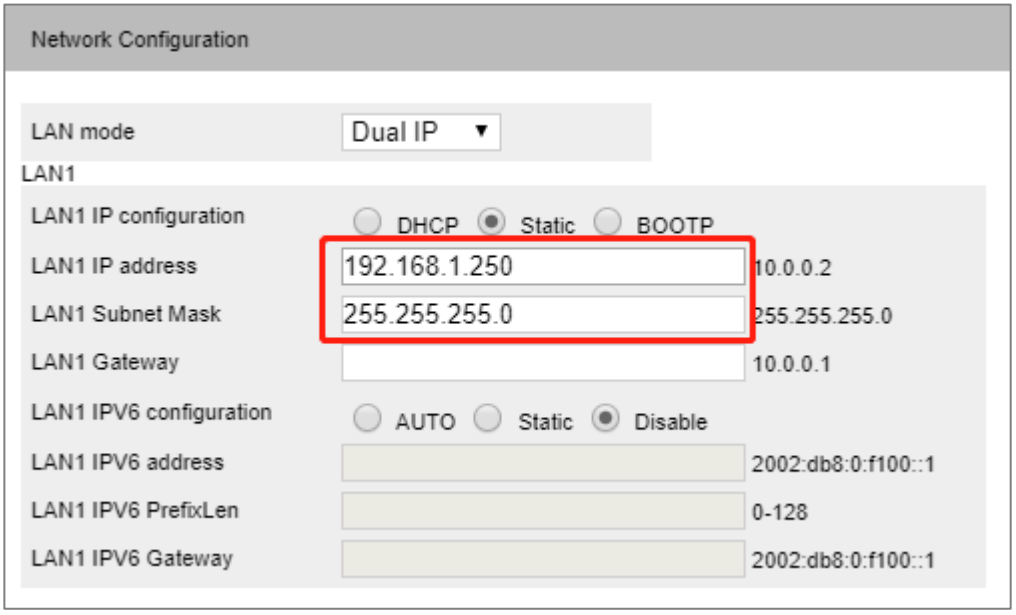
## Operation Steps

**Step 1** Configure the IP address of the serial server.

1 Login in the Web configuration interface, choose "Network Setting".

2 In the "Network port 1" area, select "Network port 1 Configuration" as "Manual Setting", and enter the corresponding network address information such as "Network port 1 Address", "Network port 1 Subnet Mask" and "Network port 1 Gateway".

3 Other parameters remain the default, click "Submit".

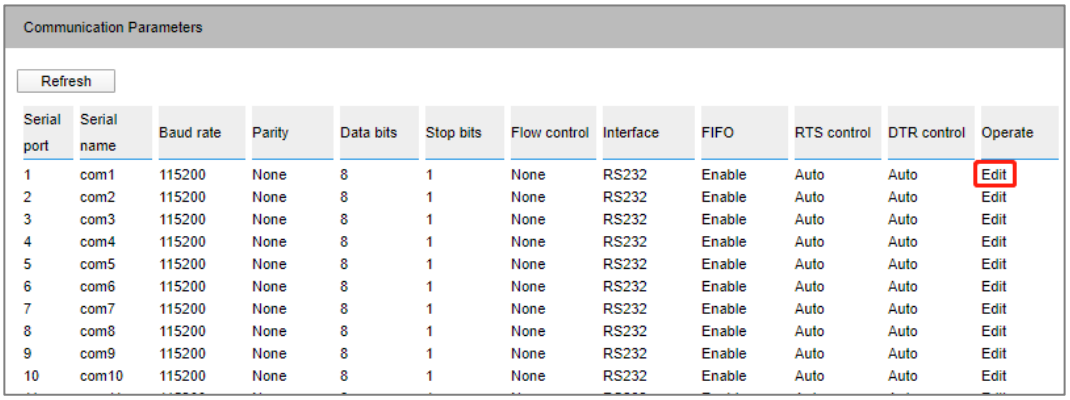



**Step 2** Configure the serial port parameter information.

1 Log in to the Web configuration interface and select "Serial Settings".

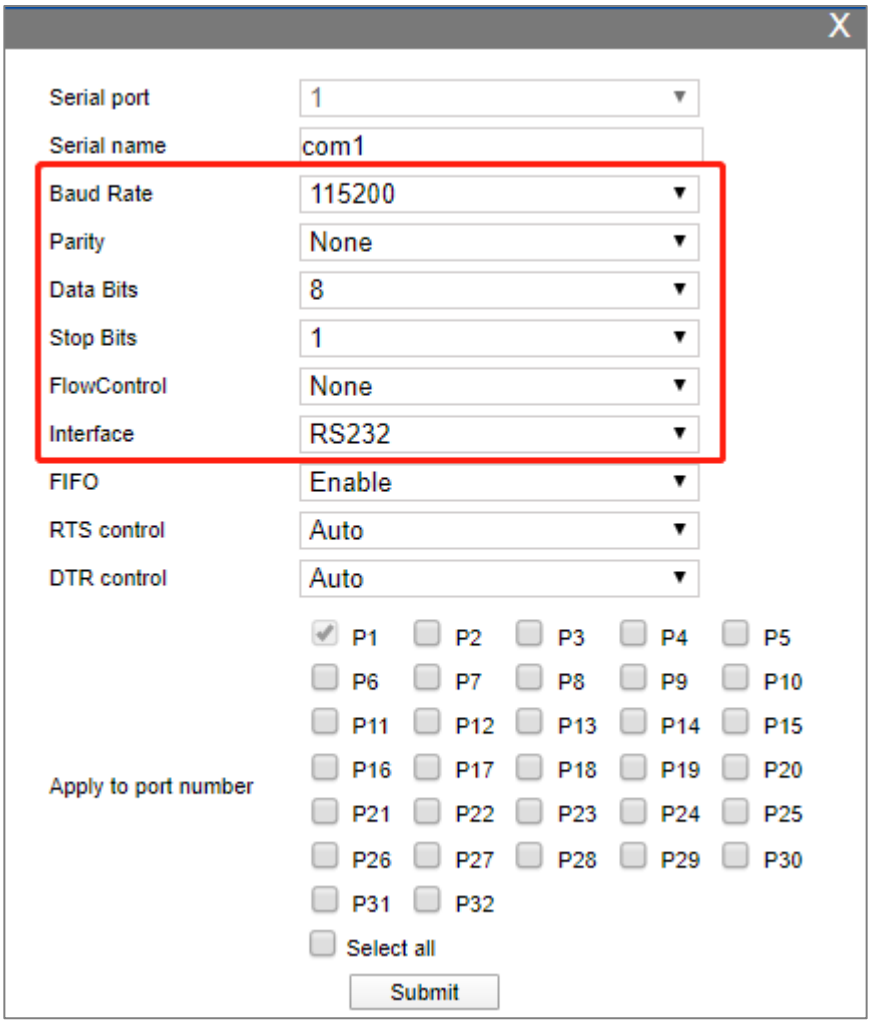
2 In the serial port 1 entry, click the "Edit" button under the operation, as shown in the following figure.


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| Serial port | Serial name | Baud rate | Parity | Data bits | Stop bits | Flow control | Interface | FIFO | RTS control | DTR control | Operate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | com1 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 2 | com2 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 3 | com3 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 4 | com4 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 5 | com5 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 6 | com6 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 7 | com7 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 8 | com8 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 9 | com9 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 10 | com10 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |

3 In the “Edit” window, set “baud rate”, “parity bit”, “data bit” and “stop bit” respectively, as shown in the following figure.




4 Other parameters remain the default, click "Submit".

**Step 3** Configure the working mode of the serial server.

1 Log in to the WEB configuration interface and select "COM mode > Port1".

2 Click the “Work Mode” drop-down list box and select “UDP Multicast Mode”.


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3 Click “session number” drop-down list box, and select “1” to establish one session connection.

4 Click the “Group Number” drop-down list box and select “1”.

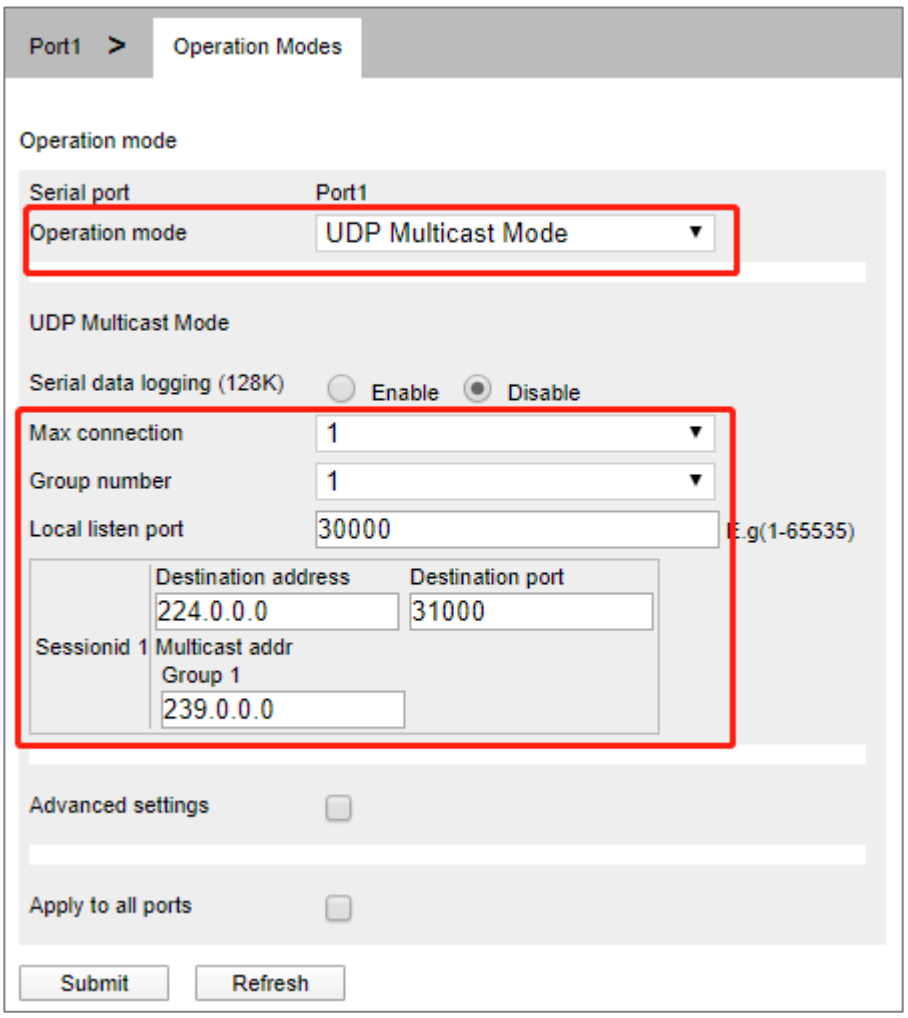
5 Enter "30000" for the local port number of the serial port server in the local listen port text box.

6 Enter the host PC's IP address "224.0.0.0" in the destination address text box.

7 Enter the host PC's local port number, 31000, in the destination port text box.

8 Enter the group address "239.0.0.0" of the host PC in the "Group Address/ Group 1" text box.

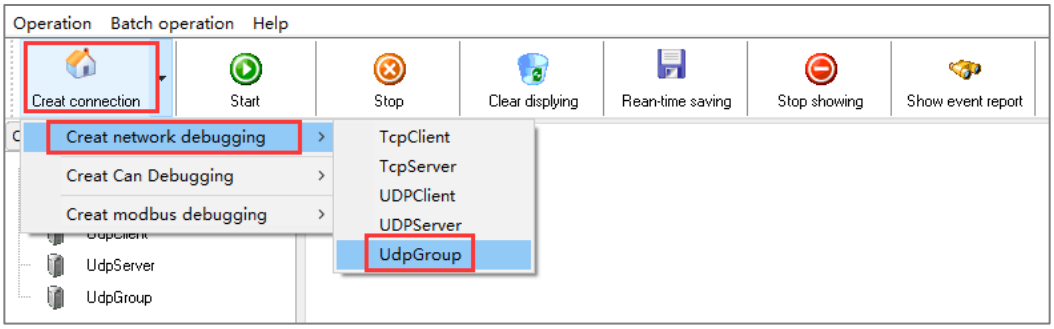
9 Other parameters remain the default, click "Submit".




**Step 4** Run the "DebugTool" software to create UDP multicast for the host.

1 Install and run the "DebugTool" software, click the "Create Connection" drop-down list box, and select "Create Network Debugging > UdpGroup".


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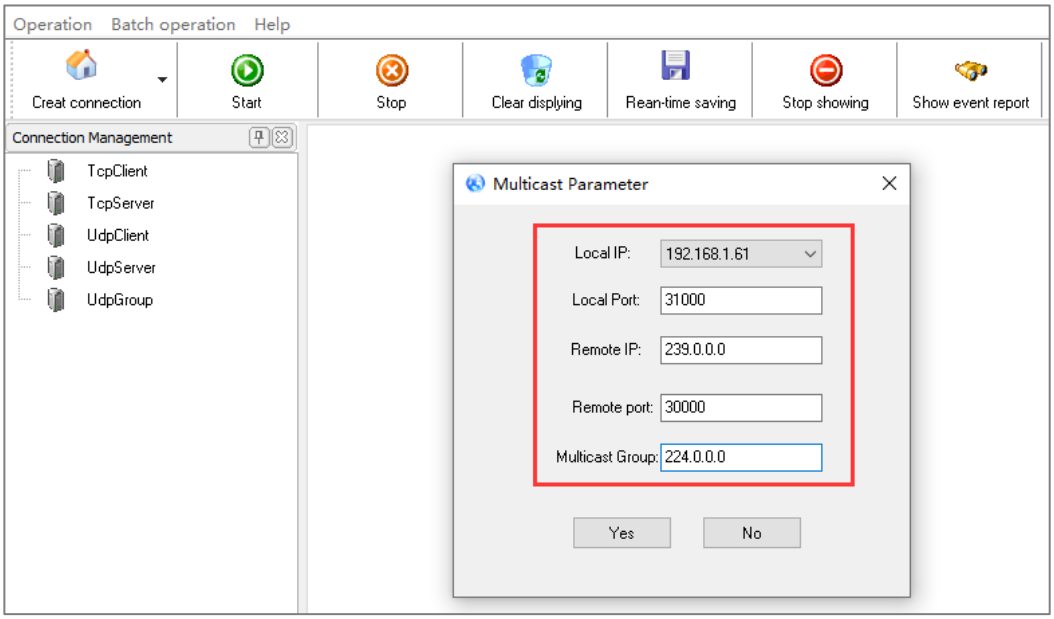

2 In the "Local IP" drop-down list box, select the IP address "192.168.1.61" of the host.

3 In the “Local Port” text box, enter the local port "31000" for the host.

4 In the “Remote IP” text box, enter the IP address "239.0.0.0" for the serial device server.

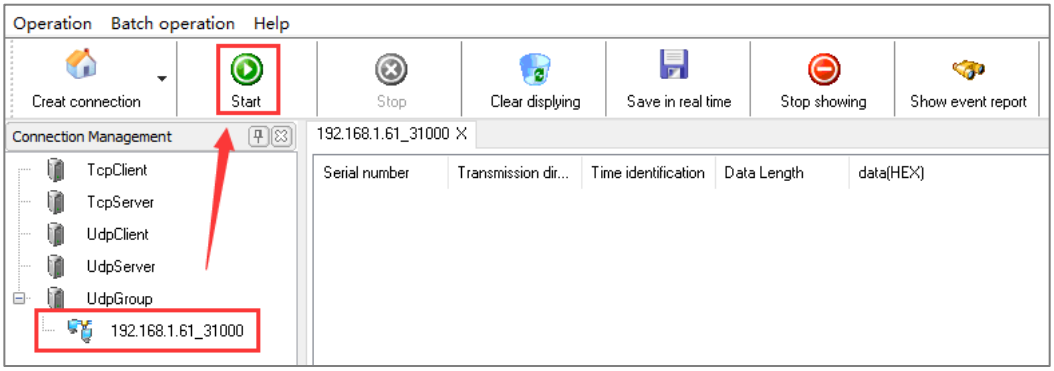
5 In the “Remote Port” text box, enter the local port number "30000" for the serial device server.

6 In the “Multicast” text box, enter the multicast group address "224.0.0.0".




7 Select the UdpGroup connection you created and click start.


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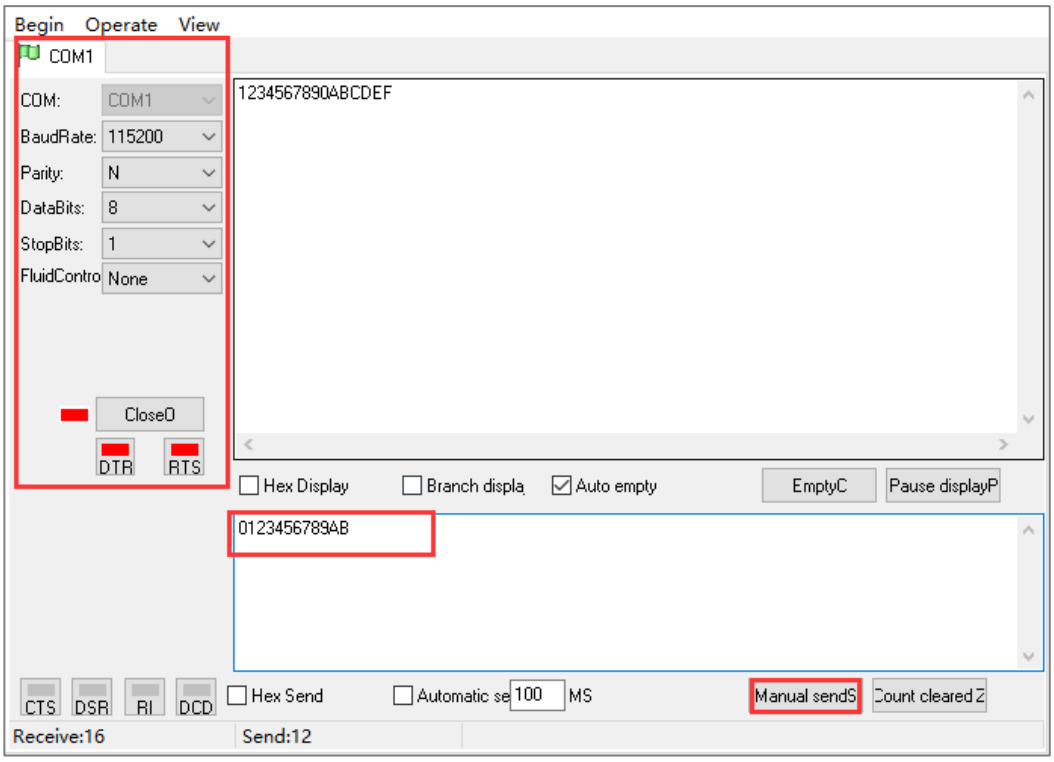



**Step 5** Run "ComTest" and "DebugTool" software synchronously to test the communication between serial server and host PC.

1 Install and run "ComTest" software, and click "Add Window" in the "Start" menu.

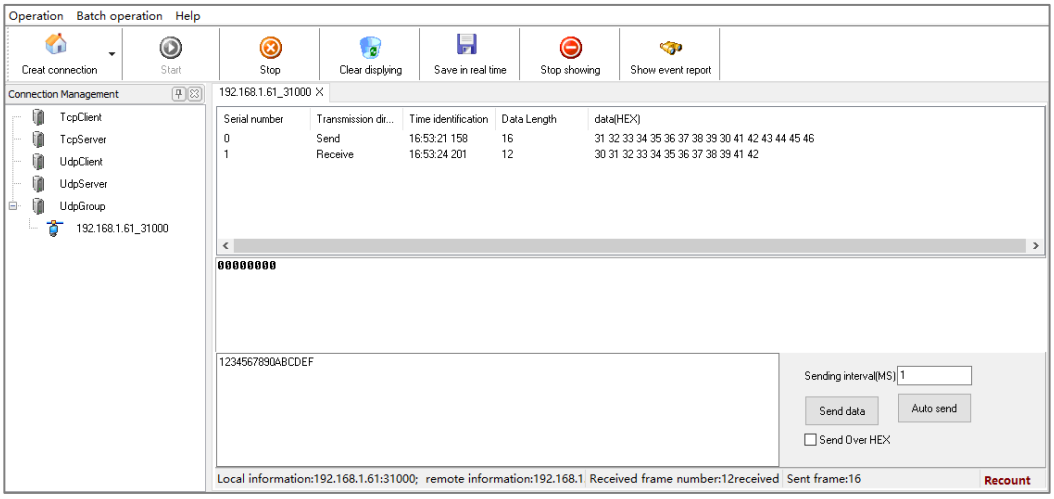
2 Add serial port "COM1" window, and configure serial port number, baud rate, check bit and data bit and other parameters consistent with "serial port configuration" of WEB interface.

3 Open the serial port signal of "COM1", for example, enter the serial port information "0123456789AB", and click "send manually".




4 Run the “DebugTool” software and view the serial information received by the host PC in the UdpGroup option box. Similarly, the host PC can also send messages to serial port devices.


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**Step 6** End.

# 11.9 Pair Slave & Master Mode

## Background Introduction

Pair mode requires two serial devices server to work together to break the serial data transmission distance limit. The two serial servers in this mode establish a network connection with each other via Ethernet and transparently transmit data from the respective serial port to each other.

Assume that serial device server A uses pair slave mode to passively wait for a connection.

The serial device server B uses the pair master mode to actively connect the serial device server A.

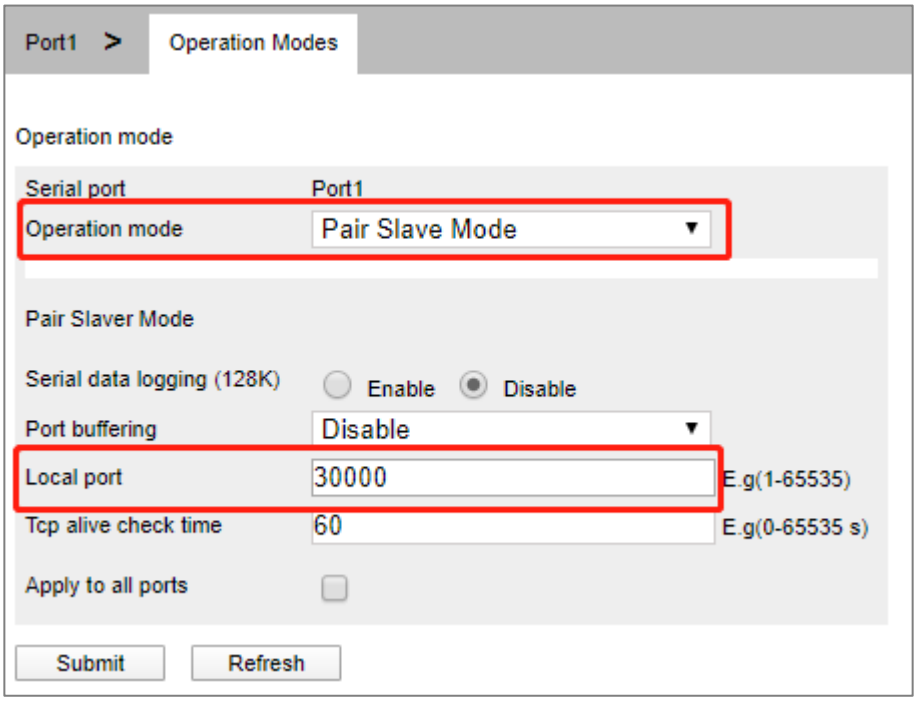
The serial port that serial server A and serial port B connect with the computer is “COM1”.

The "dest address" of the serial server B is the IP address "192.168.1.254" of the serial server A. The “dest port” of the serial server B is the listening port "30000" of the serial server A.

## Serial device server A configuration steps

**Step 1** Log in to the WEB configuration interface and select "COM mode > Port1".


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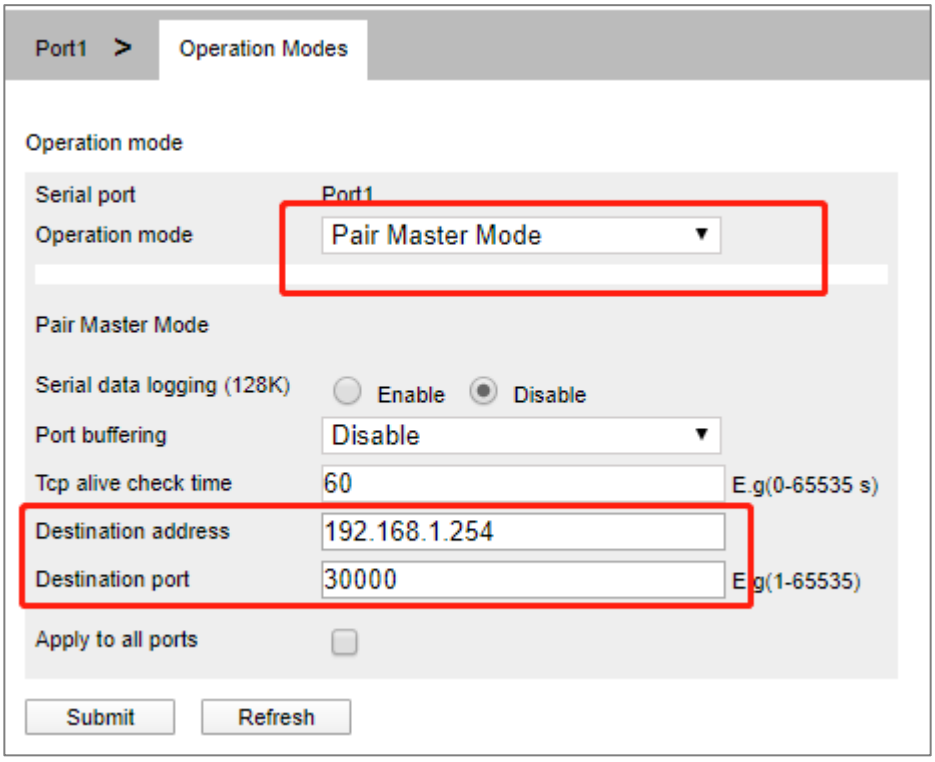

**Step 2** Enter "30000" in the "Local Port" text box.

**Step 3** Other parameters remain the default, click "Submit" to finish the settings.

## Serial device server B configuration steps

**Step 1** Log in to the WEB configuration interface and select "COM mode > Port1".

**Step 2** Click the "Work Mode" drop-down list box and select "Pair Master Mode".





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**Step 3** Enter the IP address "192.168.1.254" of the serial device server A in the "Dest Address" text box.

**Step 4** Enter local port "30000" for serial port server A in the destination port text box.

**Step 5** Other parameters remain the default, click "Apply".

After the completion of the above configuration, serial server A and serial server B establish connection successfully, and they can send and receive serial data from each other.

# 11.10Telnet Mode (Telnet mode)

## Background Introduction

The PC connects to the Port 1 of serial port server through RS-232 to access the server on the network.

Assume the IP address of the serial port server is 192.168.1.250; The IP address of the server is 192.168.1.10.

The serial port information is as follows:

- Baud rate: 115200
- Parity bit: None
- Data bit: 8
- Stop bit: 1

## Operation Steps

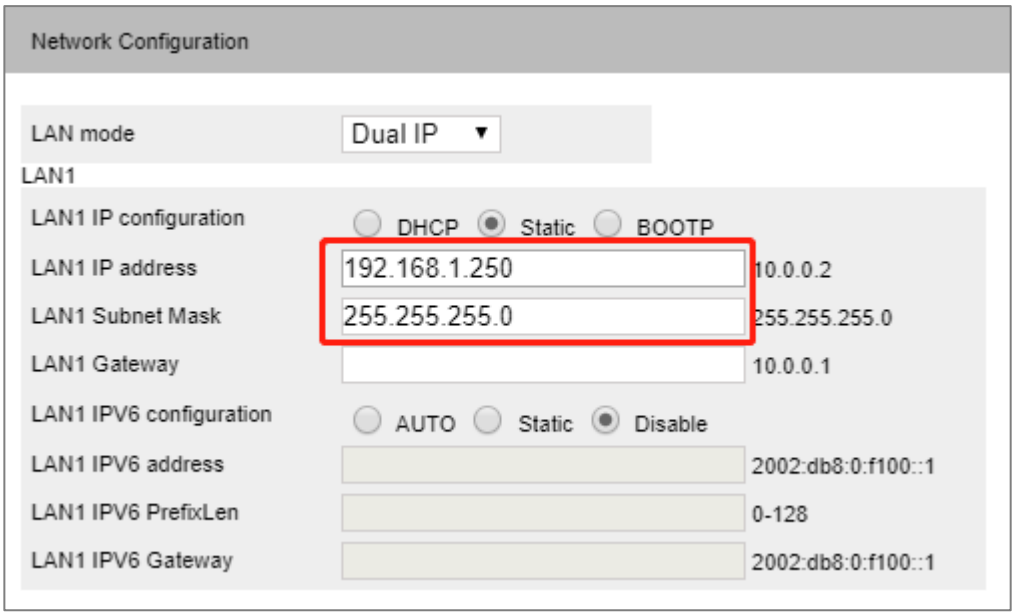
**Step 1** Configure the IP address of the serial server.

1 Login in the Web configuration interface, choose "Network Setting".

2 In the "Network port 1" area, select "Network port 1 Configuration" as "Manual Setting", and enter the corresponding network address information such as "Network port 1 Address", "Network port 1 Subnet Mask" and "Network port 1 Gateway".

3 Other parameters remain the default, click "Submit".

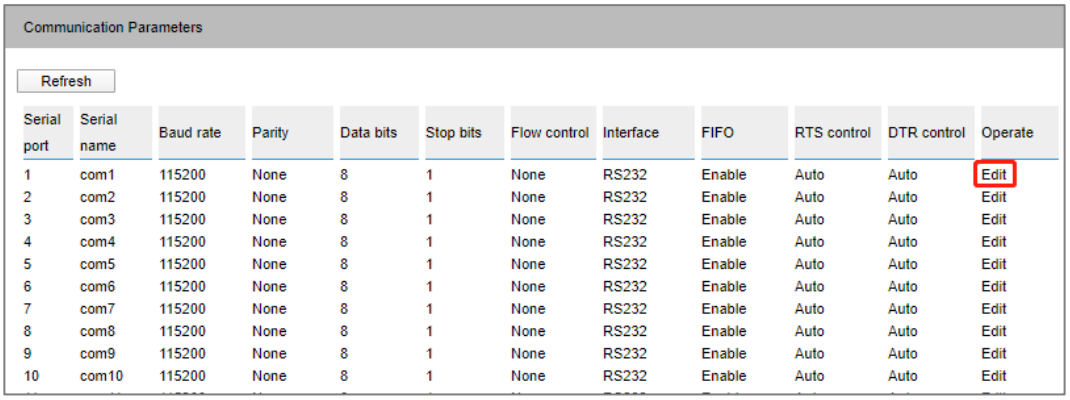

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**Step 2** Configure the serial port parameter information.

1 Log in to the Web configuration interface and select "Serial Settings".

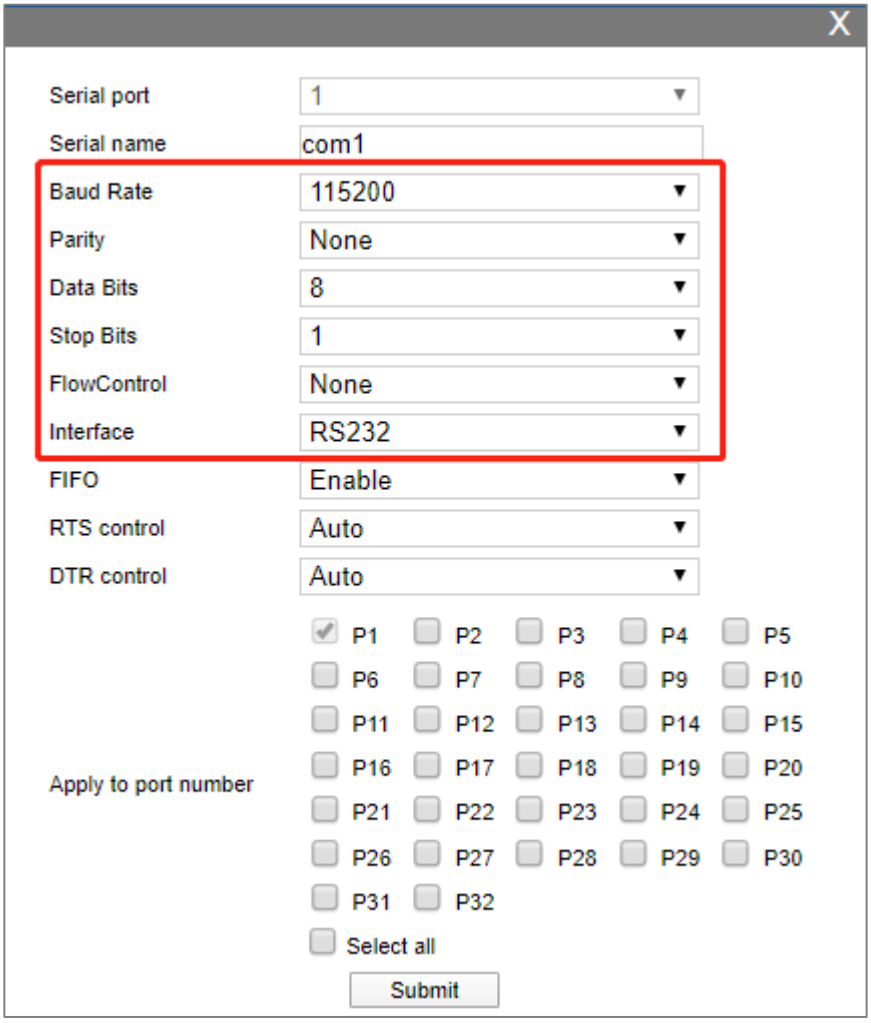
2 In the serial port 1 entry, click the "Edit" button under the operation, as shown in the following figure.




| Serial port | Serial name | Baud rate | Parity | Data bits | Stop bits | Flow control | Interface | FIFO | RTS control | DTR control | Operate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | com1 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 2 | com2 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 3 | com3 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 4 | com4 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 5 | com5 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 6 | com6 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 7 | com7 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 8 | com8 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 9 | com9 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 10 | com10 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |

3 In the “Edit” window, set “baud rate”, “parity bit”, “data bit” and “stop bit” respectively, as shown in the following figure.


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4 Other parameters remain the default, click "Submit".

**Step 3** Configure the working mode of the serial server.

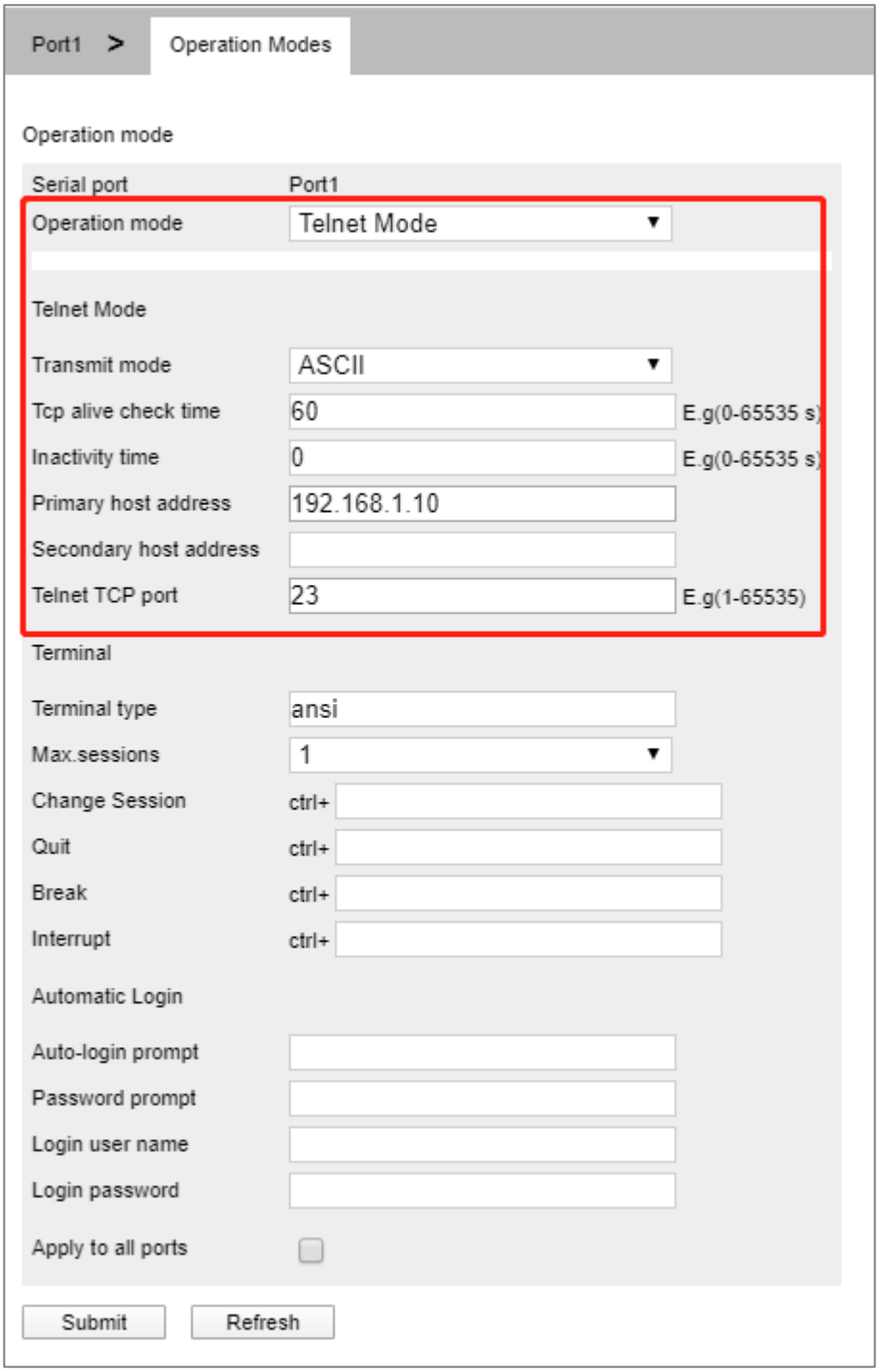
1 Click the work mode drop-down list box and select “Telnet Mode”.

2 Enter "192.168.1.10” of server IP address in the "main host address" text box.

3 Enter “23” of local port number of the server in the "remote login TCP port" text box.

4 Other parameters remain the default, click "Submit".

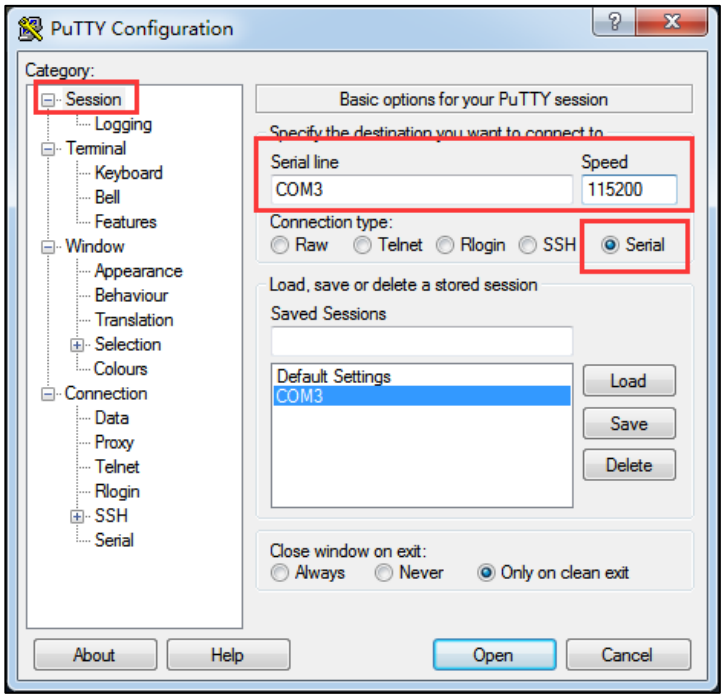

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**Step 4** Run the third party software PuTTY on a PC to test the communication between the host PC and the server.

1 Install and run the PuTTY software.


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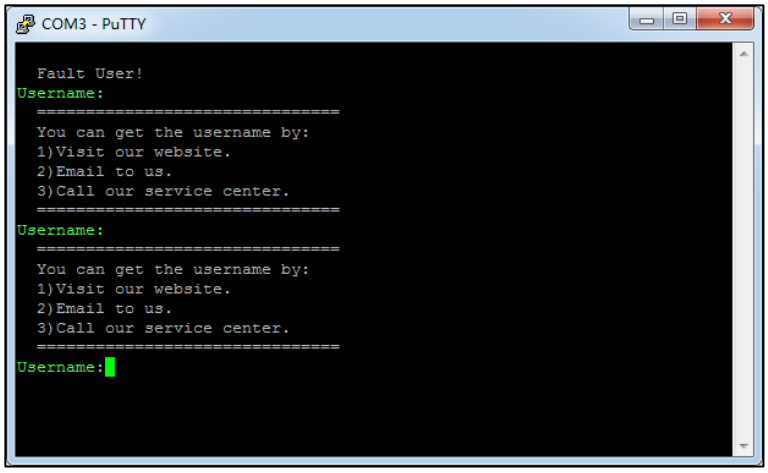



2 Click "Session" and select "serial" serial port communication in the input field of "Connection type";

3 In the "Serial line" text box, enter the local serial port number for PC to connect with serial port server;

4 Enter "115200" baud rate in the "Speed" text box;

5 Click “Open” button to open the COM session interface and start accessing the server.




**Step 5** End.


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# 11.11Reverse Telnet Mode

## Background Introduction

The PC connects to the serial port server through Ethernet to access the server device or Console port connected under the serial port.

Assume the IP address of the serial port server is 192.168.1.250.

The serial port information is as follows:

- Baud rate: 115200
- Parity bit: None
- Data bit: 8
- Stop bit: 1

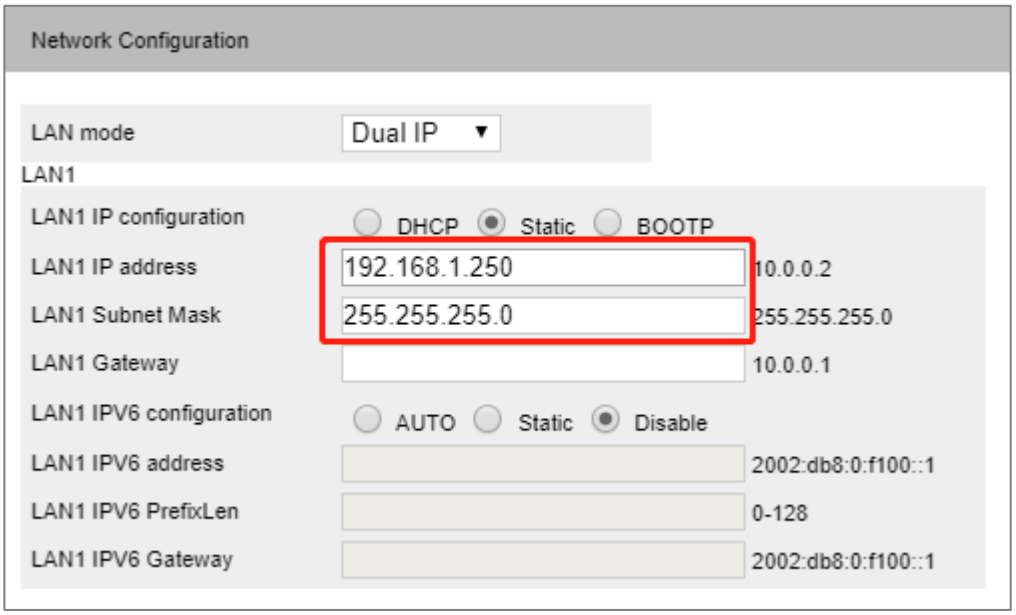
## Operation Steps

**Step 1** Configure the IP address of the serial server.

1 Login in the Web configuration interface, choose "Network Setting".

2 In the "Network port 1" area, select "Network port 1 Configuration" as "Manual Setting", and enter the corresponding network address information such as "Network port 1 Address", "Network port 1 Subnet Mask" and "Network port 1 Gateway".

3 Other parameters remain the default, click "Submit".

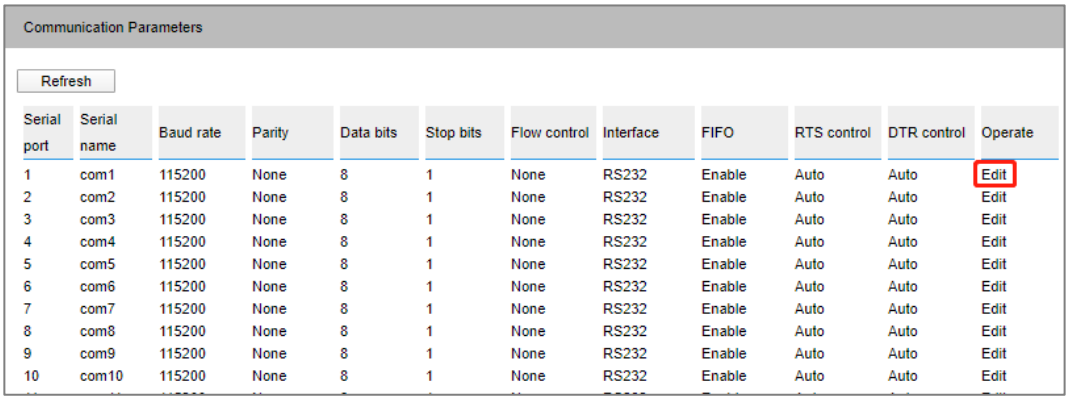



**Step 2** Configure the serial port parameter information.

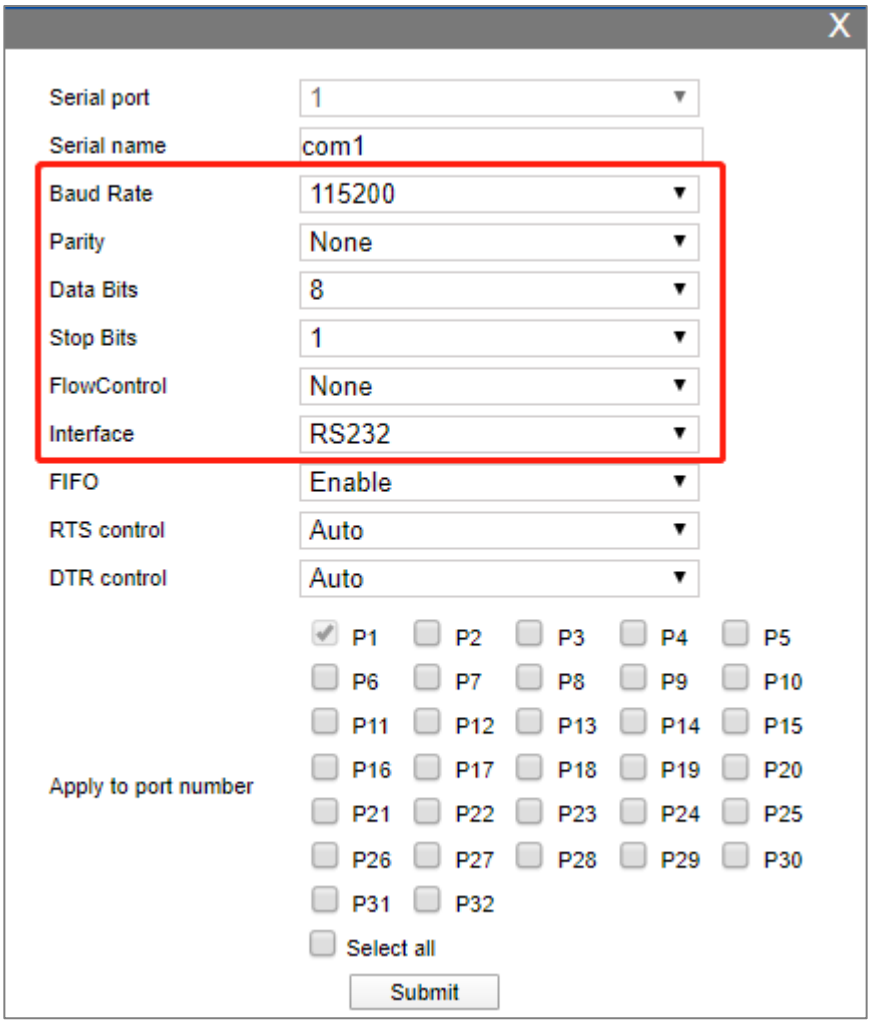
1 Log in to the Web configuration interface and select "Serial Settings".

2 In the serial port 1 entry, click the "Edit" button under the operation, as shown in the following figure.


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3 In the “Edit” window, set “baud rate”, “parity bit”, “data bit” and “stop bit” respectively, as shown in the following figure.




4 Other parameters remain the default, click "Submit".

**Step 3** Configure the working mode of the serial server.

1 Click the work mode drop-down list box and select “Reverse Telnet Mode”.

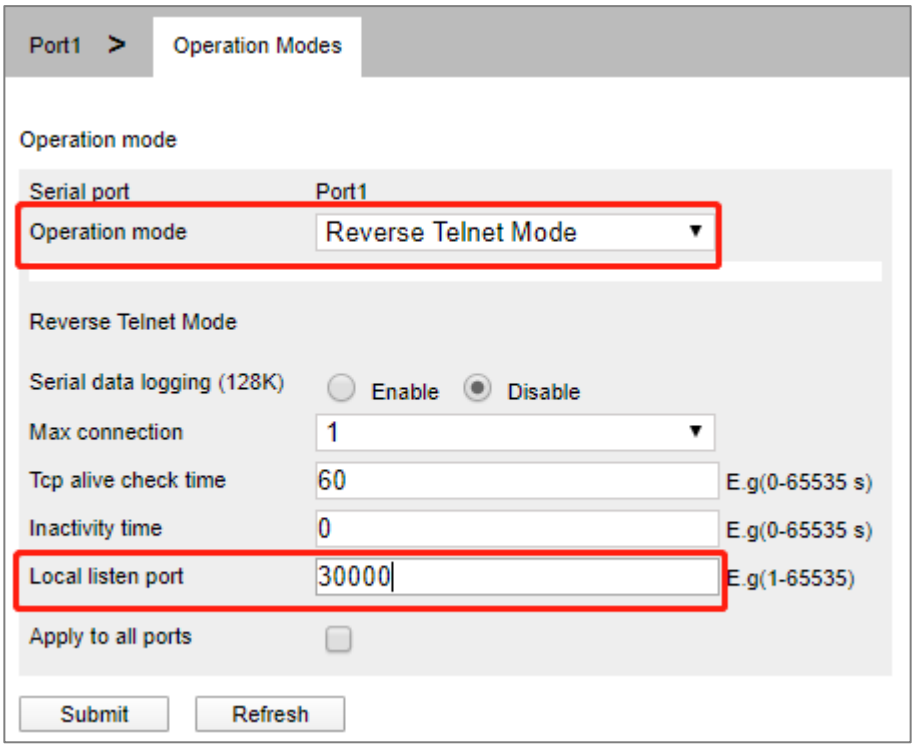
2 Click “session number” drop-down list box, and select “1” to establish one session


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connection.

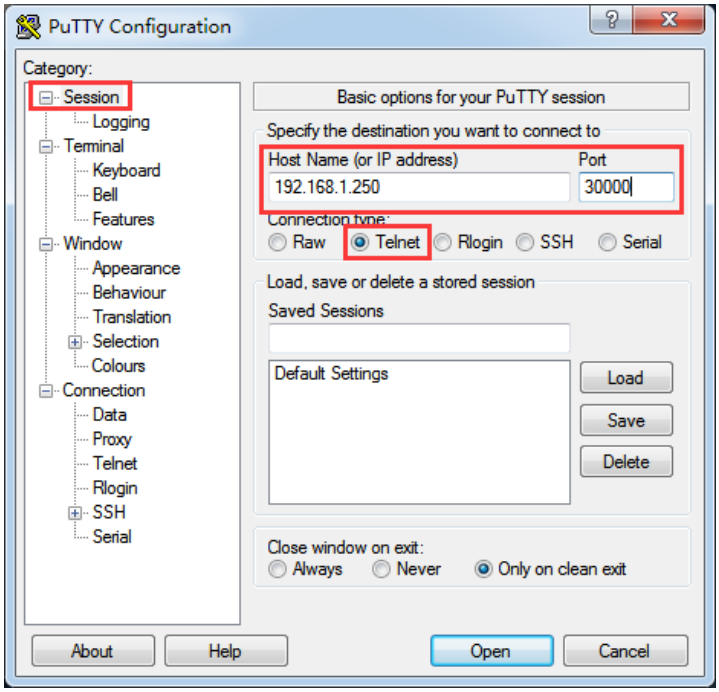
3 Enter the local port number "30000" in the listening port text box.

4 Other parameters remain the default, click "Submit".




**Step 4** Run the third party software PuTTY on a PC to test the communication between the host PC and the server.

1 Install and run the PuTTY software.





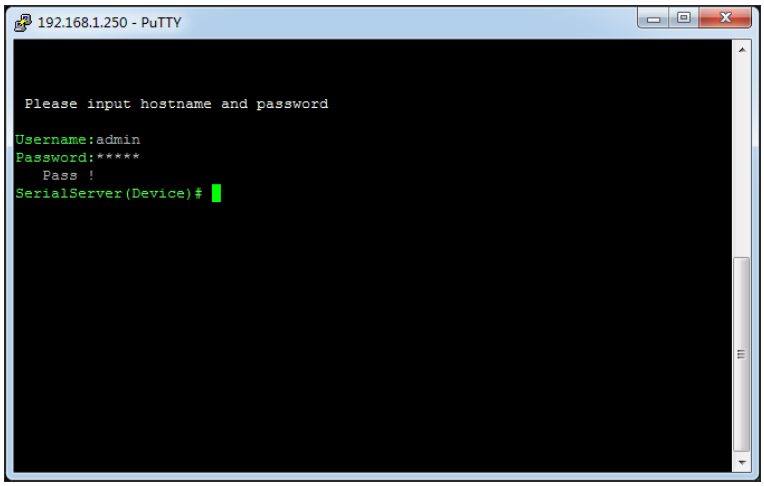
Copyright © 3onedata Co., Ltd.

2 Click “Session” and select “Telnet” protocol communication in the Connection type input field.

3 Enter the IP address "192.168.1.250" of the serial port server in the "Host Name" text box.

4 Enter the serial Port server listening Port number "30000" in the "Port" text box.

5 Click “Open” button to open the Telnet session interface and start accessing the server.




**Step 5** End.

# 11.12RFC2217 Mode (RFC2217 Mode)

## Background Introduction

The PC connects the serial port server link port through Ethernet, and maps the serial port Port1 to the local COM2 port on the PC. Meanwhile, the real serial port COM1 of PC is connected with the serial port server Port1.

Assume the IP address of the serial port server is 192.168.1.250.

The serial port information is as follows:

- Baud rate: 115200
- Parity bit: None
- Data bit: 8
- Stop bit: 1

## Operation Steps

**Step 1** Configure the IP address of the serial server.

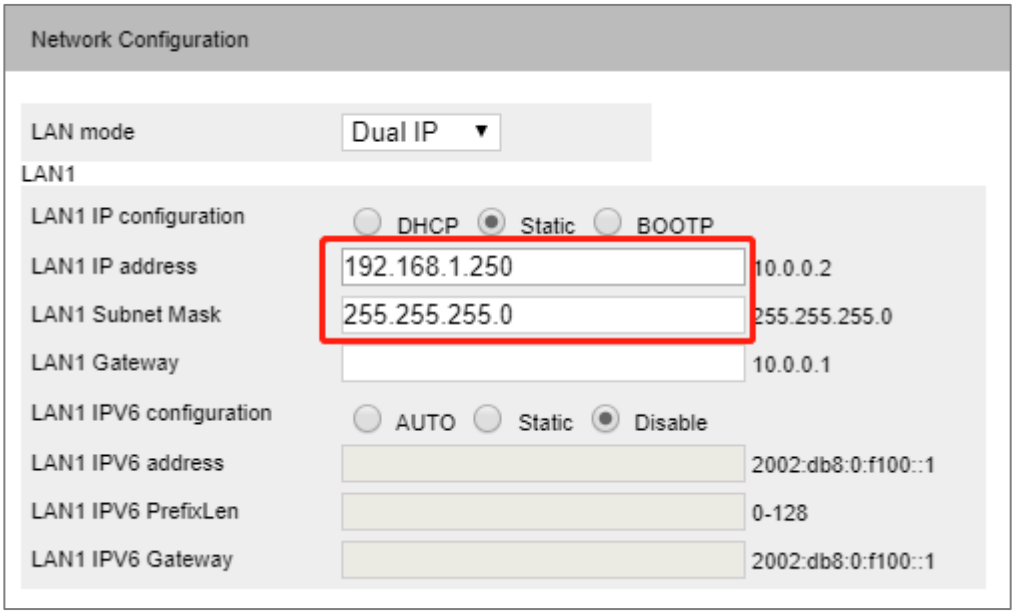
1 Login in the Web configuration interface, choose "Network Setting".

2 In the "Network port 1" area, select "Network port 1 Configuration" as "Manual Setting", and enter the corresponding network address information such as "Network port 1 Address", "Network port 1 Subnet Mask" and "Network port 1


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Gateway".

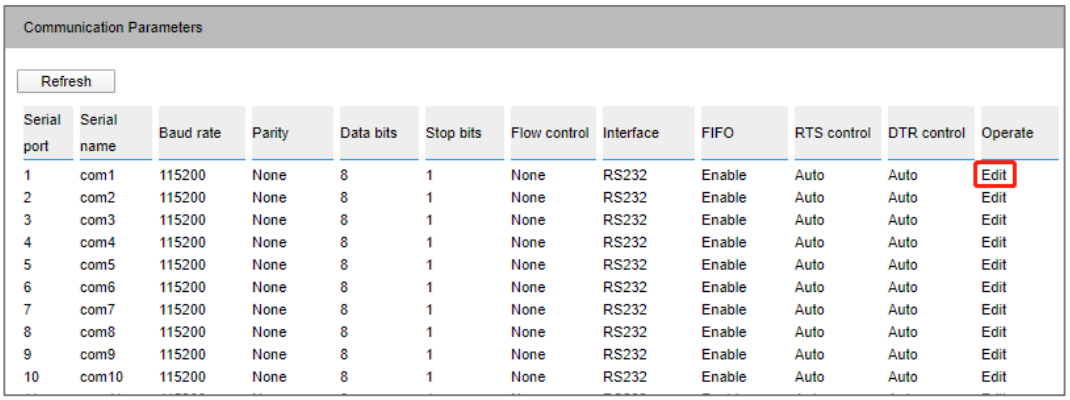
3 Other parameters remain the default, click "Submit".




**Step 2** Configure the serial port parameter information.

1 Log in to the Web configuration interface and select "Serial Settings".

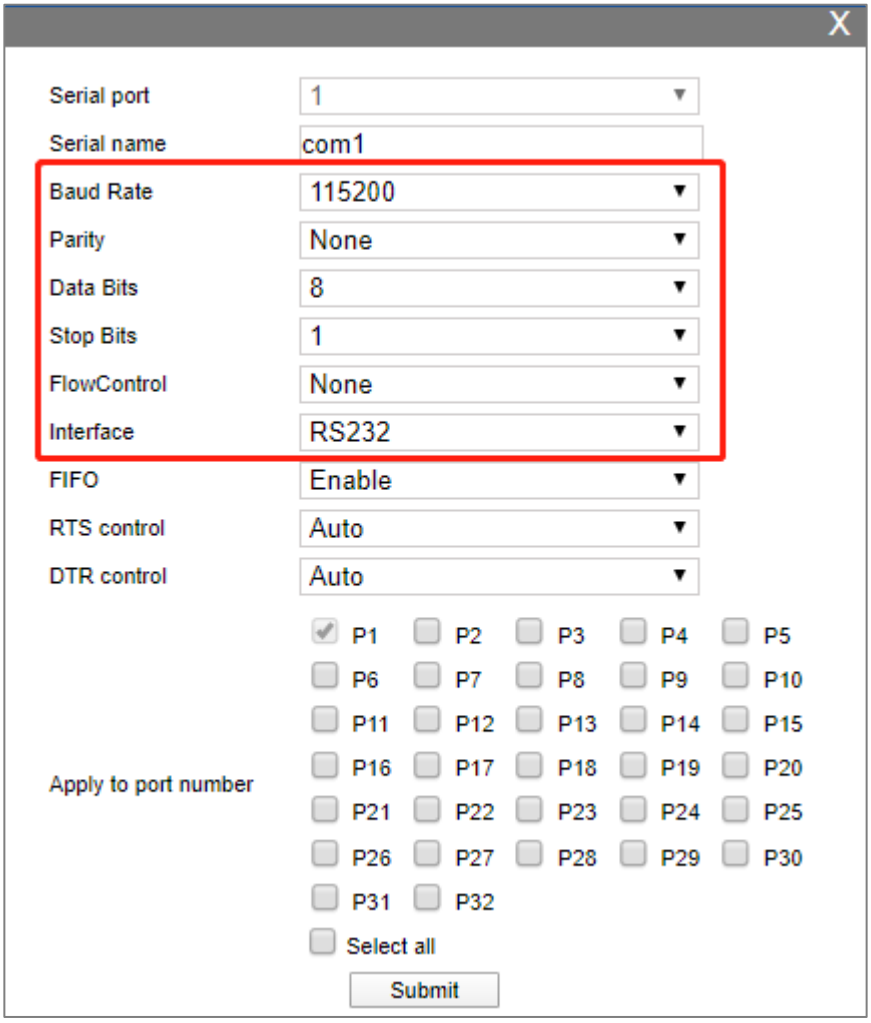
2 In the serial port 1 entry, click the "Edit" button under the operation, as shown in the following figure.




| Serial port | Serial name | Baud rate | Parity | Data bits | Stop bits | Flow control | Interface | FIFO | RTS control | DTR control | Operate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | com1 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 2 | com2 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 3 | com3 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 4 | com4 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 5 | com5 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 6 | com6 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 7 | com7 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 8 | com8 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 9 | com9 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 10 | com10 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |

3 In the “Edit” window, set “baud rate”, “parity bit”, “data bit” and “stop bit” respectively, as shown in the following figure.


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4 Other parameters remain the default, click "Submit".

**Step 3** Configure the working mode of the serial server.

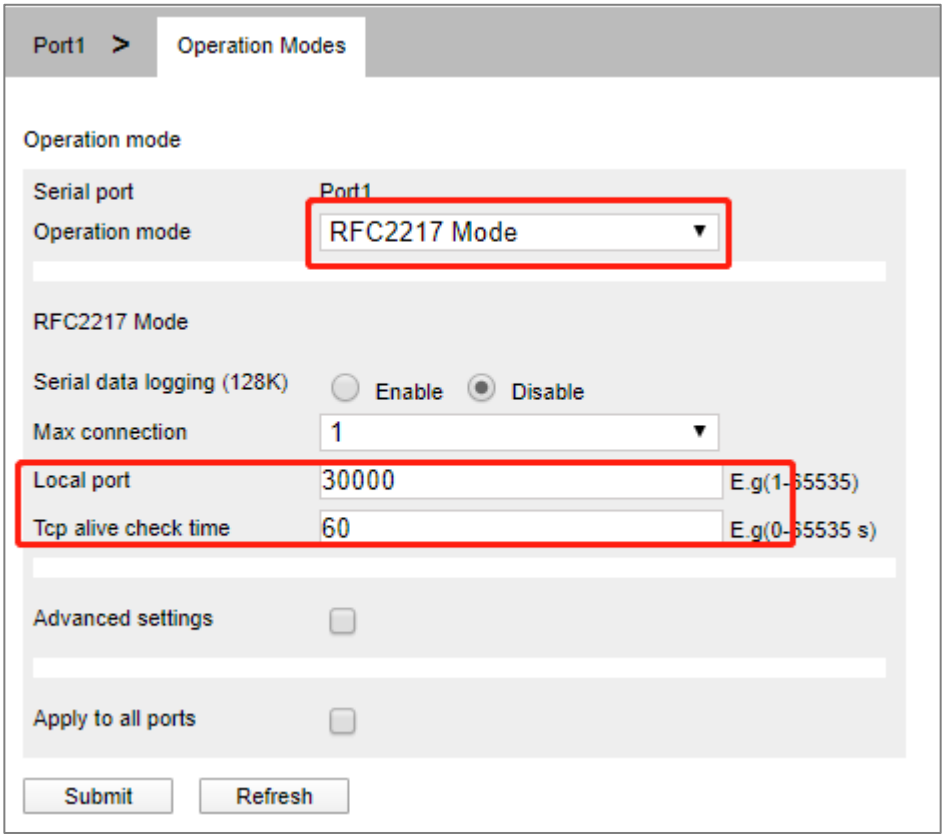
1 Click the work mode drop-down list box and select “RFC2217 Mode”.

2 Click “session number” drop-down list box, and select “1” to establish one session connection.

3 Enter the port number of the device "30000" in the local port text box.

4 Other parameters remain the default, click "Submit".

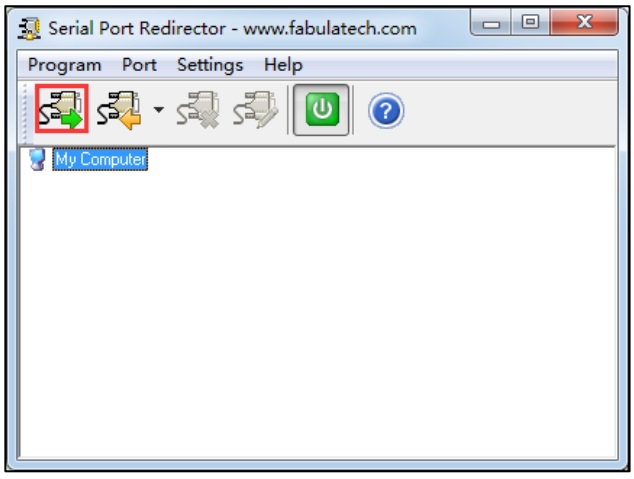

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**Step 4** Run the third-party software "Serial Port Redirector" on the PC, which is a virtual COM Port.

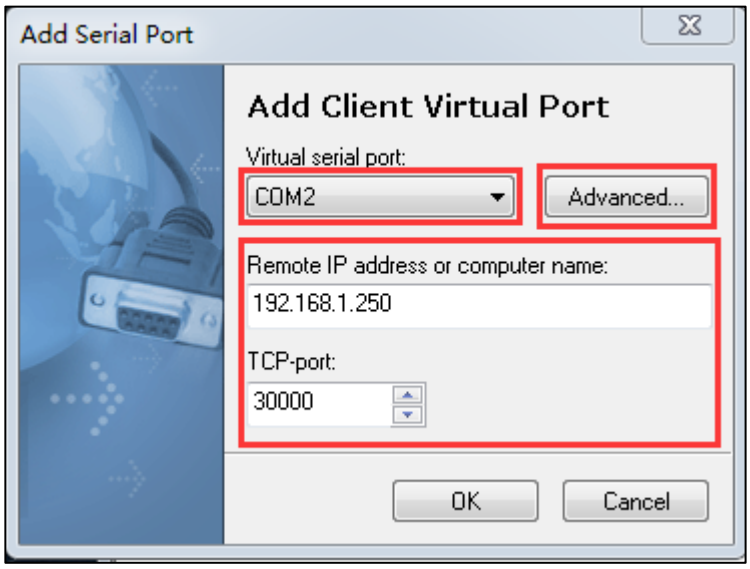
1 Install and run the "Serial Port Redirector" software.

2 Click to add serial port icon ""

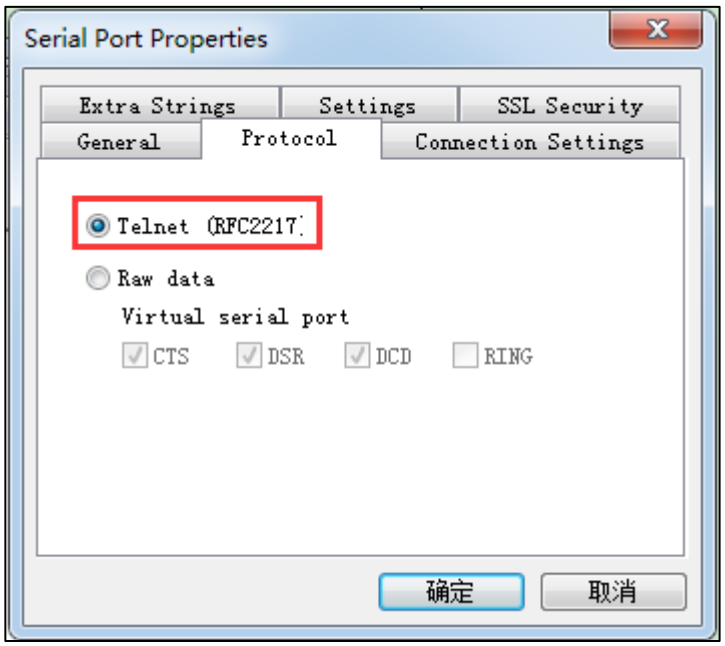



3 In the "virtual serial port" drop-down list, select the COM port that needs to be virtual.


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4 Click the Advanced button, select Telnet (RFC2217) in the Protocol configuration option, and click “OK”.




5 Enter the IP address "192.168.1.250" of the serial port server in the "Host Name" text box.

6 Enter "30000" for the local port of serial port server in the "TCP-port" text box.

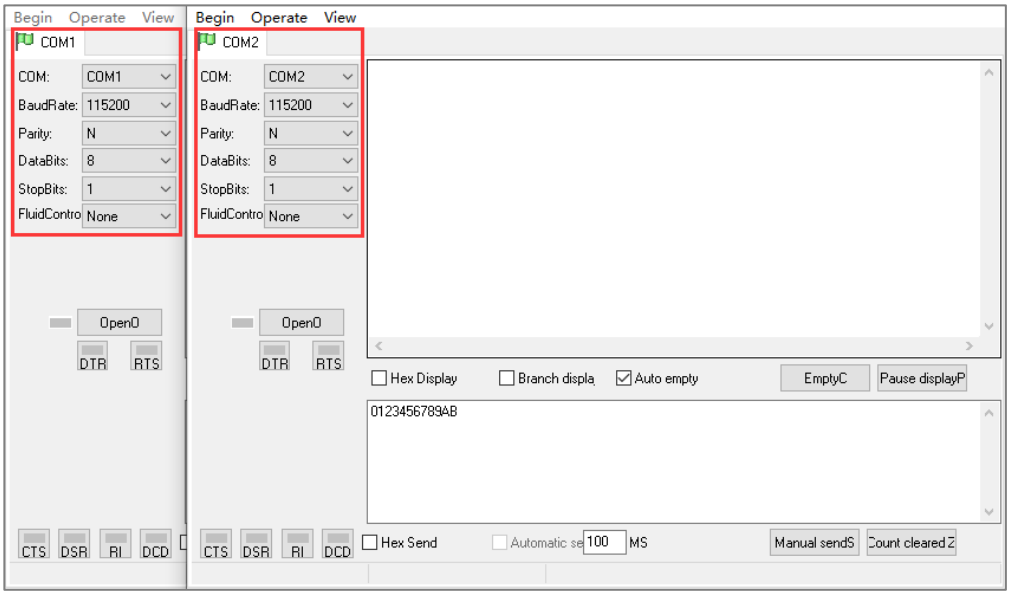
7 Click “OK”.

**Step 5** Run "ComTest" on the PC to test the COM2 virtualized by the PC and the actual serial port COM1.

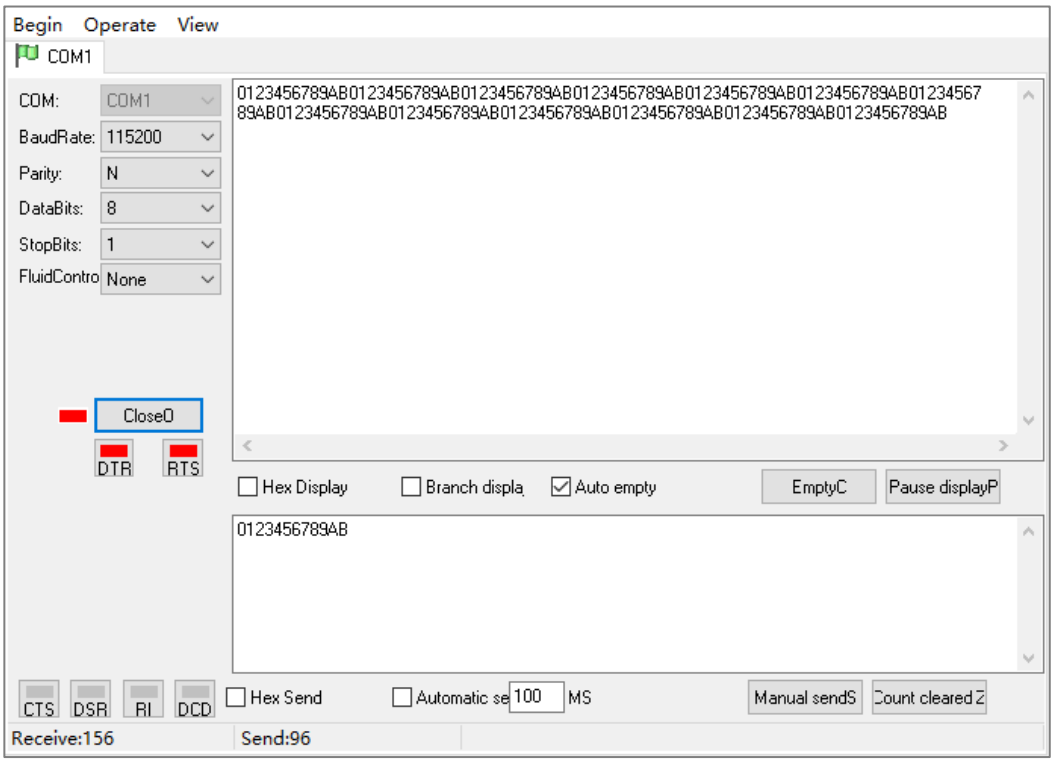
1 Install and run "ComTest" software, and click "Add Window" in the "Start" menu.

2 Add the real serial "COM1" and virtual serial "COM2" two windows, the "COM1" and "COM2" serial port parameter information match.


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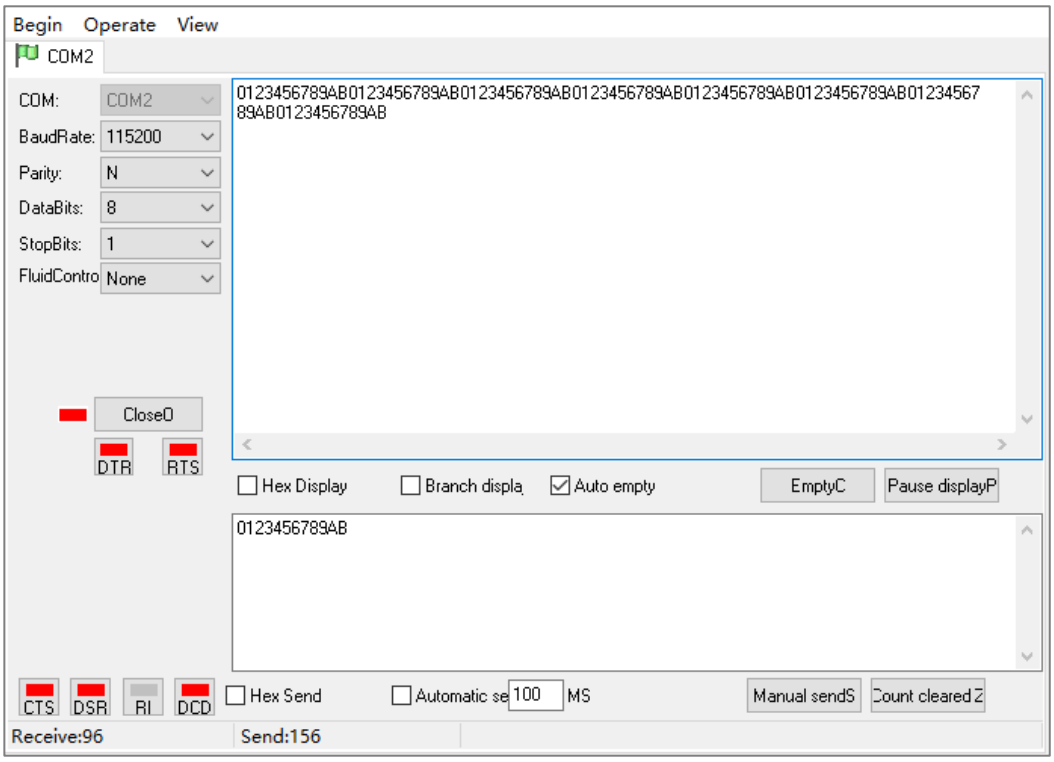



3 Turn on the serial signals of "COM1" and "COM2" respectively, and click the "send manually" button to test and check the data receiving and sending status between the real serial port COM1 and the virtual serial port COM2.





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**Step 6** End.

# 11.13Redundant Com Mode

## Background Introduction

Assuming that the host is in the backup network environment composed of network A and Network B, the host needs to manage the serial terminal device through the serial server. Now connect the host's own RS-232 serial port, COM1, to the Port1 of the serial server, and install ComTest software to simulate the serial terminal device. At the same time, the host computer installs VSP software, maps the serial port terminal device connected to the serial port server Port1 to the local COM2 of the host computer, and simulates the management terminal by ComTest software. When the network of the serial server switches, the communication between the management terminal (COM2) and the terminal (COM1) can still be normal.

Parameter information of serial terminal is as follows:

- Baud rate: 115200
- Parity bit: None
- Data bit: 8
- Stop bit: 1

Host parameter information as follow:

- IP address of connecting network A: 192.168.1.61
- IP address of connecting network B: 172.13.100.110
- Data port: 33000


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- Command port: 34000

The parameters of the serial server are as follows:

- LAN1 IP Address: 192.168.1.250
- LAN2 IP Address: 172.13.100.250
- Communication parameters: Port1 is consistent with serial terminal parameters
- Operation mode: Redundant COM Mode

## Operation Steps

**Step 1** Configure the IP address of the serial server, as shown in the following figure.

1 Login in the Web configuration interface, choose "Network Setting".

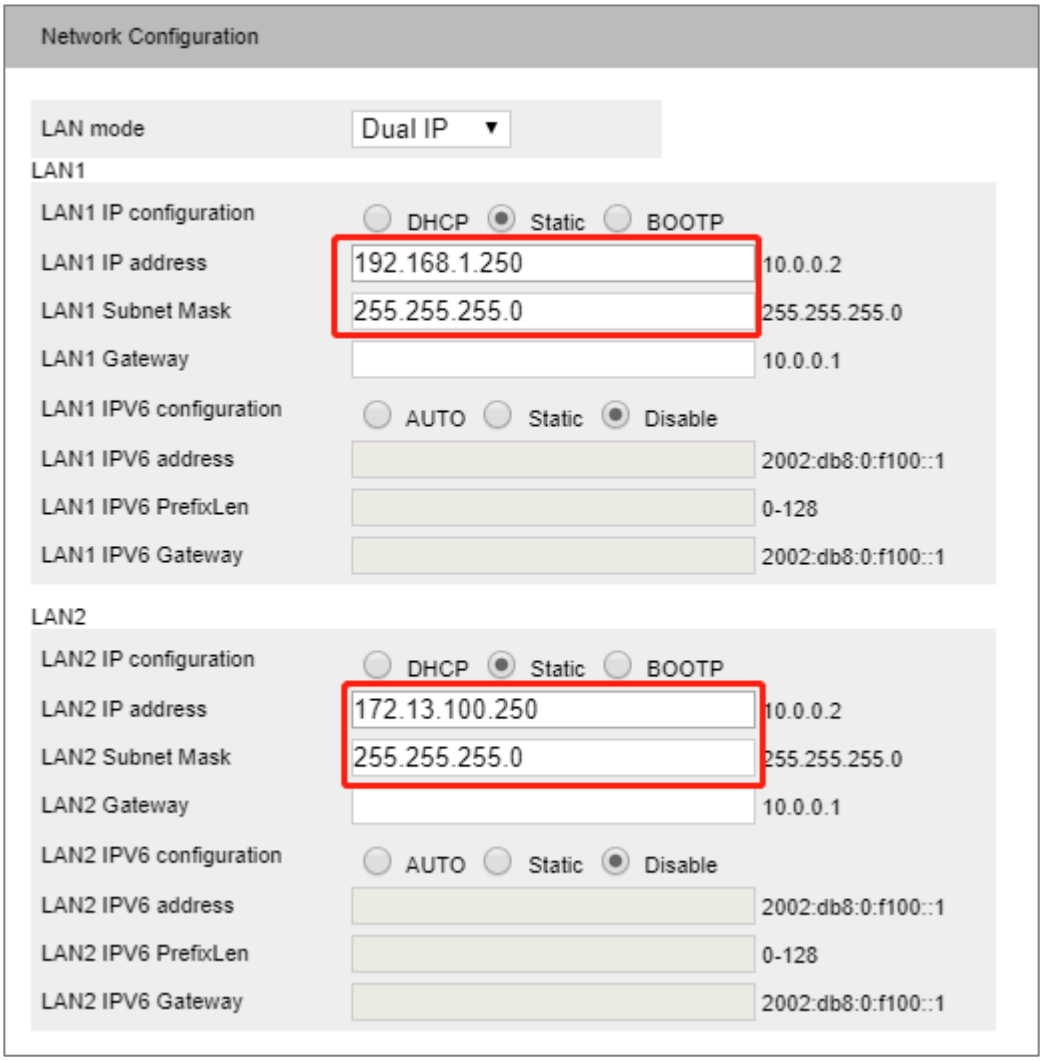
2 Select “Dual IP” from the “Network Port Mode” drop-down list.

3 In the "Network port 1" area, select "Network port 1 Configuration" as "Manual Setting", and enter the LAN1 corresponding network address information such as "Network port 1 Address", "Network port 1 Subnet Mask" and "Network port 1 Gateway". The IP address of LAN1 is “192.168.1.250”.

4 In the "Network port 2" area, select "Network port 2 Configuration" as "Manual Setting", and enter the LAN2 corresponding network address information such as "Network port 2 Address", "Network port 2 Subnet Mask" and "Network port 2 Gateway". The IP address of LAN2 is “172.13.100.250”.

5 Other parameters remain the default, click "Submit".

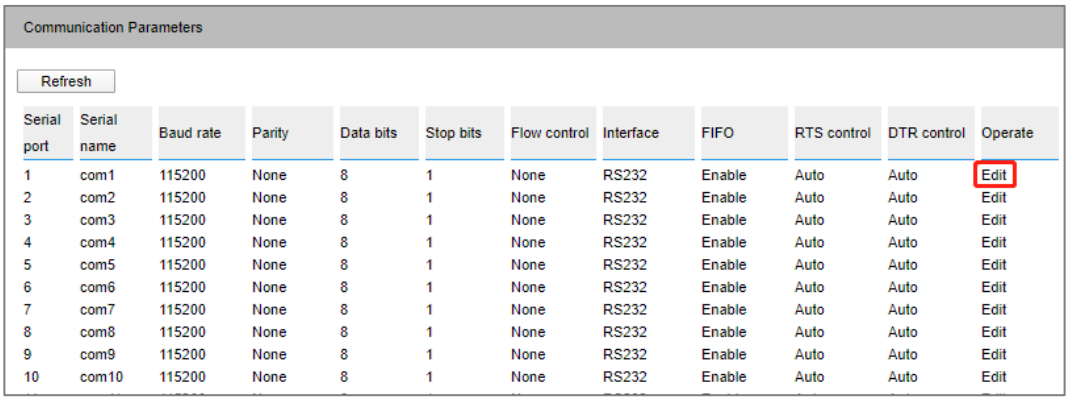

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**Step 2** Configure the serial port parameter information.

1 Log in to the Web configuration interface and select "Serial Settings".

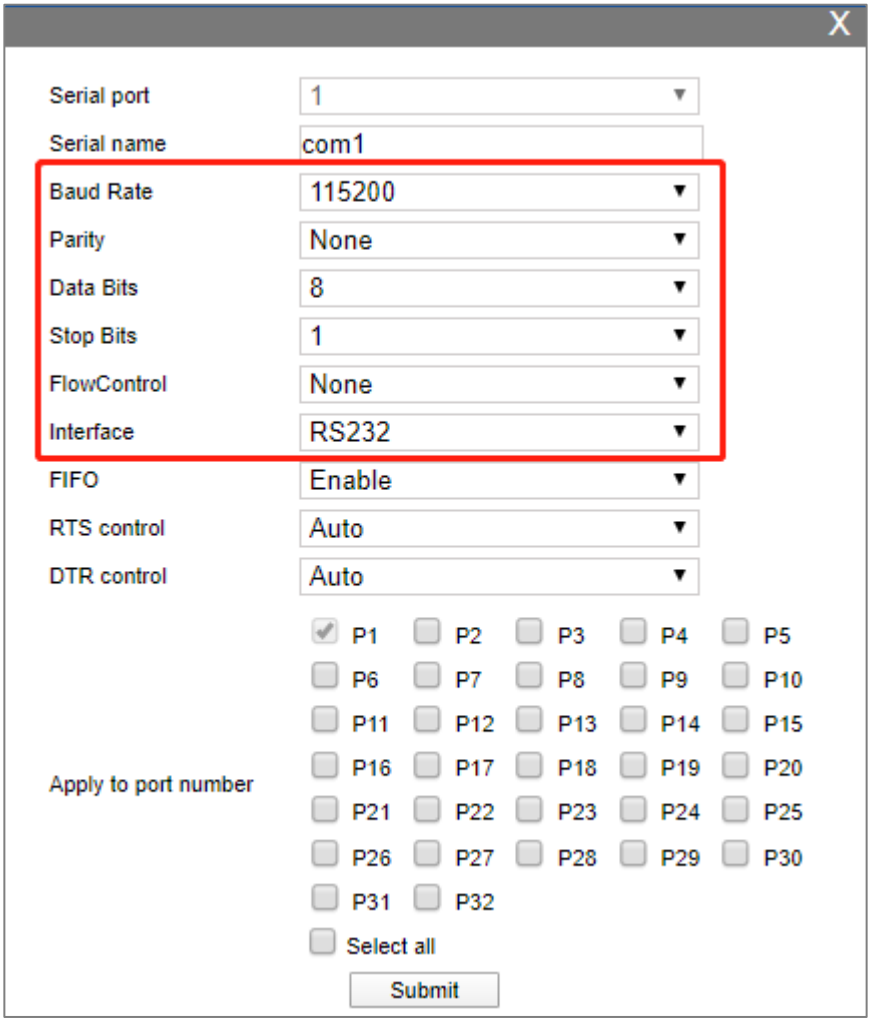
2 In the serial port 1 entry, click the "Edit" button under the operation, as shown in the following figure.




| Serial port | Serial name | Baud rate | Parity | Data bits | Stop bits | Flow control | Interface | FIFO | RTS control | DTR control | Operate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | com1 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 2 | com2 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 3 | com3 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 4 | com4 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 5 | com5 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 6 | com6 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 7 | com7 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 8 | com8 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 9 | com9 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |
| 10 | com10 | 115200 | None | 8 | 1 | None | RS232 | Enable | Auto | Auto | Edit |

3 In the “Edit” window, set “baud rate”, “parity bit”, “data bit” and “stop bit” respectively, as shown in the following figure.

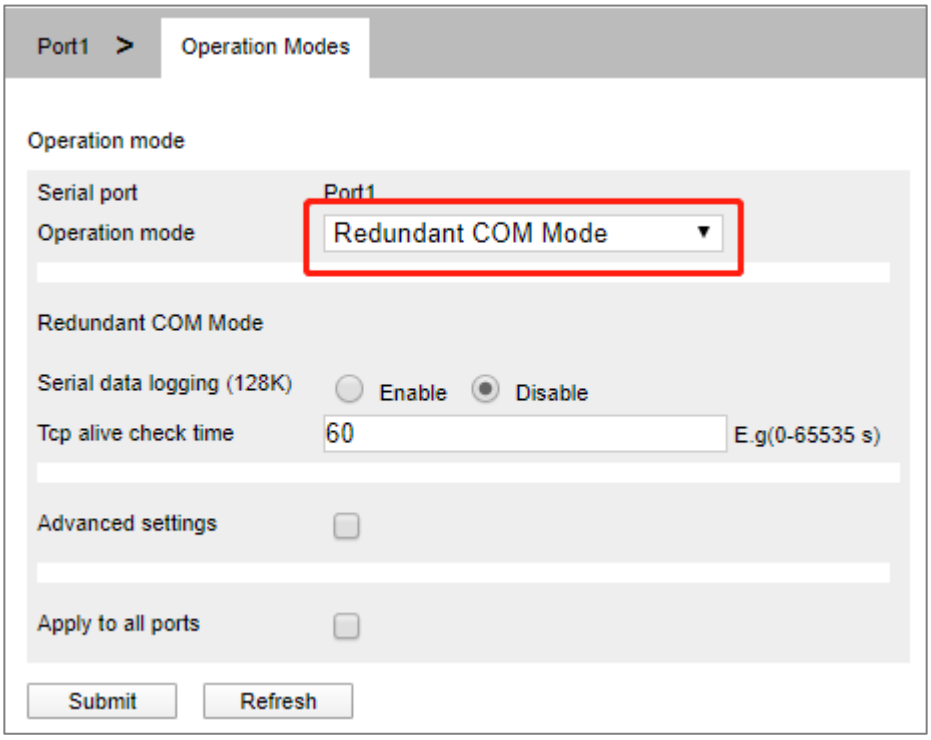

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4 Other parameters remain the default, click "Submit".

**Step 3** Configure the working mode of the serial server, as shown in the following figure.


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1 Log in to the WEB configuration interface and select "COM mode > Port1".

2 Click “Operation mode” drop-down list and select log “Redundant COM Mode”.

3 Other parameters remain the default, click "Submit".

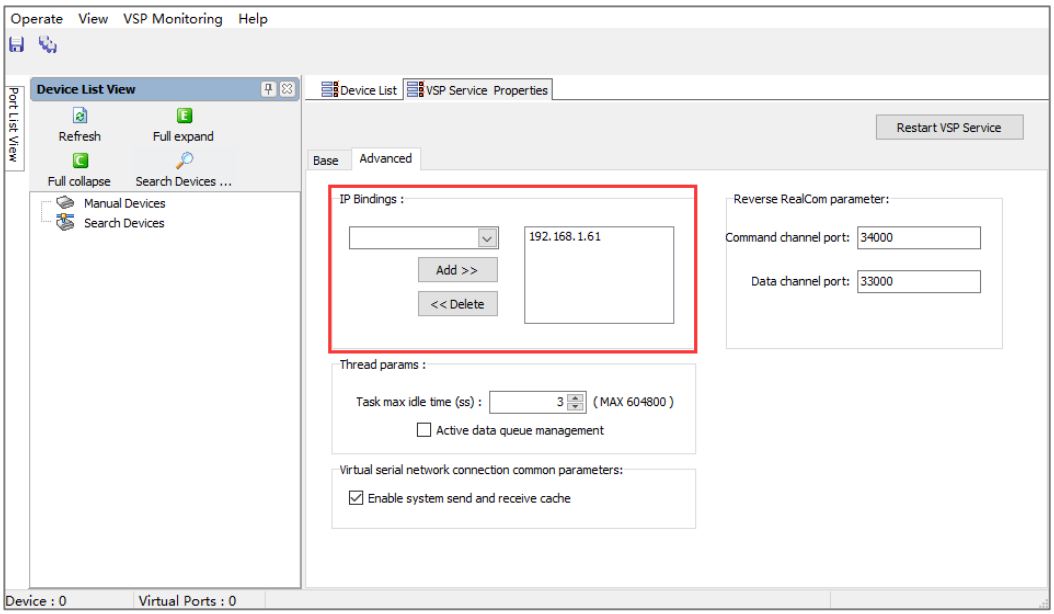
**Step 4** Run "VSP Manager" software, configure the virtual serial port COM2.

1 Install and run the "VSP Manager" software on the host, and refer to the VSP user manual for the installation process.

2 On the menu bar, click “Display > Display VSP service properties”, and then click the “Advanced configuration” tab.

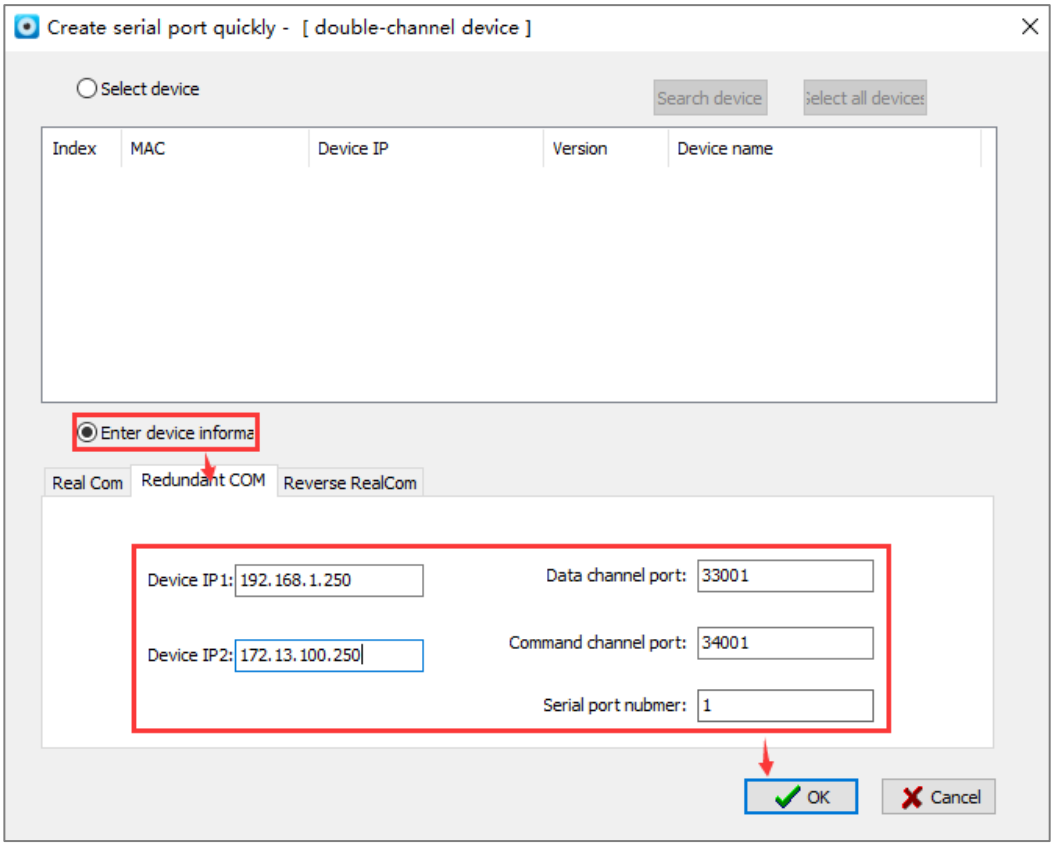
3 In the “IP Binding” area, click the drop-down list to select the host IP address "192.168.1.61", and then click the "Add" button, as shown in the following figure.


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4 In the blank space of "Device List" on the left, right-click and select "Create Serial Port Quickly".

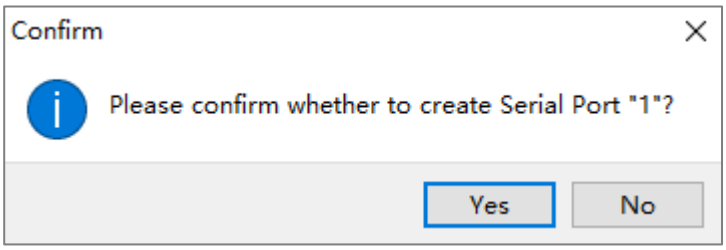
5 Create COM2 in the "Create Serial Port Quickly" window, and the configuration is shown in the following figure.



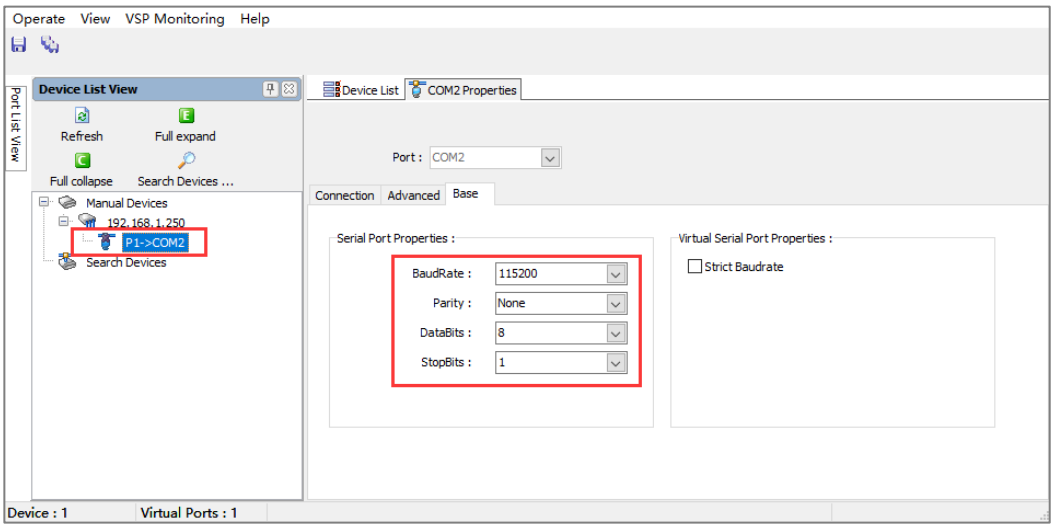

– Click the "Enter Device Information" radio box.


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- Click the "Redundant COM" tab and enter the IP address 1, IP address 2 and serial port number of the device.
- Click “OK”.
- In the Confirm window, click the Yes button, as shown in the following figure.




6 Double-click the created COM2, enter the COM2 property page, and then click the "Base" tab. In the "Serial Port Properties" area, configure the serial port COM2 parameters to be consistent with COM1 communication parameters, as shown in the following figure.

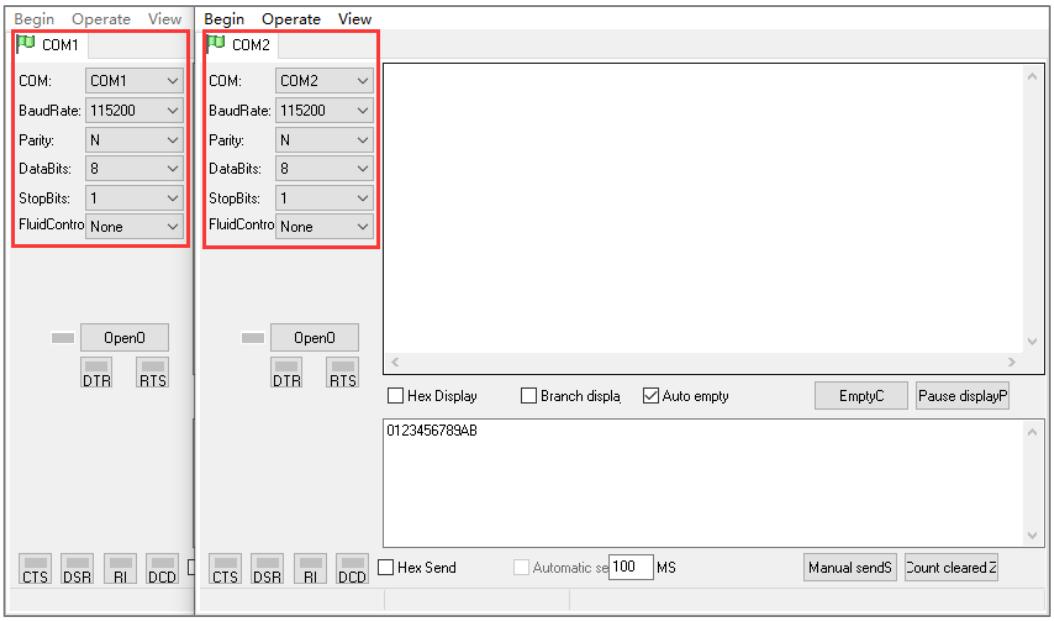



**Step 5** Run "ComTest" software to test the communication between terminal COM1 and management terminal COM2.

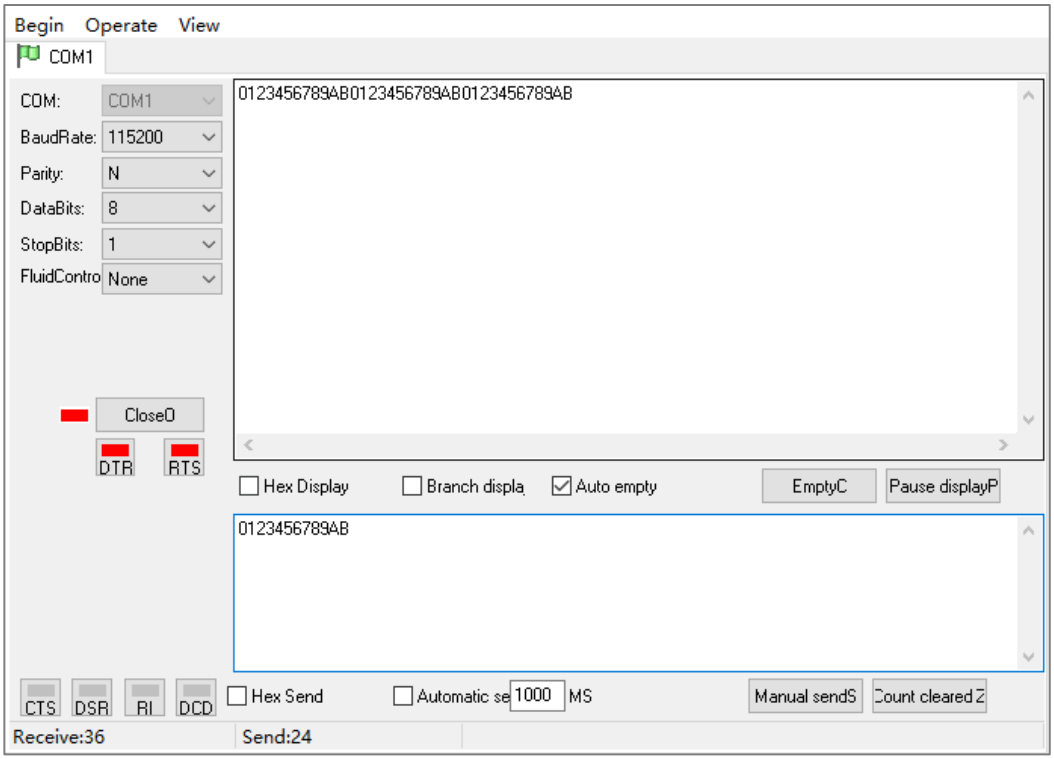
1 Install and run "ComTest" software on the host, click "Start" in the menu bar and select "Add Window".

2 Add the real serial "COM1" and virtual serial "COM2" two windows, the "COM1" and "COM2" serial port parameter information match.


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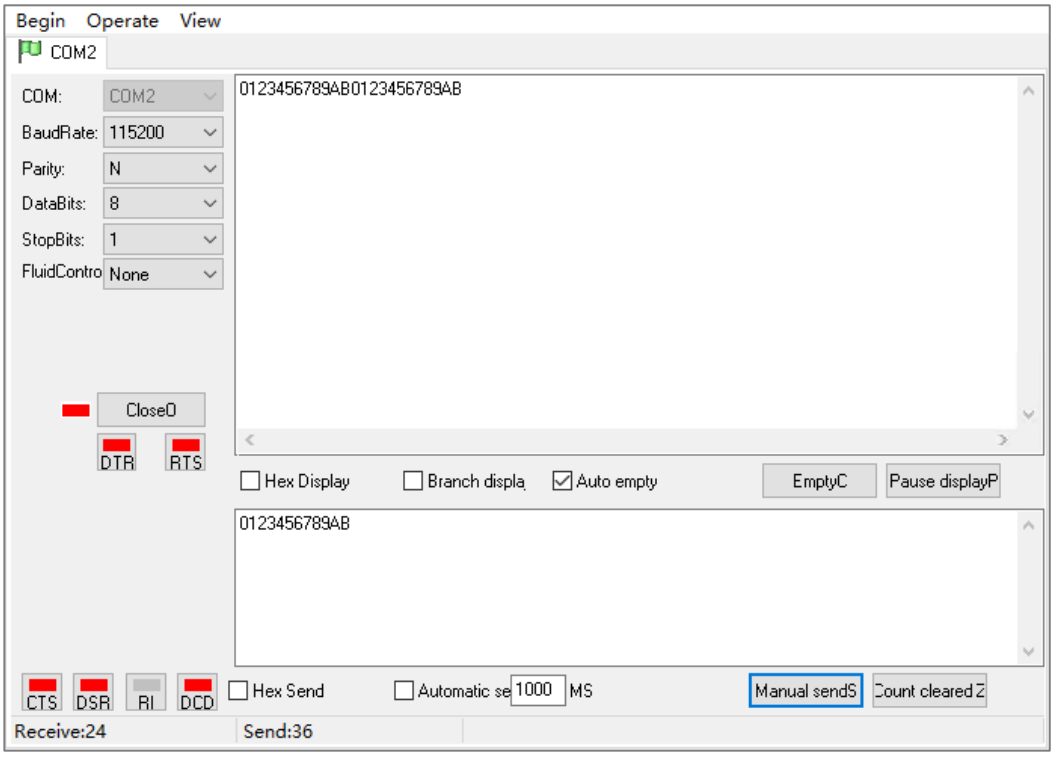



3 Turn on the serial signals of "COM1" and "COM2" respectively, and click the "send manually" button to test and check the data receiving and sending status between the real serial port COM1 and the virtual serial port COM2.





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Notes:

You can simulate network failure by manually disconnecting Network A or Network B, and then view the data communication between COM1 and COM2.

**Step 6** End.

# 11.14DRDAS RealCom Mode

## Background Introduction

Assuming that Host A and Host B are in the same network environment, Host A needs to collect serial data and control serial terminal device in COM form through serial server; While Host B is only used for monitoring or backing up serial terminal device data. Now, another host's own RS-232 serial port, COM1, is connected to Port1 of serial server, and ComTest software is installed to simulate serial terminal device. At the same time, Host A and Host B install VSP software, and map the serial terminal device connected with the serial server Port1 to the local COM2 of Host A and Host B, and simulate the management terminal by ComTest software.

Parameter information of serial terminal is as follows:

- Baud rate: 115200
- Parity bit: None
- Data bit: 8
- Stop bit: 1

Host A parameter information is as follow:

- IP address: 192.168.1.61


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Host B parameter information is as follow:

- IP address: 192.168.1.62

The parameters of the serial server are as follows:

- IP address: 192.168.1.250
- Communication parameters: Port1 is consistent with serial terminal parameters
- Operation mode: DRDAS RealCom Mode

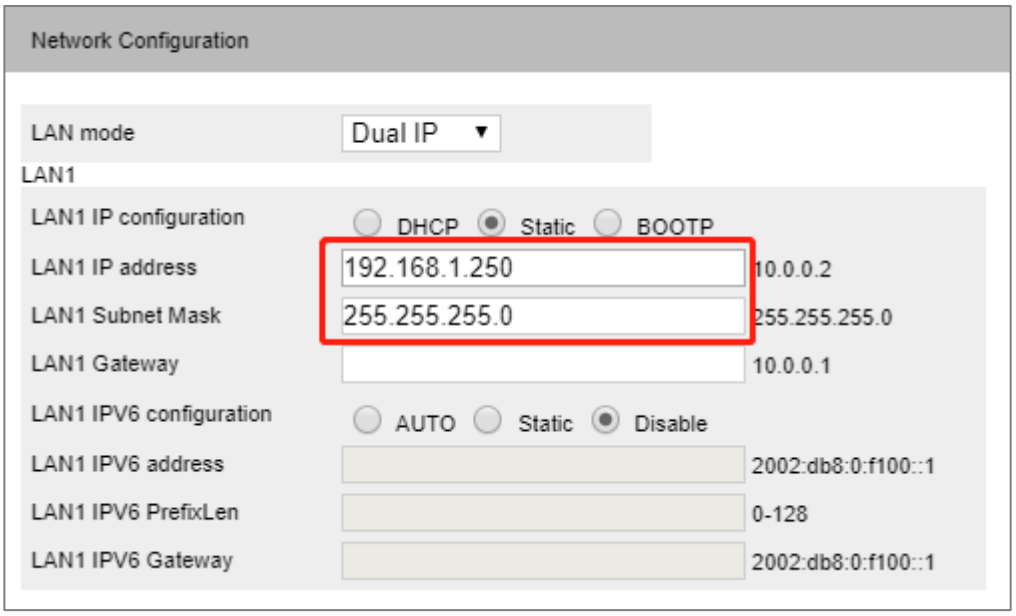
## Operation Steps

**Step 1** Configure the IP address of the serial server.

1 Login in the Web configuration interface, choose "Network Setting".

2 In the "Network port 1" area, select "Network port 1 Configuration" as "Manual Setting", and enter the corresponding network address information such as "Network port 1 Address", "Network port 1 Subnet Mask" and "Network port 1 Gateway".

3 Other parameters remain the default, click "Submit".

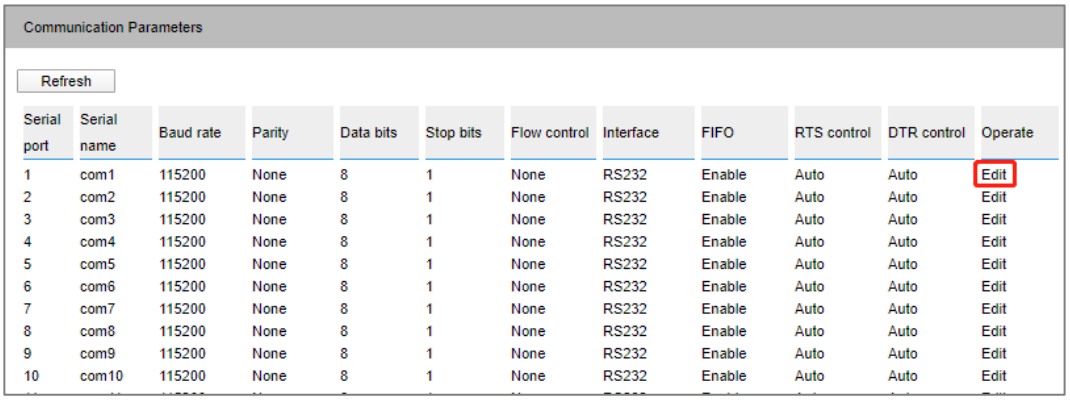



**Step 2** Configure the serial port parameter information.

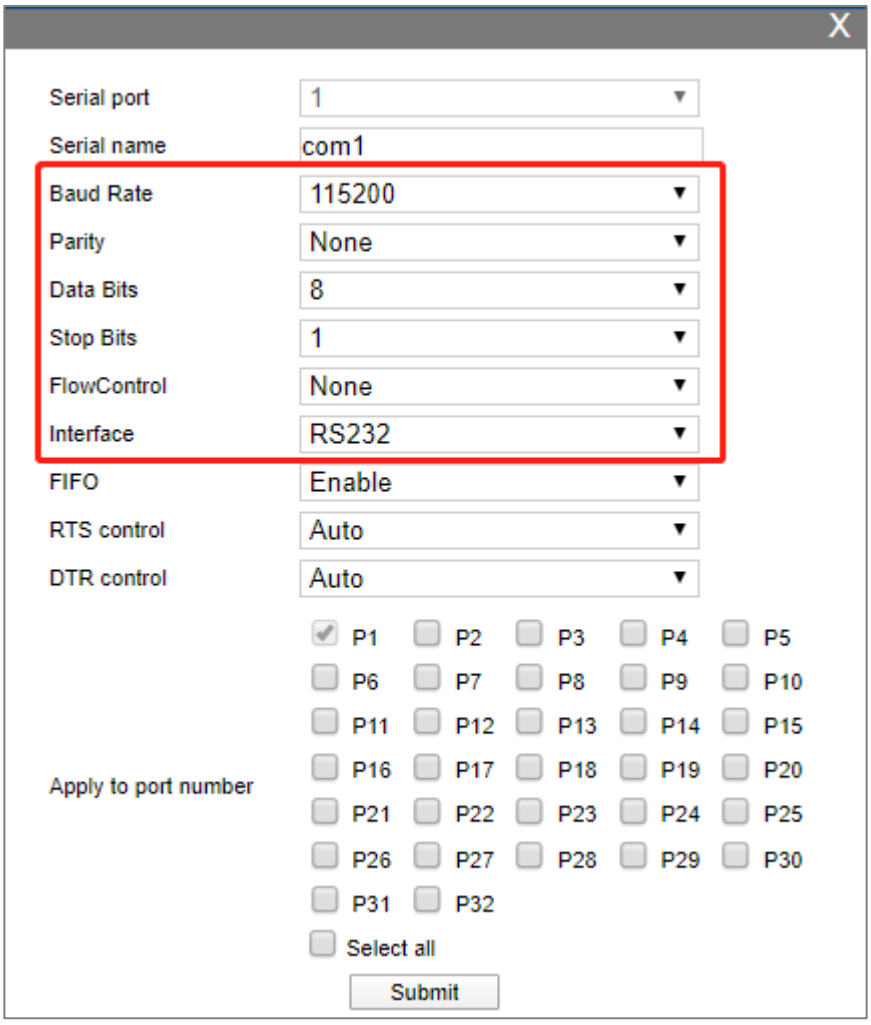
1 Log in to the Web configuration interface and select "Serial Settings".

2 In the serial port 1 entry, click the "Edit" button under the operation, as shown in the following figure.


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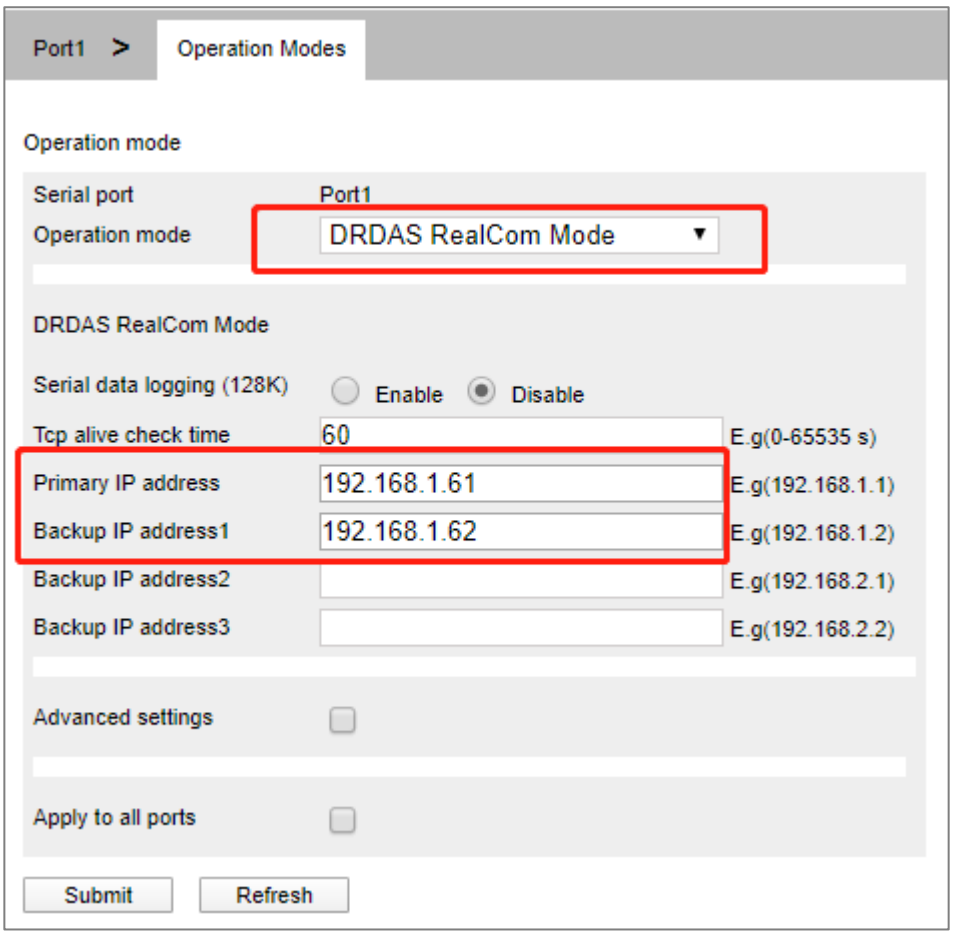

3 In the “Edit” window, set “baud rate”, “parity bit”, “data bit” and “stop bit” respectively, as shown in the following figure.




4 Other parameters remain the default, click "Submit".

**Step 3** Configure the working mode of the serial server, as shown in the following figure.


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1 Log in to the WEB configuration interface and select "COM mode > Port1".

2 Click the "Work Mode" drop-down list and select "DRDAS RealCom Mode".

3 In the “Primary IP address” text box, enter the IP address of host A "192.168.1.61".

4 In the "Alternate IP address" text box, enter the IP address of host B"192.168.1.62”.

5 Other parameters remain the default, click "Submit".

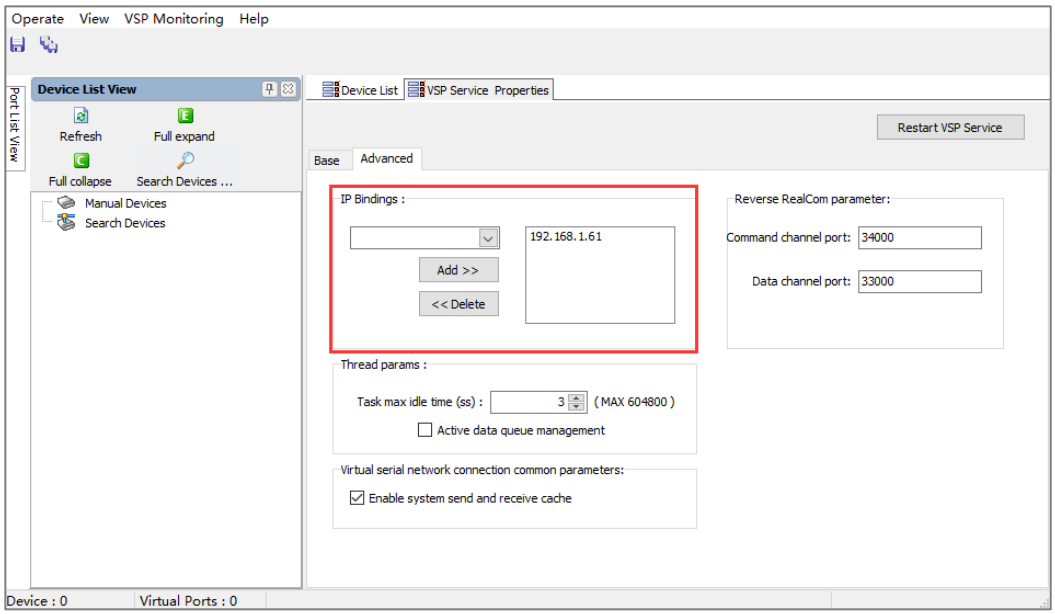
**Step 4** Run "VSP Manager" software, configure the virtual serial port COM2 on Host A and Host B one by one.

1 Install and run the "VSP Manager" software on the host, and refer to the VSP user manual for the installation process.

2 On the menu bar, click “Display > Display VSP service properties”, and then click the “Advanced configuration” tab.

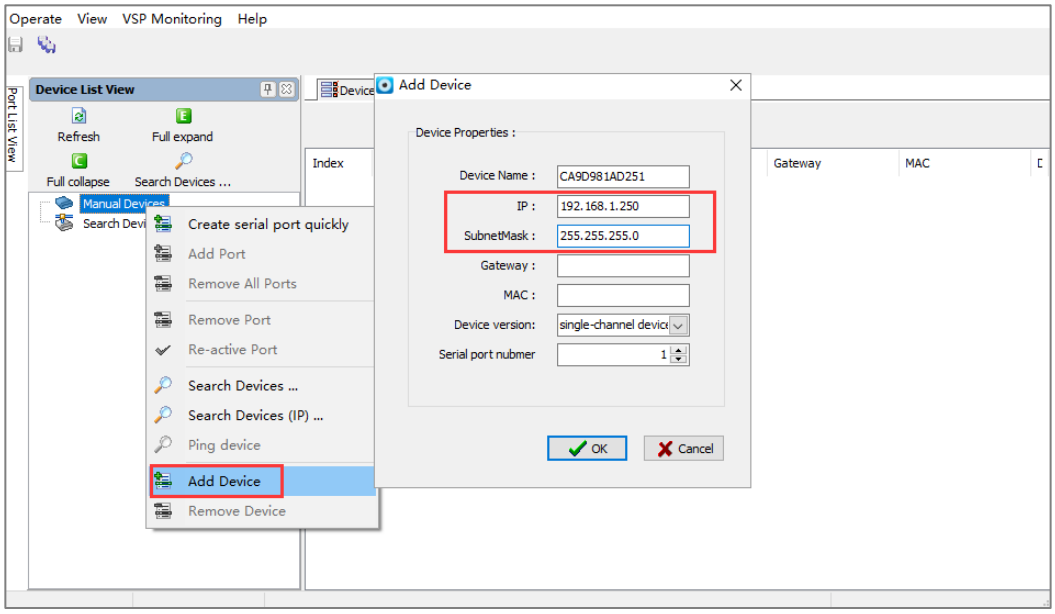
3 In the “IP Binding” area, click the drop-down list to select the host IP address, and then click “Add”, as shown in the following figure. (the IP of Host A is 192.168.1.61 and the IP address of Host B is 192.168.1.62)

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4 In the left “Device list” area, right-click “Add Device Manually” and select “Add Device”.

5 In the “Add Device” window, enter the network address of the serial server, as shown in the following figure.



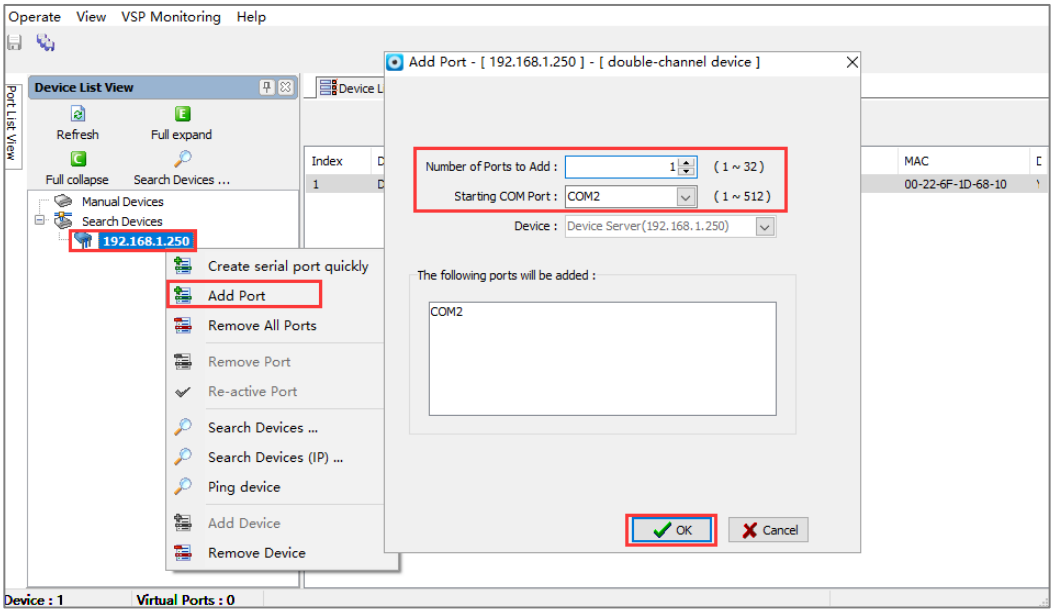

- In the "IP" text box, enter the IP address "192.168.1.250" of the serial server;
- In the "Subnet Mask" text box, enter the subnet mask "255.255.255.0" of the serial server;
- Click the "Device version" drop-down list and select the version type of the device "Double-channel device";
- In the “Number of serial ports” text box, enter the number of serial ports of the serial server;
- Other parameters can be left as default, and click "OK" button.


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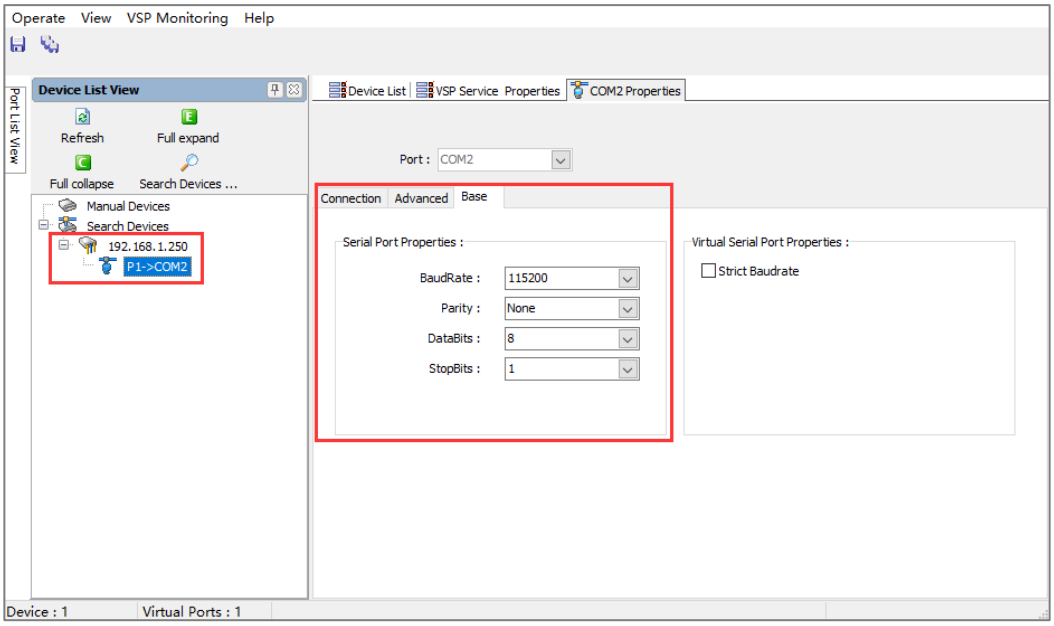
6 Right-click "192.168.1.250" and select "Create Serial Port".

7 In the "create serial port" window, create serial port COM2, as shown in the following figure.

- Click the "Add Serial Port" drop-down list and select the serial port "1".
- Click the "Available Serial Port List" drop-down list and select "COM2".
- Click “OK”.




8 Double-click the created COM2, enter the COM2 property page, and then click the “Basic” tab. In the "Serial Port Parameters" area, configure the serial port COM2 parameters to be consistent with COM1 communication parameters, as shown in the following figure.



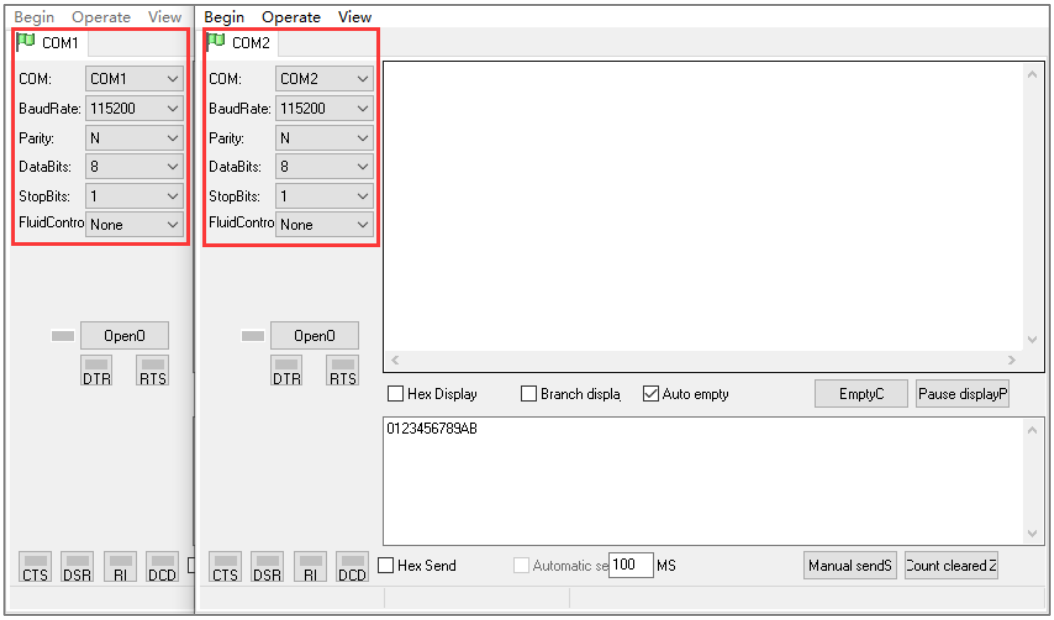

**Step 5** Run "ComTest" software to test the communication among terminal COM1, Host A


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(COM2) and Host B (COM2).

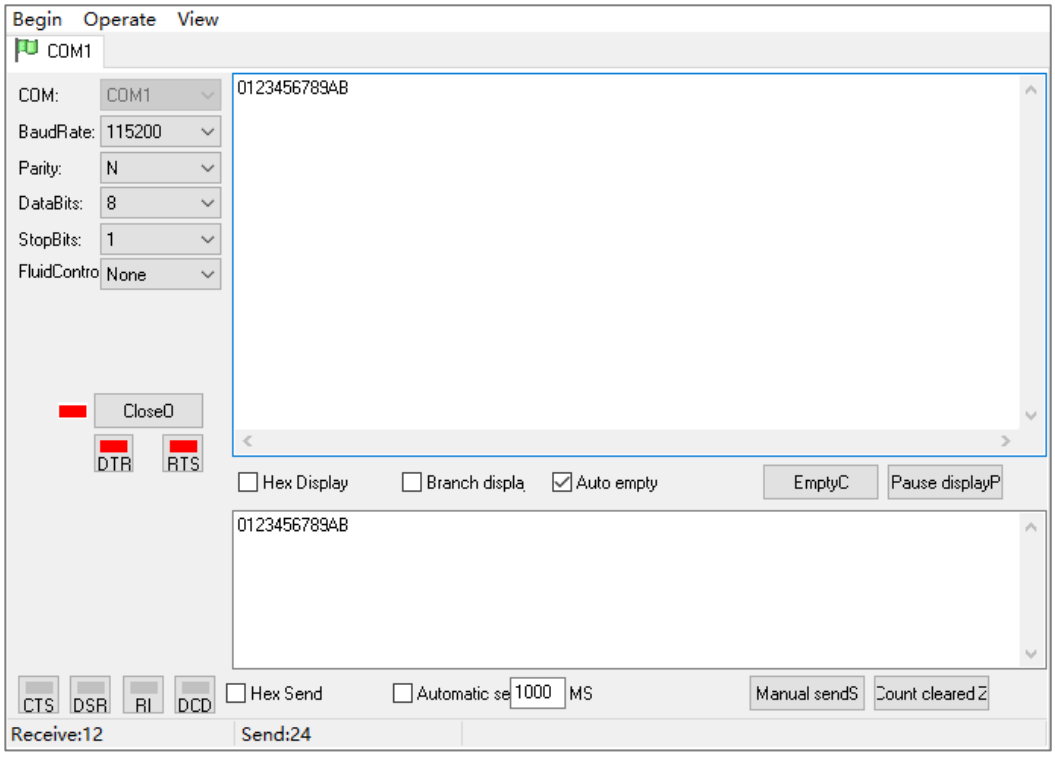
1 Install and run "ComTest" software on each host, click "Start" in the menu bar and select "Add Window".

2 Serial port "COM1" is connected to host computer, and serial port "COM2" is connected to host computer A and host computer B, and the serial port parameter information of "COM1" and "COM2" is matched consistently.

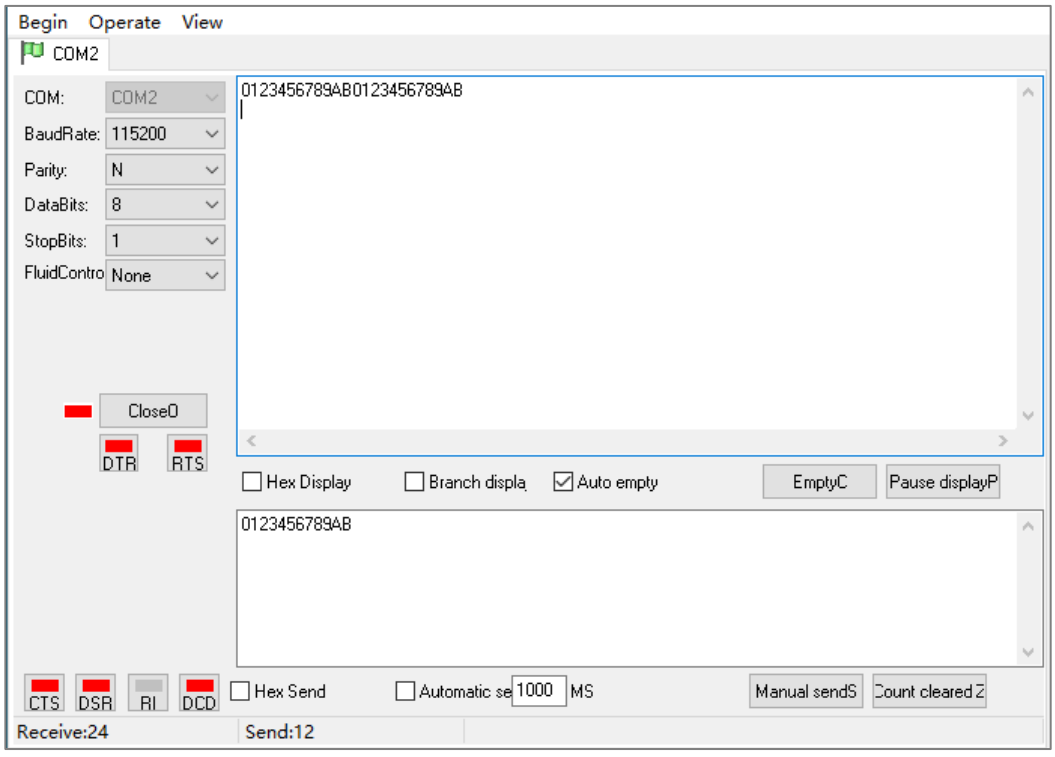



3 Turn on the serial signals of "COM1" and "COM2" respectively, and click the "send manually" button to test and check the data receiving and sending status between the real serial port COM1 and the virtual serial port COM2.


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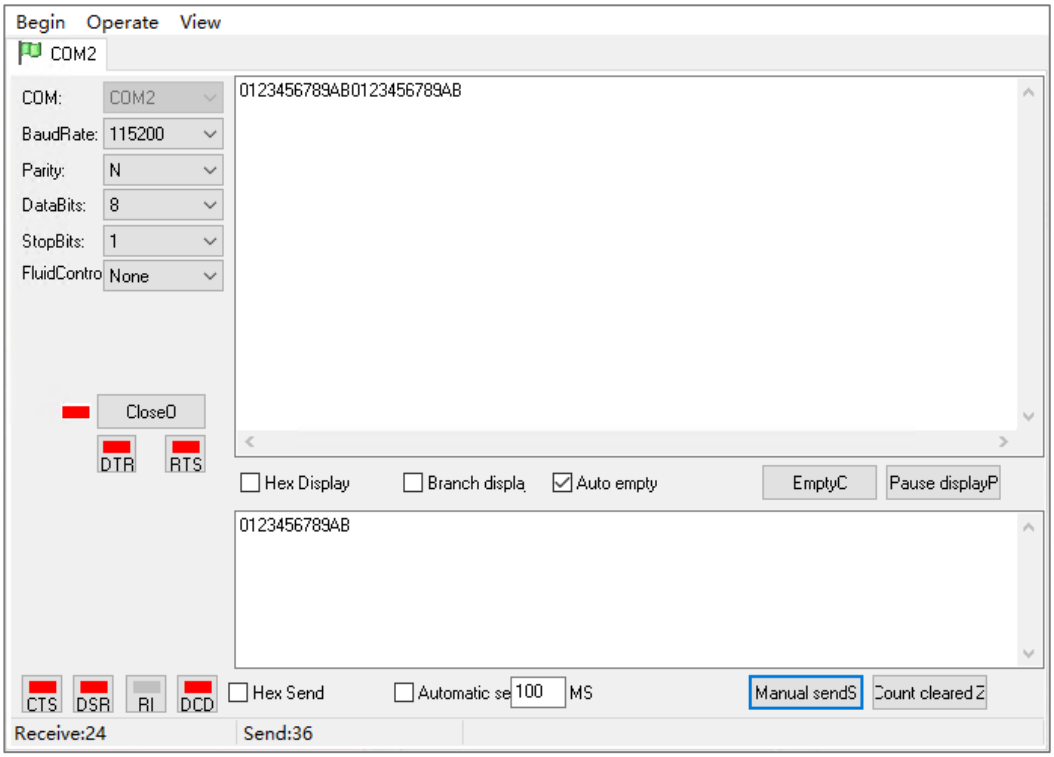



Host A COM2:




Host B COM2:


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Notes:

Through the test, it can be found that both Host A and Host B can receive the data sent by COM1; COM1 can receive the data sent by Host A; COM1 does not receive the data sent by Host B.

**Step 6** End.

# 11.15DRDAS TCP Server Mode

## Background Introduction

Assuming that Host A and Host B are in the same network environment, Host A needs to collect serial data and control serial terminal device in TCP Socket form through serial server; While Host B is only used for monitoring or backing up serial terminal device data. Now, another host's own RS-232 serial port, COM1, is connected to Port1 of serial server, and ComTest software is installed to simulate serial terminal device. At the same time, Host A and Host B install DebugTool software, which is used as TCP client to establish connection with serial port server Port1, and the management end is simulated by DebugTool software.

Parameter information of serial terminal is as follows:

- Baud rate: 115200
- Parity bit: None
- Data bit: 8
- Stop bit: 1

Host A parameter information is as follow:


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- IP address: 192.168.1.61

Host B parameter information is as follow:

- IP address: 192.168.1.62

The parameters of the serial server are as follows:

- IP address: 192.168.1.250
- Local Port: 30000
- Communication parameters: Port1 is consistent with serial terminal parameters
- Operation mode: DRDAS TCP Server Mode

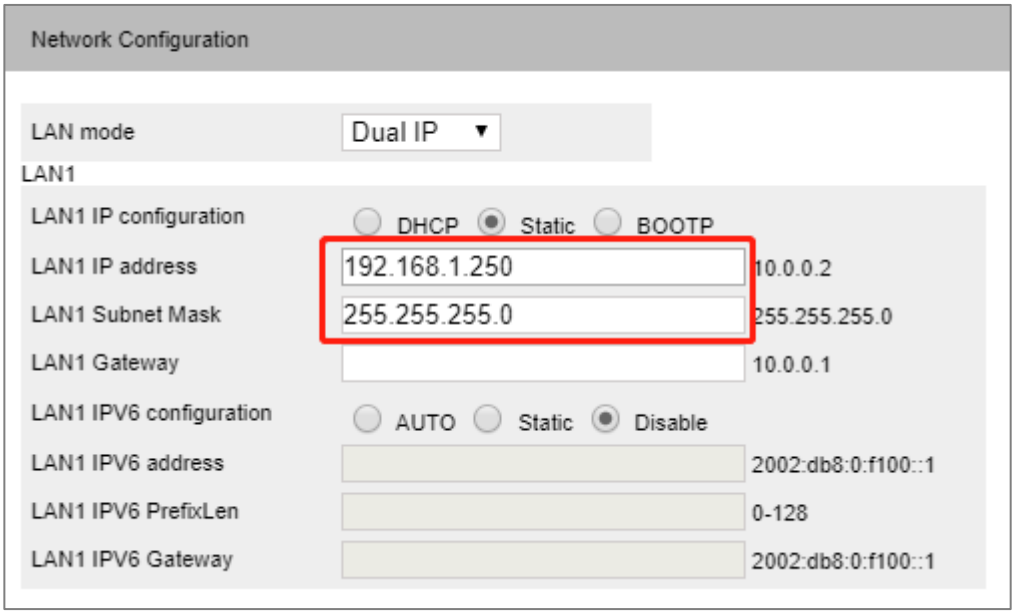
## Operation Steps

**Step 1** Configure the IP address of the serial server.

1 Login in the Web configuration interface, choose "Network Setting".

2 In the "Network port 1" area, select "Network port 1 Configuration" as "Manual Setting", and enter the corresponding network address information such as "Network port 1 Address", "Network port 1 Subnet Mask" and "Network port 1 Gateway".

3 Other parameters remain the default, click "Submit".

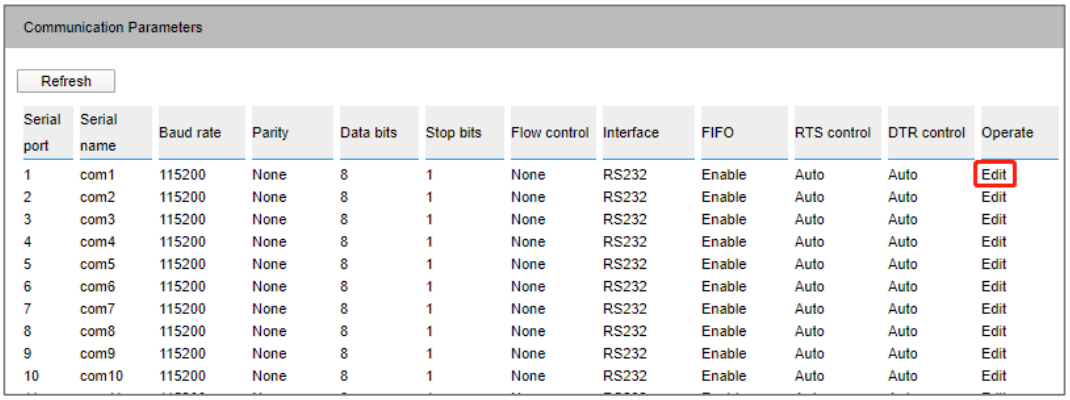



**Step 2** Configure the serial port parameter information.

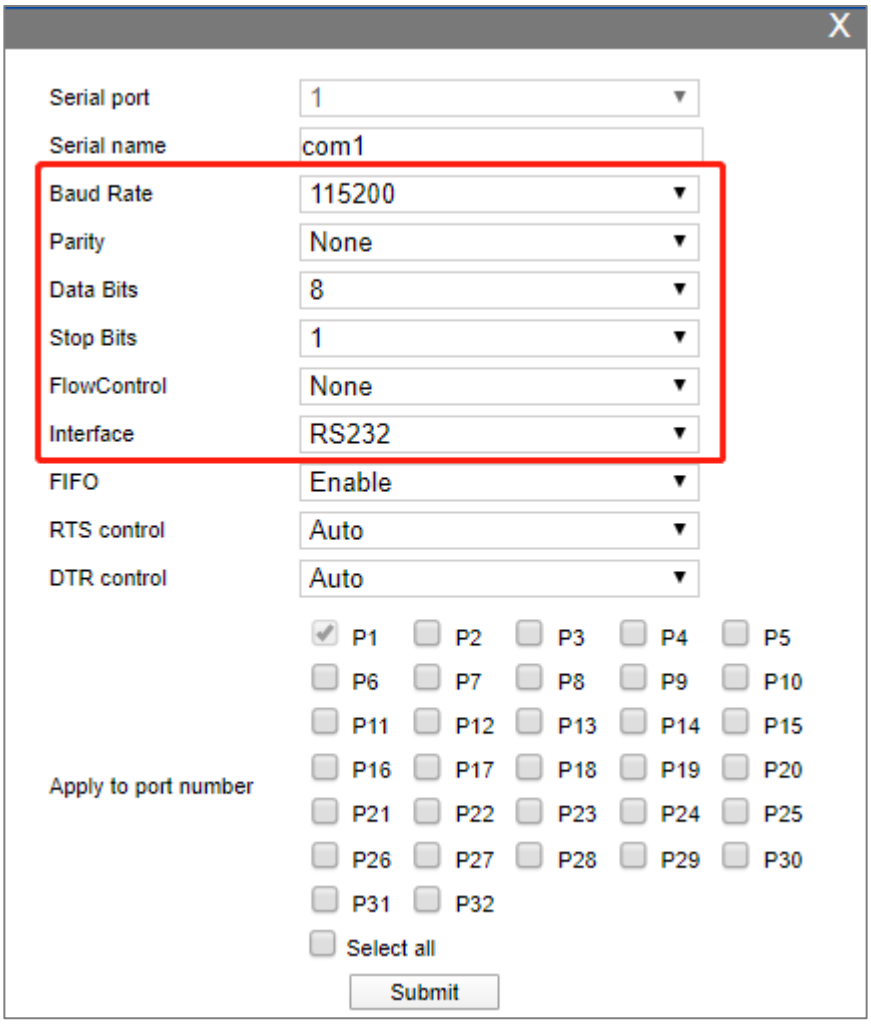
1 Log in to the Web configuration interface and select "Serial Settings".

2 In the serial port 1 entry, click the "Edit" button under the operation, as shown in the following figure.


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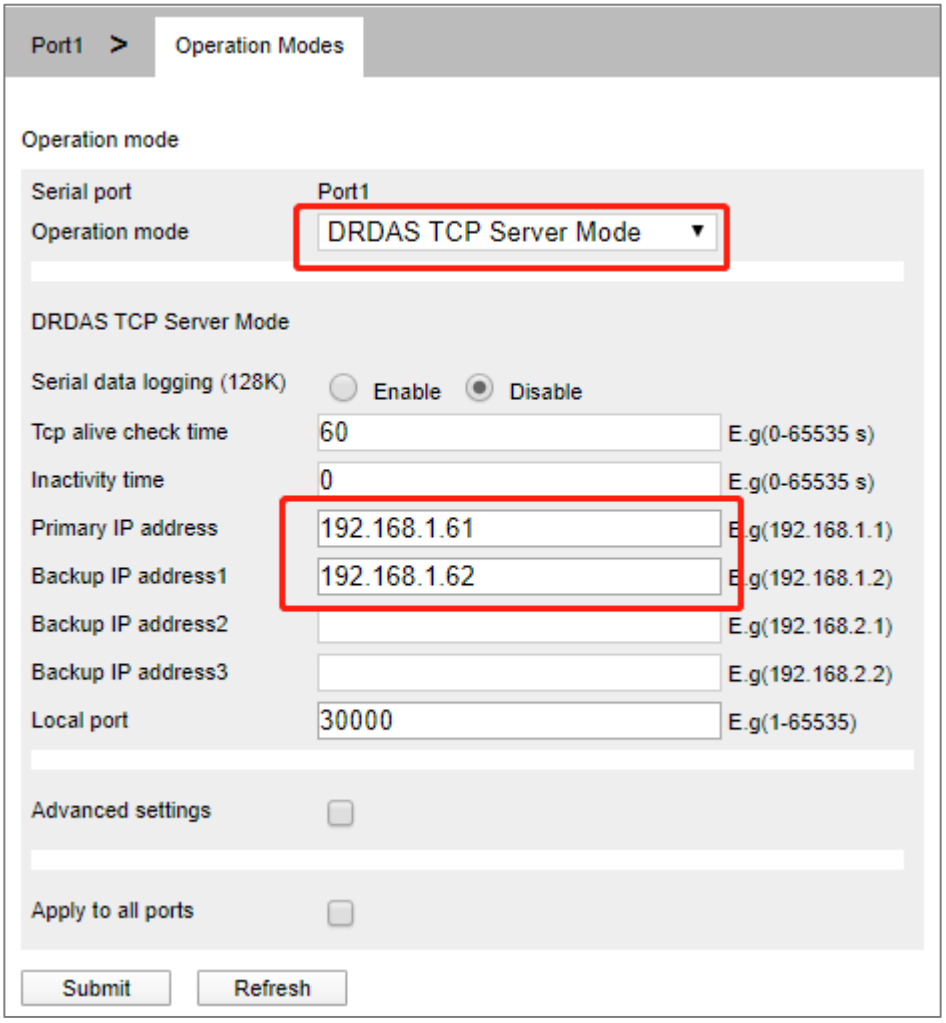

3 In the “Edit” window, set “baud rate”, “parity bit”, “data bit” and “stop bit” respectively, as shown in the following figure.




4 Other parameters remain the default, click "Submit".

**Step 3** Configure the working mode of the serial server, as shown in the following figure.


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1 Log in to the WEB configuration interface and select "COM mode > Port1".

2 Click "Work Mode" drop-down list, choose "DRDAS TCP Server Mode".

3 In the “Primary IP address” text box, enter the IP address of host A "192.168.1.61".

4 In the "Alternate IP address 1" text box, enter the IP address of host B"192.168.1.62”.

5 In the “Local Port” text box, enter the port "30000" of the serial server.

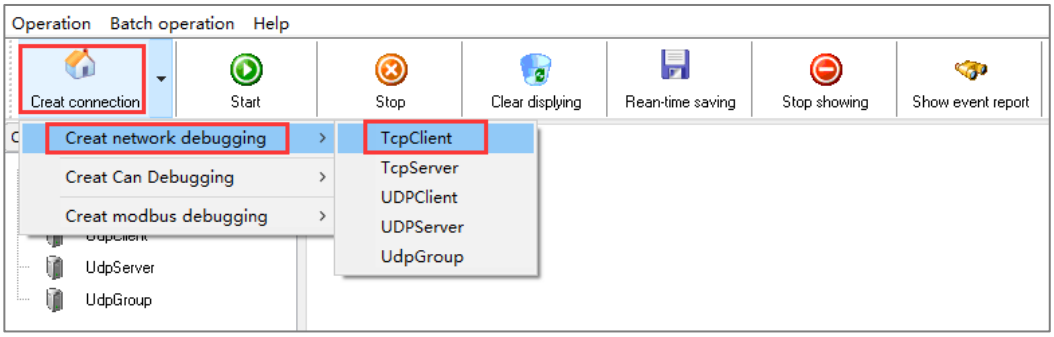
6 Other parameters remain the default, click "Submit".

**Step 4** Run the "DebugTool" software and configure TCP clients on Host A and Host B in turn.

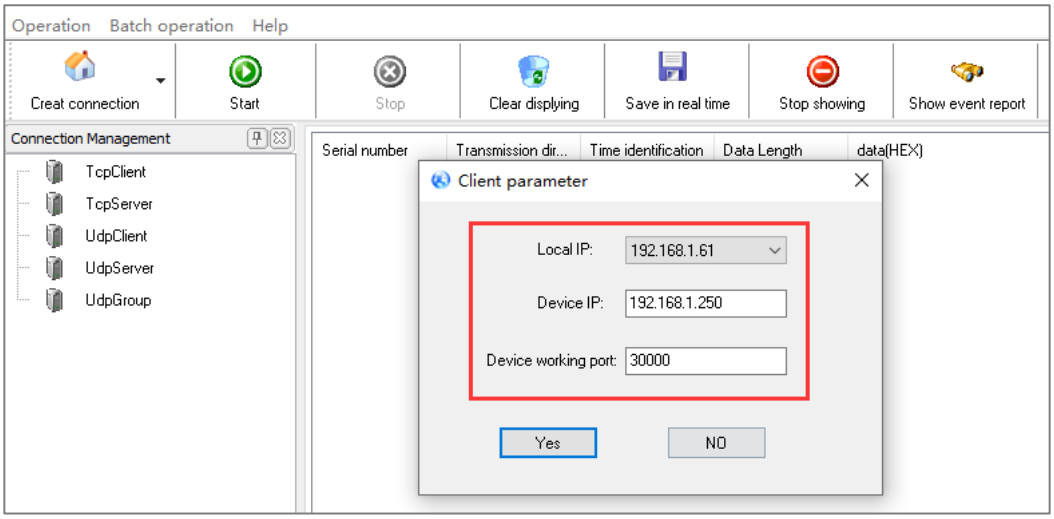
1 Install and run the "DebugTool" software on the host.

2 On the toolbar, click the “create connection” drop-down list, and then select “Create network debugging > TcpClient”, as shown in the following figure.


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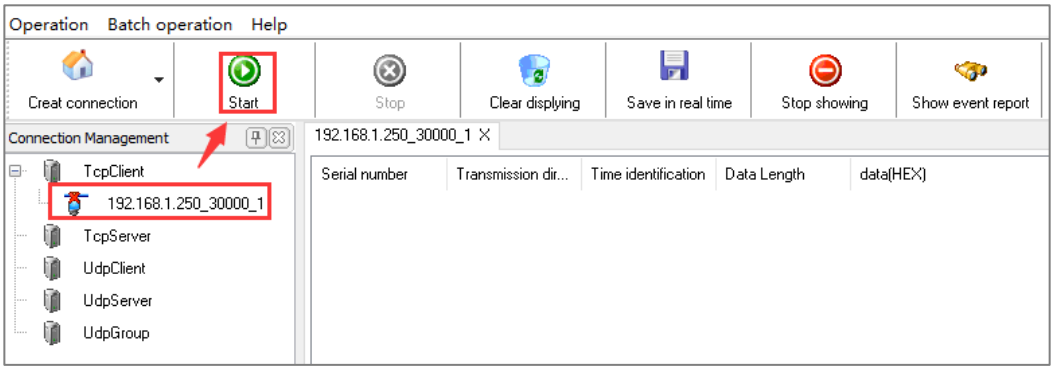



3 In the “client parameters” window, configure TCP connection parameters, as shown in the following figure.




- Click the “Local IP” drop-down list and select the IP address of the binding host. (the IP of Host A is 192.168.1.61 and the IP address of Host B is 192.168.1.62)
- In the "Device IP" text box, enter the IP address "192.168.1.250" of the serial server.
- In the "Device Working Port" text box, enter the serial port number "30000".
- Click "OK” button.

4 Click to select the established TCP client, and then click the “Start” button, as shown in the following figure.





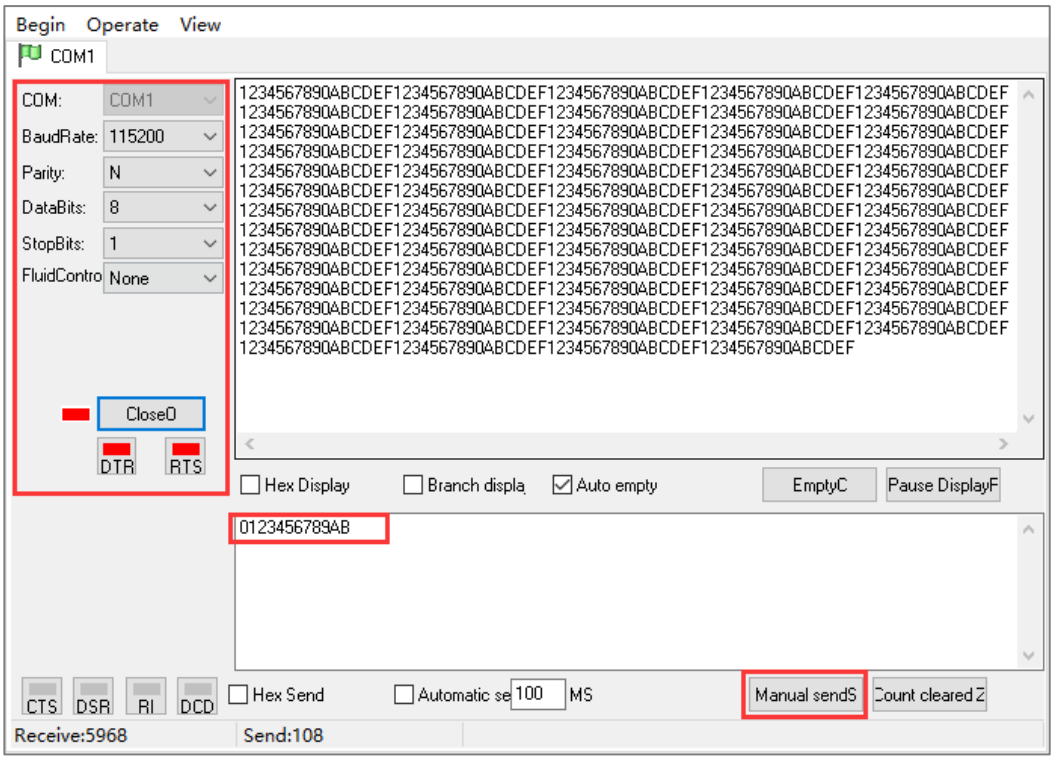
Copyright © 3onedata Co., Ltd.

**Step 5** Run "ComTest" software and "DebugTool" software to test the communication among terminal COM1, Host A (TCP Client) and Host B (TCP Client).

1 Install and run "ComTest" software on the host, click "Start" in the menu bar and select "Add Window".

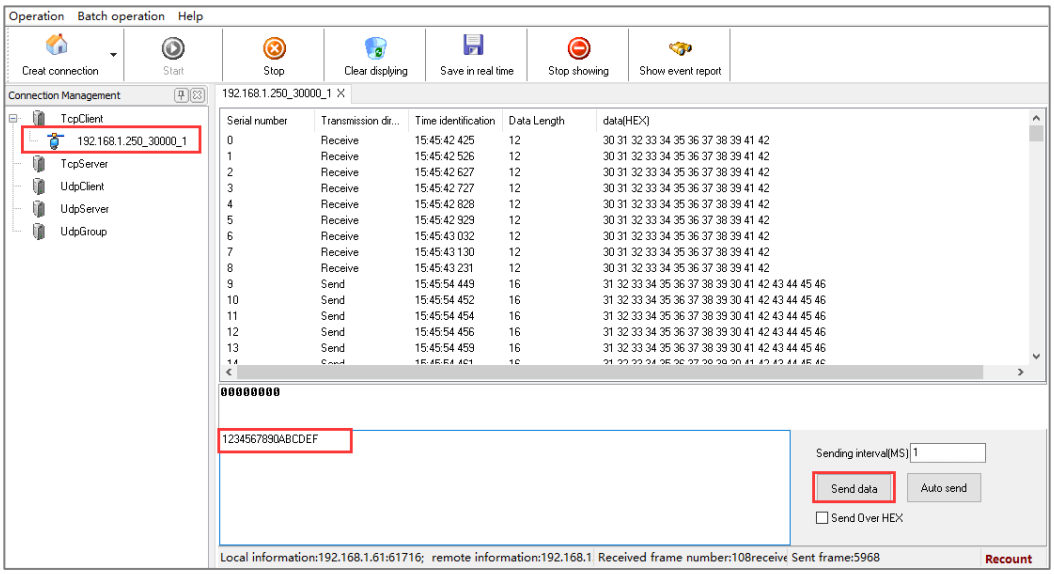
2 Connect the serial port "COM1" on the host, and match the serial port parameter information of "COM1" and the serial server Port1.

3 Open the serial port signal of "COM1", click the "send manually" button, and test and check the data receiving and sending status of real serial port COM1, host A and host B.

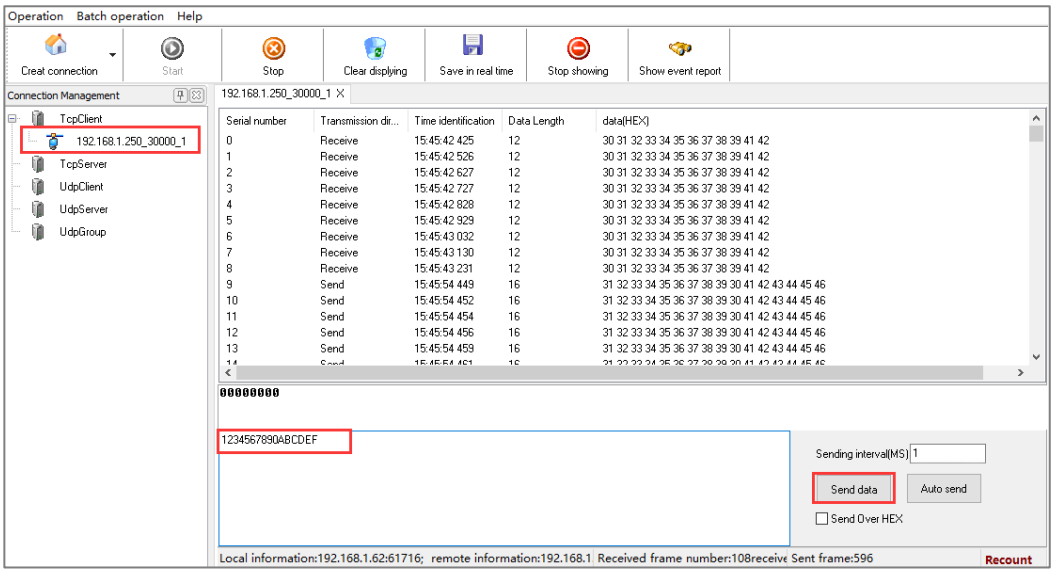



Host A (TCP Client):


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Host B (TCP Client):




Notes:

Through the test, it can be found that both Host A and Host B can receive the data sent by COM1; COM1 can receive the data sent by Host A; COM1 does not receive the data sent by Host B.

**Step 6** End.

# 11.16SSH Mode

## Background Introduction

The PC connects to the Port 1 of serial port server through RS-232 to access the SSH server on the network.


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Assume the IP address of the serial port server is 192.168.1.250; The IP address of the server is 192.168.1.10.

The serial port information is as follows:

- Baud rate: 115200
- Parity bit: None
- Data bit: 8
- Stop bit: 1

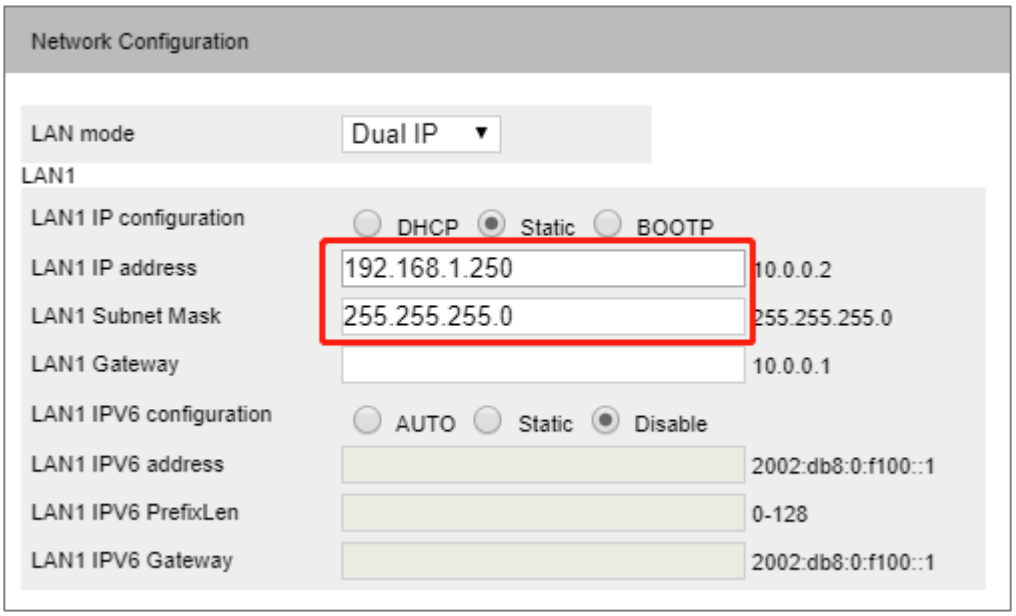
## Operation Steps

**Step 1** Configure the IP address of the serial server.

1 Login in the Web configuration interface, choose "Network Setting".

2 In the "Network port 1" area, select "Network port 1 Configuration" as "Manual Setting", and enter the corresponding network address information such as "Network port 1 Address", "Network port 1 Subnet Mask" and "Network port 1 Gateway".

3 Other parameters remain the default, click "Submit".

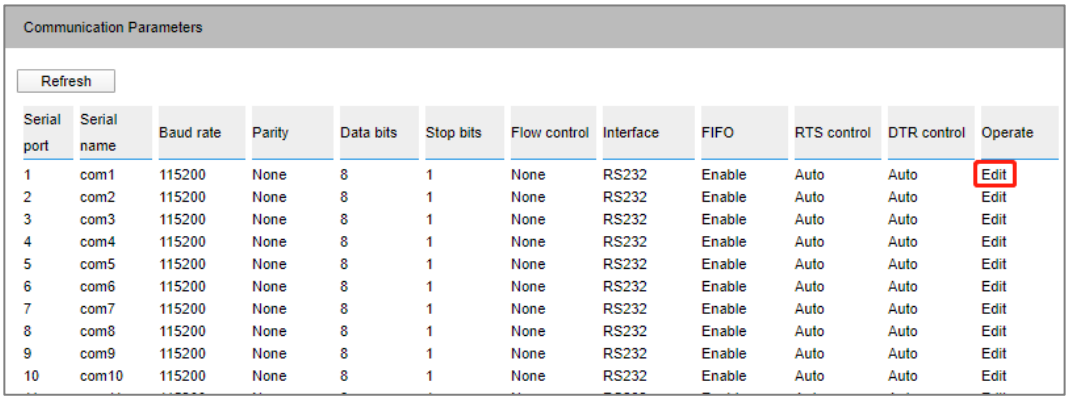



**Step 2** Configure the serial port parameter information.

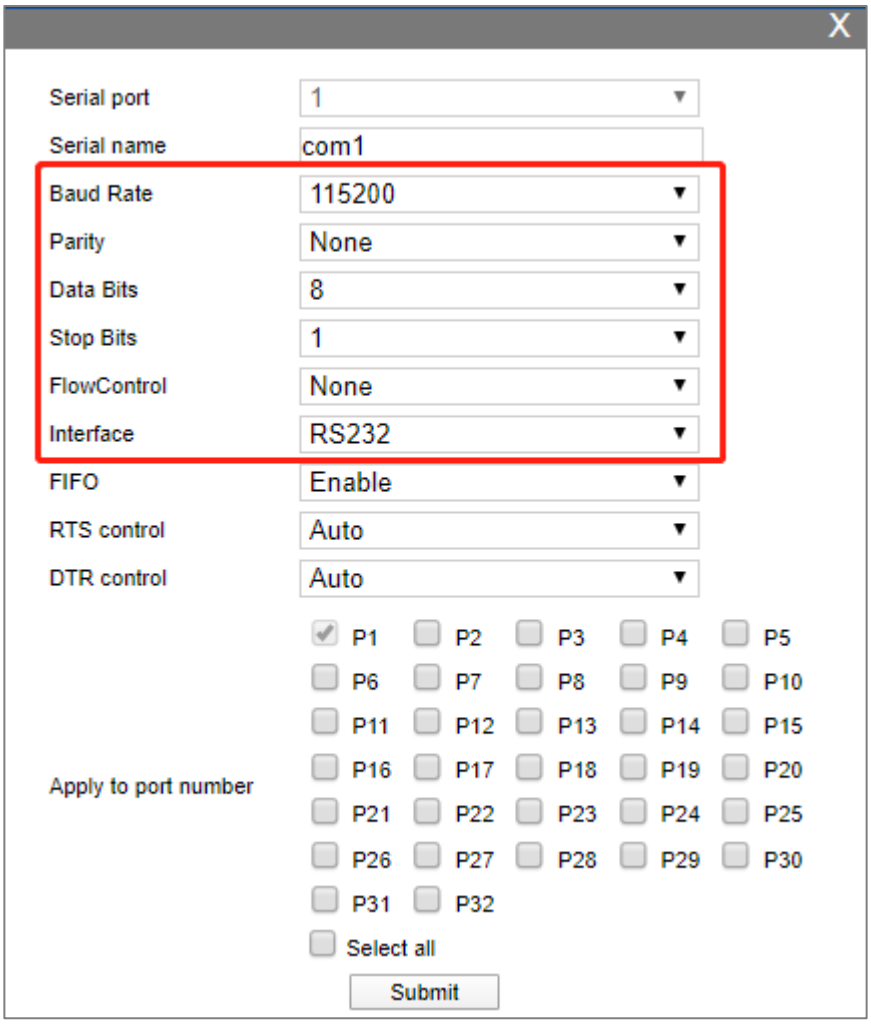
1 Log in to the Web configuration interface and select "Serial Settings".

2 In the serial port 1 entry, click the "Edit" button under the operation, as shown in the following figure.


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3 In the “Edit” window, set “baud rate”, “parity bit”, “data bit” and “stop bit” respectively, as shown in the following figure.




4 Other parameters remain the default, click "Submit".

**Step 3** Configure the working mode of the serial server.

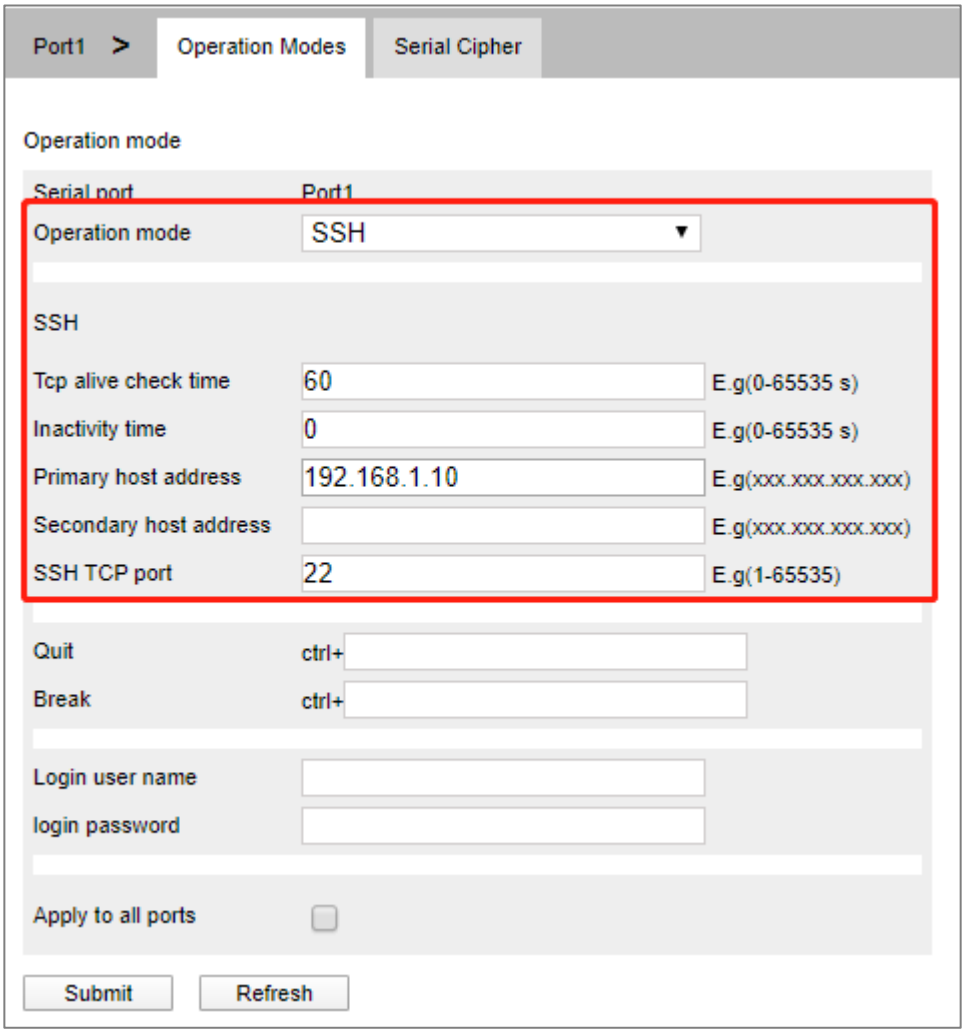
1 Click the “Operation Mode” drop-down list and select “SSH”.

2 Enter "192.168.1.10” of server IP address in the main host address text box.


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3 Enter “22” in local port number in the "SSH TCP port" text box.

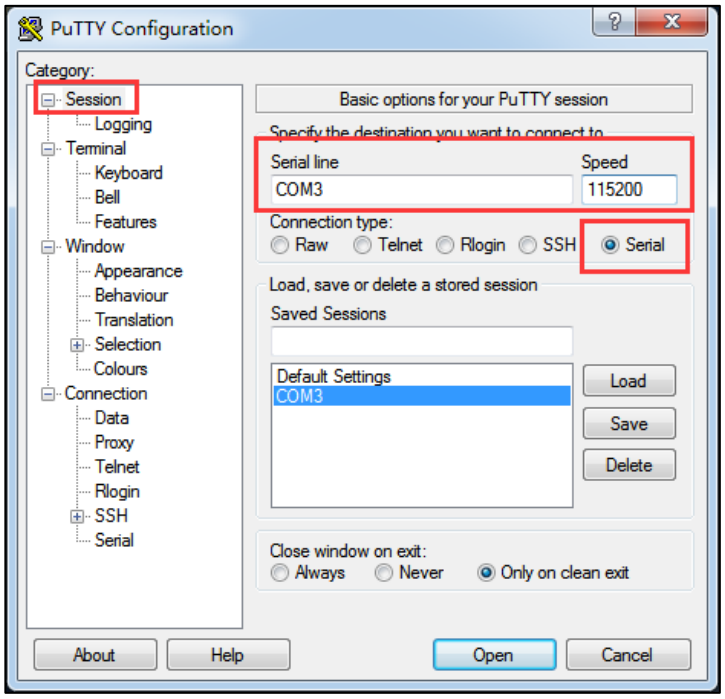
4 Other parameters remain the default, click "Submit".




**Step 4** Run the third party software PuTTY on a PC to test the communication between the host PC and the server.

1 Install and run the PuTTY software.


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2 Click "Session" and select "serial" serial port communication in the input field of "Connection type";

3 In the "Serial line" text box, enter the local serial port number for PC to connect with serial port server;

4 Enter "115200" baud rate in the "Speed" text box;

5 Click “Open” button to open the COM session interface and start accessing the server.




**Step 5** End.

# 11.17Reverse SSH Mode

## Background Introduction

The PC connects to the serial port server through Ethernet to access the server device or Console port connected under the serial port.

Assume the IP address of the serial port server is 192.168.1.250.

The serial port information is as follows:

- Baud rate: 115200
- Parity bit: None


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- Data bit: 8
- Stop bit: 1

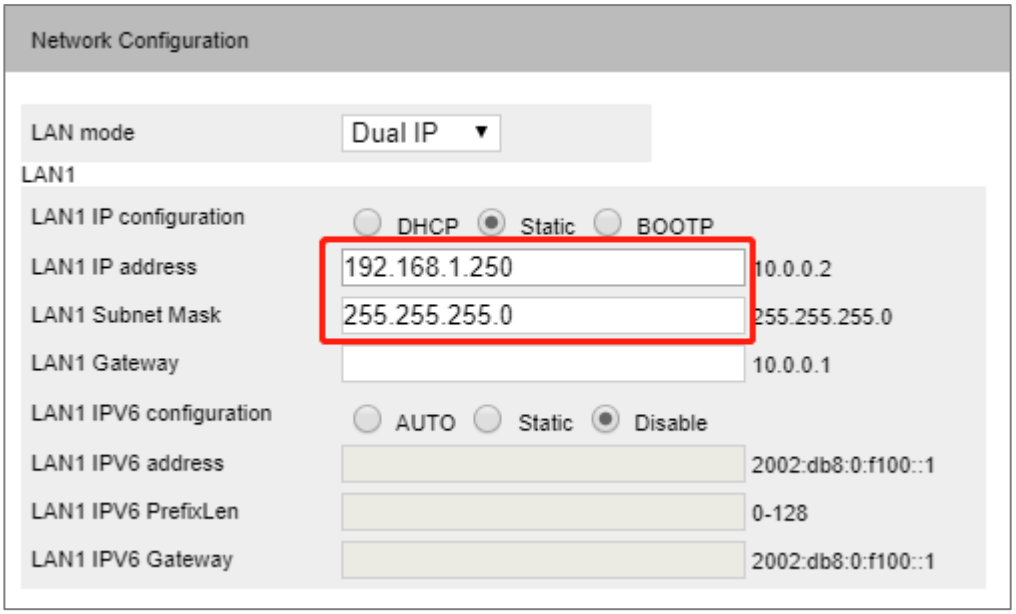
## Operation Steps

**Step 1** Configure the IP address of the serial server.

1 Login in the Web configuration interface, choose "Network Setting".

2 In the "Network port 1" area, select "Network port 1 Configuration" as "Manual Setting", and enter the corresponding network address information such as "Network port 1 Address", "Network port 1 Subnet Mask" and "Network port 1 Gateway".

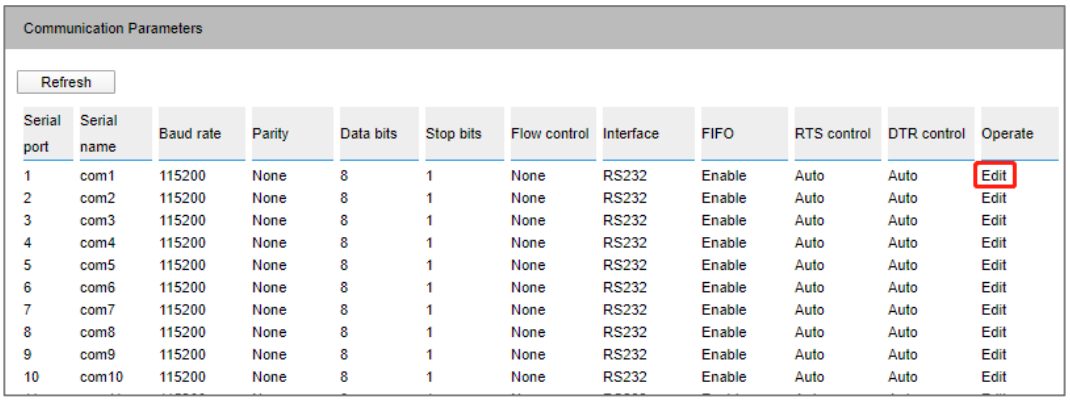
3 Other parameters remain the default, click "Submit".




**Step 2** Configure the serial port parameter information.

1 Log in to the Web configuration interface and select "Serial Settings".

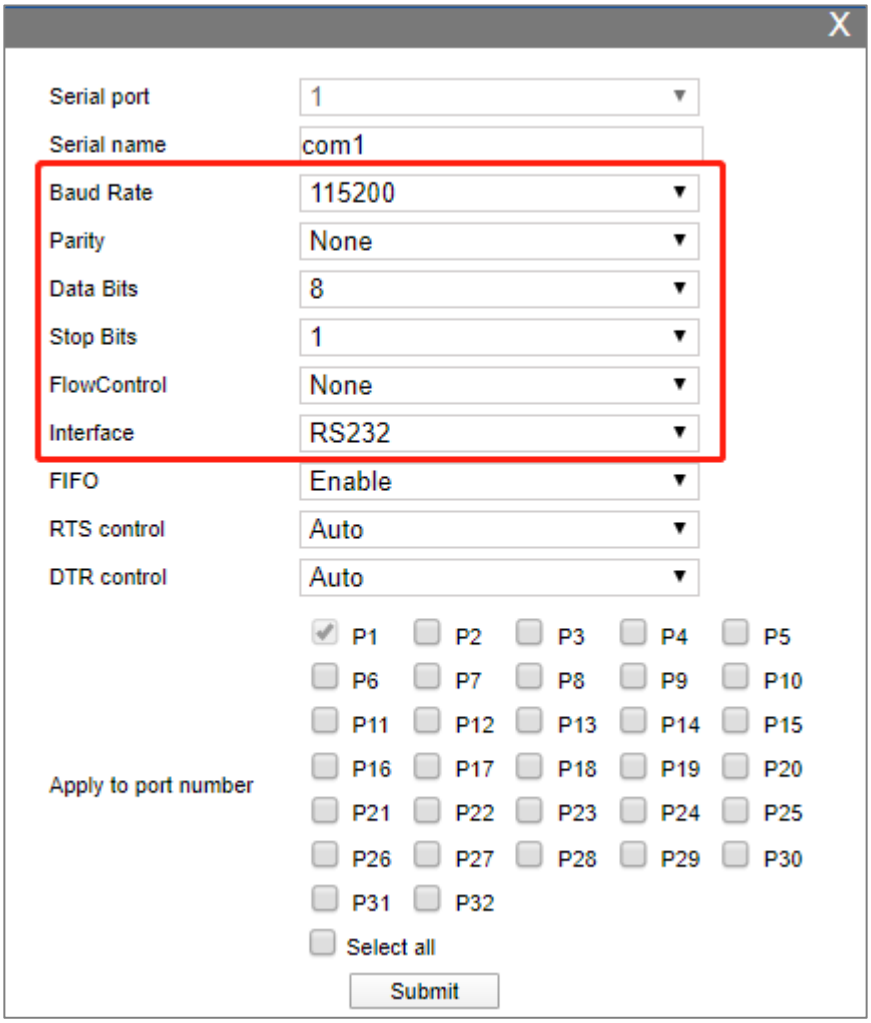
2 In the serial port 1 entry, click the "Edit" button under the operation, as shown in the following figure.





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3 In the “Edit” window, set “baud rate”, “parity bit”, “data bit” and “stop bit” respectively, as shown in the following figure.




4 Other parameters remain the default, click "Submit".

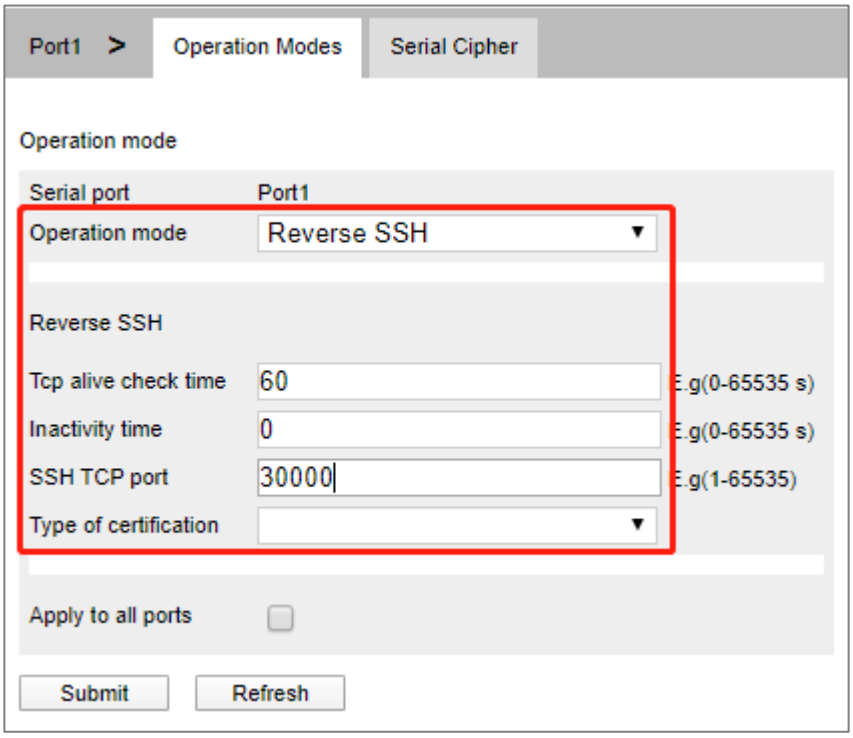
**Step 3** Configure the working mode of the serial server.

1 Click the "work mode" drop-down list box and select “Reverse SSH”.

2 Enter the local port number "30000" in the "SSH TCP port" text box.

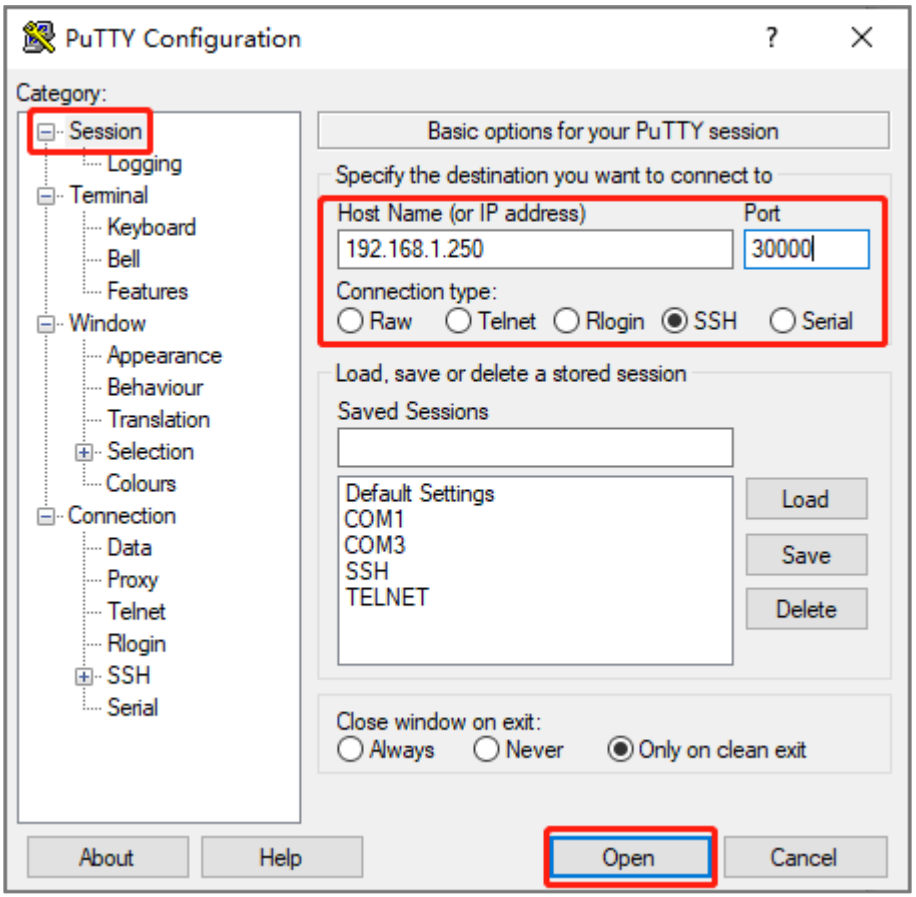
3 Other parameters remain the default, click "Submit".


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**Step 4** Run the third party software PuTTY on a PC to test the communication between the host PC and the server.

1 Install and run the PuTTY software.





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2 Click “Session” and select “SSH” protocol communication in the "Connection type" input field.

3 Enter the IP address "192.168.1.250" of the serial port server in the "Host Name" text box.

4 Enter the serial Port server listening Port number "30000" in the "Port" text box.

5 Click “Open” button to open the session interface and start accessing the server.




**Step 5** End.


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# 12 Maintenance and Service

Since the date of product delivery, our company will provide three years warranty. According to our company's product specification, during the warranty period, if the product exists any failure or functional operation fails, our company will be free to repair or replace the product. However, the commitments above do not cover damage caused by improper usage, accident, natural disaster, incorrect operation or improper installation.

In order to ensure that consumers benefit from our company's product, consumers can get help and solutions in the following ways:

- Internet Service;
- Call technical support office;
- Product repair or replacement;

## 12.1 Internet Service

More useful information and tips are available via our company website.
Website: http://www.3onedata.com

## 12.2 Service Hotline

Users of our company's products could call technical support office for help. Our company has professional technical engineers to answer your questions and help you solve the product or usage problems ASAP.
Free service hotline: +86-400-880-4496

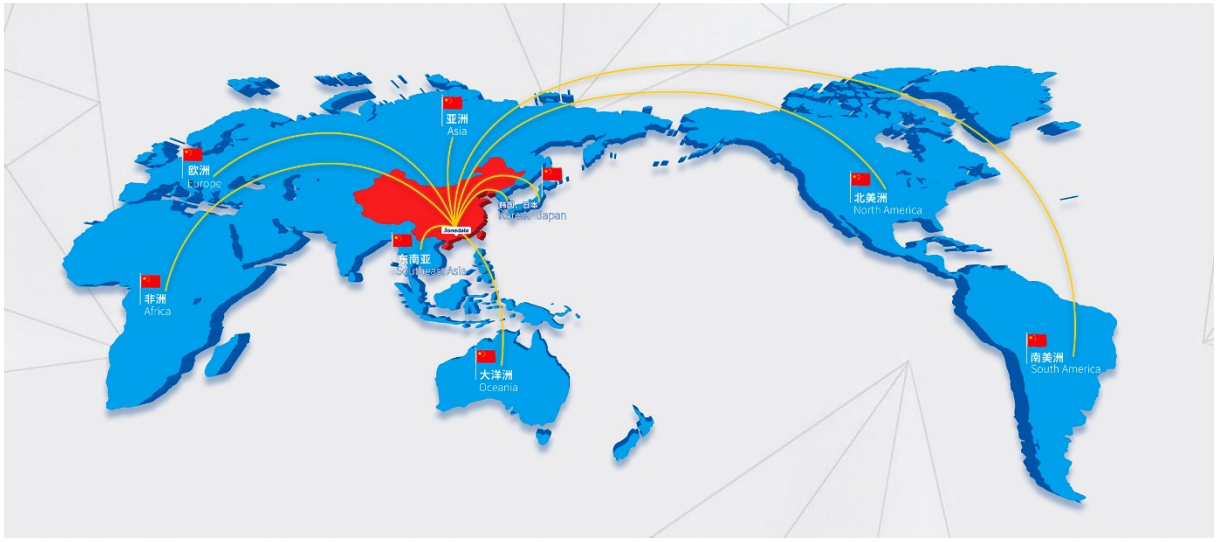

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## 12.3 Product Repair or Replacement

As for the product repair, replacement or return, customers should firstly confirm with the company's technical staff, and then contact the salesmen to solve the problem. According to the company's handling procedure, customers should negotiate with our company's technical staff and salesmen to complete the product maintenance, replacement or return.

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| Technology Support: | tech-support@3onedata.com |
| Service Hotline: | 4008804496 |
| Official Website: | http://www.3onedata.com |