

EX-6100x Series Serial Server WEB User Manual

EX-61001 • EX-61004 • EX-61008



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Preface

Target Audience

This manual is intended for installation personnel and system administrators responsible for installing, configuring, or maintaining networks. This manual assumes that you are familiar with all the transmission and management protocols used in networks.

This manual also assumes that you are familiar with the professional terminology, theoretical principles, practical skills, and specific expertise related to networking equipment, protocols, and interfaces. Additionally, you should have experience working with graphical user interfaces, command-line interfaces, Simple Network Management Protocol (SNMP), and web browsers.

Conventions

This manual uses the following conventions.

GUI Conventions	Description
 Note	Descriptions of operations, providing necessary supplementary information.
 Warning	Reminders of precautions during operations, as improper operations may lead to data loss or device damage.

1 Overview

1.1 Product Introduction

The EX-6100x series provides 1/4/8 RS-232/485/422 serial ports and one 10/100Base-T(x) network interface. It allows for the easy and convenient centralized management of dispersed serial devices and hosts over a network. This series of devices enables bidirectional transparent data transmission between RS-232/422/485 interfaces and Ethernet interfaces, allowing serial devices to immediately gain networking capabilities.

Product Features: Supports dynamic IP (DHCP) and static IP, supports gateways and proxy servers, and can transmit data over the Internet. Provides bidirectional transparent data transmission, enabling serial-to-TCP/IP functionality without requiring any modifications to the existing system. Internally integrates protocols such as ARP, IP, TCP, HTTP, ICMP, SOCKET, and UDP. All programs provide a Chinese interface, with a setup wizard for easy operation.

1.2 Product Features

- Supports 1/4/8 RS-232/485/422 serial ports for remote control functionality;
- Supports one 10/100Base-T(x) Ethernet interface;
- Supports reset button for restoring factory settings;
- Supports baud rates ranging from 300 to 921600 bps;
- Supports MCP and VCOM virtual serial ports;
- Supports protocols such as ARP, IP, ICMP, UDP, TCP, HTTP, DHCP, SNMP, MQTT, MODBUS, and RFC2217;
- Supports multiple Operating Modes, including TCP Server, TCP/UDP Client, Reverse Telnet, Remote Pair Master/Slave, MCP&VCOM, Modbus Server/Client, MQTT, and RFC2217;
- Supports $\pm 4\text{KV}$ anti-static protection for serial ports and 1.5KVAC isolation protection for Ethernet ports;
- Supports a wide operating temperature range of -40°C to 85°C ;

- Supports a working voltage of DC 12-48V;
- Supports web-based firmware upgrades.

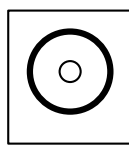
1.3 Product Models

Product Model	Serial port count	RS-232/485/422
EX-61001	1	√
EX-61004	4	√
EX-61008	8	√

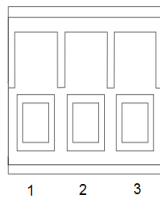
2 Hardware Description

2.1 Power Interface Definition

The device's front panel provides a DC power input and a 3-pin 5.08 power terminal, with a power input range of 12-48VDC. It is recommended to use a power adapter with a DC plug specification of 2.5mm inner diameter and 5.5mm outer diameter. The terminal definition is detailed on the housing silk screen.



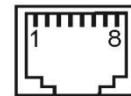
DC



Terminal	Power Interface
1	Power Positive V+
2	Ground (GND)
3	Power Negative V-

2.2 Serial Port Pin Definition (RJ45)

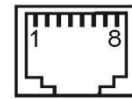
RJ45	RS-232	RS-485	RS-422
1	TXD	A(+)	TXD+
2	RXD	B(-)	TXD-
3			RXD+
4			RXD-
5			
6	GND	GND	GND
7			
8			



2.3 Ethernet Port Pin Definition (RJ45)

The 10/100BaseT(X) Ethernet interface is located on the front panel of the device, with an RJ45 connector. The interface is auto-sensing for speed but can also be fixed. The pin definition is as follows:

RJ45	EIA/TIA 568B	Definition
1	Orange/White	TX+
2	Orange	TX-
3	Green/White	RX+
4	Blue	Data+
5	Blue/White	Data-
6	Green	RX-
7	Brown/White	Data+
8	Brown	Data-

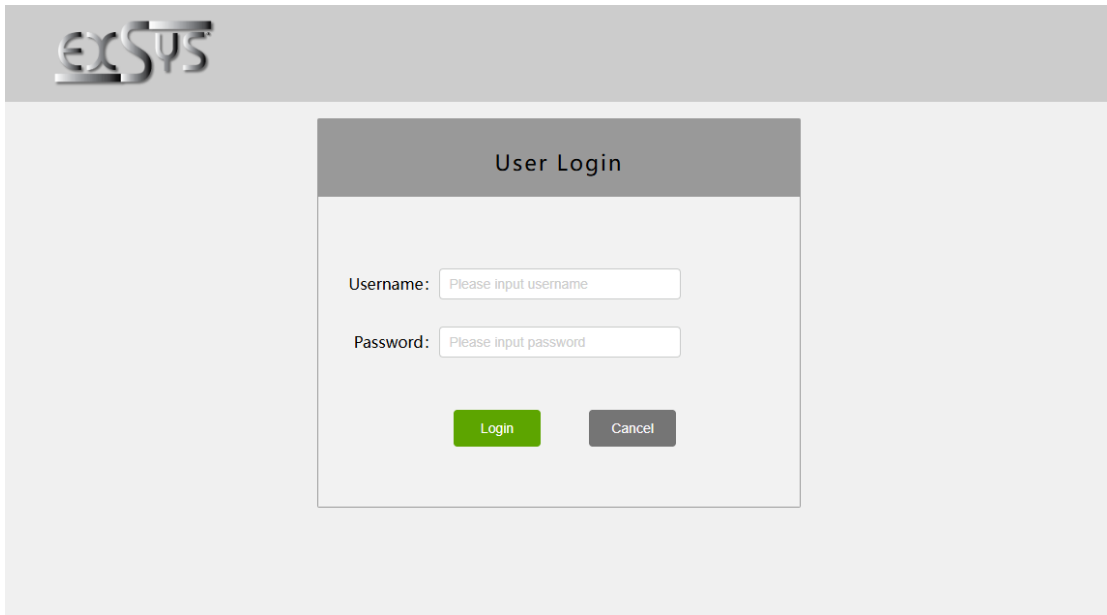


3 Web Page

3.1 Web Page Login

(The following instructions are based on the EX-61001 as an example)

Users can open a web browser and enter the default address of the serial server: `http://192.168.1.125`, then press Enter. A login window will appear as shown below, supporting Chinese and English language switching. Enter the default username: admin and password: admin. Click the <Login> button to view the serial server's system status information.



Note:

When logging into the serial server, the PC must be set to an IP address in the same subnet as the serial server.

3.2 Web Page Description

The web management menu provides six main menu items: System Homepage, System Settings, Serial Port Settings, Operating Modes, Status Query, and Device Management. The details are shown in the table below.

Menu Item	Submenu	Description
System Homepage	System Information	Device Information: Displays device information, etc.
		Hardware Information: Displays hardware version number
		Software Information: Displays software version
		Copyright Information: Displays company-related information
		Time Information: Displays device uptime and system time
System Settings	IP Address	Allows setting the device's IP address and enabling DHCP
	Address Filtering	Allows setting IPv4/IPv6 static and dynamic IP addresses for the device
	User Management	Allows setting up users for the device's serial ports
	SNMP Settings	Allows setting up SNMP and trap functions
	MQTT Settings	MQTT function setting
Serial Port Settings	Serial Port Settings	Serial port type and basic parameter settings
Operating Modes	Operating Modes	Mode selection.TCP Server mode as the default
Status Query	Serial Communication Parameters	Displays basic serial port setting
	Network Connection Status	Displays network connection statu
	Serial Communication Statu	Displays serial port packet statistics

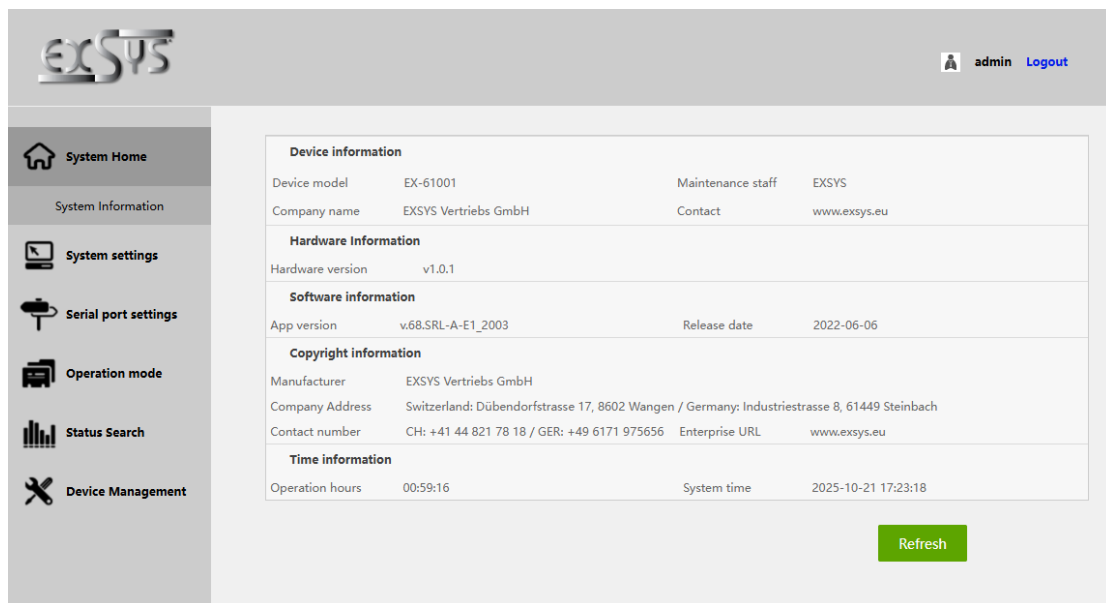
Device Management	Firmware Upgrade	Allows online software updates for the device
	Restore Factory Settin	Allows restoring the device to factory settings
	Port Restart	Allows restarting individual serial ports
	System Restart	Allows restarting the device

4 Basic Settings

4.1 System Home

1.Panel Description

The panel display area intuitively shows the system information of the serial server. The interface is shown below:



2.Keyword Description

Device Model	Device label used by the device
Hardware information	Current hardware version information
Software information	Current software version information
Copyright Informatio	Company name, address, contact information, etc.
System Time	Displays the current PC time

4.2 System Settings

4.2.1 IP Address

1.Panel Description

Users can view and set network interface information and DHCP status, as shown below.

The screenshot displays the EXSYS web interface for network configuration. The sidebar on the left lists various system settings, with 'System settings' currently selected. The main panel, titled 'Network port configuration', allows users to manage network parameters. It includes a checkbox for 'Enable DHCP', and input fields for 'Ethernet IP address', 'Ethernet subnet mask', 'Default gateway', 'Primary DNS', and 'Backup DNS'. The values entered in the fields are 192.168.1.125, 255.255.255.0, 192.168.1.1, 192.168.1.2, and 192.168.1.3 respectively. 'Submit' and 'Cancel' buttons are located at the bottom right of the configuration area.

2.Keyword Description

Enable DHCP	Allows the serial server to automatically obtain an IP address or use a fixed IP address
IP Address	Sets the Ethernet IP address of the serial server
Subnet Mask	Sets the Ethernet subnet mask of the serial server
Gateway	Sets the default gateway of the serial server
Primary DNS	Primary DNS Server
Backup DNS	Secondary DNS Server

4.2.2 Address Filtering

1.Panel Description

Users can view and set address filtering entries, with a maximum of 4 entries, as shown below.

2.Keyword Description

Enable		Enables address filtering. This option must be checked to enable address filtering.
Active NO. x		Default access permission options: deny or allow access.
Starting Address	IP	Network start address that can be accessed.
Terminate Address	IP	Network end address that can be accessed.

4.2.3 User Management

1.Panel Description

Users can change passwords, as shown below:

Username	Permission	Operation
admin	adminstor	Modify

[Add User](#)

Change password

Username:

New password: (4~6 digits: composed of a-z,A-Z or 0-9)

[Confirm](#) [Cancel](#)

Add User

Username: (4~6 digits: composed of a-z,A-Z or 0-9)

Password: (4~6 digits: composed of a-z,A-Z or 0-9)

Confirm Password: (4~6 digits: composed of a-z,A-Z or 0-9)

Permission:

[Submit](#) [Cancel](#)

2.Keyword Description

New Password	New login password for the admin user.
Username	New user, with a length of 4-16 characters. Can be lowercase letters a-z, uppercase letters A-Z, or numbers 0-9.
Password	New user password, with a length of 4-16 characters. Can be lowercase letters a-z, uppercase letters A-Z, or numbers 0-9.
Confirm Password	Confirms the new login password.
Permission	User: Can set device parameters, except for adding users

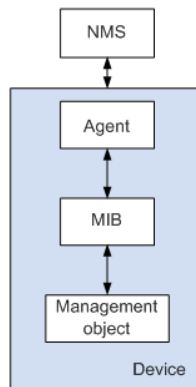
4.2.4 SNMP Setting

Simple Network Management Protocol (SNMP) is a widely used network management standard protocol for TCP/IP networks. SNMP provides a method for managing devices through a central computer running network management software (i.e., a network management station). SNMP has the following characteristics:

Simple: SNMP uses a polling mechanism, providing a basic set of functions suitable for small, fast, and low-cost environments. SNMP uses UDP packets as the carrier, making it supported by the vast majority of devices. Powerful: SNMP aims to ensure that management information is transmitted between any two points, allowing administrators to retrieve information, make changes, and troubleshoot from any node on the network. The SNMP protocol has three main versions: SNMPv1, SNMPv2c, and SNMPv3. The SNMP system consists of four parts: Network Management System (NMS), Agent process, Managed Object, and Management Information Base (MIB).

The NMS acts as the network management center, managing devices. Each managed device contains an Agent process residing on the device, MIB, and multiple managed objects. The NMS interacts with the Agent running on the managed device, and the Agent completes the NMS's instructions by operating the MIB on the device.

SNMP Management Model



Agent

The Agent is a proxy process in the managed device, used to maintain the information data of the managed device and respond to requests from the NMS, reporting management data to the requesting NMS. After receiving the request information from the NMS, the Agent completes the corresponding instructions through the MIB table and responds with the operation results to the NMS. When the device fails or other events occur, the device will actively send information to the NMS through the Agent to report the current status changes of the device.

Managed Object

A Managed Object refers to the managed object. Each device may contain multiple managed objects, which can be a piece of hardware in the device (such as an interface board) or some hardware, software (such as a routing protocol), and their configuration parameters.

MIB

The MIB is a database that specifies the variables maintained by the managed device (i.e., the information that can be queried and set by the Agent). The MIB defines a series of attributes of the managed device in the database: the name of the object, the status of the object, the access rights of the object, and the data type of the object. Through the MIB, the following functions can be

completed: The Agent can query the MIB to learn the current status information of the device. The Agent can modify the MIB to set the status parameters of the device.

1.Panel Description

Click on the "System Settings - SNMP Settings" in the navigation tree, as shown below:

The screenshot displays the EXSYS web interface. On the left is a navigation tree with 'System settings' selected. The main panel shows the 'SNMP Trap Settings' configuration. Under 'SNMP Trap Settings', 'Enable SNMP' is checked, 'Trap receiving address' is '192.168.1.100', and 'Community name' is 'public'. Below this, 'System Event Settings' includes four unchecked checkboxes: 'System start-up', 'Login failure', 'IP address change', and 'Administrator change password'. 'Submit' and 'Cancel' buttons are located at the bottom right of the settings area.

2.Keyword Description

Enable SNMP	Check to enable the Simple Network Management Protocol.
Trap receiver address	Set the Trap server IP address
Community Name	Set the community name for the network management protocol.
System Startup	Check to enable sending startup event signals.
Login Failure	Check to enable sending login failure event signals.
IP Address Change	Check to enable sending IP address change event signals.
Administrator change password	Check to enable sending admin user information modification event signals.

4.2.5 MQTT Setting

1.Panel Description

This interface allows users to directly view the system log or download it to local storage for viewing. The interface is shown below:

The screenshot shows the EXSYS web interface for MQTT settings. The top header includes the EXSYS logo and a user menu with 'admin' and 'Logout'. The left sidebar contains navigation links: System Home, System settings (selected), Ip Address Settings, Address Filter, User Management, SNMP Settings, MQTT Settings, Serial port settings, Operation mode, Status Search, and Device Management. The main content area is titled 'MQTT Settings' and contains the following fields:

- Enable MQTT: ☒
- Server address:
- Server port:
- MQTT username:
- MQTT password:
- Uplink device ID:
- Upside theme:
- Downlink device ID:
- Downside theme:

At the bottom right of the form are 'Submit' and 'Cancel' buttons.

2.Keyword Description

Server Address	Sets the server address.
Server Port	Sets the server port.
MQTT Username	Username for accessing the MQTT server.
MQTT Password	Password for accessing the MQTT server.
Device ID	Sets the device ID.
Uplink theme	Sets the publish topic.
Downlink theme	Sets the subscribe topic.

4.3 Serial Port Settings

1.Panel Description

This interface allows users to set the communication parameters for different serial ports on the serial server. The interface is shown below:

The screenshot displays the 'Serial port settings' web interface. On the left is a sidebar with icons and labels for 'System Home', 'System settings', 'Serial port settings' (highlighted), 'Operation mode', 'Status Search', and 'Device Management'. The main panel is titled 'Serial port settings' and contains two main configuration sections. The first section, 'Serial Port Parameter', includes: 'Alias' (text input with 'serial1' and a range note of 0-20 characters), 'Interface type' (dropdown menu showing 'RS232'), 'Baud rate' (dropdown menu showing '115200'), 'Data bit' (dropdown menu showing '8'), 'Parity check' (dropdown menu showing 'none'), 'Stop bit' (dropdown menu showing '1'), and 'RST Control' (dropdown menu showing 'Auto'). The second section, 'Data Packaging Settings', includes: 'Interval time' (text input with '0' and a range note of 0-5000 milliseconds), 'Packing length' (text input with '0' and a range note of 0-1000 byte), 'Delimiter enabling' (checkbox, currently unchecked), 'Delimiter' (text input with '0x00' and a range note of 0-0xff), and 'Delimiter handling' (dropdown menu showing 'Discard'). At the bottom right of the form are 'Submit' and 'Cancel' buttons.

2.Keyword Description

Alias	Set the alias for the serial port on the serial server.
Interface	Serial port type (including RS232/485/422).
Baud Rate	Serial port baud rate 300-921600, supports custom values (should match the baud rate of the connected device).
Data Bits	Data bits 5-8 (default is 8, should match the connected device).
Parity Bit	Parity bit (including None, Even, Odd, default is N, should match the connected device).
Stop Bit	Stop bits 1-2 (default is 1, should match the connected device).
RST Control	Optional None, XON/XOFF, CTS/RTS, default is Auto.
Interval time	Data packing interval time, the delay time within the packing rule.

Packing Length	Data packing length. If the serial port receives a data frame smaller than this setting, it will wait for the interval time to see if more data follows.
Delimiter Enable	When enabled, the packing length setting will be invalid.
Delimiter	Set the delimiter code for transmitted data (range 0-0xFF). After the serial port receives a data frame, it will use this character as the separation point to split the data.
Delimiter Handling	Default is discard, optional to retain.

4.4 Operation Modes

4.4.1 MCP&VCOM Mode

1.Panel Description

TCP/IP virtual serial port mode works in a Windows system environment. Through the driver, the ports on the serial server are mapped to virtual COM ports on the local host, allowing upper-layer software originally based on COM ports to operate without any modifications, just like using a local real COM port. The driver can support up to COM256. Each independent port can support multiple sessions, making monitoring of serial devices more flexible and convenient. Multiple connection resources can also be used for connection backup. The interface is shown below:

EXSYS

admin Logout

System Home

System settings

Serial port settings

Operation mode

Status Search

Device Management

Operation mode

Basic Settings

Operating mode: MCP&VCOM

Command protocol compatibility: none

Data protocol conversion: Transparent transmission

Pattern confirmation: VCOM Mode

Data port: 966

Command port: 967

TCP preservation time: 10 (0-120 minutes)

Notice: To prevent network port conflicts, multiple serial ports of the device cannot be configuration in MCP mode and VCOM mode at the same time.

Submit Cancel

2.Keyword Description

Operating Mode	Selected Operating Mode.
Command Protocol Compatibility	No other compatible protocols currently.
Data Protocol Conversion	Currently only supports transparent transmission.
Pattern confirmation	MCP Mode or VCOM Mode can be selected.
TCP preservation Time	Sets the TCP connection keep-alive time. After the connection is established, the device will send keep-alive probe packets at this interval to detect if the connection is still active.

4.4.2 TCP Server Mode

1.Panel Description

In TCP server mode, the serial server is assigned an IP port number and passively waits for a host to connect. When the host initiates a connection request and establishes a connection with the serial server, the host can then perform bidirectional transparent data transmission with the serial port over the network. TCP server mode supports up to 8 simultaneous session connections, allowing multiple hosts to read or send Ethernet data to a single serial device. The interface is shown below:

EXSYS

admin Logout

System Home

System settings

Serial port settings

Operation mode

Status Search

Device Management

Operation mode

Basic Settings

Operating mode: TCP Server Mode

Command protocol compatibility: none

Data protocol conversion: Transparent transmission

Listening port: 10010 (0-65534)

Maximum number of connection: 8 (0-8)

TCP preservation time: 10 (0-120 minutes)

Resting time: 0 (0-120 minutes, 0 is to turn off this feature)

Submit Cancel

2.Keyword Description

Operating Mode	Selected Operating Mode.
Command Protocol Compatibility	No other compatible protocols currently.
Data Protocol Conversion	Currently only supports transparent transmission.
Listening Port	Default is 10010, range is 0-65534.
Maximum number of Connection	Default is 8, range is 0-8.
TCP preservation Time	Sets the TCP connection keep-alive time. After the connection is established, the device will send keep-alive probe packets at this interval to detect if the connection is still active.
Resting time	If there is no data interaction during resting time, the connection will be disconnection.

4.4.3 TCP Client Mode

1.Panel Description

In TCP client mode, the serial server can actively establish a network connection with a user-specified host when serial data arrives. After the data transmission is complete, the serial server will automatically close the network connection based on parameters such as keep-alive time/idle timeout. Similarly, TCP client mode supports up to 8 simultaneous session connections, allowing multiple hosts to read or send Ethernet data to a single serial device. The interface is shown below:

The screenshot displays the EXSYS web interface for configuring the TCP Client Mode. The sidebar on the left includes links for System Home, System settings, Serial port settings, Operation mode (which is the active tab), Status Search, and Device Management. The main panel, titled 'Operation mode', contains a 'Basic Settings' section. Here, the 'Operating mode' is selected as 'TCP Client Mode'. The 'Command protocol compatibility' is set to 'none', and the 'Data protocol conversion' is set to 'Transparent transmission'. The 'TCP preservation time' is configured to 10 minutes. Below these settings, there is a table to configure up to 8 simultaneous connections. Each row in the table has input fields for 'Target IP address', 'Target port', and 'Local Port', along with a 'Reset' checkbox. The 'Submit' button is highlighted in green, and a 'Cancel' button is also present.

2.Keyword Description

Operating Mode	Selected Operating Mode.
Command Protocol Compatibility	No other compatible protocols currently.
Data Protocol Conversion	Currently only supports transparent transmission.
TCP preservation Time	Sets the TCP connection keep-alive time. After the connection is established, the device will send keep-alive probe packets at this interval to detect if the connection is still active.
Destination IP Address/Port	Sets the IP address and port number of the target host to connect to.

4.4.4 UDP Client Mode

1.Panel Description

In UDP Client mode, the interface is shown below:

2.Keyword Description

Operating Mode	Selected Operating Mode.
Command Protocol Compatibility	No other compatible protocols currently.
Data Protocol Conversion	Currently only supports transparent transmission.
Destination IP Address/Port	Sets the IP address and port number of the target host to connect to.

4.4.5 Reverse Telnet Mode

In reverse Telnet mode, the Telnet session is initiated from the network. The serial device waits for the network host to initiate the connection. Typically, reverse Telnet mode is used in console server applications where a network host Telnets to the device's console port for configuration or maintenance. The TCP server is similar in that it involves the serial device acting as the server.



1.Panel Description

The reverse Telnet mode interface is shown below:

EXSYS

admin Logout

System Home

System settings

Serial port settings

Operation mode

Status Search

Device Management

Operation mode

Basic Settings

Operating mode: Reverse Telnet Mode

Command protocol compatibility: none

Data protocol conversion: Transparent transmission

Convert CR_LF: CR

Local TCP Port: 10010 0-65535

TCP preservation time: 0 (0-120 minutes)

Resting time: 0 (0-120 minutes, 0 is to turn off this feature)

Submit Cancel

2.Keyword Description

Operating Mode	Selected Operating Mode.
Command Protocol Compatibility	No other compatible protocols currently.
Data Protocol Conversion	Currently only supports transparent transmission.

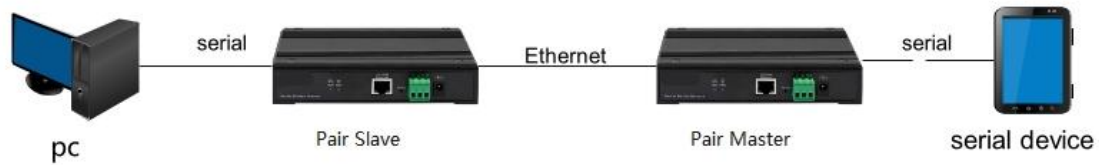
TCP preservation Timee	Sets the TCP connection keep-alive time. After the connection is established, the device will send keep-alive probe packets at this interval to detect if the connection is still active.
Local TCP Port	Sets the local port number.
Convert CR-LF	[cr] means the server receives a "carriage return" from the serial port and transmits it as-is to the Ethernet; [lf] means the server receives a "carriage return" from the serial port and converts it to a "line feed" before transmitting it to the Ethernet; [cr-lf] means the server receives a "carriage return" from the serial port and converts it to a "carriage return" and "line feed" before transmitting it to the Ethernet.
Resting time	If there is no data interaction during resting time,the connection will be disconnection.

3.Mode Usage Instructions

1. Set the mode to reverse Telnet mode and configure it to RS232.
2. Connect the serial port of the serial server to the console port using an RS232 cable.
3. On Windows, open "Start - Run - cmd", and in the command prompt, enter `telnet <serial server IP> 10010` (e.g., telnet 192.168.1.125 10010).
4. After entering the device's console port, if the messages are not displayed correctly, you may need to adjust the CR-LF mapping on the serial server.

4.4.6 Remote Pair Master and Remote Pair Slave Mode

1.Panel Description



The Remote Pair Slave mode is used in conjunction with the Remote Pair Master mode, requiring two serial server devices to work together to overcome the distance limitations of serial data transmission. In this mode, the two serial servers establish a network connection with each other over Ethernet and transparently transmit data from their respective serial ports to each other.

In Remote Pair Slave mode, the serial server acts as the slave device, operating in passive mode, listening on a user-specified port, and waiting for a connection. In Remote Pair Master mode, the serial server acts as the master device, operating in active mode, actively connecting to the passive mode serial server based on the user-set IP address and port. The destination address is the IP address of the slave device, and the destination port is the listening port of the slave device. The interface is shown below:

EXSYS

admin Logout

System Home

System settings

Serial port settings

Operation mode

Status Search

Device Management

Operation mode

Basic Settings

Operating mode: Remote Pair Master Mode

Command protocol compatibility: none

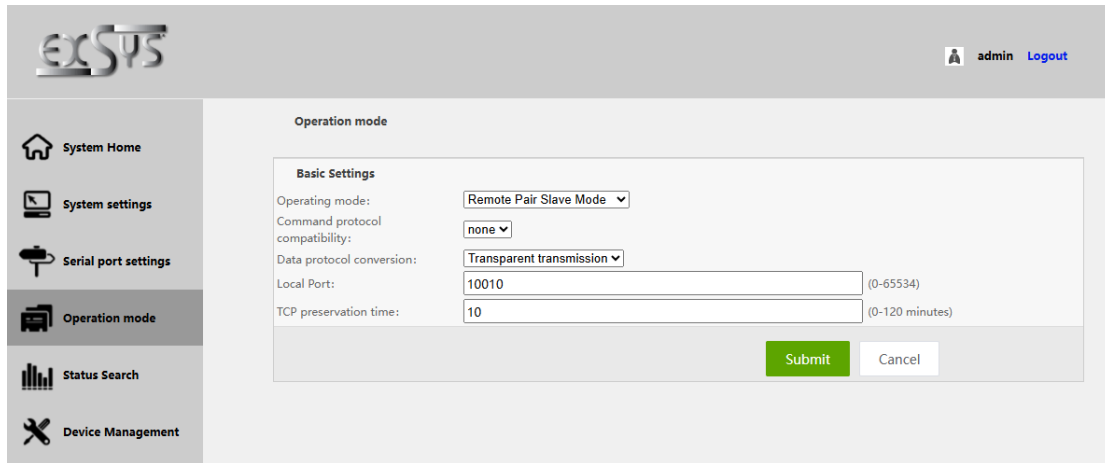
Data protocol conversion: Transparent transmission

Target IP address: 0.0.0.0

Target port: 0 (0-65534)

TCP preservation time: 10 (0-120 minutes)

Submit Cancel



EXSYS

admin Logout

System Home

System settings

Serial port settings

Operation mode

Status Search

Device Management

Operation mode

Basic Settings

Operating mode: Remote Pair Slave Mode

Command protocol compatibility: none

Data protocol conversion: Transparent transmission

Local Port: 10010 (0-65534)

TCP preservation time: 10 (0-120 minutes)

Submit Cancel

2.Keyword Description

Operating Mode	Selected Operating Mode.
Command Protocol Compatibility	No other compatible protocols currently.
Data Protocol Conversion	Currently only supports transparent transmission.
TCP preservation Timee	Sets the TCP connection keep-alive time. After the connection is established, the device will send keep-alive probe packets at this interval to detect if the connection is still active.
Local TCP Port	Sets the local port number.

4.4.7 Modbus Server Mode

1.Panel Description

The device is set as a Modbus server, acting as a slave to respond to transaction requests. The interface is shown below:

2.Keyword Description

Operating Mode	Selected Operating Mode.
Command Protocol Compatibility	No other compatible protocols currently.
Data Protocol Conversion	Currently only supports transparent transmission.
Local Port	Default is 10010, range is 0-65534.
Maximum number of Connection	Support 1 only
TCP preservation Time	Sets the TCP connection keep-alive time. After the connection is established, the device will send keep-alive probe packets at this interval to detect if the connection is still active.
Resting time	If there is no data interaction during resting time,the connection will be disconnection.

4.4.8 Modbus Client Mode

1.Panel Description

The device is set as a Modbus client, acting as a master to initiate transaction requests. The interface is shown below:

2.Keyword Description

Operating Mode	Selected Operating Mode.
Command Protocol Compatibility	No other compatible protocols currently.
Data Protocol Conversion	Currently only supports transparent transmission.
TCP preservation Time	Sets the TCP connection keep-alive time. After the connection is established, the device will send keep-alive probe packets at this interval to detect if the connection is still active.
Destination IP Address/Port	Sets the IP address and port number of the target host to connect to.

4.4.9 MQTT Mode

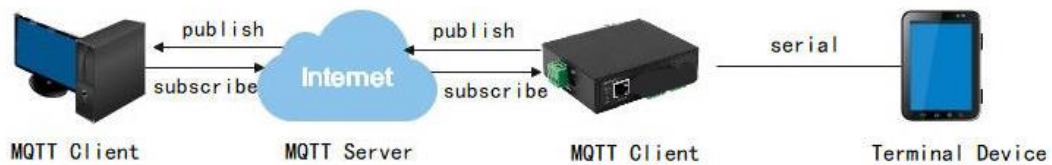
1.Panel Description

This mode is for the MQTT client, which needs to connect to an MQTT server to actively initiate transaction requests. The interface is shown below:

3.Keyword Description

Operating Mode		Selected Operating Mode.
Command Protocol Compatibility		No other compatible protocols currently.
Data Protocol Conversion		Currently only supports transparent transmission.
MQTT enable		Open mqtt function.

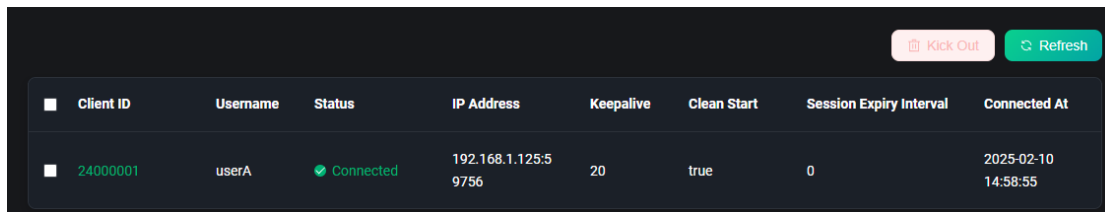
3.Mode Operation Instructions



1. Deploy an MQTT server on the computer.

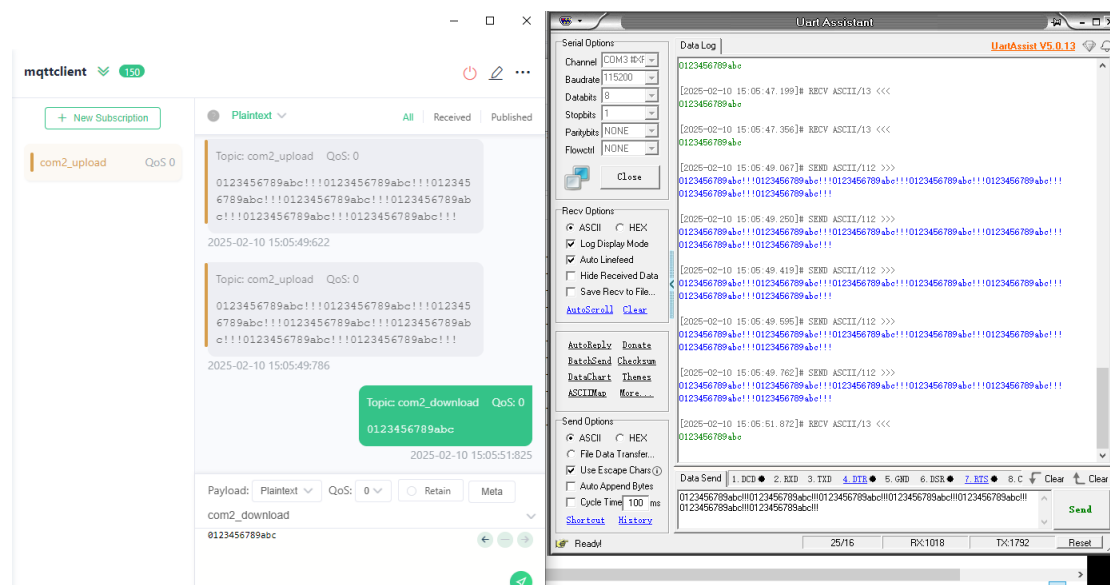
2. The device acts as an MQTT client and needs to set the server's IP address, port number, uplink topic (publish), downlink topic (subscribe), username, and password (if required by the server, no authentication is needed if not required).

3. Set the Operating Mode to MQTT mode and restart the device. The server can see that the client has successfully connected.



Client ID	Username	Status	IP Address	Keepalive	Clean Start	Session Expiry Interval	Connected At
24000001	userA	Connected	192.168.1.125:59756	20	true	0	2025-02-10 14:58:55

4. Open another MQTT client on the PC, connect to the server, and set the publish and subscribe topics to view the data reported by the serial terminal.



The image displays two side-by-side windows. The left window, titled 'mqttclient', shows a subscription for the topic 'com2_upload' with a QoS of 0. A message has been received, displaying a long string of data. The right window, titled 'UartAssistant', shows a data log with received data from the serial terminal, including timestamps and data strings.

4.5 Status Search

4.5.1 Serial Communication Parameters

1.Panel Description

Users can view the current parameter settings of the serial server. The interface is shown below:

The screenshot displays the EXSYS web interface. The top header shows the EXSYS logo and user information: 'admin' and a 'Logout' link. A left sidebar contains navigation icons and labels: 'System Home', 'System settings', 'Serial port settings', 'Operation mode', 'Status Search', 'Serial Communication Parameters', 'Network Connection Status', 'Serial Communication Status', and 'Device Management'. The main content area is titled 'Serial Communication Parameters' and contains a table with the following data:

Serial port	Interface form	Baud rate	Data bit	Stop bit	Parity check	Flow control
1	RS232	115200	8	1	none	Auto

A green 'Refresh' button is located at the bottom right of the table.

4.5.2 Network Connection Status

1.Panel Description

Users can view the network connection status of the serial server. The interface is shown below:

The screenshot displays the EXSYS web interface. The top header shows the EXSYS logo and user information: 'admin' and a 'Logout' link. A left sidebar contains navigation icons and labels: 'System Home', 'System settings', 'Serial port settings', 'Operation mode', 'Status Search', 'Serial Communication Parameters', 'Network Connection Status', 'Serial Communication Status', and 'Device Management'. The main content area is titled 'Network Connection Status' and contains a table with the following data:

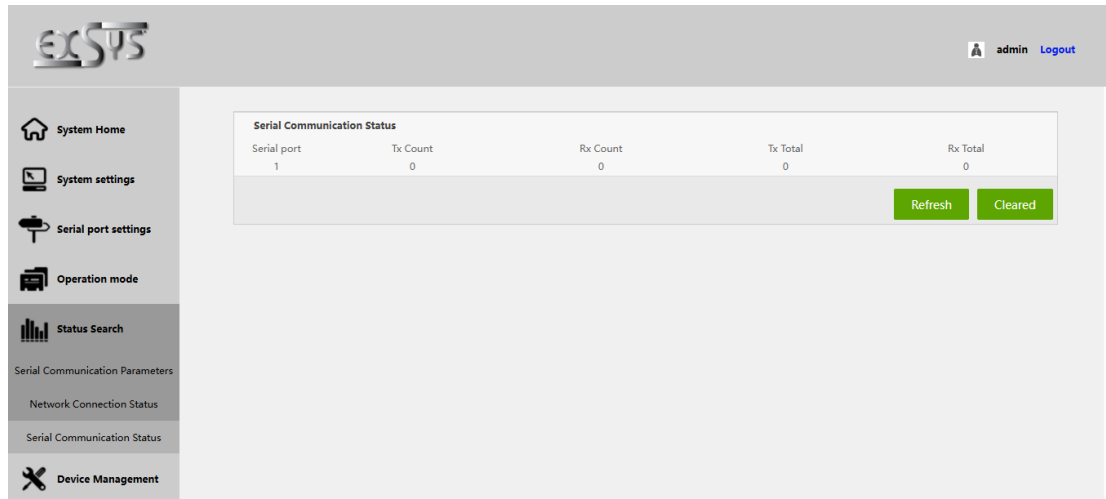
Serial port	Interface form	IP1	IP2	IP3	IP4	IP5	IP6	IP7	IP8
1	TCP Server	0.0.0.0	0.0.0.0	0.0.0.0	0.0.0.0	0.0.0.0	0.0.0.0	0.0.0.0	0.0.0.0

A green 'Refresh' button is located at the bottom right of the table.

4.5.3 Serial Communication Status

1.Panel Description

Users can view the serial communication status of the serial server. The interface is shown below:

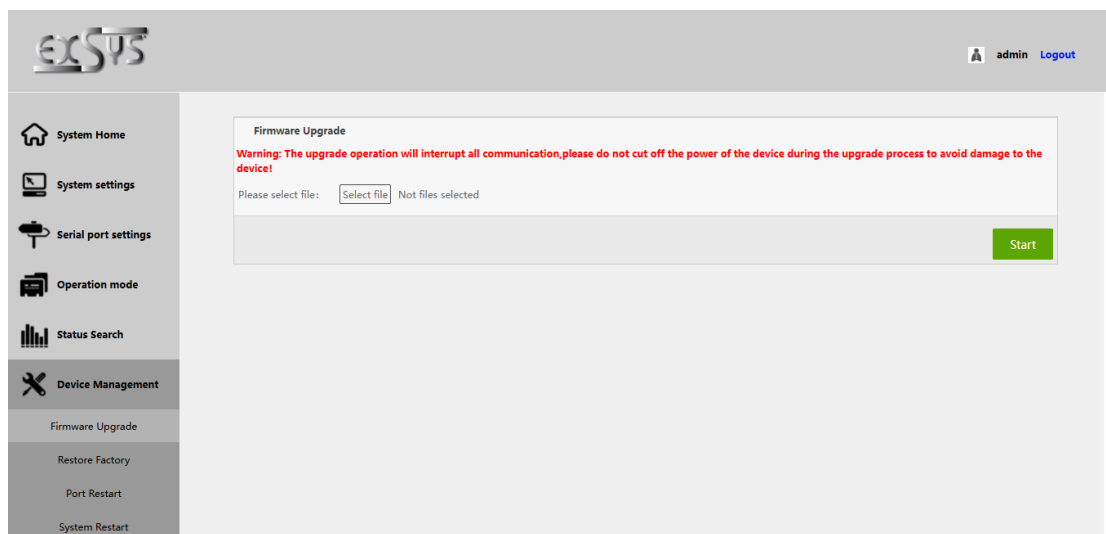


4.6 Device Management

4.6.1 Firmware Upgrade

1.Panel Description

Users can upgrade the device's firmware, as shown below:

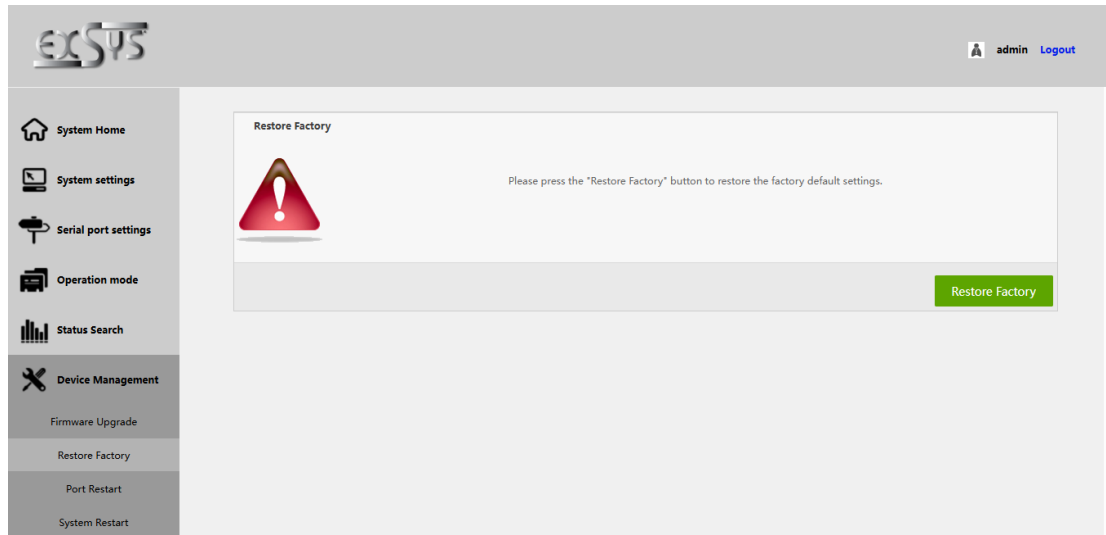


After the upgrade is complete, the device needs to be restarted for the changes to take effect.

4.6.2 Restore Factory

1.Panel Description

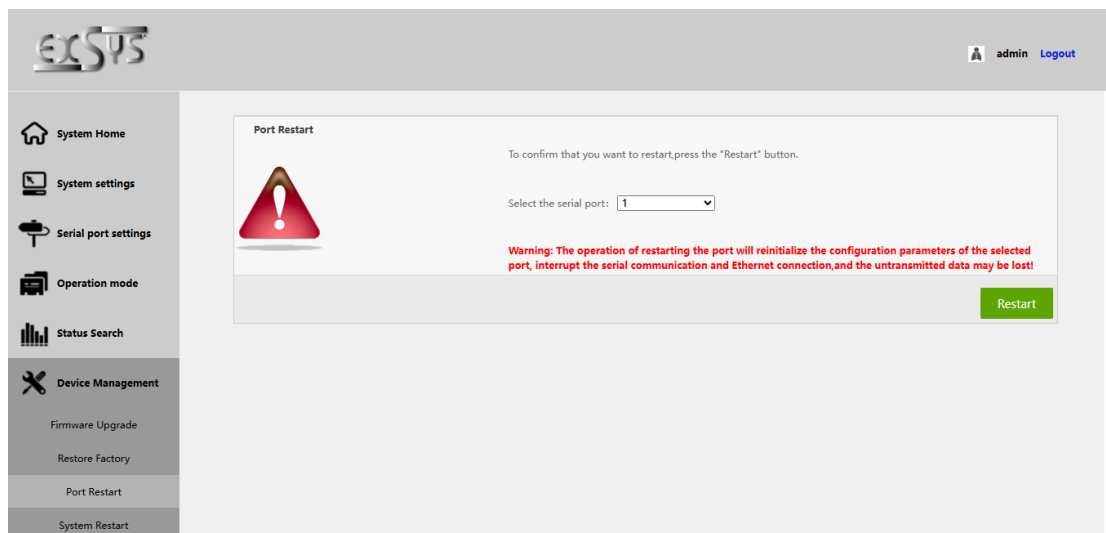
Users can restore the device to factory settings, resetting all parameters to their default state. Click "Restore Factory Settings" to proceed, as shown below:



4.6.3 Port Restart

1.Panel Description

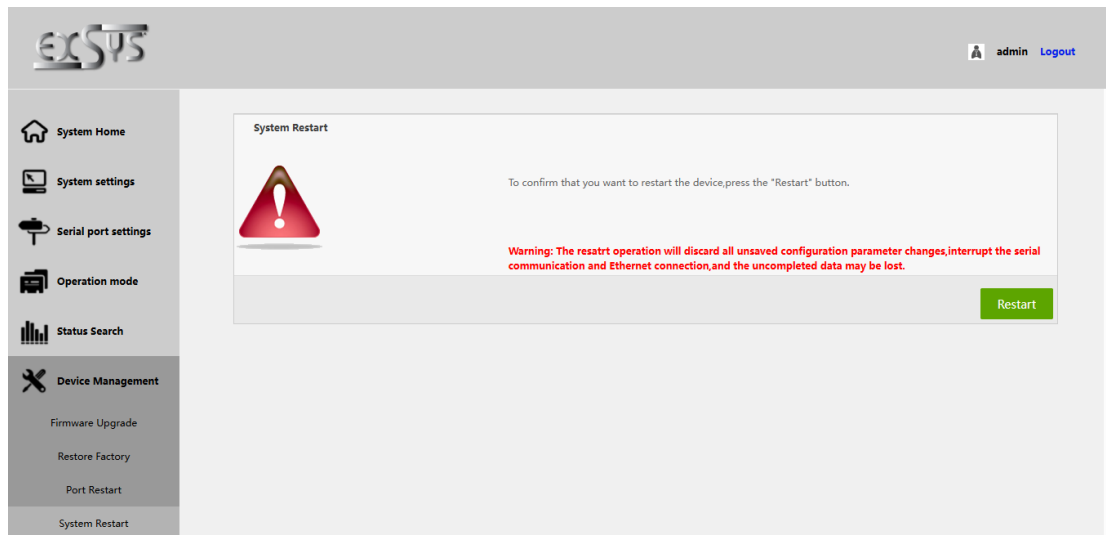
After changing serial port parameters, users need to restart the port or the system for the changes to take effect. Enter the "Port Restart" interface and select the port to restart, as shown below:



4.6.4 System Restart

1.Panel Description

After changing serial port parameters, users need to restart the port or the system for the changes to take effect. Enter the "System Restart" interface, as shown below:



5 Troubleshooting

a) Running search does not find the serial server's IP address

1. First, check if the physical connection is normal, if the network cable (distinguish between crossover and straight-through cables) and power are connected, and observe the power indicator, LAN light, and ACT light (this light does not light up when connected to a 10M network, only when connected to a 100M network).
2. Check if the host's network card is available and if it can communicate with other local hosts.
3. Close all tools and software that can block broadcast packets (do not enable the system's built-in firewall).
4. If the IP address is suddenly lost during configuration through the browser (e.g., due to a power outage), use the console port to reconfigure the IP.

b) Unable to open the serial port

1. Ensure that the network is working normally and that the server can be pinged.
2. Check the working status to see if the port is occupied.
3. If using VCOM mode, check if the "VCOM Utility" configuration is correct.
4. Delete the corresponding COM port from the registry and remap it.

c) Unable to send or receive data

1. Ensure that the serial port can be opened normally.
2. Observe if the system light is flashing quickly or slowly. A fast flash indicates data transmission. If there is no fast flash, check the connection between the serial port and the upper network, and check the wiring of the lower serial port device.

d) Forgot the previously set password

1. Restore factory settings by holding the "reset" button for 5 seconds.

e) Data sent or received is garbled

1. Check if the wiring is correct. Our 485 wiring is 1A+, 2B-.
2. Check if the line distance exceeds the standard distance and the quality of the line (you can also use a line extender or optical isolator).
3. Check if the baud rate setting matches the lower device.
4. Disconnect from the customer's upper software and use a network or serial port debugging tool to see if normal data can be received. If normal data can be received, the issue may be related to the packing mechanism. You can set the packing length and packing wait time in "Port Configure".

f) When the serial communication server is used as a dial-up server, the connection is established normally, but the client PC cannot open the webpage when entering the domain name in the address bar; however, it can open the webpage when entering the IP address in the address bar

1. Check if the DNS set in the serial communication server is valid.

g) When the serial communication server is used as a dial-up server, the connection is established normally, but the client PC often fails to open complex webpages or download large files completely, or even fails

1. Check the [Serial Port] settings in the serial communication server to ensure that the [Flow Control] matches the MODEM's flow control. Typically, the MODEM's flow control is RTS/CTS (hardware flow control).

2. The DCE rate negotiated between MODEMs is too low. Redial.

h) Cannot be connected as a TCP server

1. Confirm that no other PC is connected to the corresponding port of the serial communication server: check [Active TCP Information] in the [Statistics] of the serial communication server.
2. Check if [Authentication] in [Detailed Parameters] is set to [none].

If the above methods do not resolve your issue, please contact the manufacturer.

6 Vcom Software Description

6.1 Remote Devices Management

6.1.1 Device Search

After connecting the device, start the "VCOM" software (as shown in Figure 1), select Remote Devices Management---Add Device, and a search interface for finding the IP address of the device in the network will pop up; as shown in Figure 2, click the "Search" button to search for the IP addresses and basic information of all devices in the network; as shown in Figure 3, then click "Cancel" in Figure 3 and "OK" in Figure 2, and the device information found will be displayed in the VCOM interface, as shown in Figure 4:

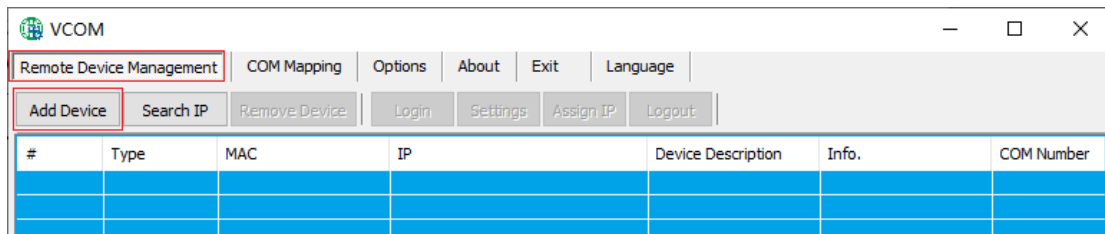


Figure 1

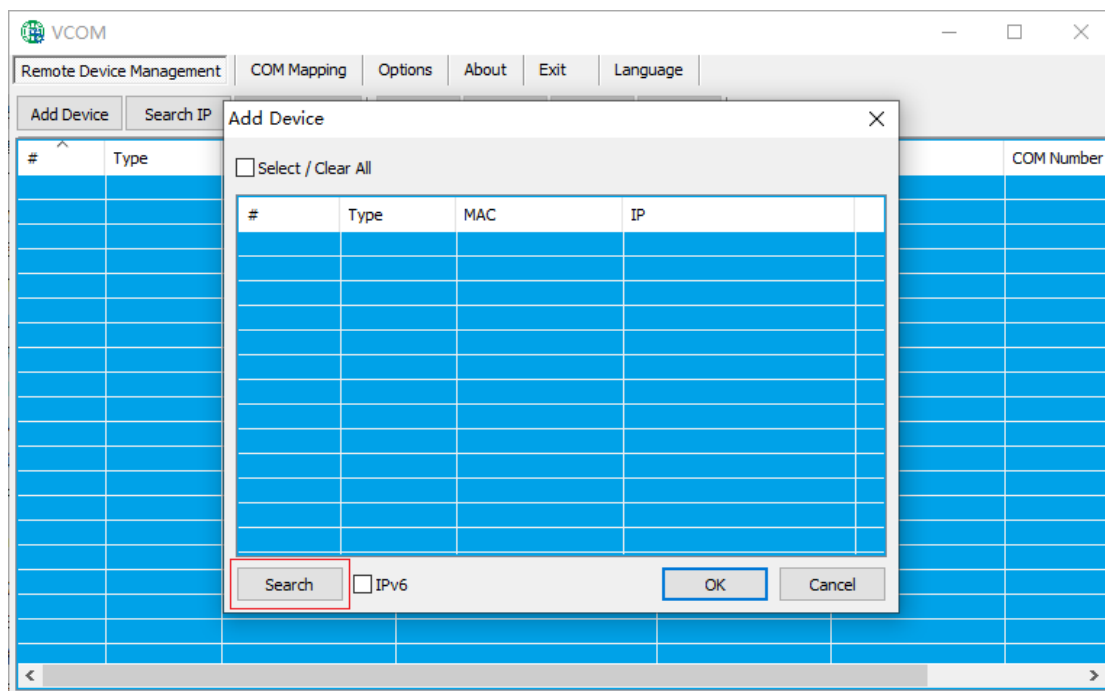


Figure 2

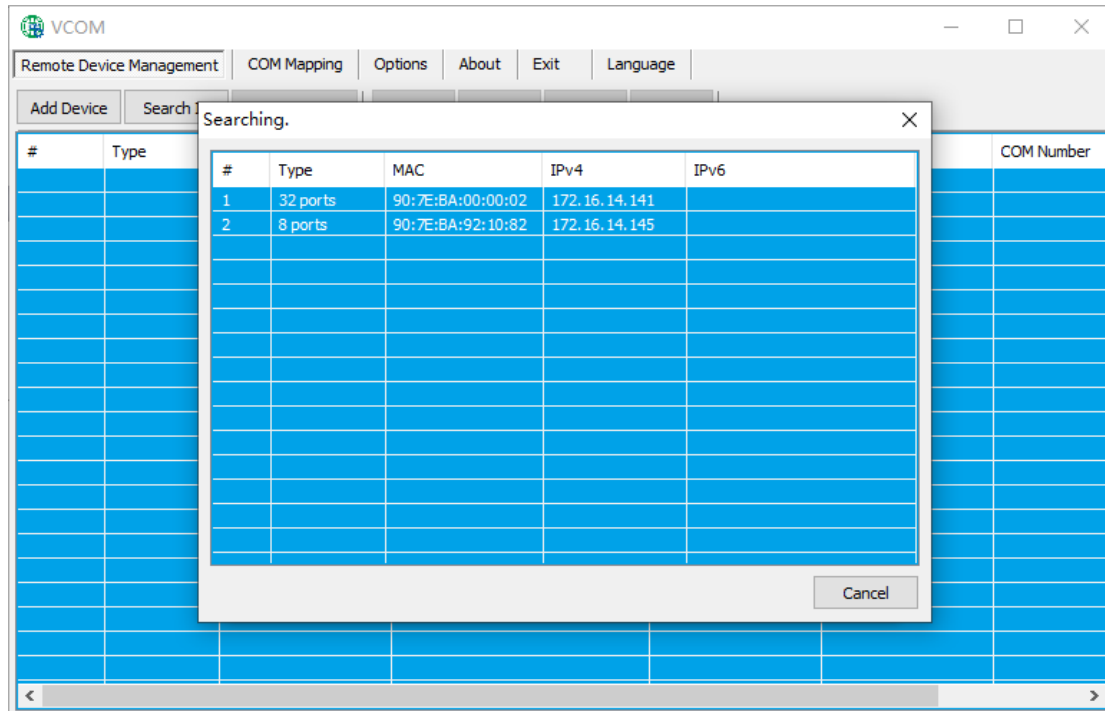


Figure 3

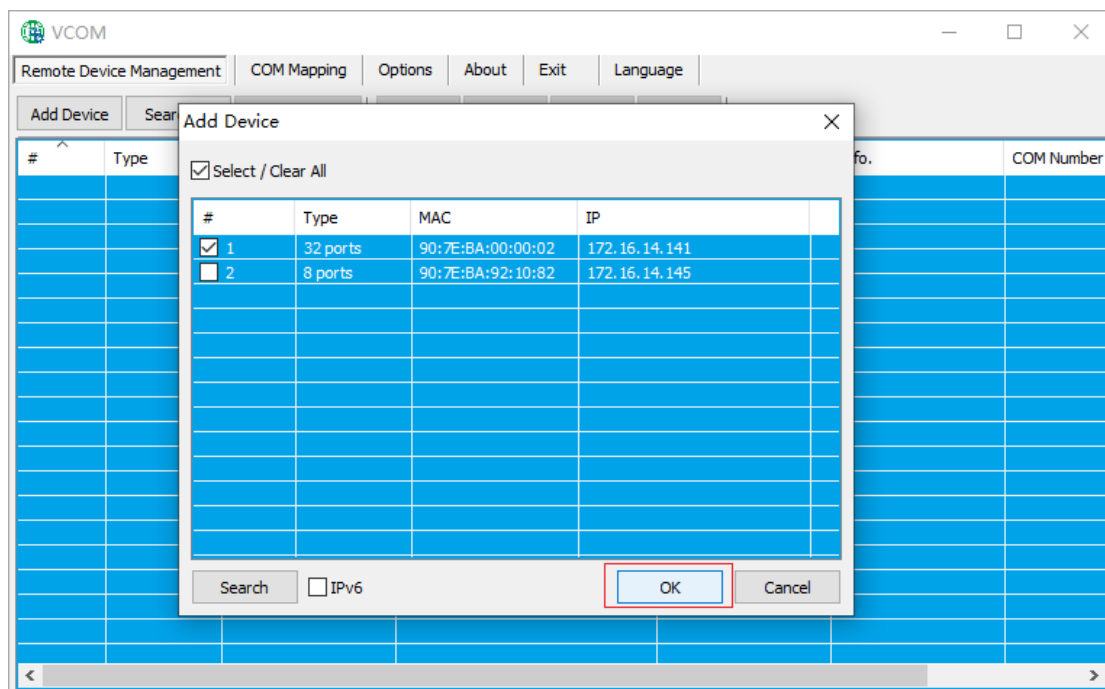
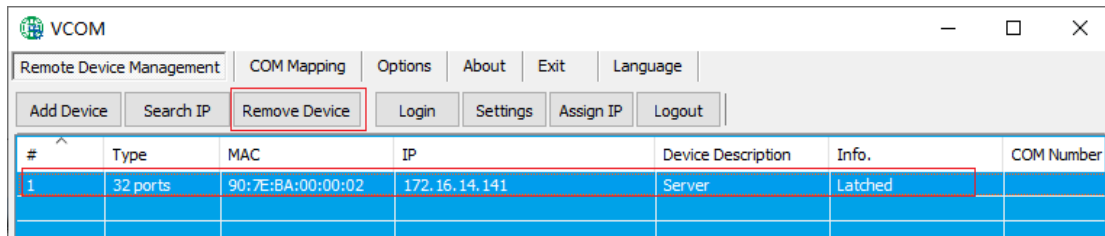


Figure 4

6.1.2 Delete Serial Device Information

In the "VCOM" software, first select the device information, then click "Remove Device" in the Remote Devices Management interface to delete the device information, as shown below:



6.1.3 Login to Device

In the "VCOM" software, click the "Login" button in the Remote Devices Management interface, and a pop-up window will appear as shown in Figure 1. Enter the login password to complete the login; after successful login, it will display as shown in Figure 2.

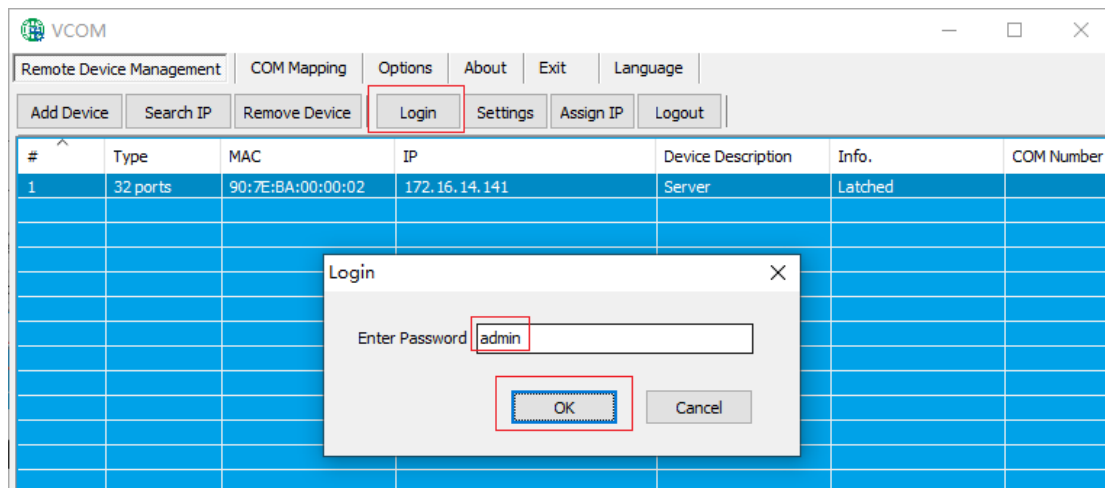


Figure 1

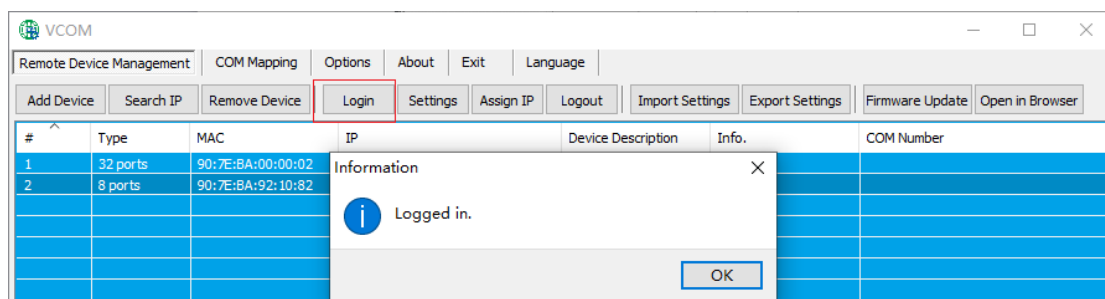


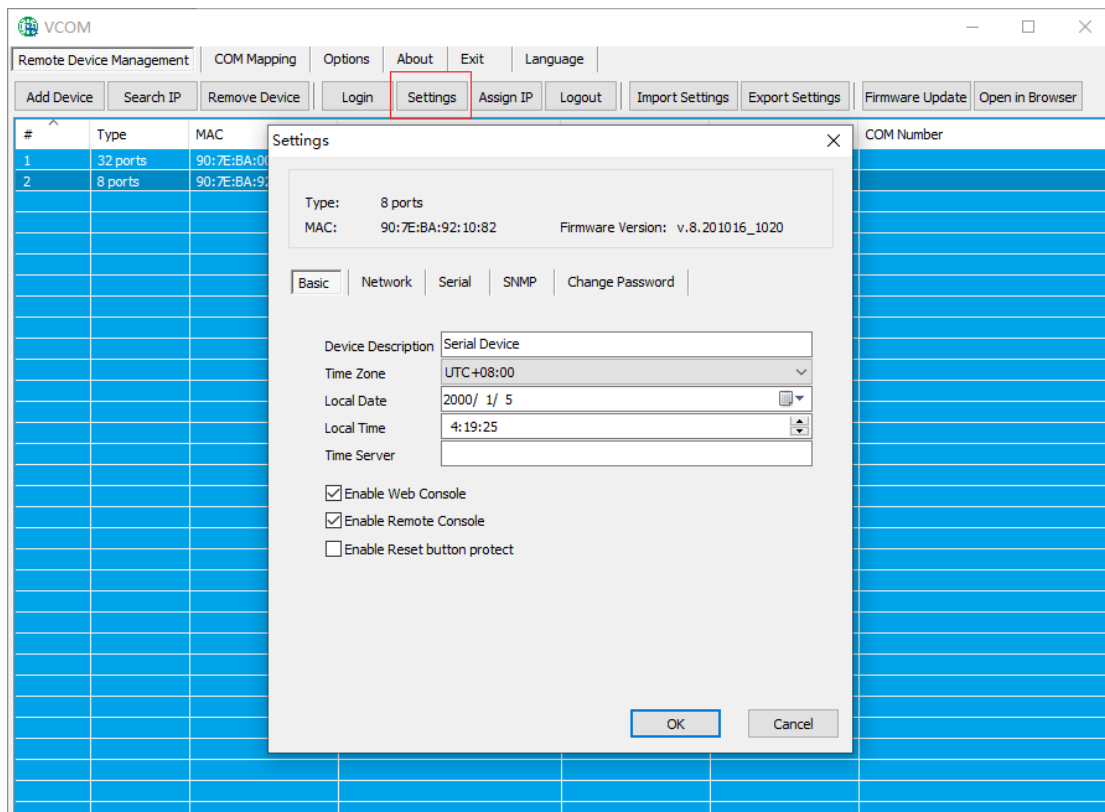
Figure 2

6.1.4 Configuration Information

After logging into the device, click the "Setting" button to bring up the interface as shown below.

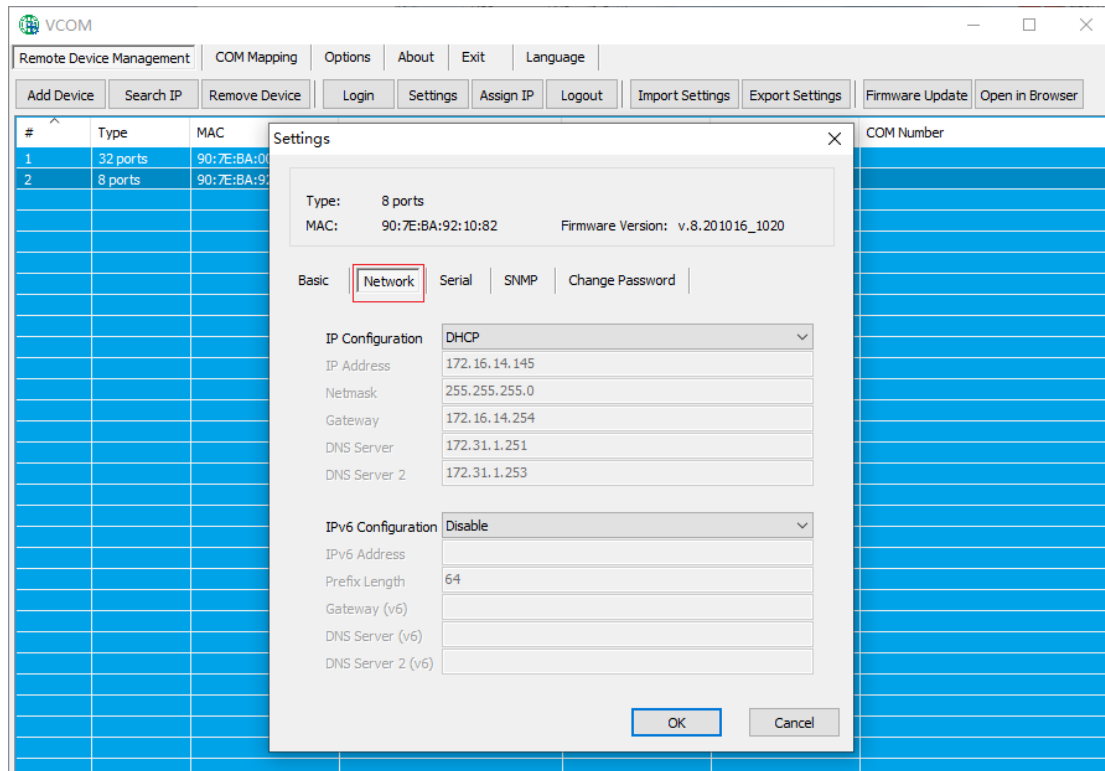
6.1.4.1 Basic

Displays basic device information. Keep the default state as shown below.



6.1.4.2 Network

Used for IP-related configuration, consistent with the serial server configuration.



6.1.4.3 Serial

Used for basic information configuration of the ports, as shown in Figure 1. Double-click the corresponding item in the "Settings" of the selected serial port or select the corresponding serial port and click the "Configure" button to open the configuration interface, as shown in Figure 2.

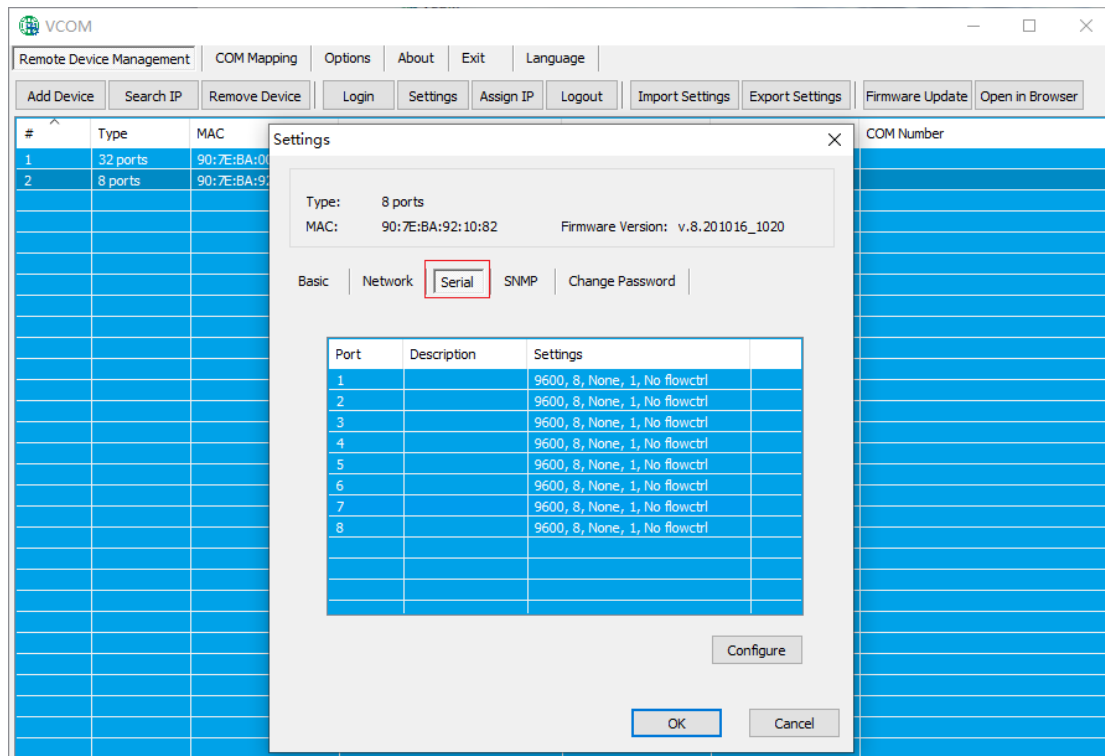


Figure 1

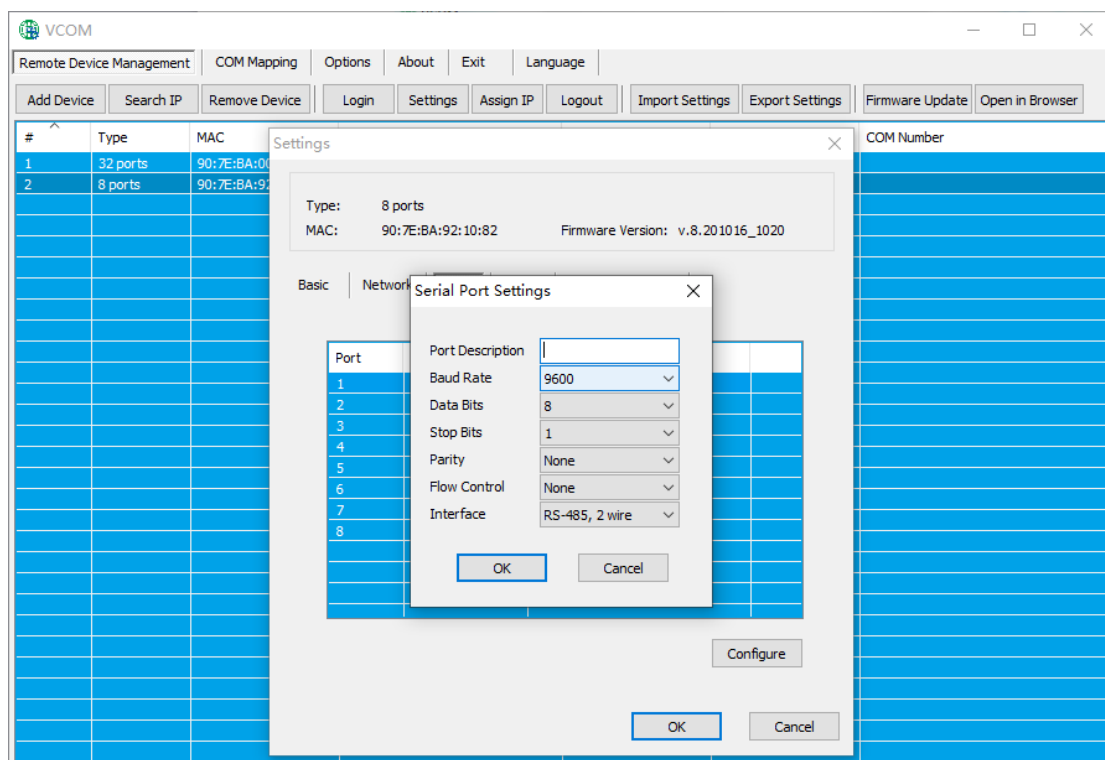
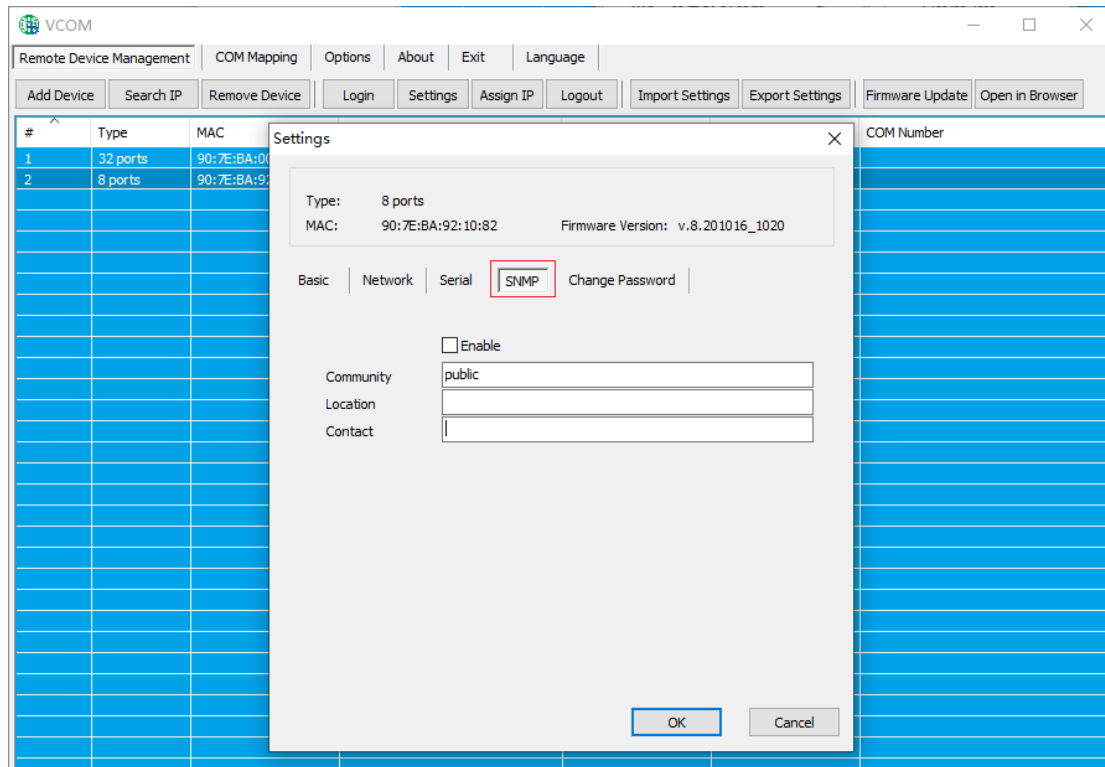


Figure 2

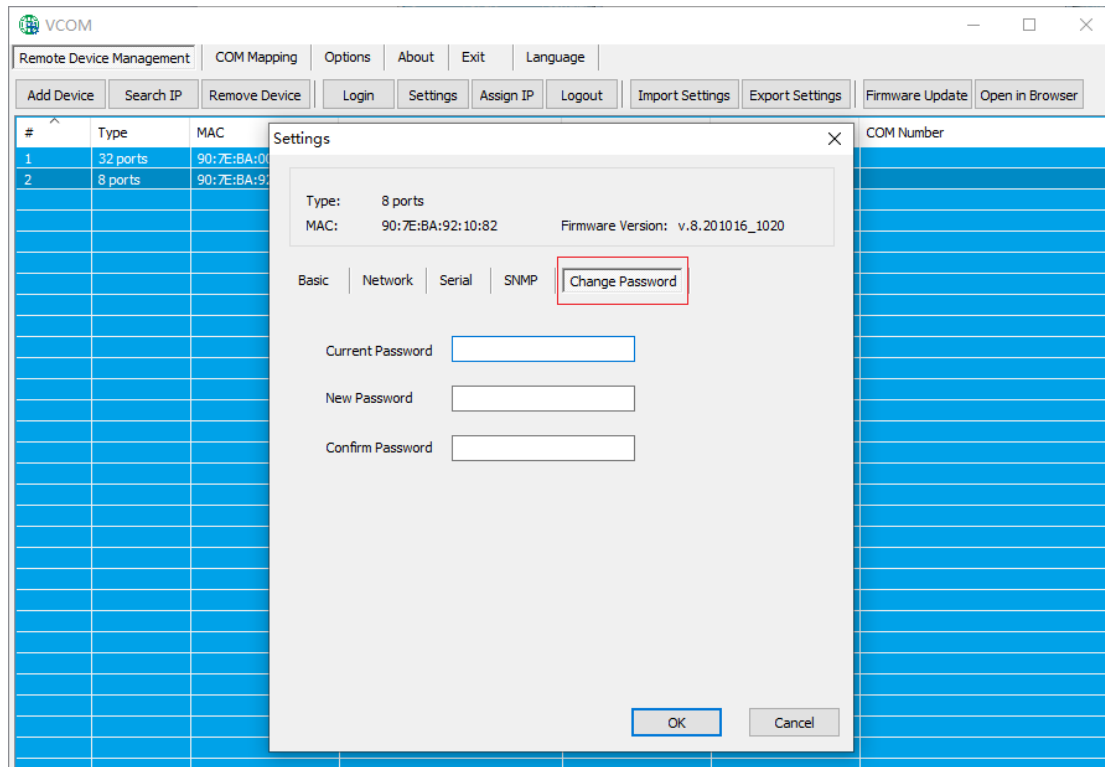
6.1.4.4 SNMP

Used to enable SNMP management function, consistent with the serial server configuration.



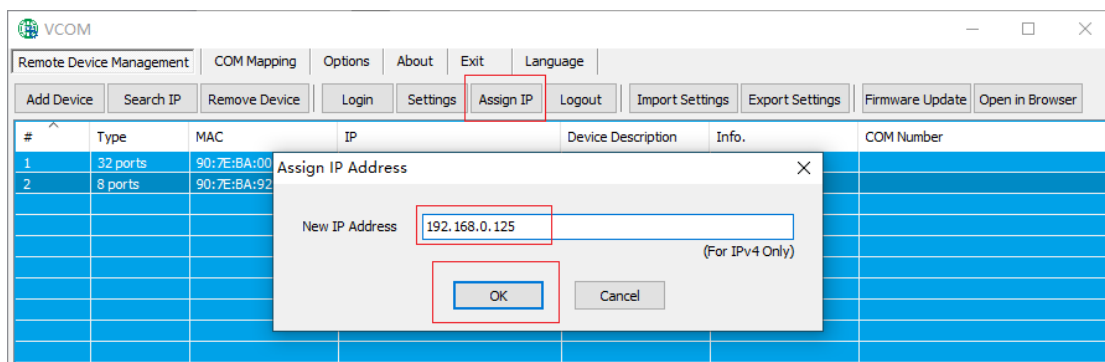
6.1.4.5 Change Password

Used to modify the user password of the serial server, consistent with the serial server configuration.



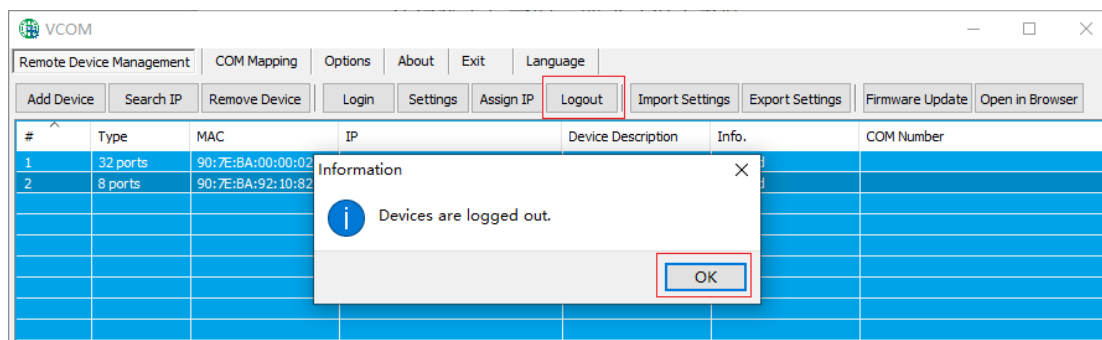
6.1.5 Change IP

In the "VCOM" software, click the "Assign IP" button in the Remote Devices Management interface, and a pop-up window will appear as shown below. You can reset the IP address of the serial server (you need to log in before changing the IP).



6.1.6 Logout

In the "VCOM" software, click the "Logout" button in the Remote Devices Management interface, and a pop-up window will appear as shown below, indicating successful logout.



6.1.7 Import Configuration

In the "VCOM" software, after successfully logging into the device, click the "Import Settings" button in the Remote Devices Management interface, and a pop-up window will appear as shown in Figure 1; then click "Browse" to select the saved or exported configuration file, as shown in Figure 2, and click "OK" to bring up the interface as shown in Figure 3; click "OK" and wait for the configuration to be successfully imported.

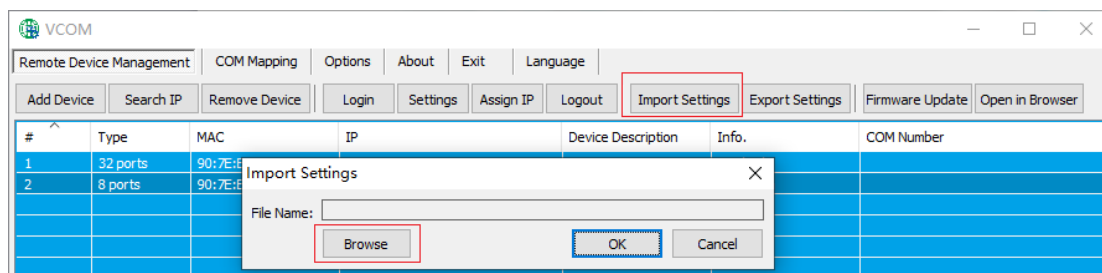


Figure 1

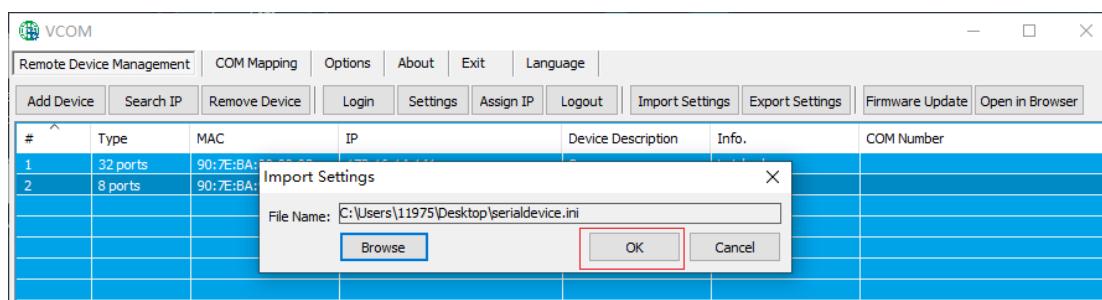


Figure 2

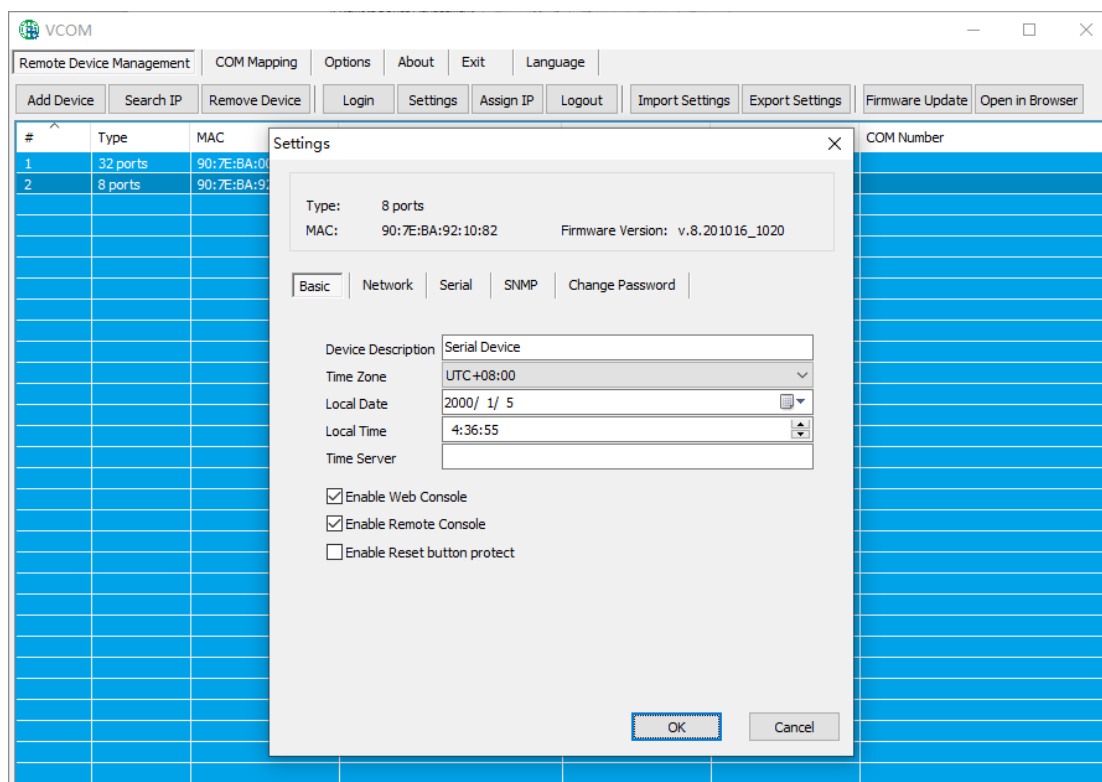


Figure 3

6.1.8 Export Configuration

In the "VCOM" software, after successfully logging into the device, click the "Export Settings" button in the Remote Devices Management interface, and a pop-up window will appear as shown in Figure 1; then click "Browse" to select the saved or exported configuration file, as shown in Figure 2, and click "OK" to wait for the configuration to be successfully exported; as shown in Figure 3.

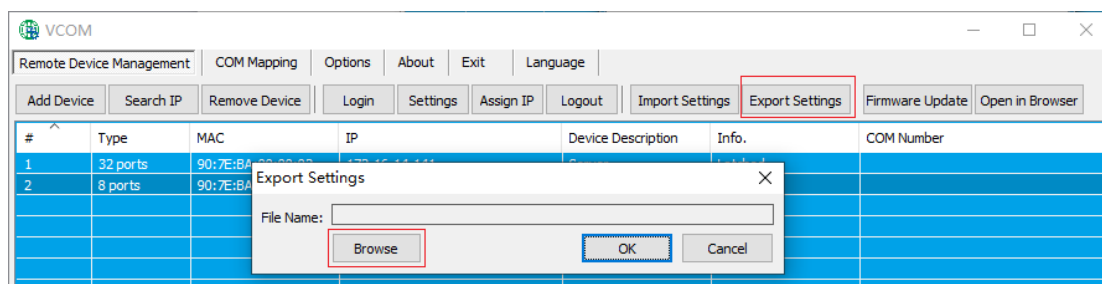


Figure 1

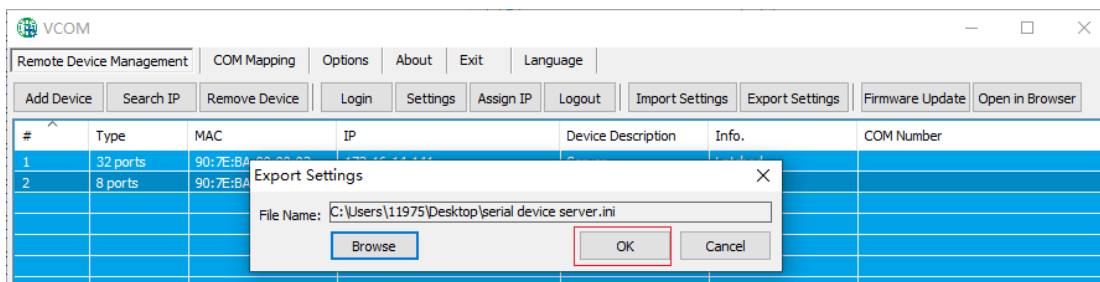


Figure 2

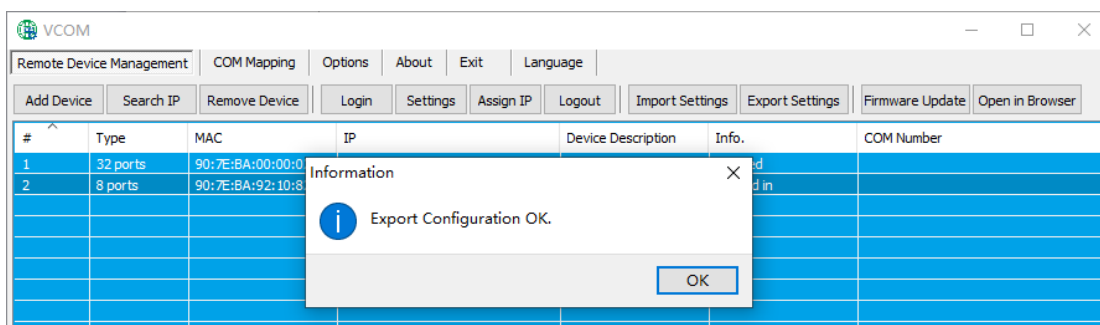
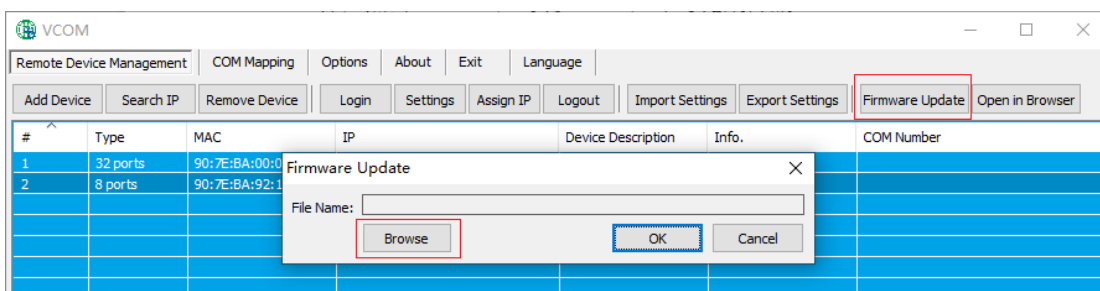


Figure 3

6.1.9 File Upgrade

In the "VCOM" software, after successfully logging into the device, click the "Firmware Update" button in the Remote Devices Management interface, and a pop-up window will appear as shown below. Click "Browse" to select the update file, click "OK", wait for 240 seconds, and the upgrade will be completed.



6.1.10 Jump to Web Login

In the "VCOM" software, click the "Open in Browser" button in the Remote Devices Management interface to enter the web login interface through the IE browser.

User Login

Please enter a username

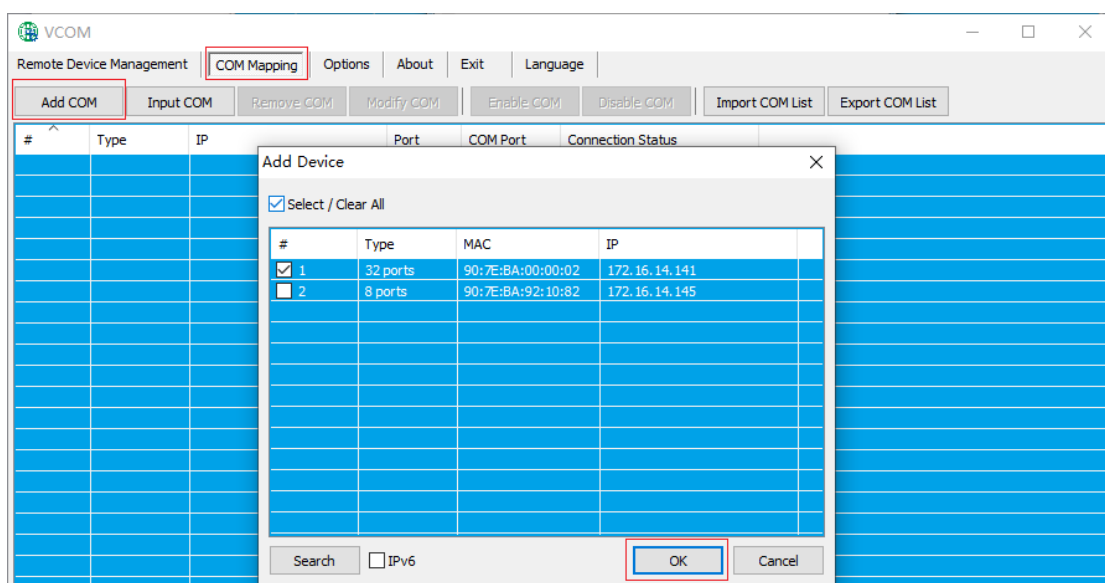
Please enter a password

Login

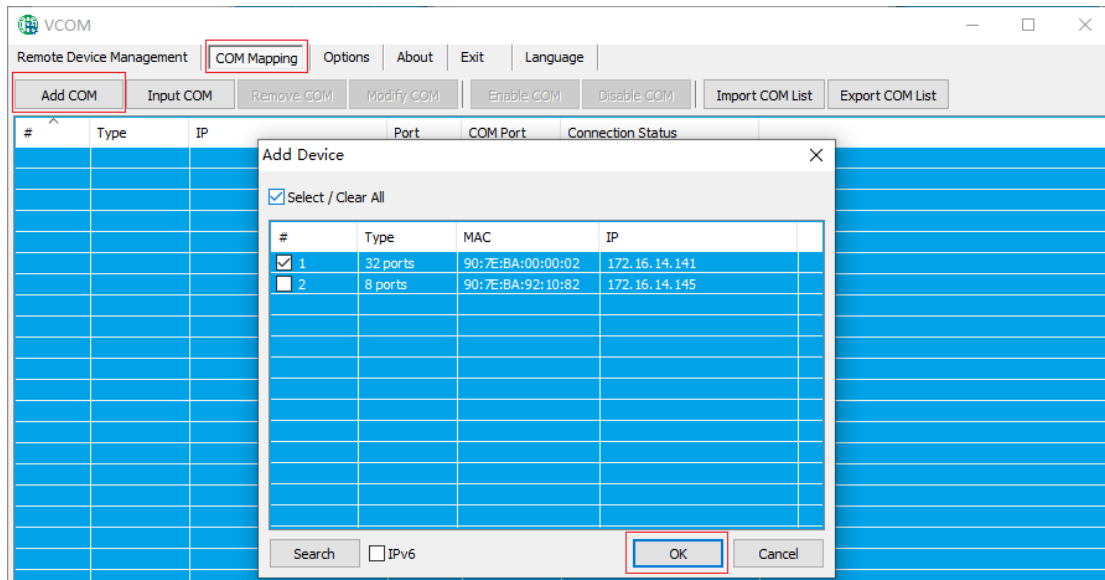
6.2 COM Mapping

6.2.1 Create Virtual Serial Port

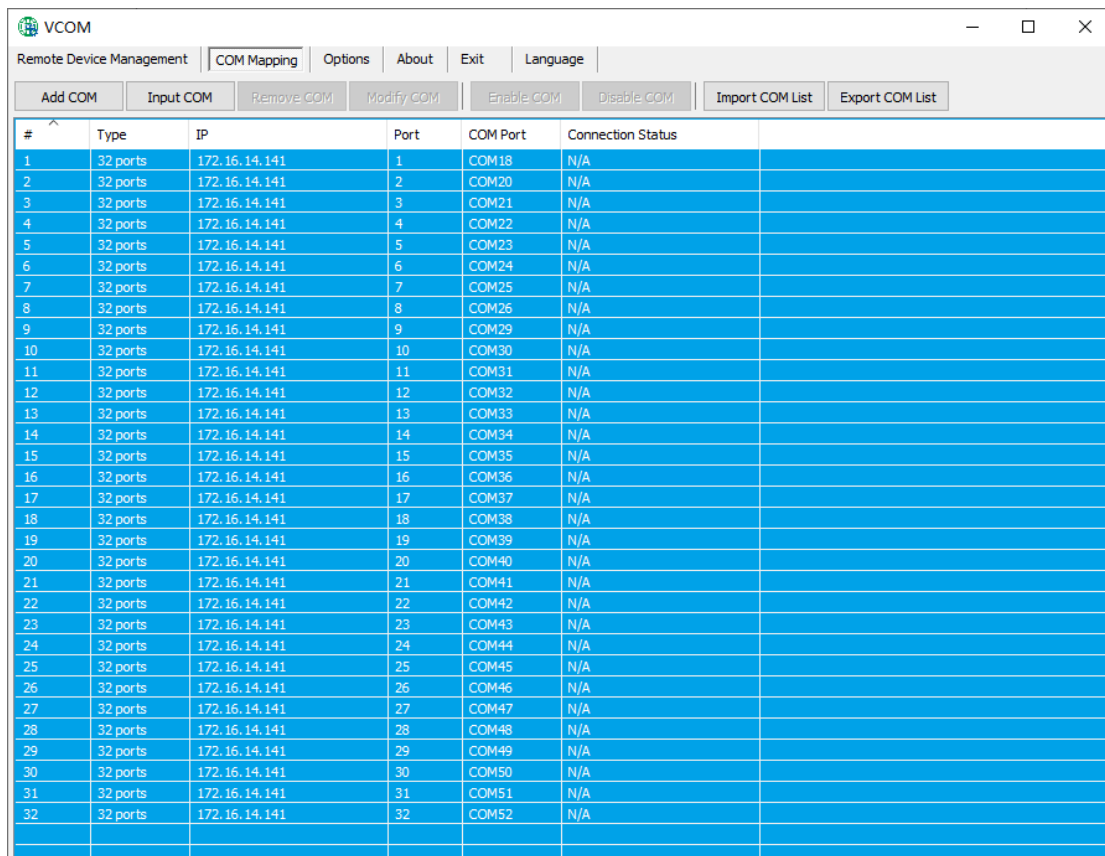
1. In the "VCOM" software, select COM Mapping---Add COM, and the "Add Device" window will pop up, as shown below.



2. The "Add Device" window will appear. Select the device and click "OK".

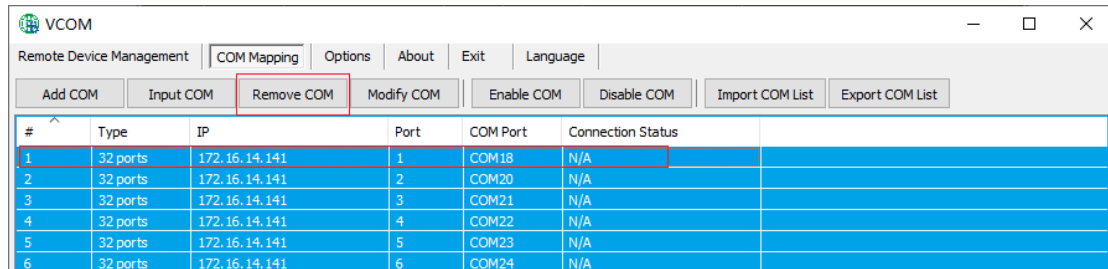


3. The interface shown below will pop up, indicating that the corresponding virtual serial port has been created.



6.2.2 Delete Virtual Serial Port

In the "VCOM" software, first select the virtual serial port to be deleted, then click "Remove COM" in the COM Mapping interface to delete the virtual serial port, as shown below.



6.2.3 Modify Virtual Serial Port

In the "VCOM" software, first select the virtual serial port to be modified, then click "Modify COM" in the COM Mapping interface, and the interface shown in Figure 1 will pop up. Then select "COM60" to modify Port1 from "COM18" to "COM60", as shown in Figure 2.

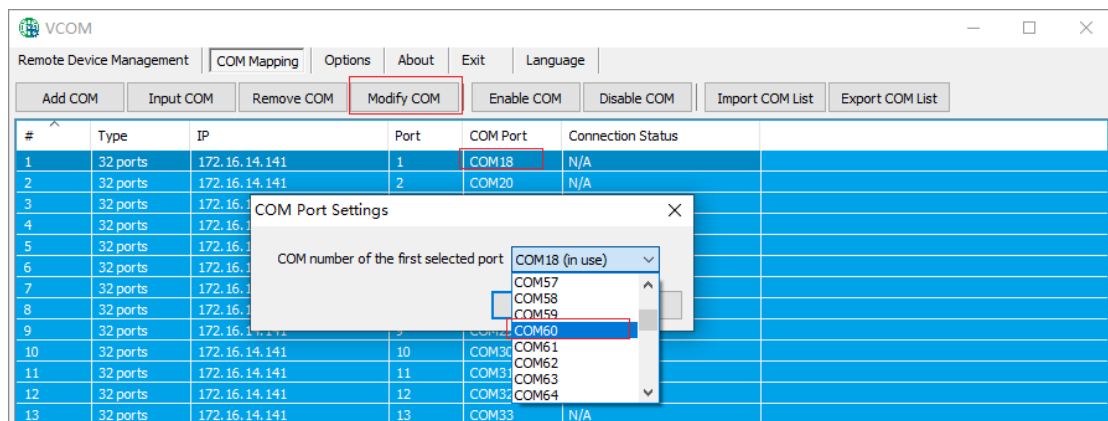


Figure 1

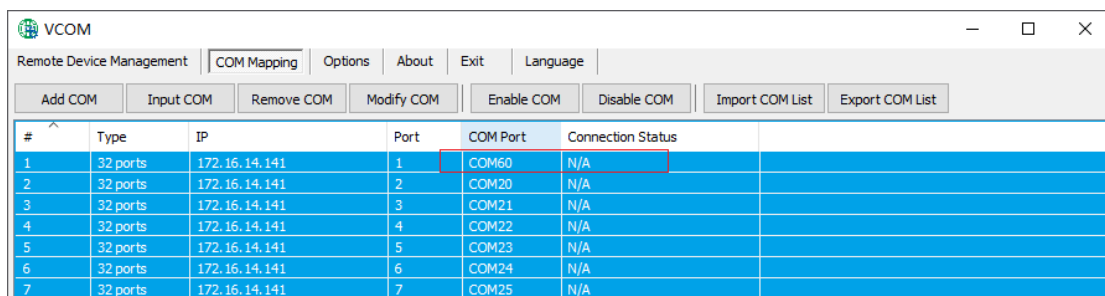
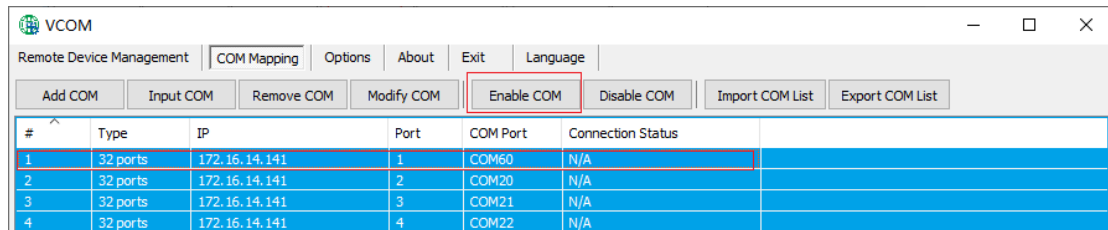


Figure 2

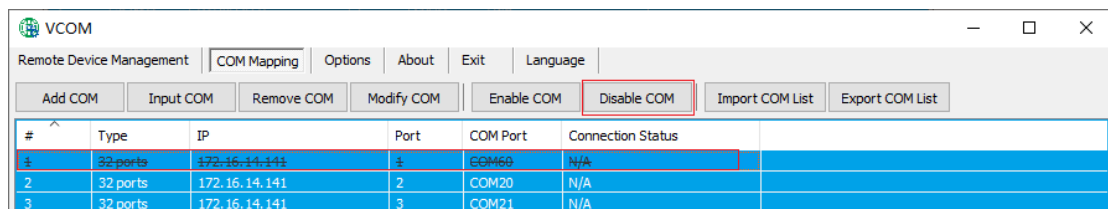
6.2.4 Enable Virtual Serial Port

In the "VCOM" software, first select the virtual serial port to be enabled, then click "Enable COM" in the COM Mapping interface to enable the corresponding virtual serial port, as shown below.



6.2.5 Disable Virtual Serial Port

In the "VCOM" software, first select the virtual serial port to be disabled, then click "Disable COM" in the COM Mapping interface to disable the corresponding virtual serial port, as shown below.



6.2.6 Import Virtual Serial Port List

In the "VCOM" software, click "Import COM List" in the COM Mapping interface, and the interface shown in Figure 1 will pop up. Click "Browse" and select the saved virtual serial port configuration information, as shown in Figure 2, then click "OK" to successfully import, as shown in Figure 3.

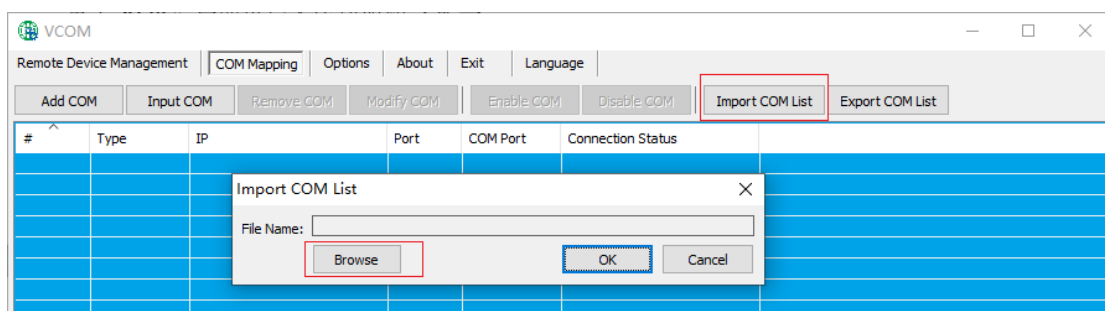


Figure 1

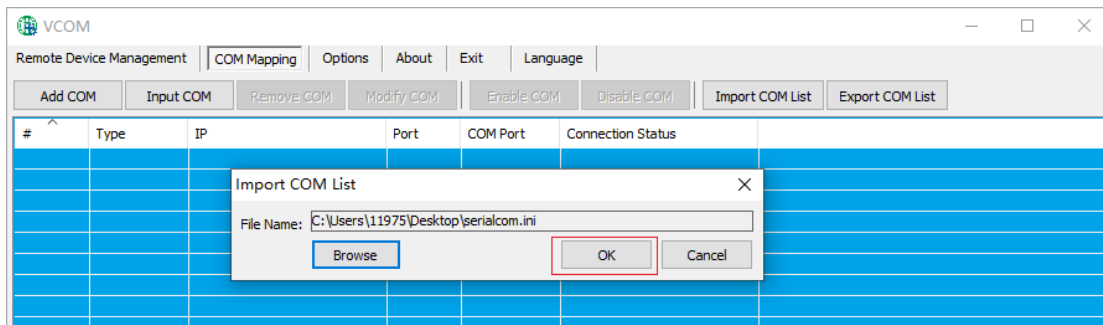


Figure 2

[illegible]

Figure 3

6.2.7 Export Virtual Serial Port List

In the "VCOM" software, click "Export COM List" in the COM Mapping interface, and the interface shown in Figure 1 will pop up. Click "Browse" and select the path to save the virtual serial port configuration information, as shown in Figure 2, then click "OK" to successfully export, as shown in Figure 3.

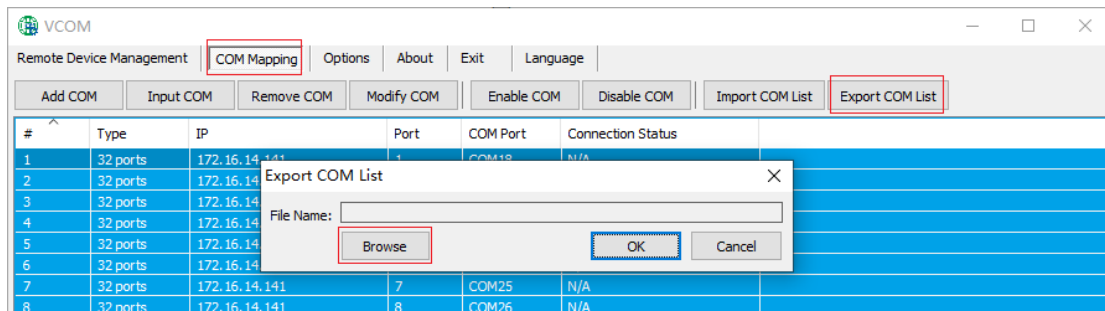


Figure 1

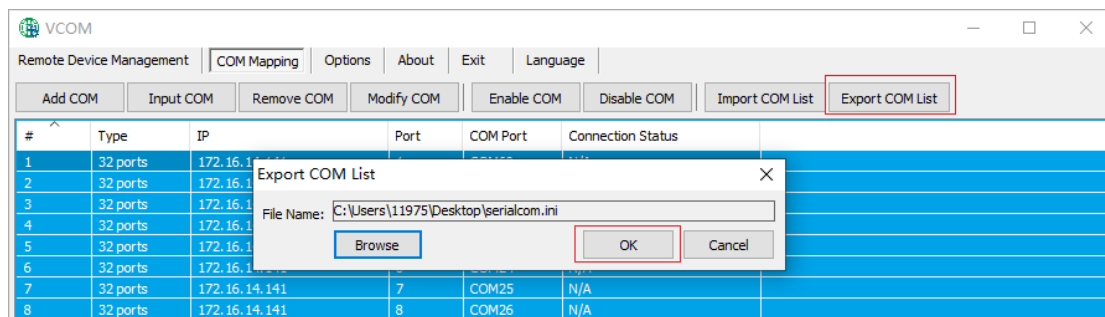


Figure 2

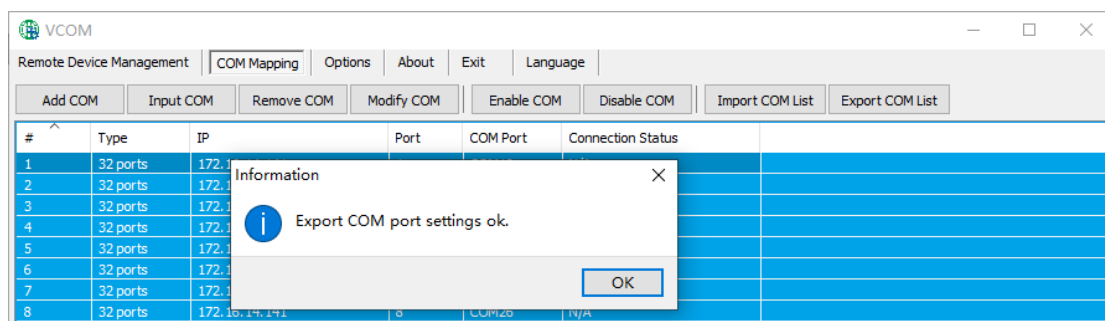
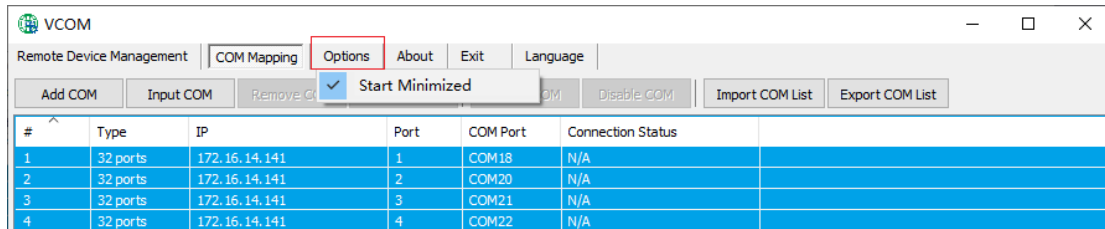


Figure 3

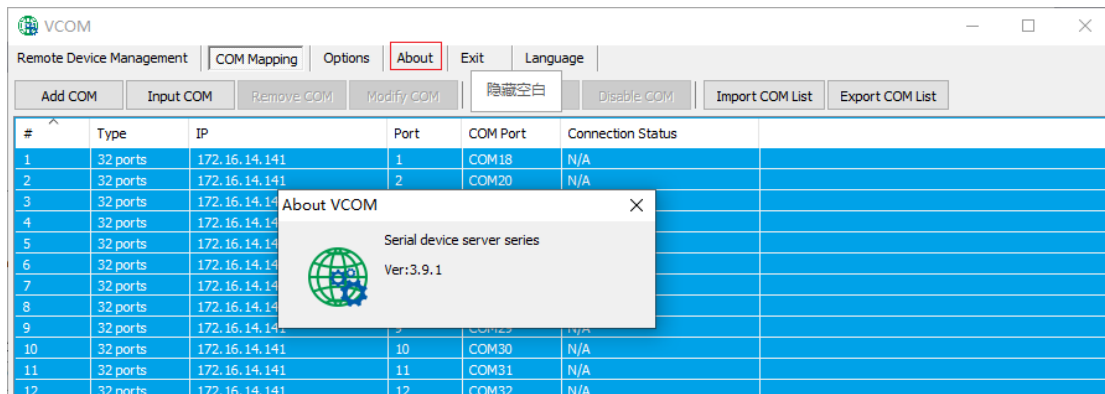
6.3 Options

When starting the VCOM software, you can choose whether to open it directly or minimize it to the taskbar. By default, the software is minimized to the taskbar. The configuration is shown below.



6.4 About

Click the "About" button to view the software version information, as shown below.



6.5 Exit

Click the "Exit" button to exit the software.

6.6 Language

Switch the language, you can choose Chinese or English.

