

# Blue VSP Virtual Serial Port Management Software

# User Manual

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**Industrial Ethernet Communication Solution Expert** **3onedata Co., Ltd.**

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# Preface

Blue VSP virtual serial port management software user manual describes the management software:

- Software Specifications
- Method of application
- Overview of relevant principles

## 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. Such as: “Port No.”. |
| > | 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’ provides links to various sections of this chapter, as well as links to the Principles/Operations Section of this chapter. |

## Icon Convention

| Format | Description |
|---|---|
|  Notice | Remind the announcements in the operation, improper operation may result in data loss or equipment damage. |

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| Format | Description |
| --- | --- |
|  Warning | Pay attention to the notes on the mark, improper operation may cause personal injury. |
|  Note | Conduct 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. |

## Revision Record

| Version No. | Revision Date | Revision Note |
| --- | --- | --- |
| 01 | 11/26/2024 | Product release |
| 02 | 12/10/2025 | Software function upgrade |

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# 1 Installation Instructions

## 1.1 Preparation Before Installation

Install the virtual serial port management software of the product to a PC, and then connect the serial port server to the network. Then customers can set the device according to their requirements.

Management software supports the following 64-bit operating systems:

- Microsoft Windows Server 2008
- Microsoft Windows Server 2012
- Microsoft Windows Server 2016
- Microsoft Windows 7
- Microsoft Windows 10
- Microsoft Windows 11


Notice

Install anti-virus software host, please close the anti-virus software first.

## 1.2 Installation


Note

The following software versions are only examples, please refer to the actually acquired software version number.


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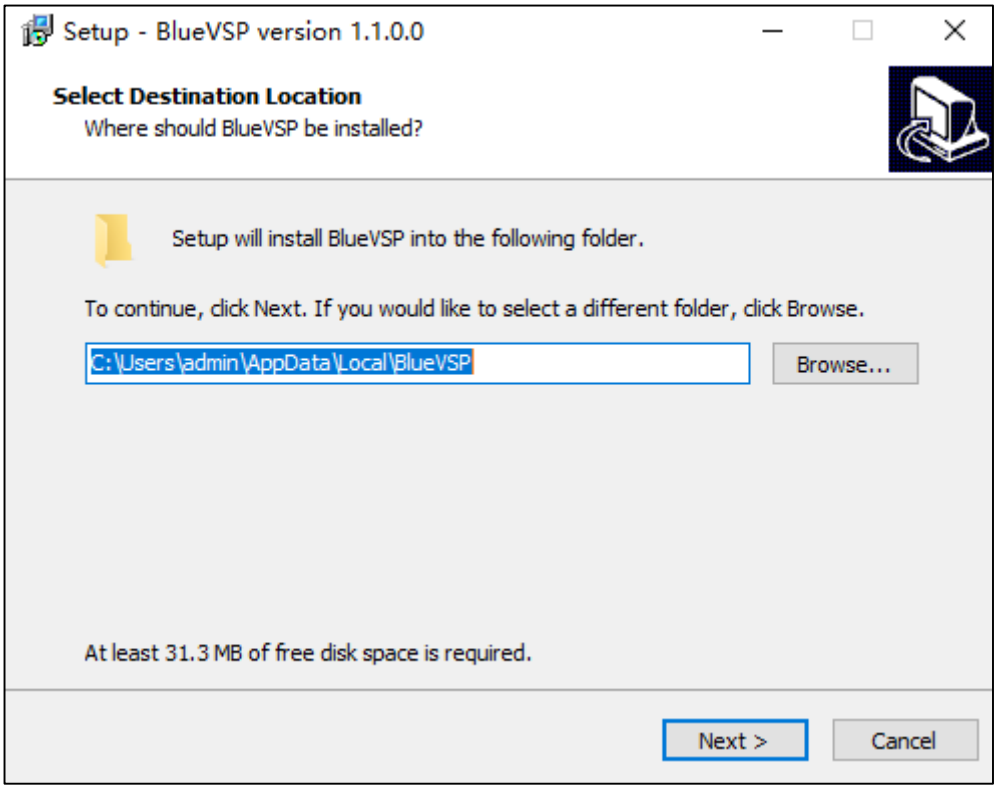
Prepare BlueVSP x64 (same to x86) installer:

Notice

Before installing the program, it is recommended to close the anti-virus software and firewall to avoid abnormal installation; If the anti-virus software and firewall are not closed, please allow all operations and modifications of the VSP program when the popover is about to block the VSP during installation.

## Installation steps are as follows:

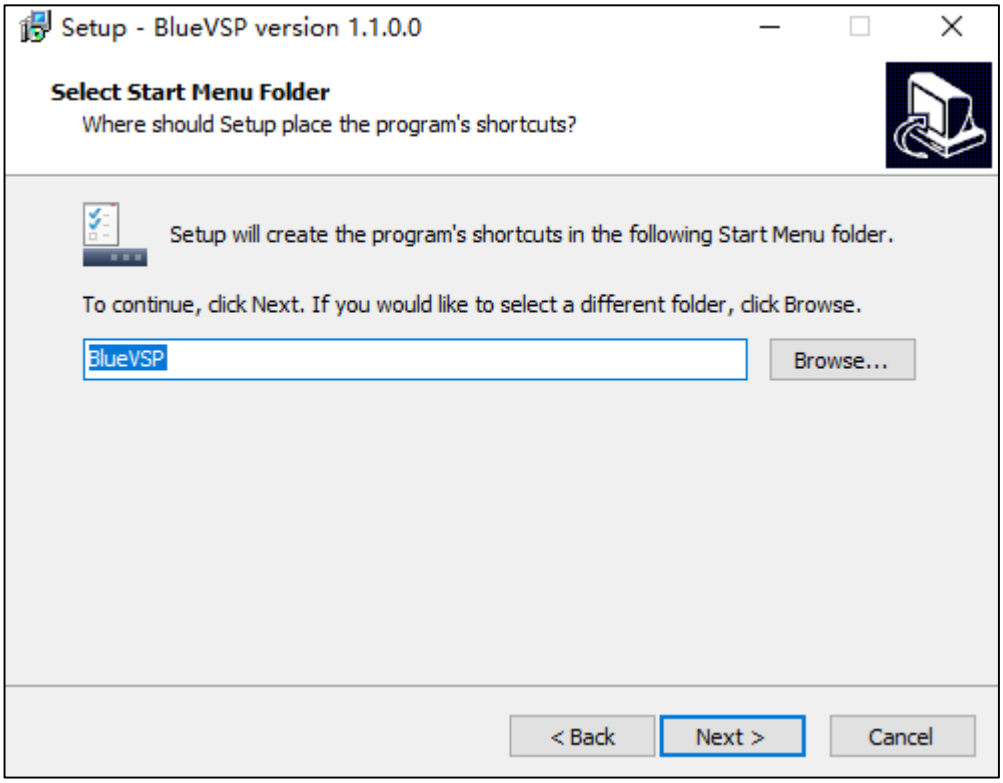
**Step 1** Run the setup program as shown in the figure above. The installation wizard appears on the screen and enter the interface to select the authorization file, as shown in the figure below.



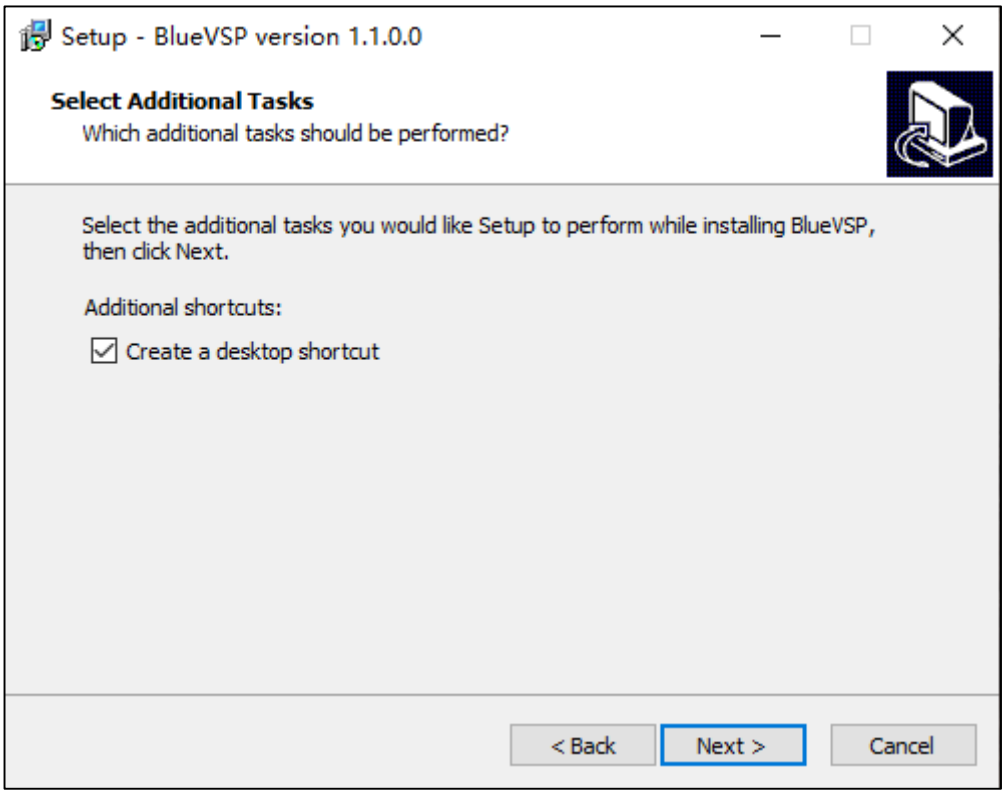

**Step 2** (Optional)Choose installation path by clicking the “Browse” button, here we adopt default path.

**Step 3** Click “Next” to enter Start Menu Folder Configuration interface, as shown below.


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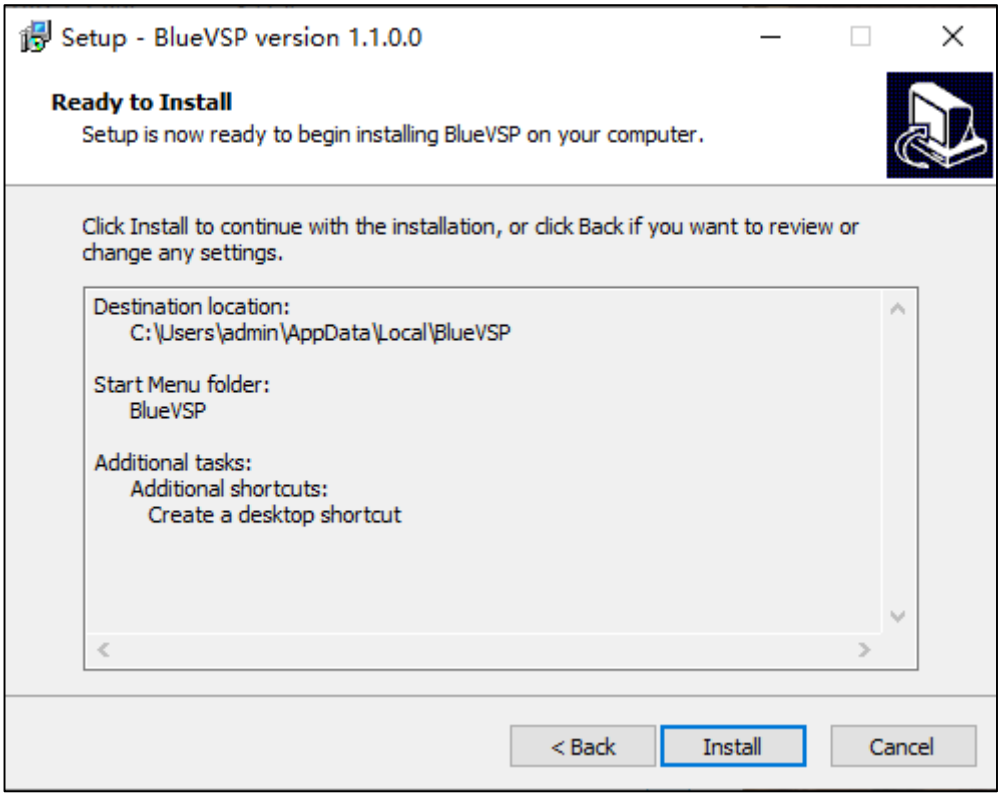



**Step 4** Click “Next” to enter Additional Tasks interface as shown below.

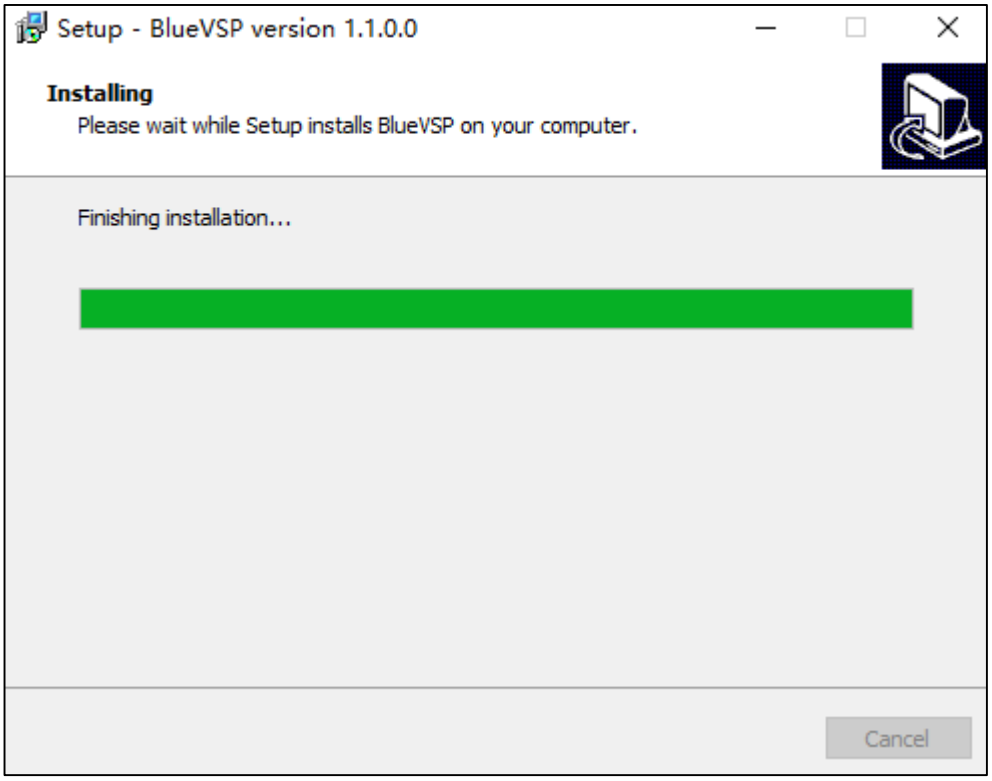



**Step 5** Click “Next” to create a desktop shortcut as shown below.


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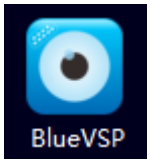



**Step 6** Click “Install” to install the program, the installation progress bar will be displayed as shown below:




Click “Finish” to finish installation and exit the interface, the desktop shortcut would be displayed as shown below.

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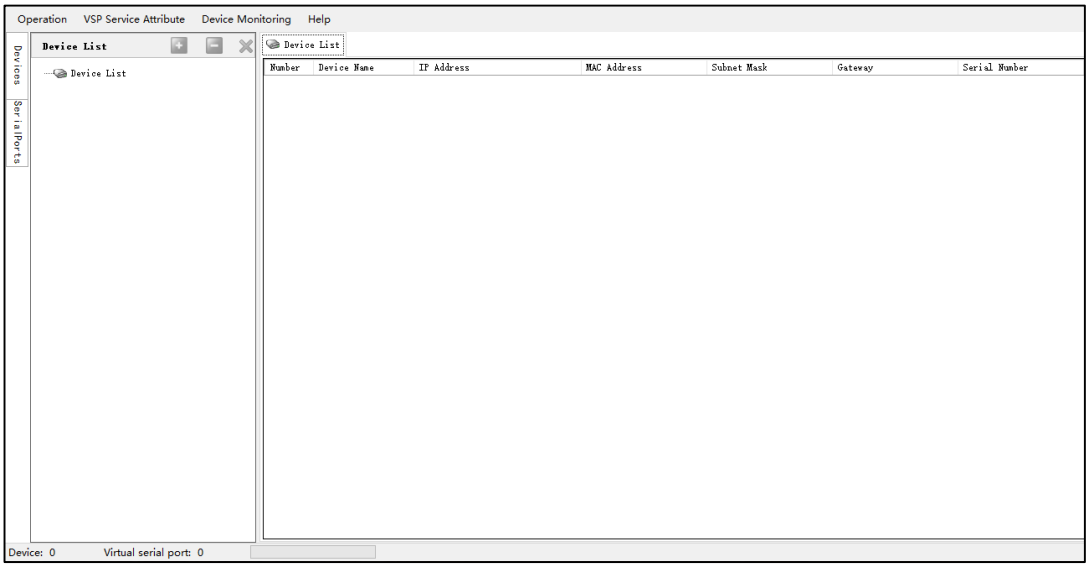

**—End.**

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# 2 Software Functions

## 2.1 Software Interface

Double click on the desktop or click on the "BlueVSP" program in the start menu bar to run the virtual serial port management software and enter the device management interface, as shown in the following figure.



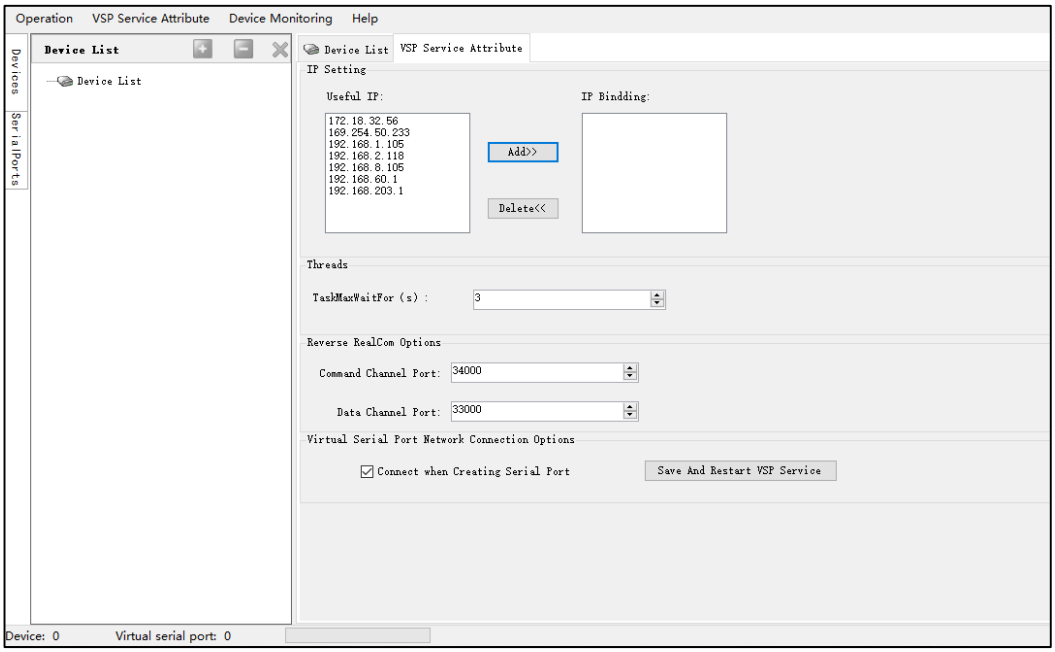

Note

The default port that VSP service uses is 5210.


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## 2.2 VSP Service Attribute

Including IP settings, thread parameters, reverse realcom parameters, virtual serial network connection common parameters and other functions.




## 2.3 Device Management

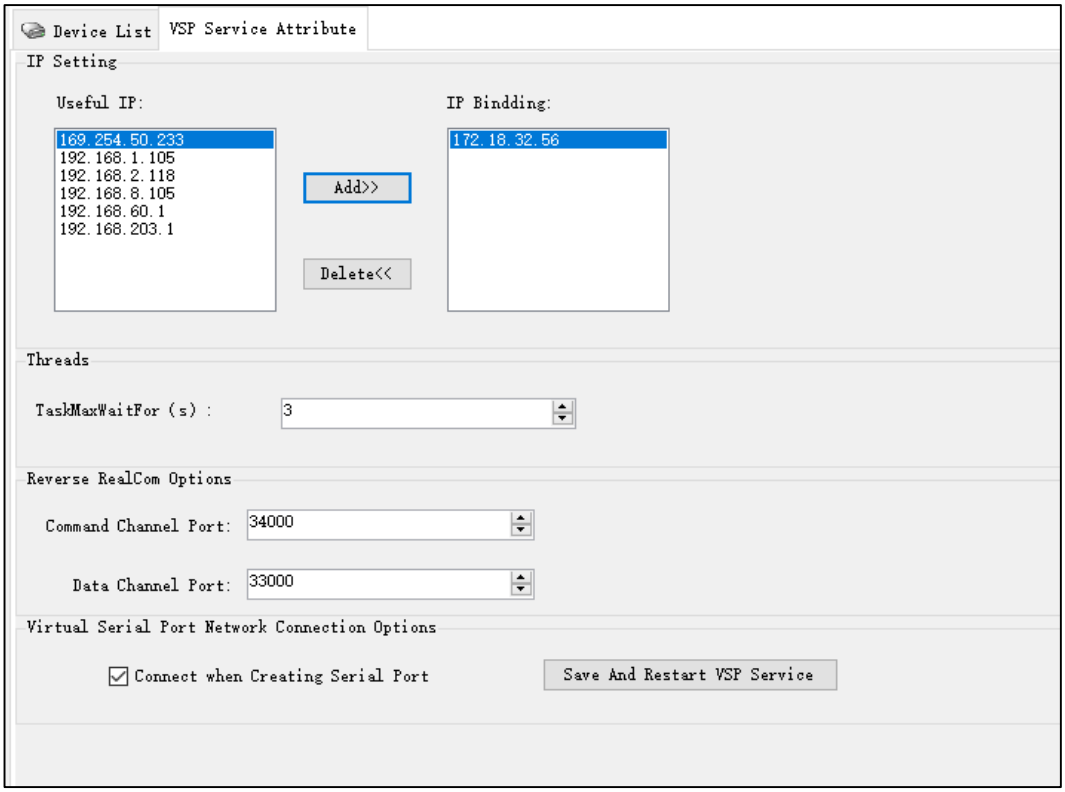
### 2.3.1 Search Device

When there are multiple network cards in the host, you can bind to the network card connected to the device, select the IP to be bound, click Add, save and restart the VSP service. Otherwise the device may not be searched, as shown below.

Notice

After modifying the VSP configuration parameters, it should be saved before it can take effect. When modifying the VSP service properties, the VSP service must be saved and restarted for it to take effect.


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Note

"Reverse Realcom Parameter" is the local service port number of the VSP host, which should be consistent with the destination address information under the "Reverse Realcom" mode configured by the serial port server.

## For example: IP binding

## Operation Steps

**Step 1** Open the menu 'VSP Service Properties'.

**Step 2** In the IP Settings area, select an available IP address on the left.

**Step 3** Click “Add”.

**Step 4** Click the icon “ " to save the configuration.

**Step 5** Click on 'Save Configuration and VSP Service'

**Step 6** A pop-up window will prompt 'Restart successful', click 'OK'.

**—End.**


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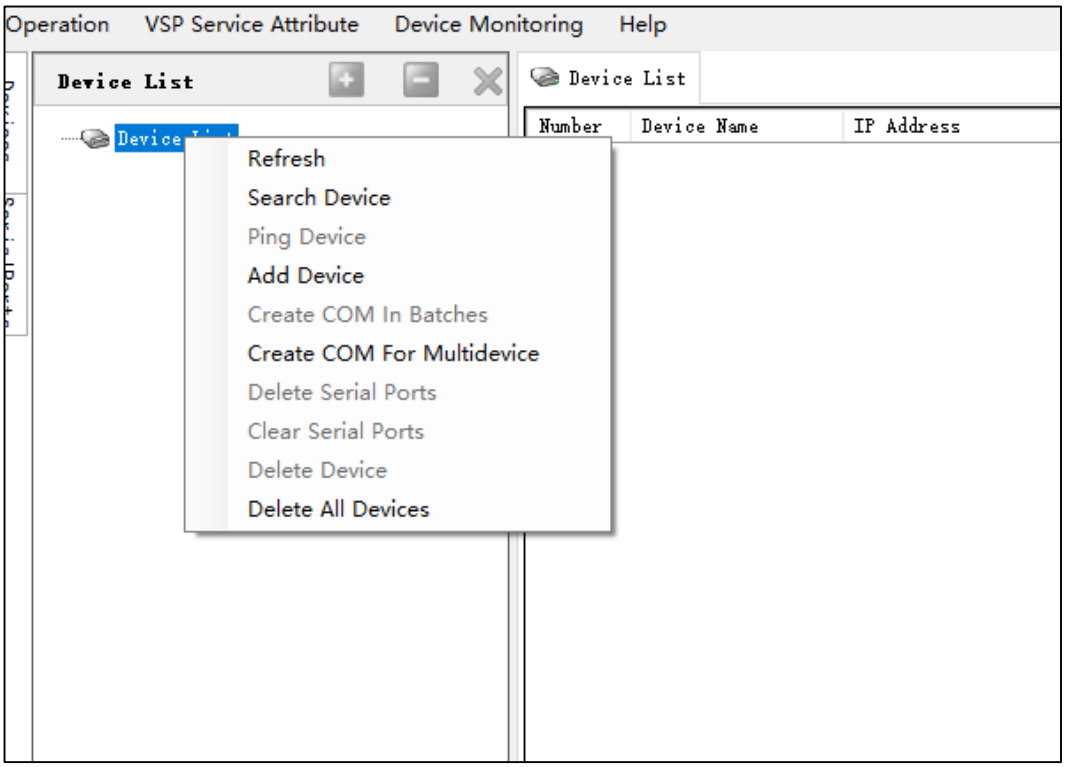
Note

When the IP address bound by VSP and the IP address of the serial server are in the same network segment and can communicate normally, the web page of the serial server can be accessed.

## Automatic search device

Open the "Device List" on the left menu bar and use the following options to automatically search for devices.

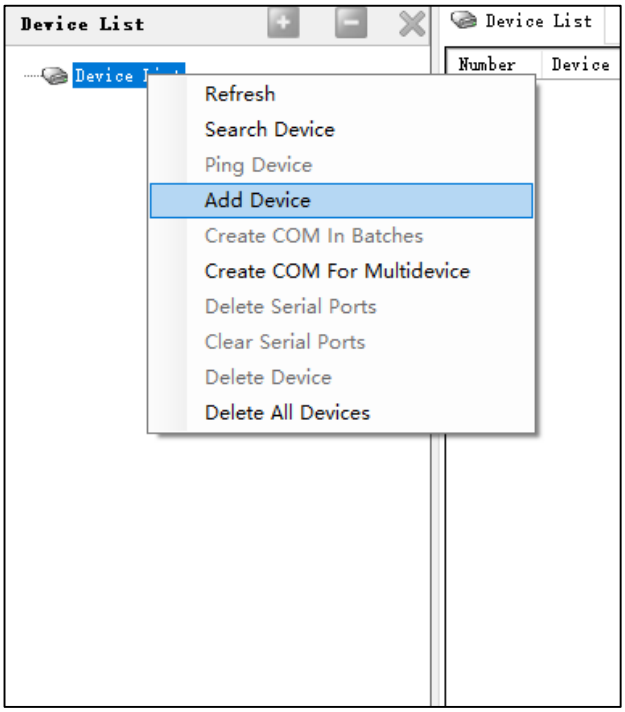
- In the "Device List", right-click and select "Search Device" from the pop-up menu.



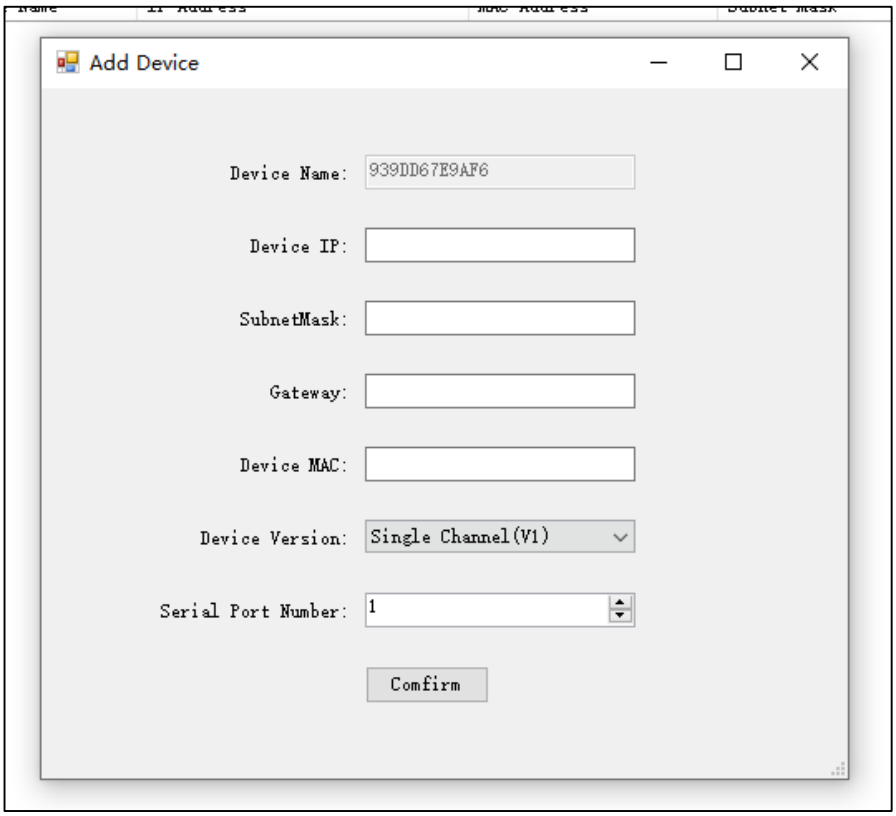

## Manually add device

1. In addition, if you know the IP and gateway information of a device in the network, you can manually add the device. The operation mode is as follows: select the device list, right-click the menu and select Add Device.


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2. The page of Add Device pops up, where v1 represents single-channel devices and v2 represents dual-channel devices. Click Confirm after filling in the information to add successfully.





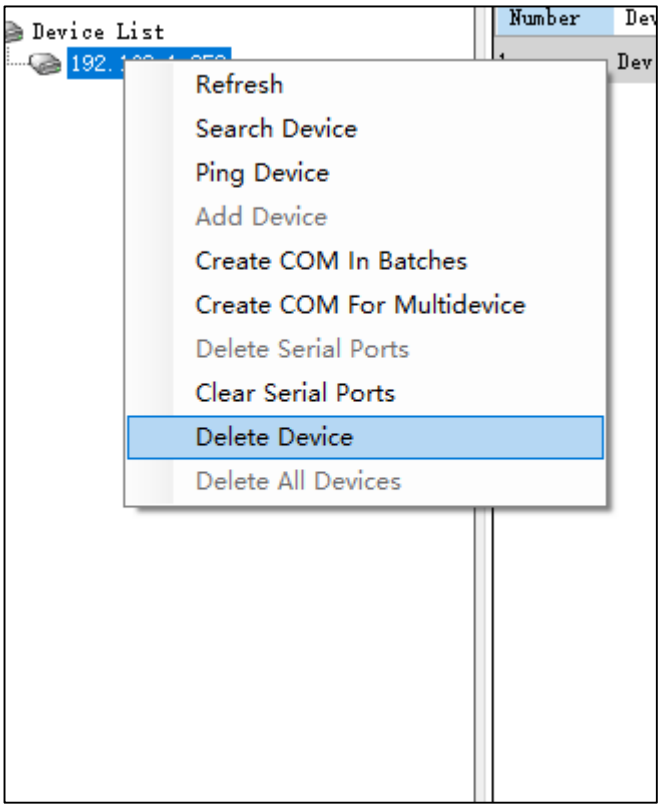
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## 2.3.2 Removing Device

Removing added devices

### Operation Steps

**Step 1** Right click the device IP address to be deleted, as shown below.




**Step 2** Successfully deleted.

**—End.**

## 2.3.3 Configuration interface

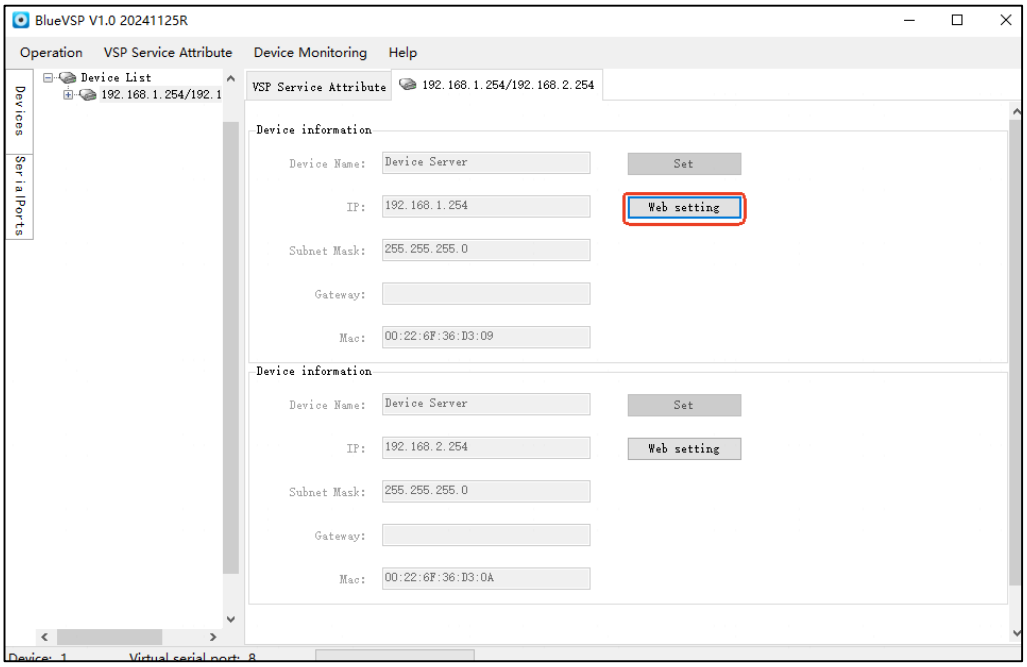
In the device properties bar, click “WEB config”, the device's WEB management interface will be displayed in browser. The default user name and password are “admin”.

### Operation Steps

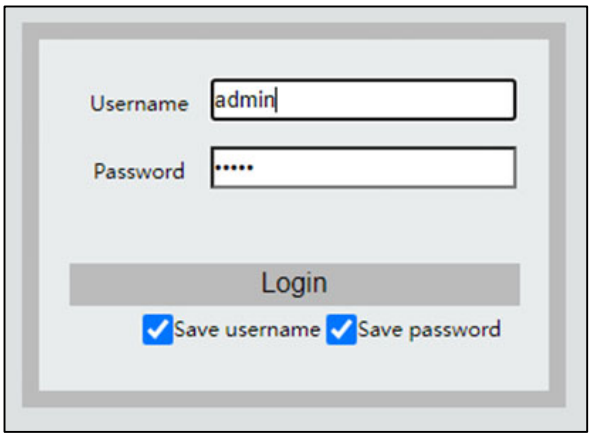
**Step 1** Double click the device IP address researched, the device properties bar would pop up.


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**Step 2** Click “Web setting”.

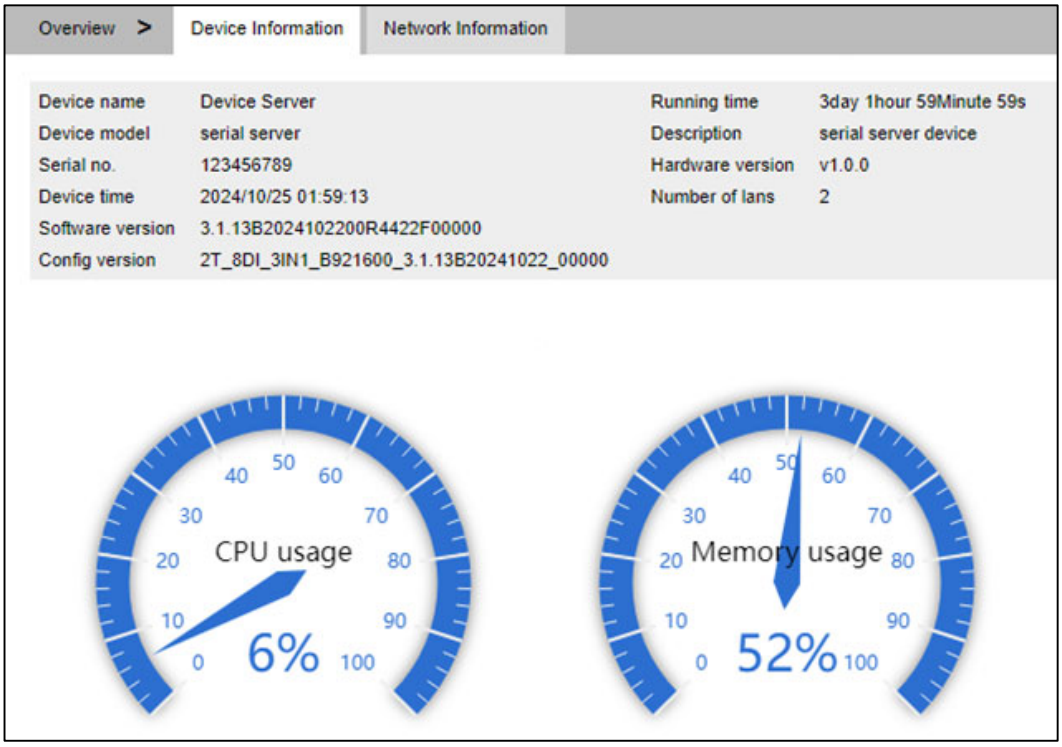



**Step 3** Enter the user name and the password on the WEB interface, the default user name and password are admin. Refer to the picture below.




**Step 4** Enter the WEB configuration interface, end. Refer to the picture below.


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Note

When the IP address bound by VSP and the IP address of the serial server are in the same network segment and can communicate normally, the web page of the serial server can be accessed.

—End.

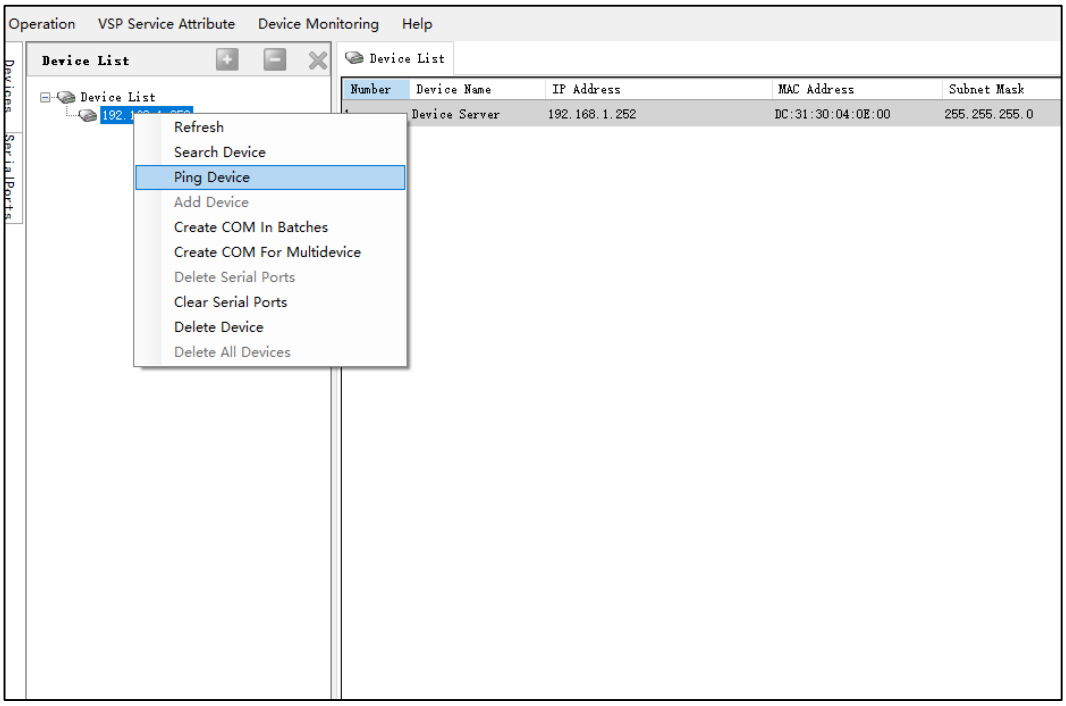
## 2.3.4 Ping device

Under "Device list", the Ping command can be used to detect the network state of the device in the list and troubleshoot network faults.

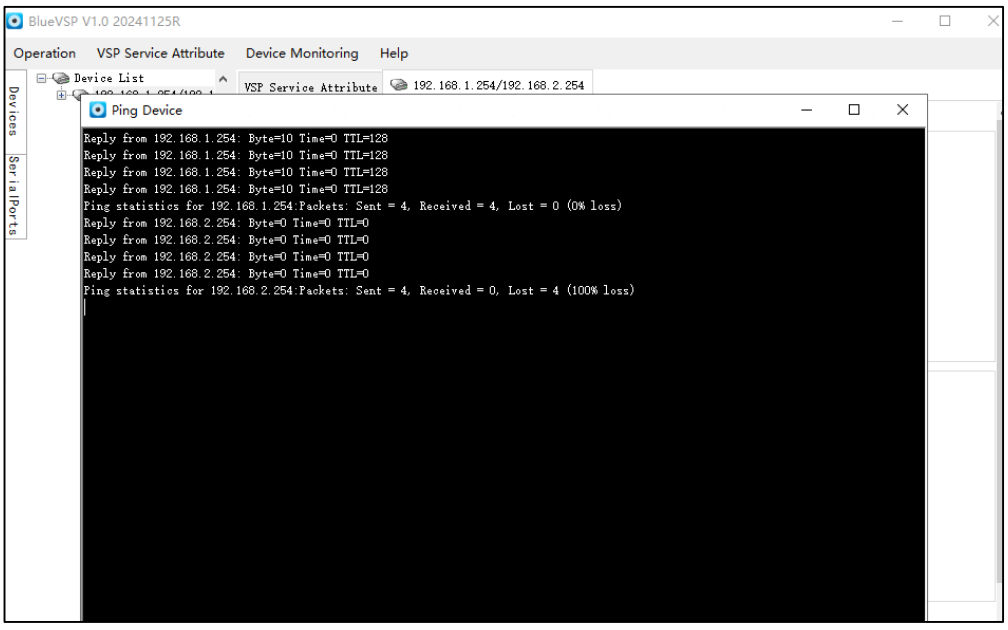
### Operation Steps

**Step 1** In “Device List”, right-click the IP address of the device to be detected, as shown in the figure below.


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**Step 2** Click "Ping Device", and a “Ping Device” window will pop up to display the network status, as shown in the figure below.




**Step 3** Click the 'Close' button in the upper right corner to close.

**—End.**


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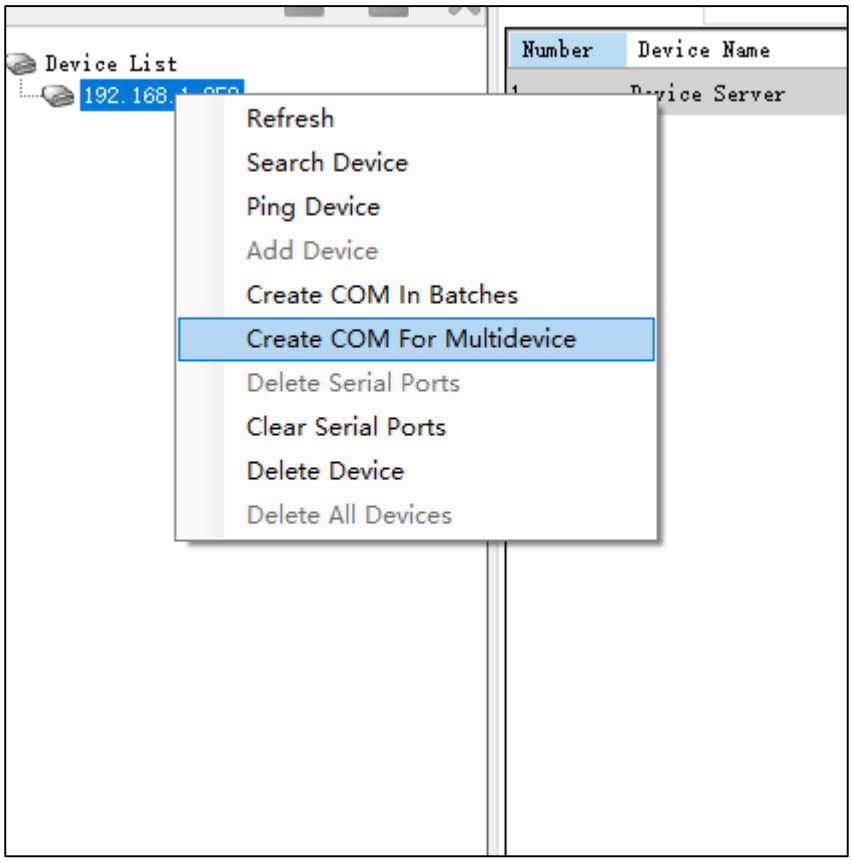
# 2.4 Virtual Serial Port Management

## 2.4.1 Create Serial Ports for Multiple Devices

On the "Create Serial Ports for Multiple Devices" page, support for quickly creating virtual serial ports for each device. Only supports fast creation of serial ports for dual channel and single channel serial servers in RealCom mode; When VSP creates a virtual serial port with a dual channel serial port server, two independent channels are established through TCP Socket, namely the data channel and the command channel. Among them, data channel transmits serial port and network data, command channel transmits control character. In contrast, the data of single-channel serial server and commands are transmitted in the same channel.

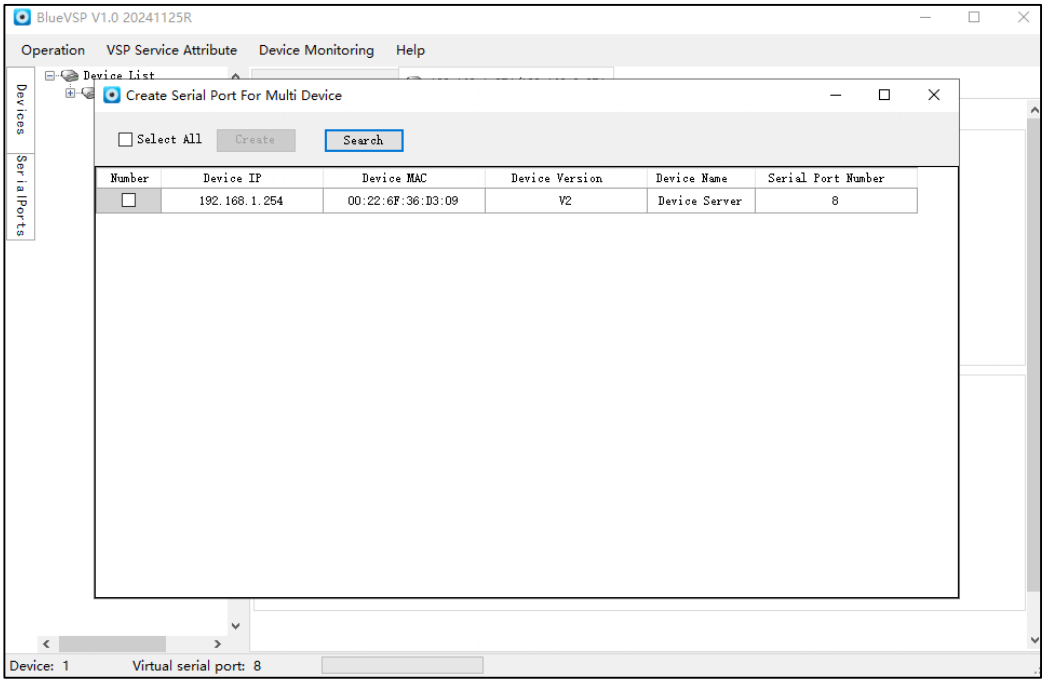
### Operation Steps

**Step 1** In the "Device List", right-click on "Create COM For Multidevice", as shown in the following figure

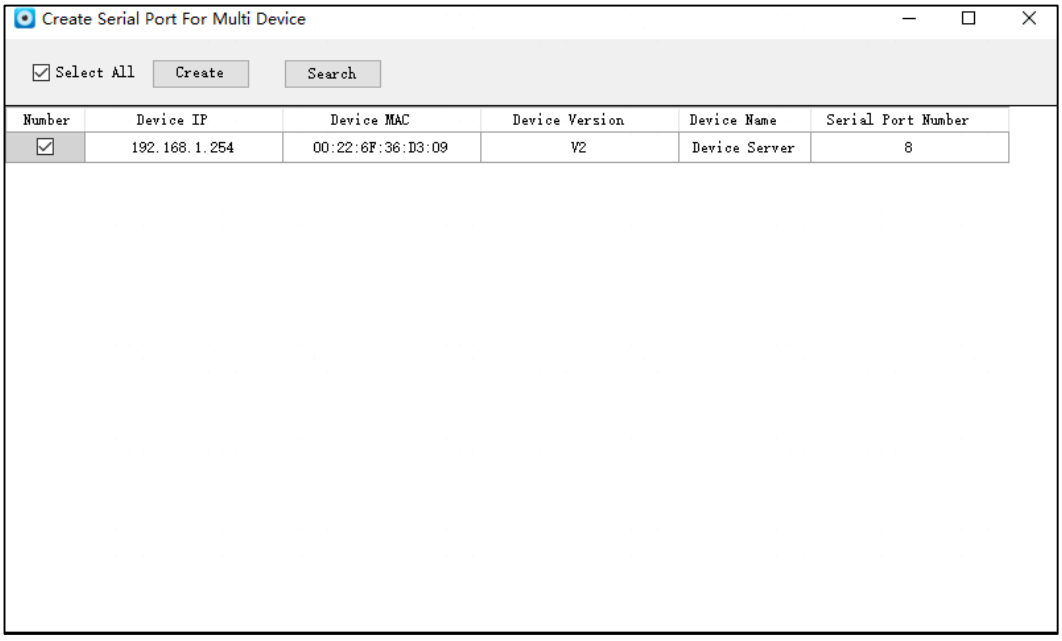



**Step 2** If no actual connected devices are found in the list, you can click the "Search" button to search for devices, as shown in the following figure:


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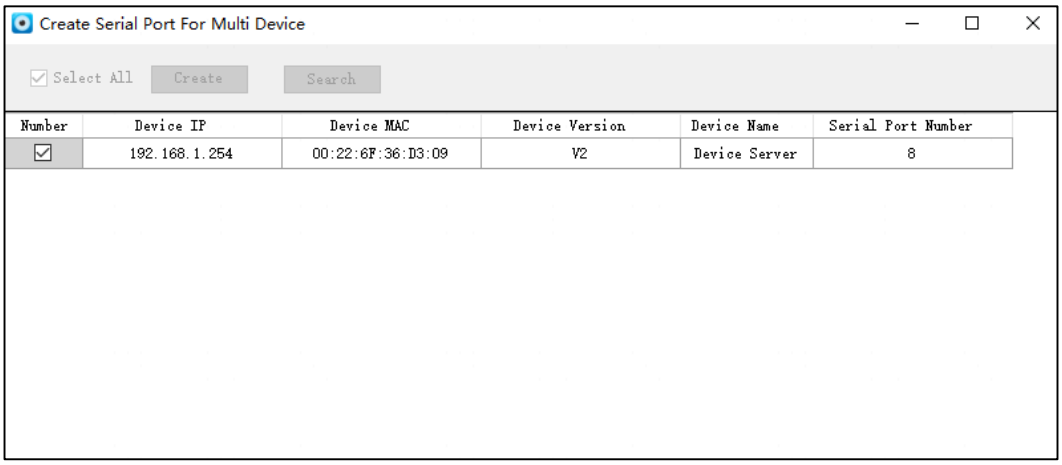



**Step 3** After searching for devices, select the device that needs to create a virtual serial port, or click the "Select All" button to select all, as shown in the figure:




**Step 4** By clicking "Create", virtual serial ports corresponding to the "Serial Port Number" in the device list will be created, all of which default to RealCom mode and cannot be modified, as shown in the figure below:


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**Step 5** The created device is shown in Figure 1 below. Double-click the virtual serial port to view the default configuration of the virtual serial port, as shown in Figure 2:

Figure 1:

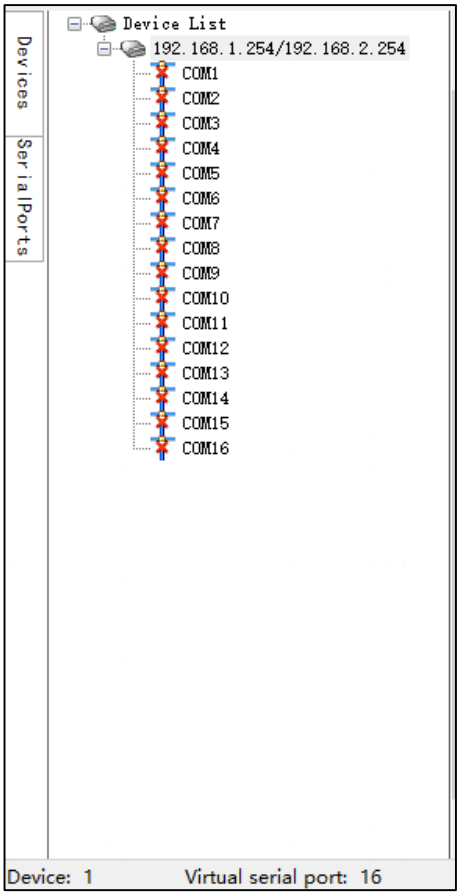
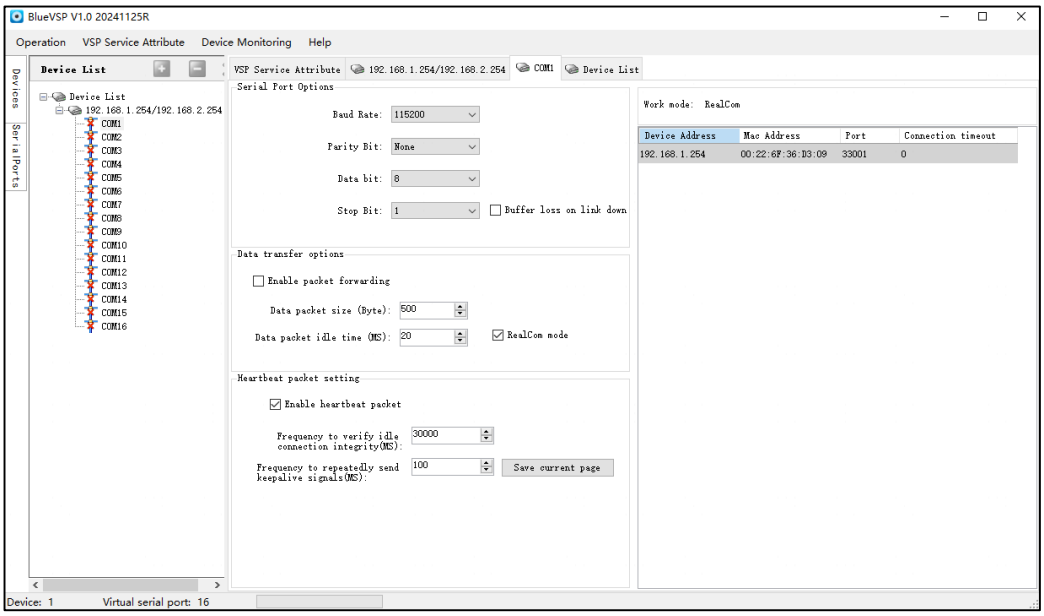



Figure 2:


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—End.

## 2.4.2 Create Virtual Serial Ports in Batches

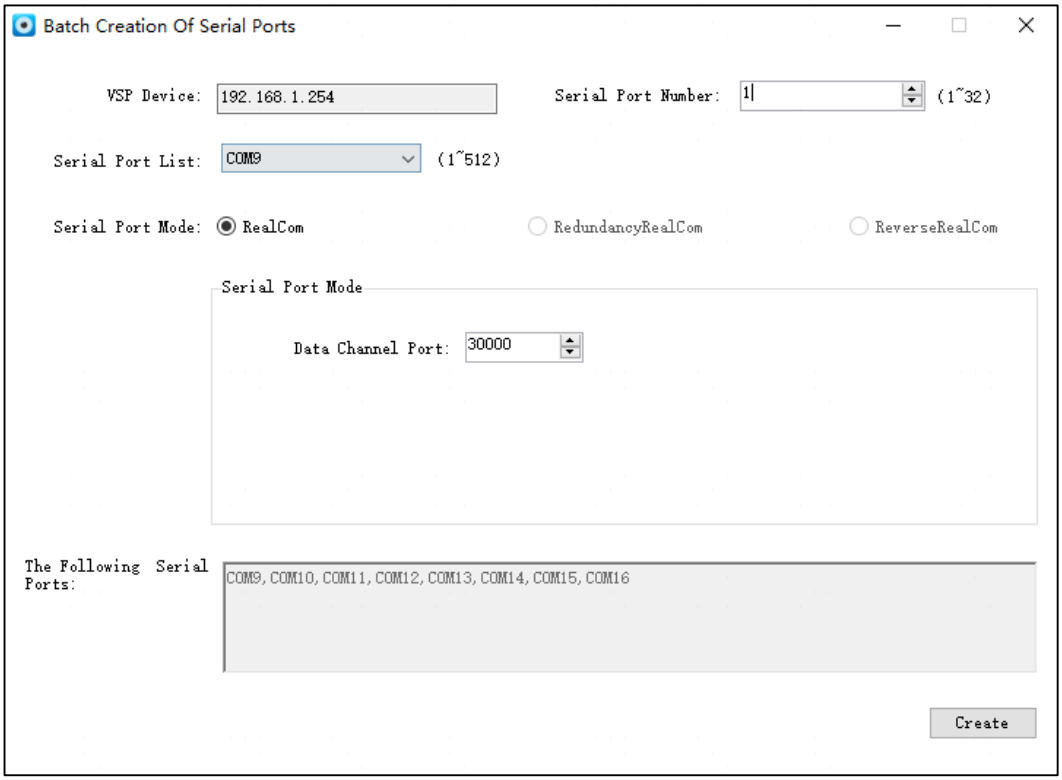
### 2.4.2.1 Create RealCOM

#### Create serial ports-single channel/dual channel devices in batches

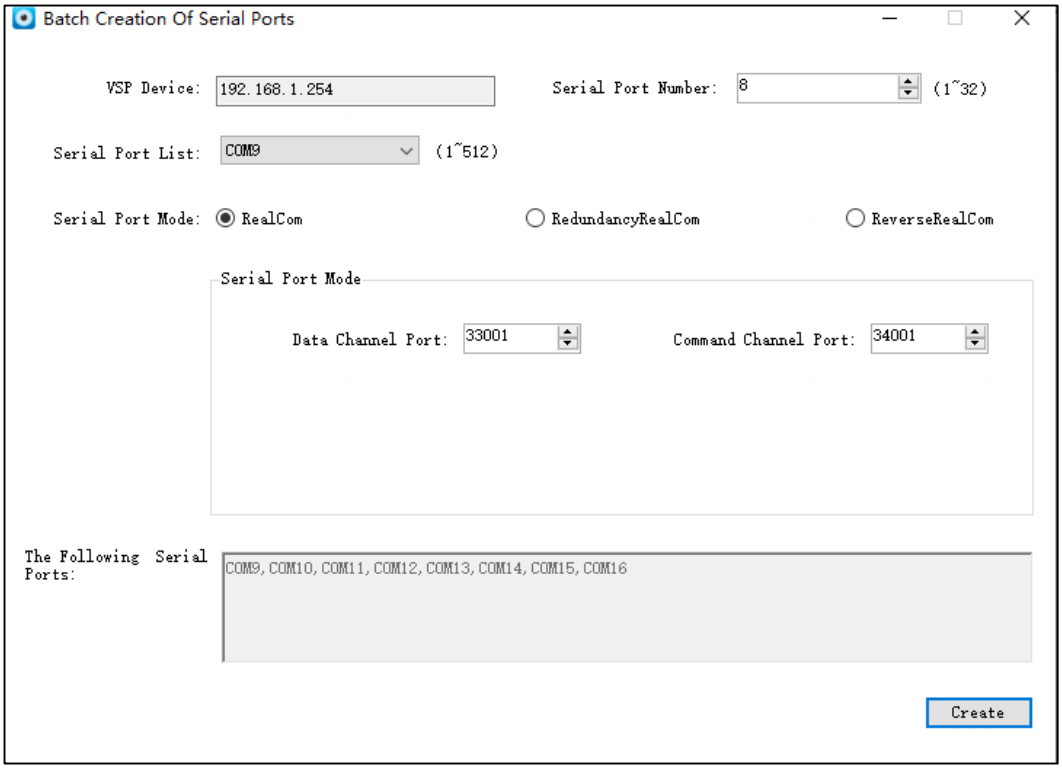
#### Operation Steps

**Step 1** Create a single channel or dual channel virtual serial port, defined by the type of serial server.

1 For V1 generation devices, only single-channel devices can be created, and only “Data Channel Port” can be modified. Redundant RealCom and reverse RealCom are not available, as shown in the following figure:



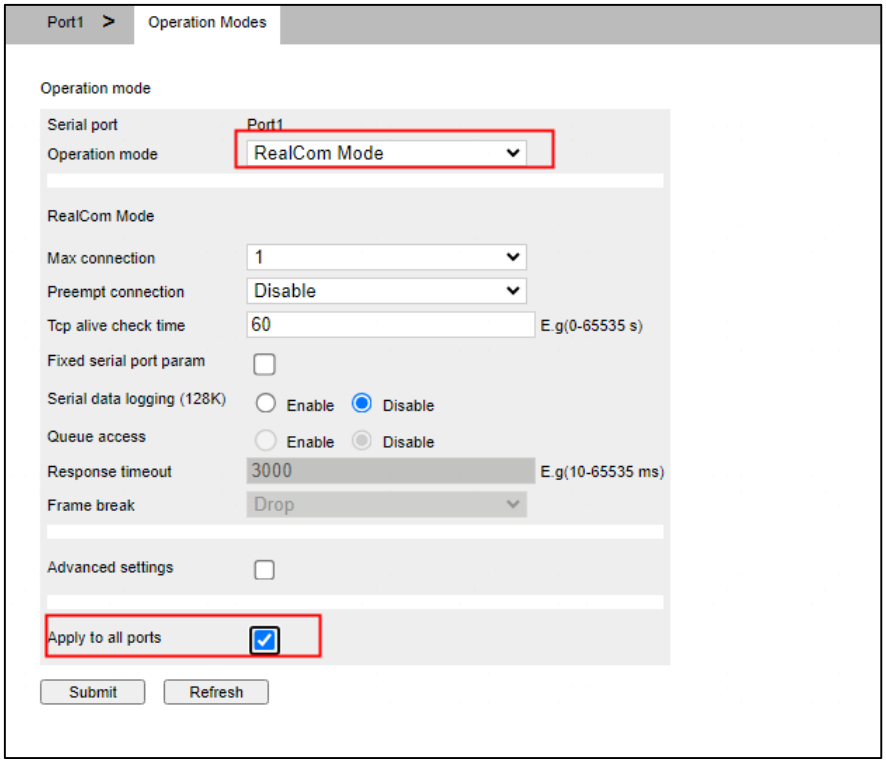

2 For V2 devices, the ports of “Data Channel Port” and “Command Channel Port” can be modified, as shown in the following figure:




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Notice

- Before the VSP creates the virtual serial port, it is necessary to configure the serial port of the serial server to work in "RealCom Mode" in advance to ensure the normal connection of the virtual serial port, as shown in the following figure. In the WEB interface of the dual-channel safe serial server, open "Serial port mode > Port1" in order to configure the Port1 operation mode.




- Different models or versions of serial servers may have different WEB interface display or operation paths, but the working mode configuration is similar.
- Secure serial servers are generally dual channel devices.

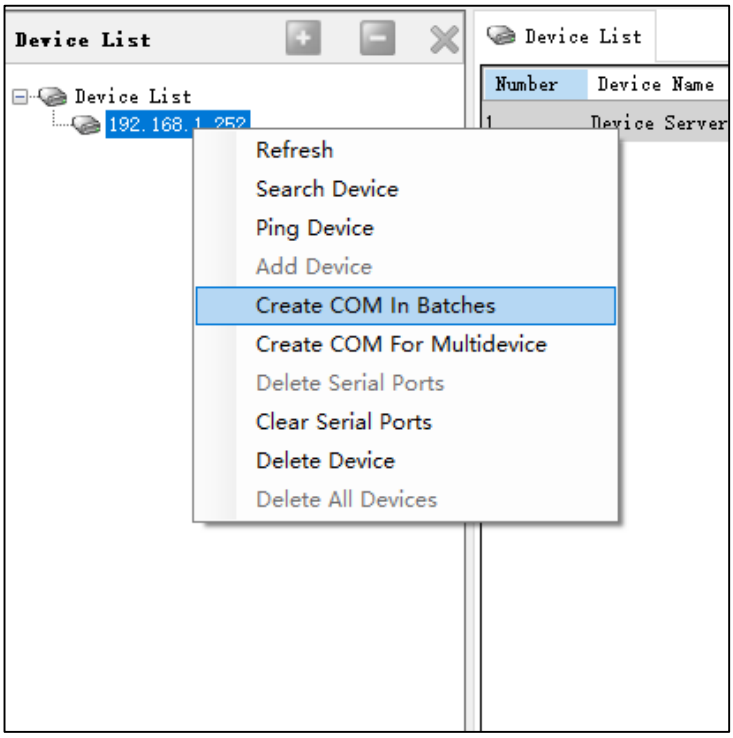
Key

After the serial configuration is complete, save the serial port configuration file. The configuration file can be used to configure other serial or restore the configuration of the serial port, the operation method is as follows:

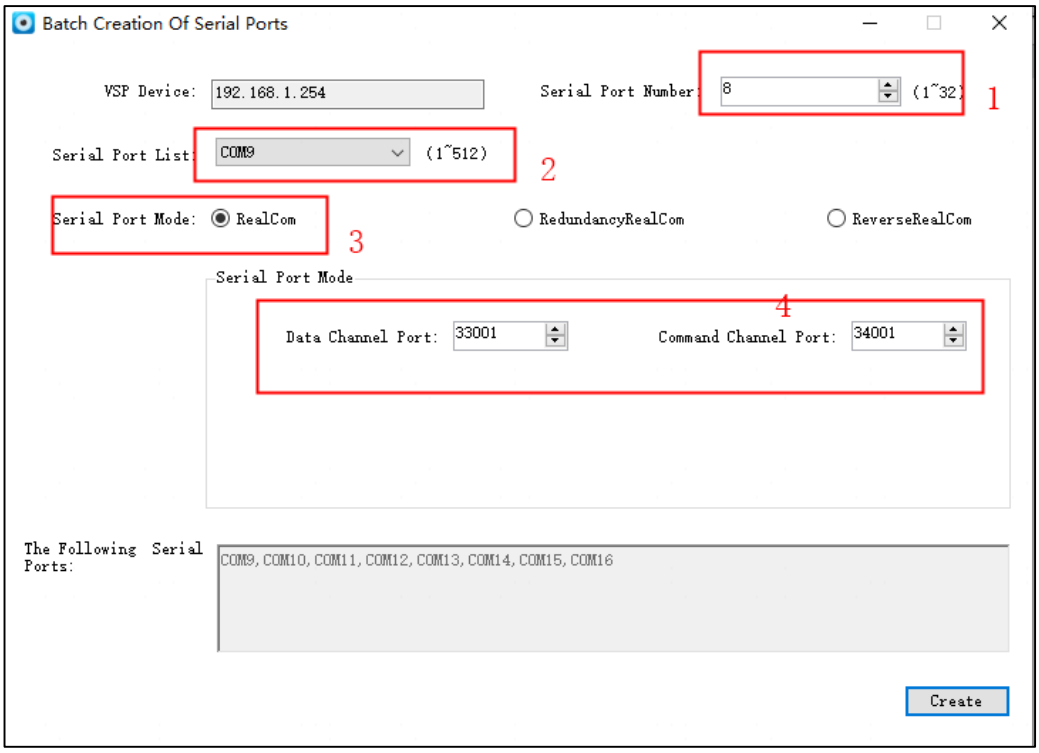
- Click on the menu "Operation>Backup", select the directory that needs to be backed up and name it.
- To restore or reuse the configuration, click “Operation > Restore Configuration” to restore the previous configuration.

**Step 2** On the left navigation bar of "Device List", right-click "Create COM in Batches".


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**Step 3** The "Batch Creation Of Serial Ports" window will pop up, and the properties of "Serial Port Number", "Serial Port List", "Serial Port Mode", and "Data Channel Port" will be selected and configured, as shown in the following figure.



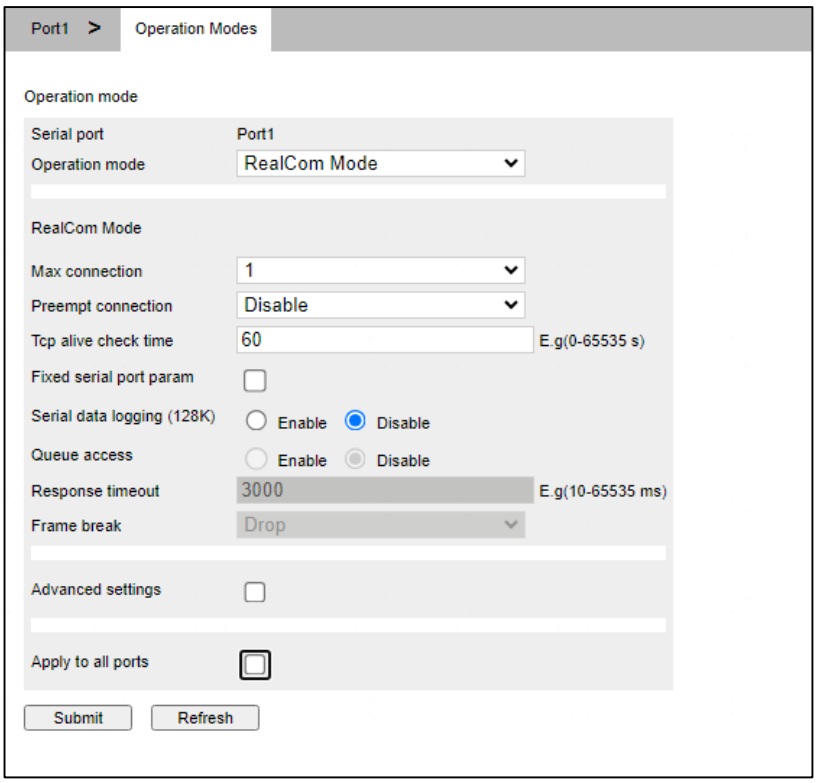

**Step 4** Click the 'Create' button and wait for the creation to complete. The virtual serial port created will be visible in the device list.


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**—End.**

## COM Work Mode Configuration

To create virtual serial port, the serial server should be configured accordingly, and the serial server should be configured into RealCom mode, as shown in the following figure. Users can open "COM Mode > Port1" in order through the WEB interface to configure the operation modes of the serial server.




The default connection of virtual serial port is “TCP Client mode”. After the virtual serial port is created, TCP connection will be established with the remote device immediately. If the connection is disconnected abnormally, the program will reconnect immediately until the connection is successful.

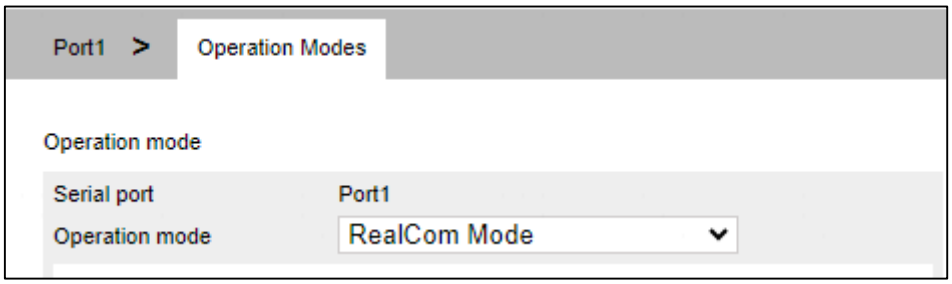
### 2.4.2.2 Create Redundant COM- Dual Channel Devices

Redundant COM supports the simultaneous transmission of data and commands between two different network segments. It is suitable for redundant backup network. When one network is interrupted, it can still communicate normally. In the redundant COM mode, the data will be transmitted on two networks at the same time, and a valid data will be provided after processing on the VSP or serial server. Redundant COM is suitable for dual channel serial port servers with double ports and double IP addresses, as well as network environments with dual network card hosts.

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Notice

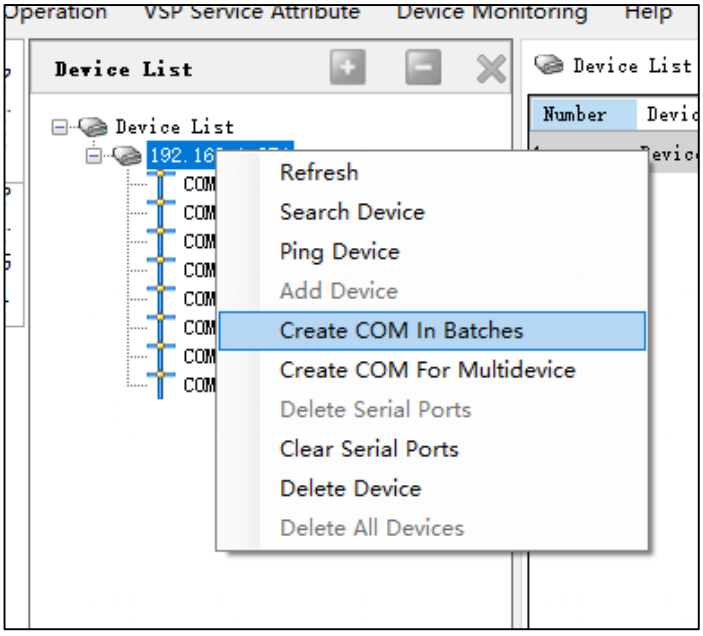
- Before VSP creates redundant COM, it is necessary to configure the corresponding serial port operation mode of serial port server as "Redundant COM Mode" in advance to ensure the normal connection of virtual serial ports, as shown in the following figure. In the WEB interface of the dual-channel safe serial server, open "Serial port mode > Port1" in order to configure the Port1 operation mode.




- In the "network configuration" of serial server, it is necessary to configure the serial server as "network mode" and "double IP" mode.
- Different models or versions of serial servers may have different WEB interface display or operation paths, but the working mode configuration is similar.
- Secure serial servers are generally dual channel devices.

## Operation Steps

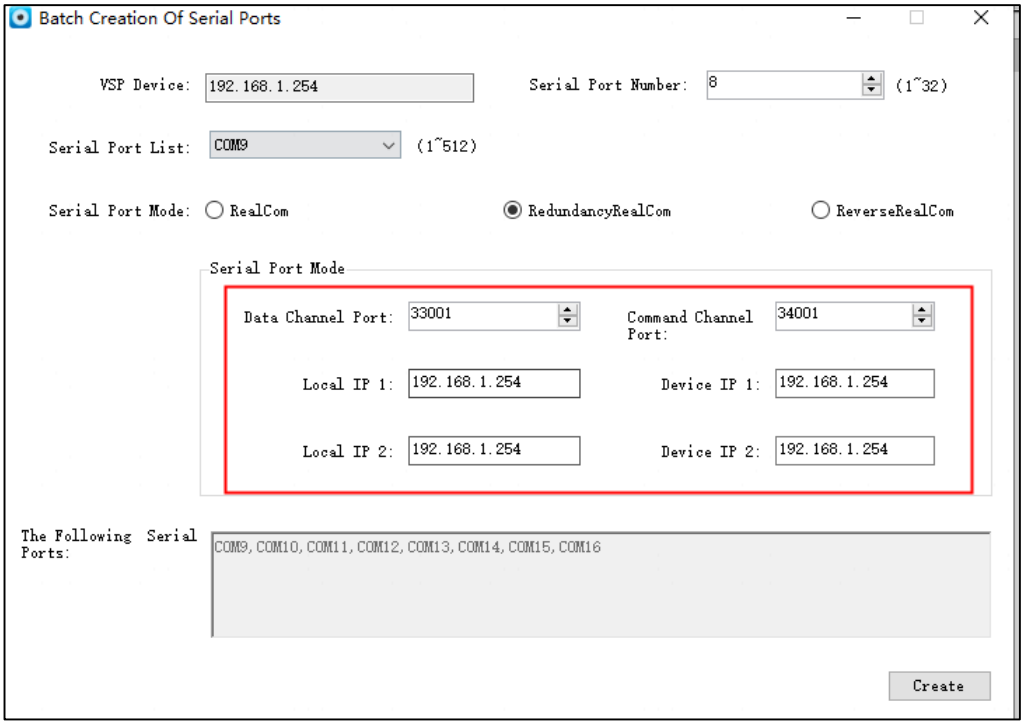
**Step 1** In the "Device List", right-click on "Create COM in Batches", as shown in the following figure





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**Step 2** Pop up the "Batch Creation Of Serial Ports" window, enter device information to create a virtual serial port, as shown in the following figure.




1 In the "Batch Creation of Serial Port" window.

2 Click the "RedundancyRealCom" button to enter the redundant COM configuration area.

3 In the "Device IP1" text box, enter the IP address of the dual port serial port server LAN1.

4 In the "Device IP2" text box, enter the IP address of the dual-port serial server LAN2.

5 In the Data Channel Port text box, enter the data port number of the serial server.

6 In the Command Channel Port text box, enter the command port number of the serial server.

7 In the Number of Serial Ports text box, enter the number of serial ports to be created.

8 Click "Create" button.

**—End.**

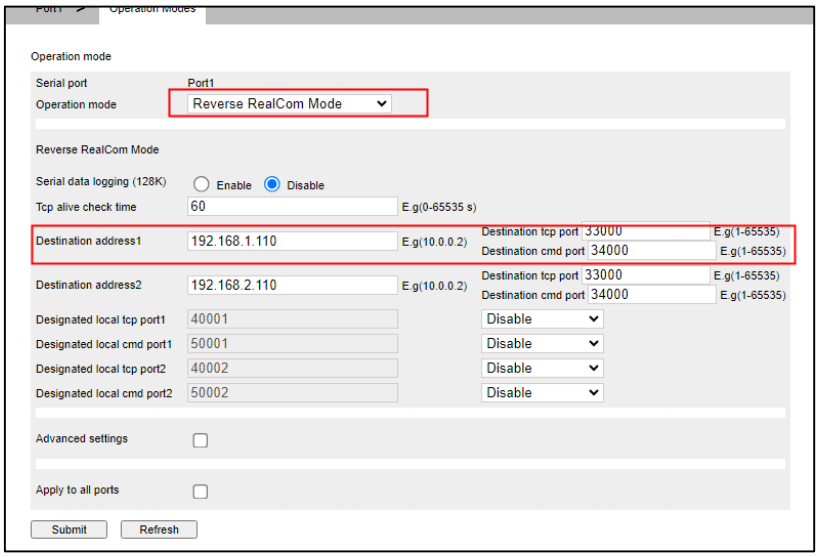

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### 2.4.2.3 Create Reverse RealCom- Dual Channel Device

In creating a virtual serial port, a VSP host generally initiates a request to the server device as a client and establishes a TCP connection. And reverse RealCom, VSP as a server, requests are initiated from the serial server to the VSP and establish a connection. Reverse RealCom mode can be used when the serial server IP address is in a changing state.

Notice

- Before VSP creates reverse RealCOM, it is necessary to configure the corresponding serial port operation mode of serial port server as "Reverse RealCom Mode" in advance to ensure the normal connection of virtual serial ports, as shown in the following figure. In the WEB interface of the dual-port safe serial server, open "Serial port mode > Port1" in order to configure the Port1 operation mode.



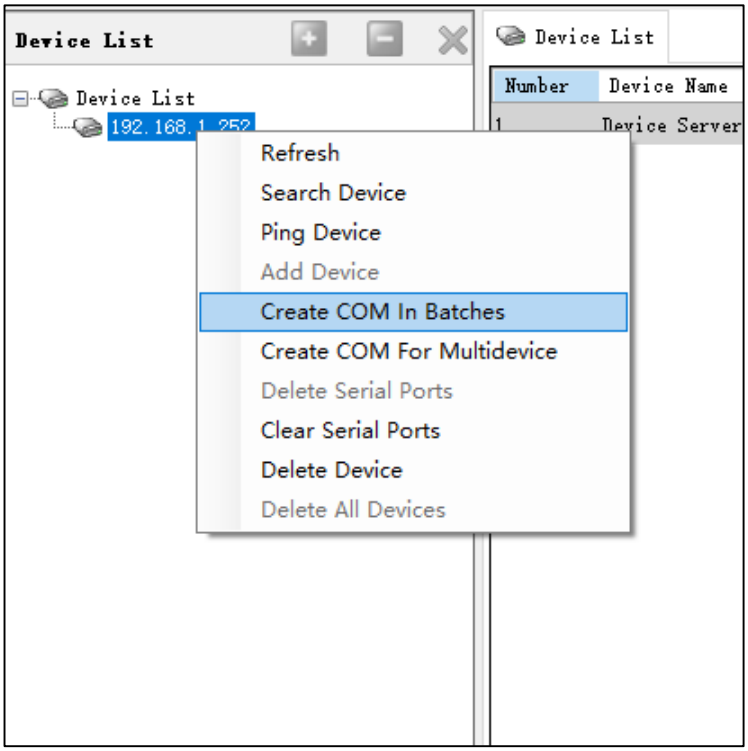

- Different models or versions of serial servers may have different WEB interface display or operation paths, but the working mode configuration is similar.
- Secure serial servers are generally dual channel devices.

## Operation Steps

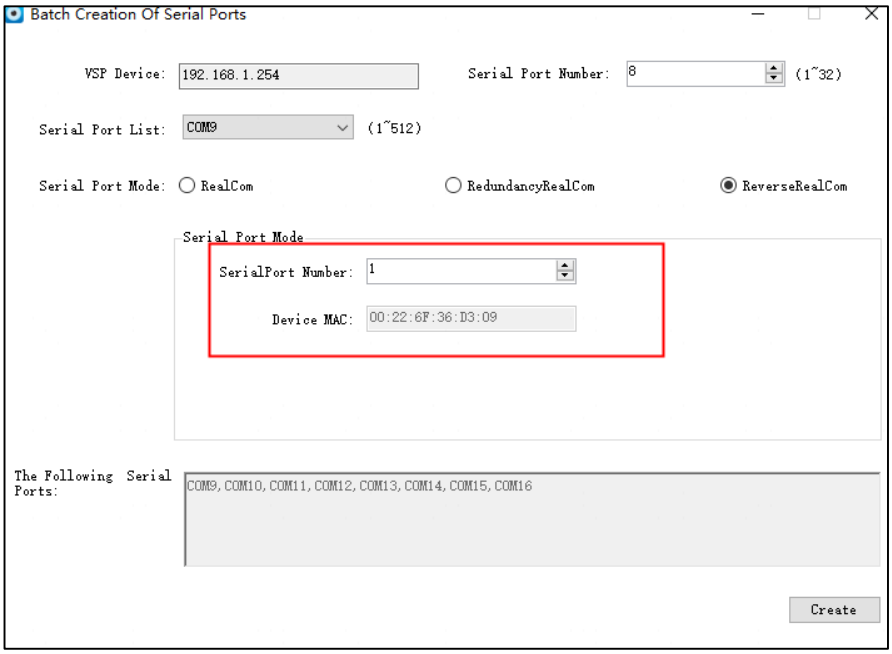
**Step 1** In the menu bar, click the “Show” button and select “Show device list”.

**Step 2** In the "Device List", right-click on "Create COM in Batches", as shown in the following figure


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**Step 3** Pop up the "Batch Creation Of Serial Ports" window, enter device information to create a virtual serial port, as shown in the following figure.




1 In the "Batch Creation Of Serial Ports" window, check the "Enter Device Information" radio button.

2 Click the "Reverse Real Com" button to enter the reverse RealCom configuration area.

3 In the "Device MAC" text box, enter the MAC address of the serial server.


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4 Enter the initial serial number of the serial server in the Serial Number text box.

5 In the Number of Serial Ports text box, enter the number of serial ports to be created.

6 Click "Create" button.

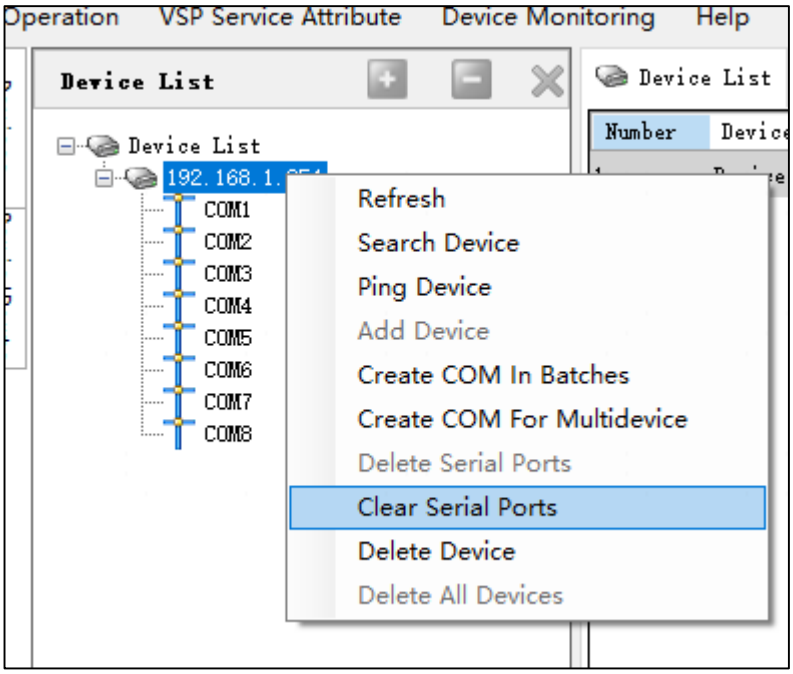
**—End.**

## 2.4.3 Remove Virtual Serial Port

### Operation Steps

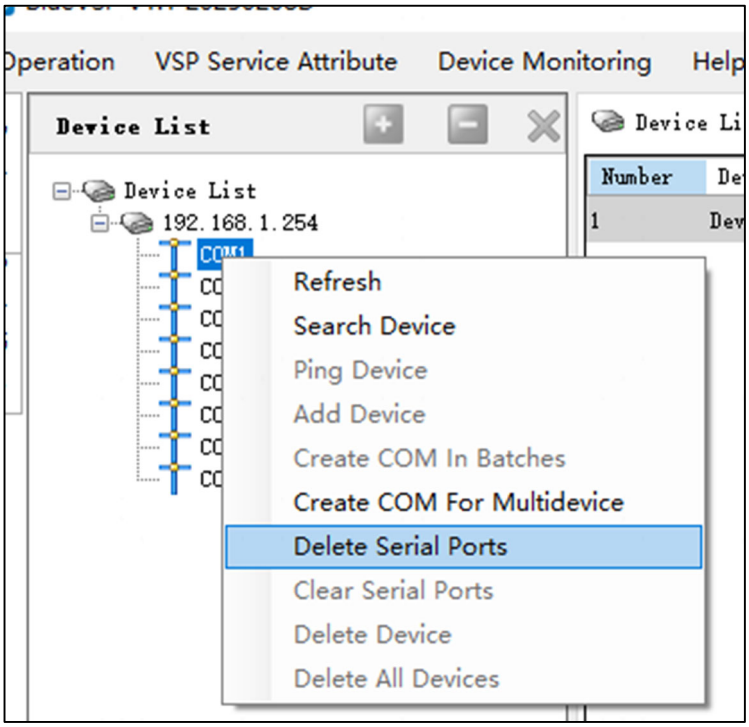
**Step 1** When all serial ports need to be deleted, right-click on the device IP and select "Clear Serial Ports" to delete all virtual serial ports of the device at once.

When a serial port is already open, a prompt will pop up saying, "Serial port is open and cannot be deleted." Other serial ports that are not open will be deleted.




**Step 2** To delete a single virtual serial port, right click the serial port to delete it one by one. Refer to the picture below.


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Notice

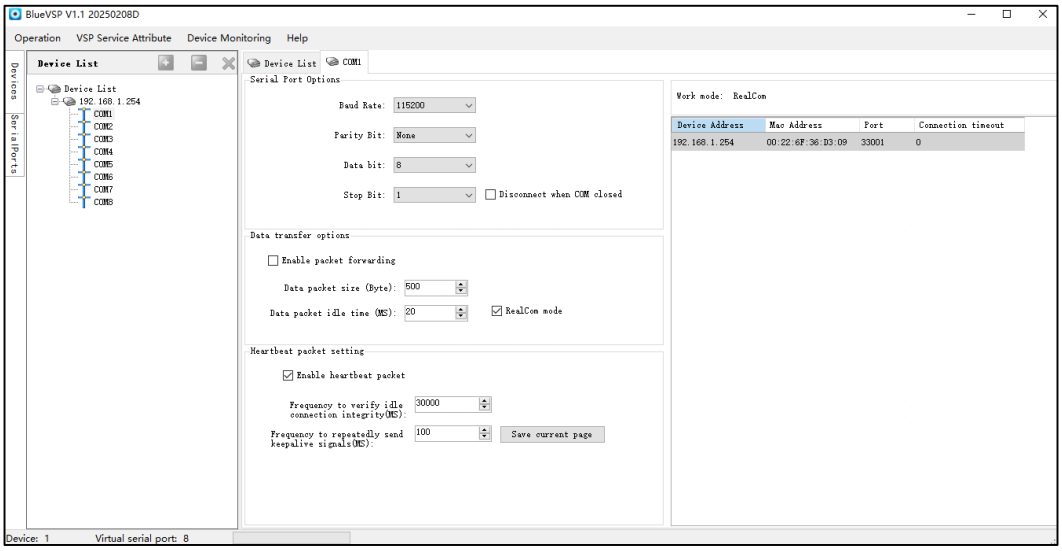
Cannot delete the serial port being used.

—End.

## 2.4.4 Checking Serial Parameters

Checking virtual serial port configuration information. Double click the serial port to be checked, pop-up menu bar attributes, you can view the basic information of the serial port, connection status, advanced parameters and other information. When the serial port is open, it cannot be modified, can only view, the interface as shown in the following figure.

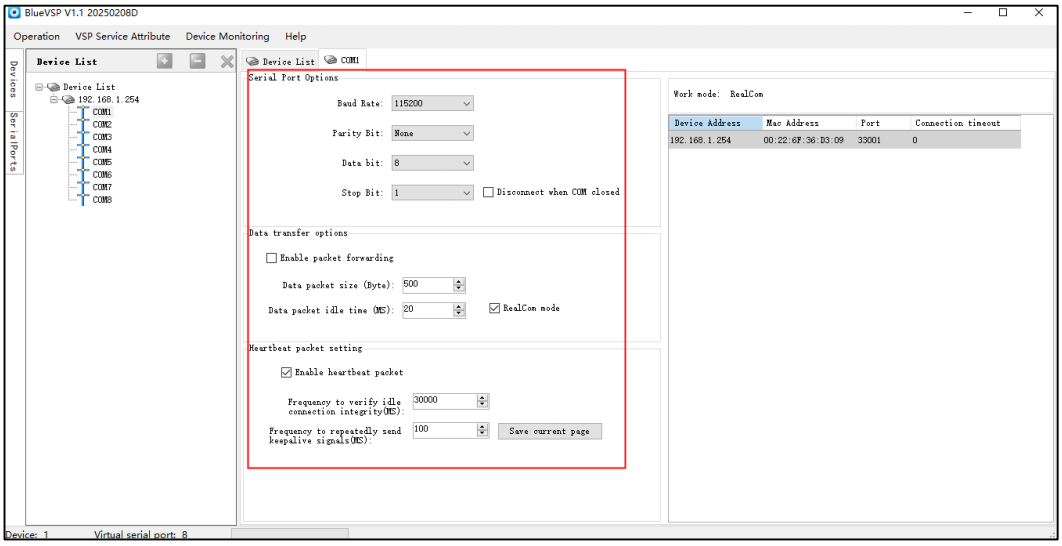
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Users can check the TCP connection status. If it is connected, “ "icon is displayed, and if it is “ ” displayed, it means that the connection has been disconnected.

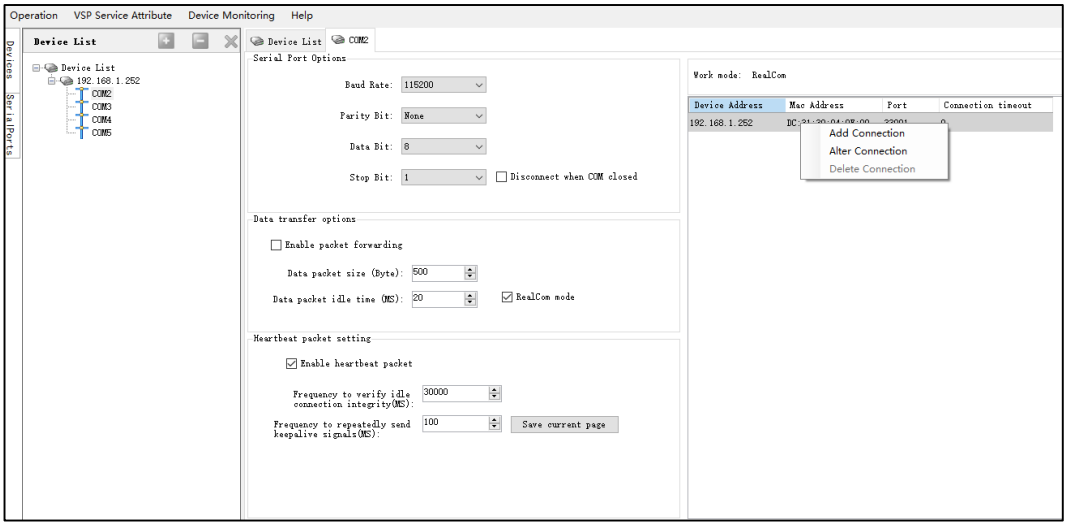
## 2.4.5 Serial Port Parameter Modification

If changing serial port parameters, user can configure them accordingly, such as data transmission mode, packet size, waiting time for network connection, and heartbeat packet. Refer to the picture below.

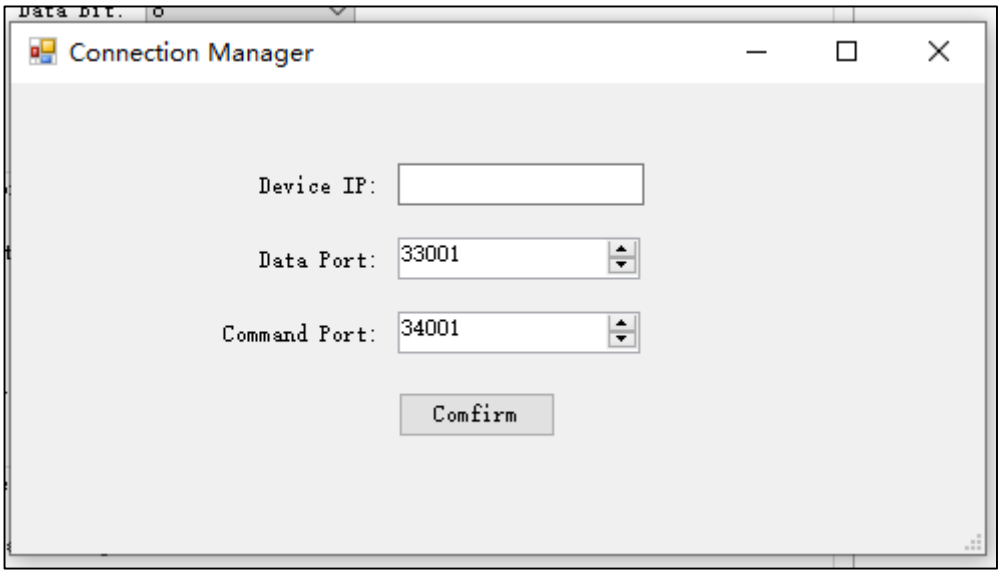



Modify the connection parameters, right-click the connection in working mode, and options such as [Add Connection], [Alter Connection] and [Delete Connection] will pop up for functional operation.


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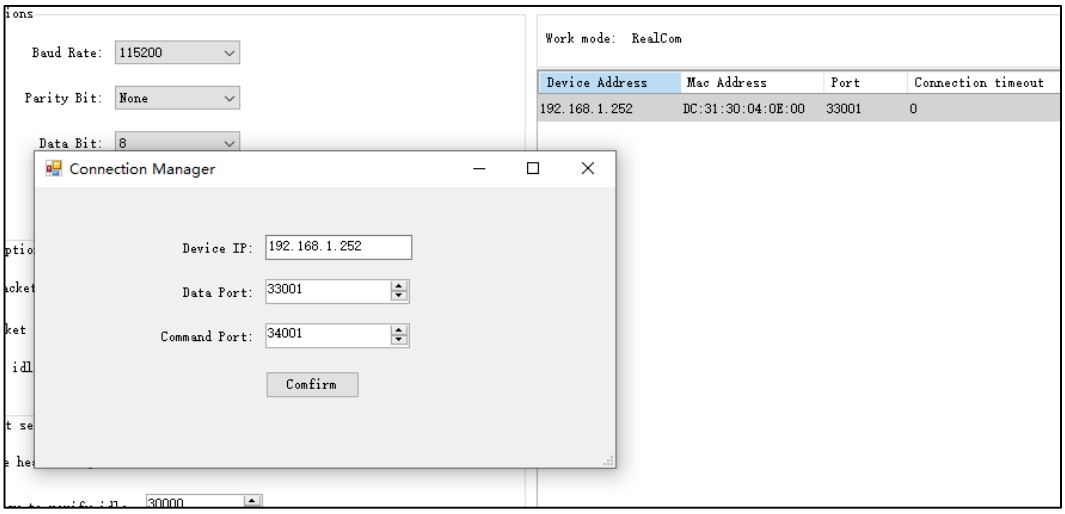



Add connection:




Modify connection:


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Baud Rate: 115200
Parity Bit: None
Data Bit: 8
Work mode: RealCom
Device Address
Mac Address
Port
Connection timeout
192.168.1.252
DC:31:30:04:0E:00
33001
0
Connection Manager
Device IP: 192.168.1.252
Data Port: 33001
Command Port: 34001
Comfirm

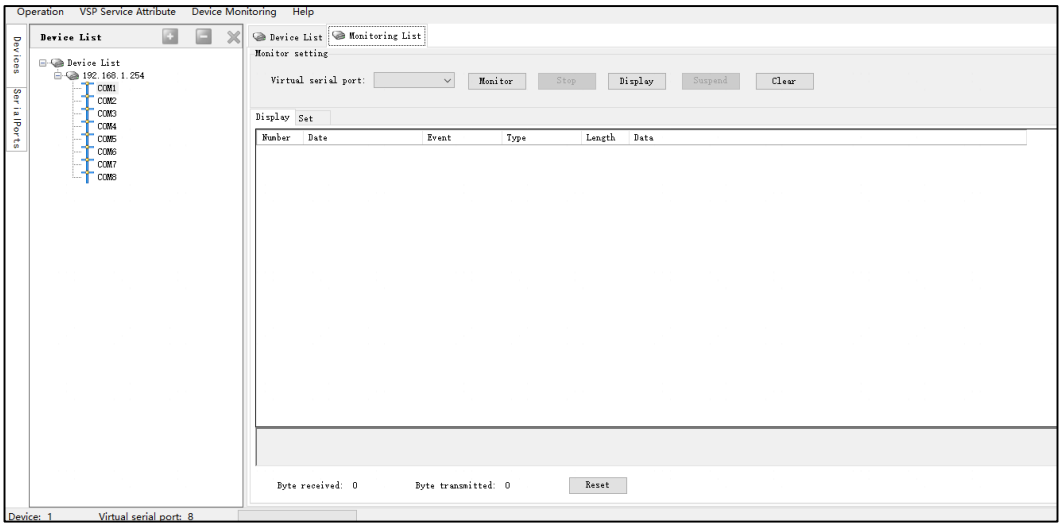
# 3 Monitor Management

## 3.1 Monitor Configuration

Open the virtual serial port monitor.

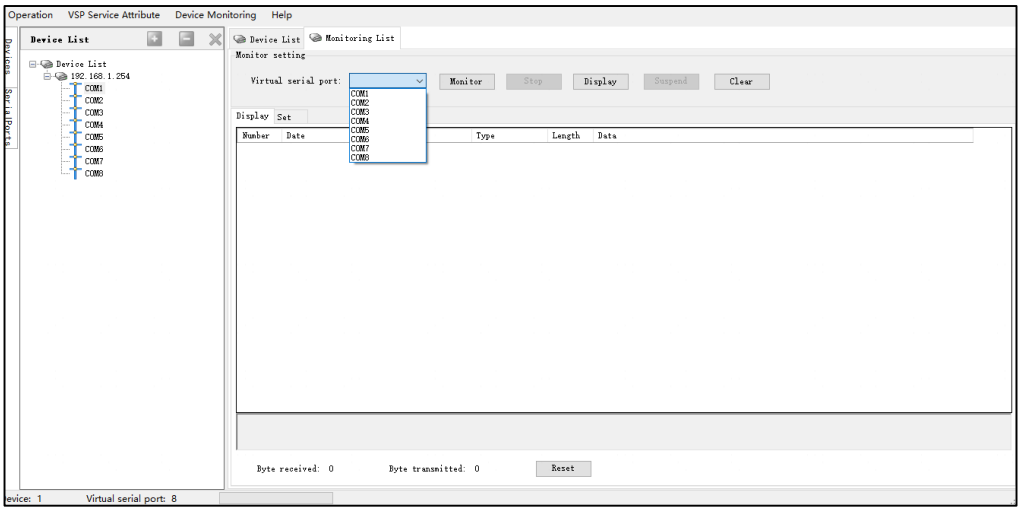
### Operation Steps

**Step 1** Click "Monitoring List" in the menu bar to enter the VSP monitoring interface. Refer to the picture below.

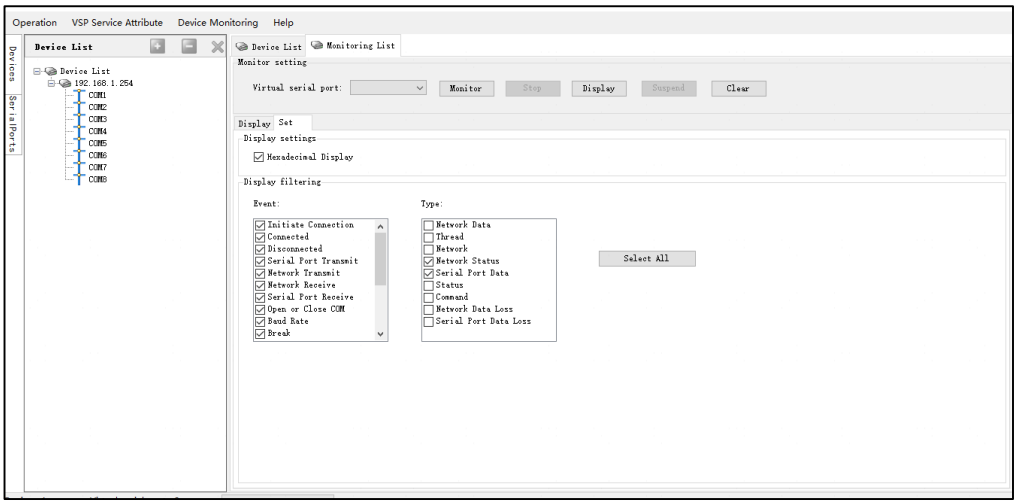



**Step 2** In the “Virtual Serial Port” drop-down menu of “Monitoring setting” tab, select the virtual serial port to be monitored.


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**Step 3** Click "Set" and select the events and types to be monitored, as shown in the following figure.

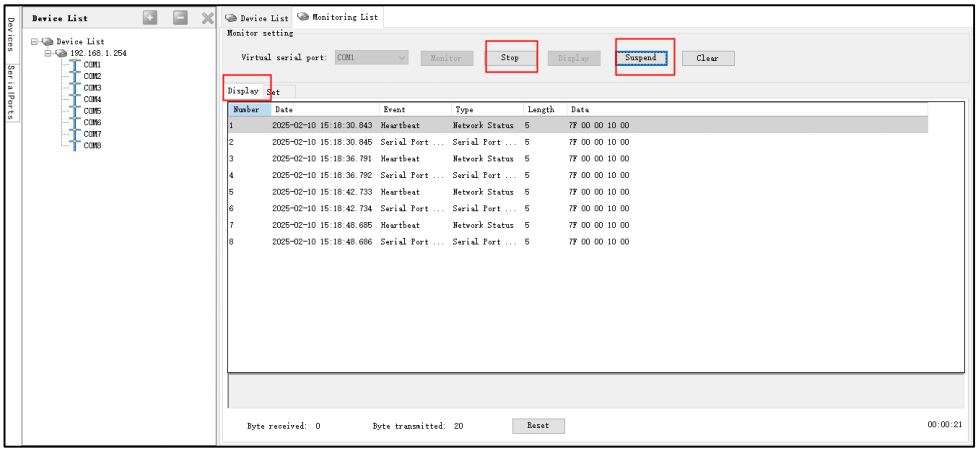



**Step 4** Click “Display” tab to enter view interface.

**Step 5** Click the “Display” button, the screen starts to display data.

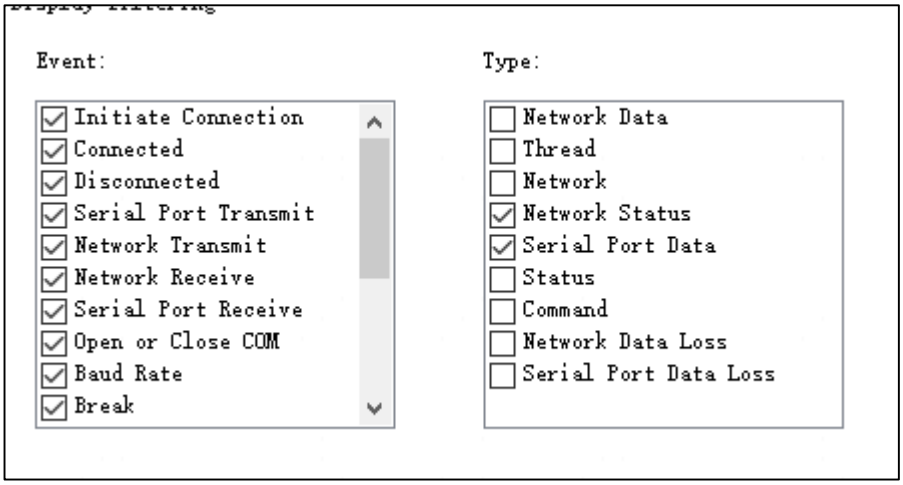
**Step 6** Click “Monitor”, VSP monitoring begins as shown below.


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**—End.**

## 3.2 Monitoring Type Description




| Type | Description |
|---|---|
| Network Data | The data on monitoring network, including sending data and receiving data. |
| Thread | Monitoring thread. |
| Network | Monitor network events, such as connecting the network, closing the network. |
| Network Status | Monitor network state log, including network connection, disconnect and close. |
| Serial Port Data | Monitor serial data. |
| Status | Monitor serial state. |
| Command | Monitor RealCom command. |
| Network Data Loss | Monitor log when the network discards data. |

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| Type | Description |
| --- | --- |
| Serial Port Data Loss | Monitor log when the serial discards data. |

Choose “Set” to choose the events to be monitored.

Check “Hexadecimal Display”, the screen will show sending and receiving data in HEX. Display data in ASCII by default.

Notice

Monitoring function is used to debug, open this function will affect the performance of the service, resulting in increased memory service, it is recommended not to use the monitoring function for a long time.

## Example1 Monitor serial state and data

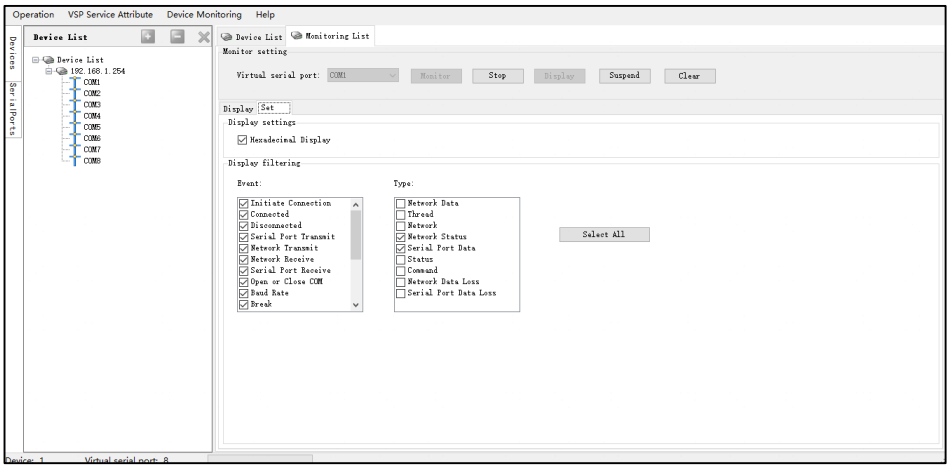
When the virtual serial communication data is abnormal, the whole communication function can be monitored by VSP monitoring function

## Operation Steps

**Step 1** Click “Monitoring List” in the menu bar to enter the virtual serial port monitoring interface.

**Step 2** Select the virtual serial port to be monitored in the "Virtual Serial Port" drop-down menu.

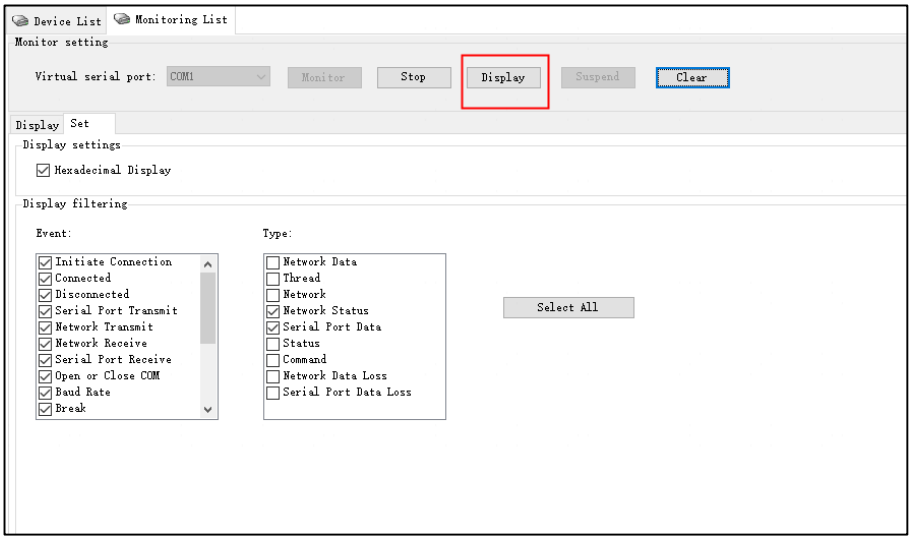
**Step 3** Click "Set" to enter the event and type configuration interface, as shown in the following figure.



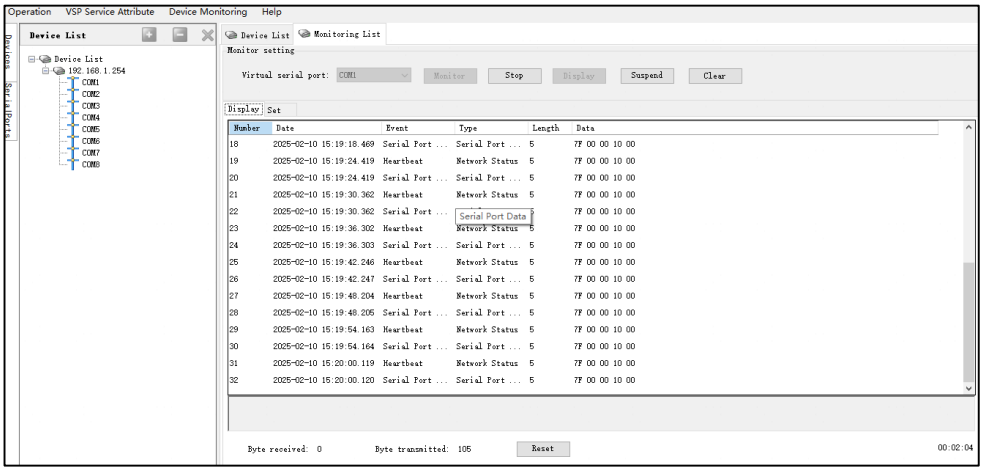

**Step 4** Under the “type” column, click the check box in front of "Serial Data" and "Status".


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**Step 5** Click the “Display” button.




**Step 6** Click the "Monitor" button, the screen will show the serial data monitoring interface, as shown in the following figure.




Note:

As shown in the red box above, you can view the status of virtual serial port, baud rate, serial data transmission, serial data receiving and other serial parameters. VSP provides reliable monitoring of serial data communication, which is convenient for engineers to install and debug.

**—End.**

## Example 2 Monitor “Socket Connect Status”

When the virtual serial port connection is abnormal, the network state monitoring can be carried out by VSP.

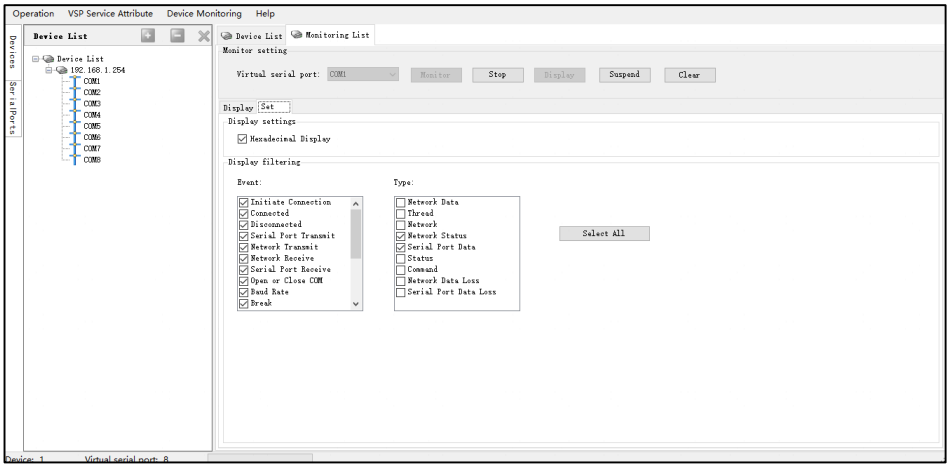

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## Operation Steps

**Step 1** Click “Monitoring List” in the menu bar to enter the virtual serial port monitoring interface.

**Step 2** Select the virtual serial port to be monitored in the "Virtual Serial Port" drop-down menu.

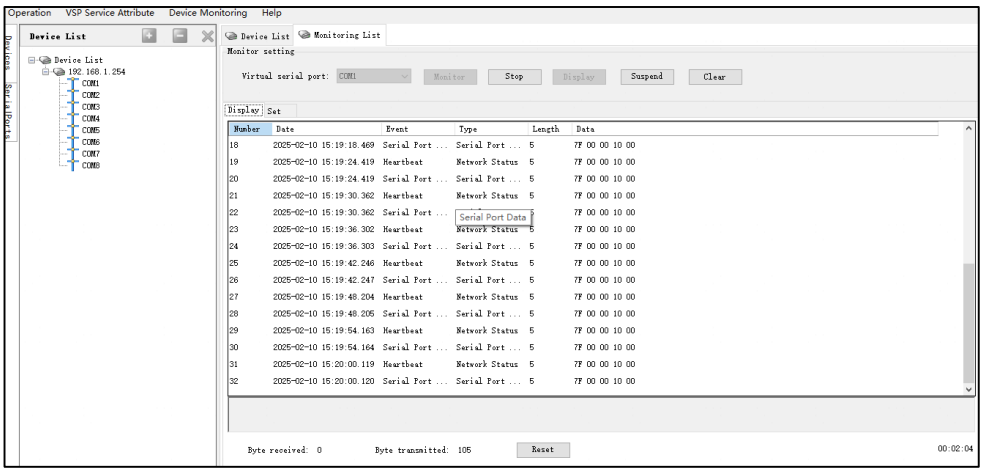
**Step 3** Click "Set" to enter the event and type configuration interface, as shown in the following figure.




**Step 4** Under “Type” column, click the check box in front of "Network" and "Network Status".

**Step 5** Click the “Display” button.

**Step 6** Click the "Monitor" button, the screen will show the serial data monitoring interface, as shown in the following figure.




Note:

When the network connection fails, the virtual serial connection state becomes disconnected “ ”, VSP will continue to initiate network connection until it is connected.

**—End.**


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## Example 3 Monitor Network Data

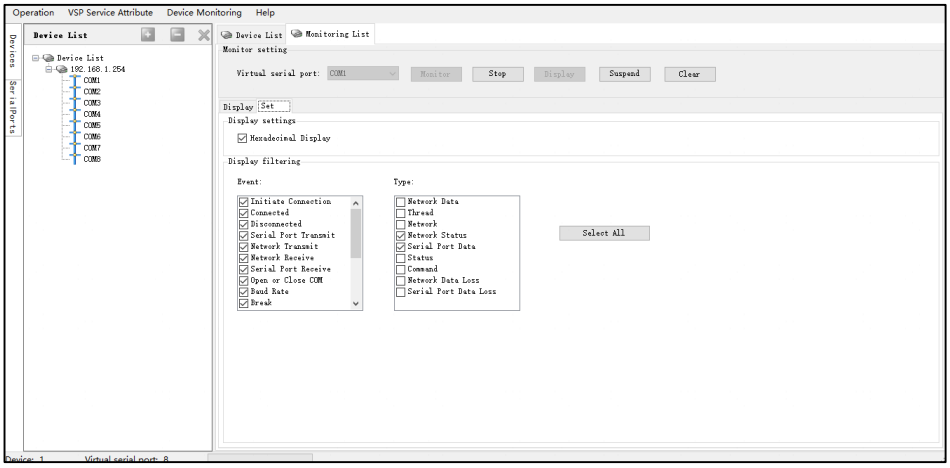
When the virtual serial port connection is abnormal, the network state monitoring can be carried out by VSP.

## Operation Steps

**Step 1** Click “Monitoring List” in the menu bar to enter the virtual serial port monitoring interface.

**Step 2** Select the virtual serial port to be monitored in the "Virtual Serial Port" drop-down menu.

**Step 3** Click "Set" to enter the event and type configuration interface, as shown in the following figure.



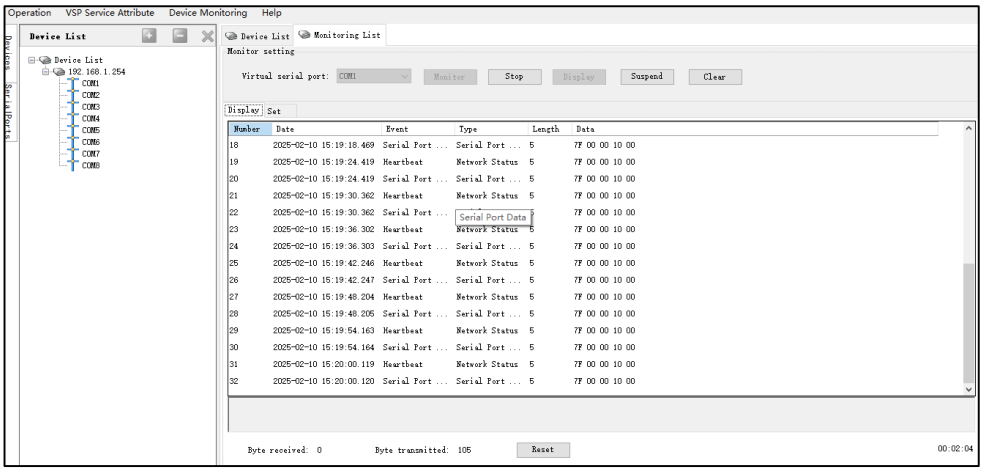

**Step 4** Under the type column, click the check box in front of "Network Data", “Network” and " Network Status".

**Step 5** In the display setting item, check "Hexadecimal Display".

**Step 6** Click the “Display” button.

**Step 7** Click the "Monitor" button, the screen will show the serial data monitoring interface, as shown in the following figure.

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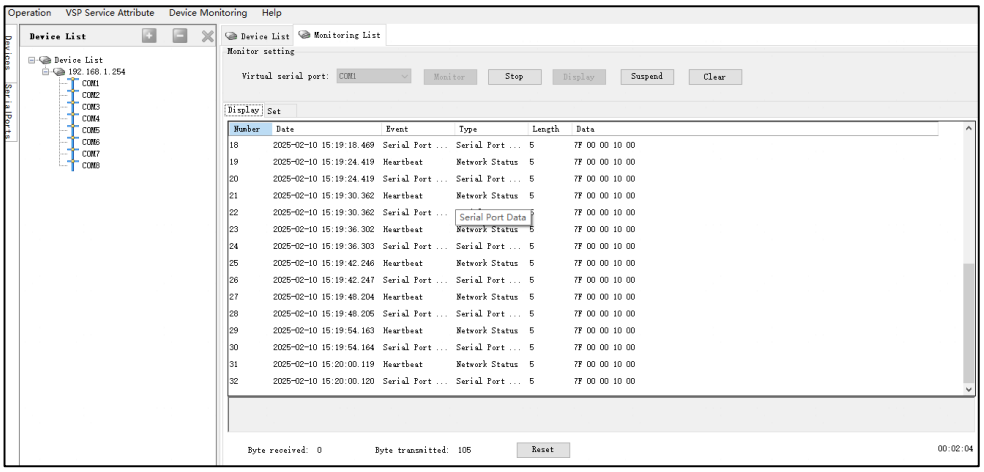

Note

- If the display is garbled when monitoring network data, you can check "Display by HEX".
- When creating a virtual serial port, the Realcom settings need to be synchronized with the Realcom settings in the working mode of the serial server, that is, turned on or off at the same time. If only open the virtual serial port in VSP, the data from the Realcom command will be treated as serial data when the connection is created, resulting in garbled.

**—End.**

## 3.3 Clean Monitoring Information

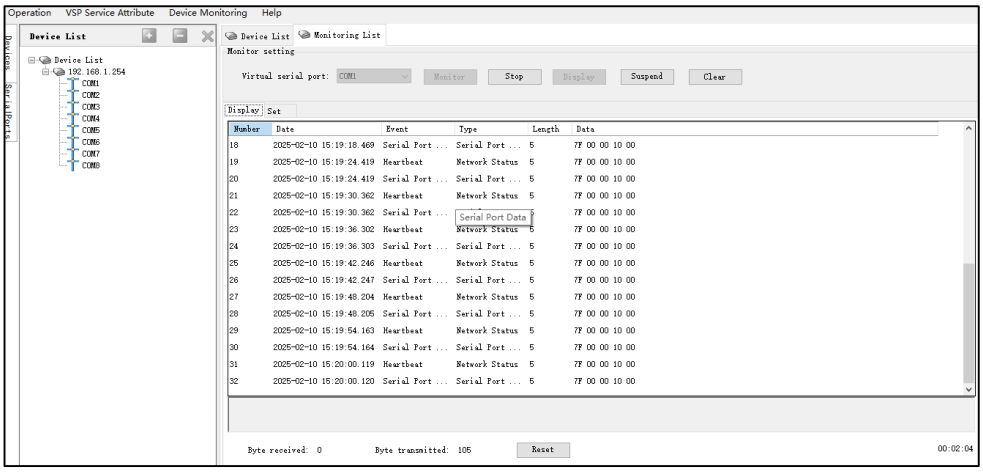
Click the "Clear" button, all the monitored information will be cleared, and the count will not be cleared.




## 3.4 Reset Counter

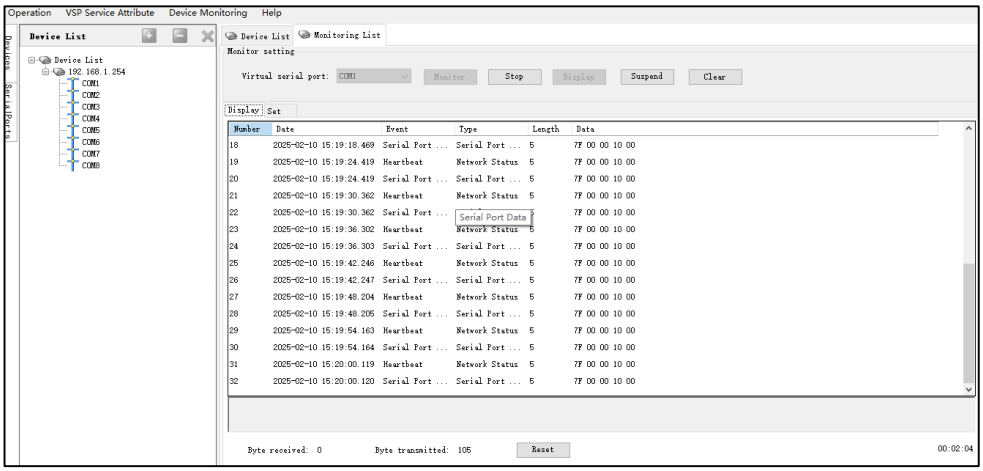
When the monitor is started, the program automatically counts the number of bytes sent and received by the virtual serial port. User can click Reset to reset the count.


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## 3.5 Display and Stop Display

When the display is stopped, the program only counts the number of sending and receiving, and no longer shows the sending and receiving information.





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| | |
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