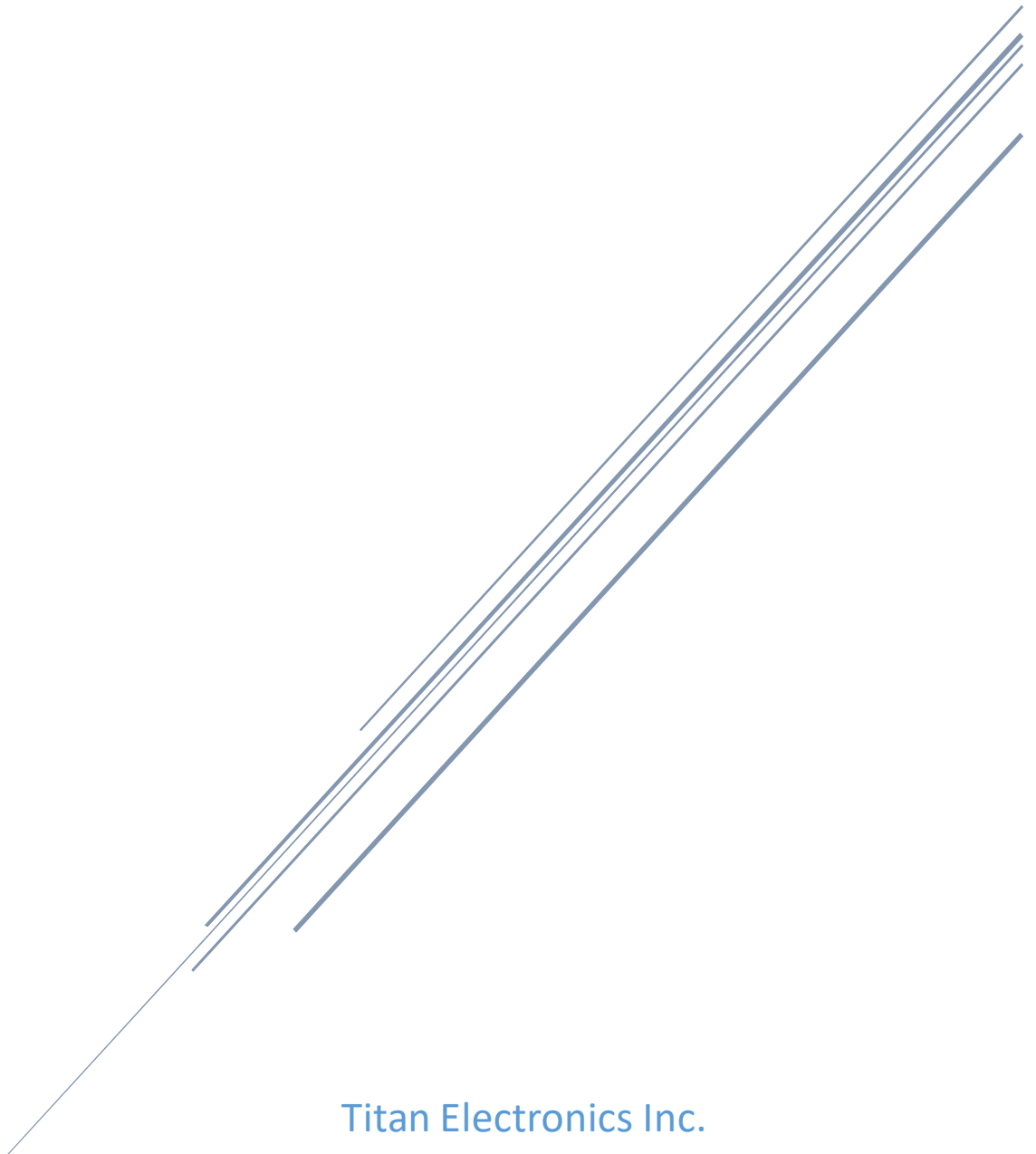


# NCOM SERIAL DEVICE SERVER 1XX SERIES USER'S MANUAL

2017-07-07 Edition



Titan Electronics Inc.  
Web: [www.titan.tw](http://www.titan.tw)

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The software provided should be used only with the NCOM series hardware  
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# 1. INTRODUCTION

*References to NCOM-113 in this document represents NCOM-113, NCOM-112 and NCOM-111, unless stated otherwise.*

NCOM-113 is a network-based serial device server. It is designed to control your serial devices located virtually anywhere through a TCP/IP or UDP/IP network connection. The serial device server can map TCP/IP connections and UDP broadcasts to a virtual serial port. Applications include accessing a faraway device for functions such as remote control and data transmission. NCOM-113 serves as a transparent virtual serial port without limitations on operating systems and distances. The virtual serial port redirection uses the protocol known as RFC2217.

NCOM-113 supports several operation modes, including Driver mode, RFC2217 Server/Client mode, Pair Connection mode, TCP Server/Client mode and UDP mode. It also supports Windows virtual serial port driver, allowing you to add a virtual serial port in your Windows system to work over a TCP/IP network. The virtual serial port functions as a native Windows COM port and is compatible with Windows serial communication applications. It is installed in the Device Manager of the operating system. This in turn will allow communications with the connected serial device in the same manner as a device physically connected to the COM port on a PC. The serial port supports high serial speeds up to 921.6Kbps in RS-232 for NCOM-111, RS-422/485 for NCOM-112, and RS-232/422/485 for NCOM-113 only.

NCOM-113 serial device server supports automatic IP configuration protocol (DHCP) and fixed static IP configuration via the handy web browser console. NCOM-113 provides a utility software for Windows, called NCOM Virtual Serial Port Manager. This program can detect, manage and configure NCOM serial device server in your network.

This manual covers three different models of one-port serial device server:

|                 |                       |
|-----------------|-----------------------|
| <b>NCOM-111</b> | <b>RS-232</b>         |
| <b>NCOM-112</b> | <b>RS-422/485</b>     |
| <b>NCOM-113</b> | <b>RS-232/422/485</b> |

In general, the software installation and operation is the same on all models, except for the different software settings for the configuration of serial operation modes on NCOM-113 and NCOM-112.

## 1.1 Key Features

The NCOM-113 has the following features:

- Adds a virtual serial COM port via network connection
- NCOM-113 fully supports the “COM Port Control” protocol known as RFC2217
- Supports network protocols such as TCP and UDP client/server
- Serial port operation mode can be easily changed via our Windows utility software or the web console interface
- Firmware upgradable for future firmware revisions
- Supports virtual serial port driver for Windows OS (Windows XP up to Windows 10)
- Supports pair connection mode for connecting two serial device servers over a network without a PC
- Easy-to-use Windows utility software for easy configuration and installation
- 10/100Mbps Ethernet with auto-detection
- Configuration via web console interface or utility software
- Windows utility software automatically finds NCOM devices on the network
- Supports “reset” button for system reset and restoring to default settings
- Data rates: 300bps to 921.6Kbps
- Auto transmit buffer control for 2-wire RS-485 half-duplex operation (NCOM-113 and NCOM-112 only)
- Termination resistors installed on-board (NCOM-113 and NCOM-112 only)
- Supported RS-232 signals: DCD, RxD, TxD, DTR, GND, DSR, RTS, CTS (NCOM-113 and NCOM-111 only)
- Supported RS-422, RS-485 4-wire signals: TxD-, TxD+, RxD+, RxD- (NCOM-113 and NCOM-112 only)
- Supported RS-485 2-wire signals: data-, data+ (NCOM-113 and NCOM-112 only)
- LEDs indicating Ethernet port’s link and speed statuses
- LEDs indicating serial port’s TxD and RxD statuses
- Virtual serial port drivers for Windows 10, 8.1, 8, 7, Vista, 2003, XP
- Built-in 15kV ESD protection for all serial signals

## 1.2 Specifications

The tables below show the specifications of the one-port serial device server:

| LAN               |                                   |
|-------------------|-----------------------------------|
| <b>Ethernet</b>   | 10/100Mbps                        |
| <b>Connector</b>  | RJ-45 connector                   |
| <b>Protection</b> | Built-in 1.5kV magnetic isolation |

| NCOM-113 Serial Interface    |  |
|------------------------------|--|
| <b>Interface</b>             | RS-232/422/485   |
| <b>No. of Ports</b>          | One  |
| <b>Connector</b>             | DB9 male connector   |
| <b>Max. Speed</b>            | 921.6kbps for serial data transmission & reception             |
| <b>RS-232 Signals</b>        | DCD, RxD, TxD, DTR, GND, DSR, RTS, CTS                         |
| <b>RS-422 Signals</b>        | TxD-, TxD+, RxD+, RxD-, GND                                    |
| <b>RS-485 Signals</b>        | 4-wire TxD-, TxD+, RxD+, RxD-, GND<br>2-wire Data-, Data+, GND |
| <b>Protection</b>            | 15kV ESD for all signals                                       |
| <b>RS-485 Data Direction</b> | Automatic RS-485 direction control                             |

| NCOM-112 Serial Interface    |  |
|------------------------------|--|
| <b>Interface</b>             | RS-422/485   |
| <b>No. of Ports</b>          | One  |
| <b>Connector</b>             | DB-9 male connector  |
| <b>Max. Speed</b>            | 921.6kbps for serial data transmission & reception             |
| <b>RS-422 Signals</b>        | TxD-, TxD+, RxD+, RxD-, GND                                    |
| <b>RS-485 Signals</b>        | 4-wire TxD-, TxD+, RxD+, RxD-, GND<br>2-wire Data-, Data+, GND |
| <b>Protection</b>            | 15kV ESD for all signals                                       |
| <b>RS-485 Data Direction</b> | Automatic RS-485 direction control                             |

| NCOM-111 Serial Interface |  |
|---------------------------|--|
| <b>Interface</b>          | RS-232   |
| <b>No. of Ports</b>       | One  |
| <b>Connector</b>          | DB-9 male connector                                |
| <b>Max. Speed</b>         | 921.6kbps for serial data transmission & reception |
| <b>RS-232 Signals</b>     | DCD, RxD, TxD, DTR, GND, DSR, RTS, CTS             |
| <b>Protection</b>         | 15kV ESD for all signals                           |

| Serial Communication Parameters |                              |
|---------------------------------|------------------------------|
| <b>Data Bits</b>                | 5, 6, 7, 8                   |
| <b>Parity</b>                   | None, Odd, Even, Mark, Space |
| <b>Stop Bit</b>                 | 1, 1.5, 2                    |
| <b>Flow Control</b>             | Hardware (RTS, CTS)          |

| Software Features        |   |
|--------------------------|---|
| <b>Protocols</b>         | ICMP, IP, TCP, UDP, DHCP, DNS, HTTP       |
| <b>Utility</b>           | NCOM management tool for Windows OS       |
| <b>OS Driver Support</b> | Virtual serial port driver for Windows OS |
| <b>Configuration</b>     | Web console, Windows utility              |

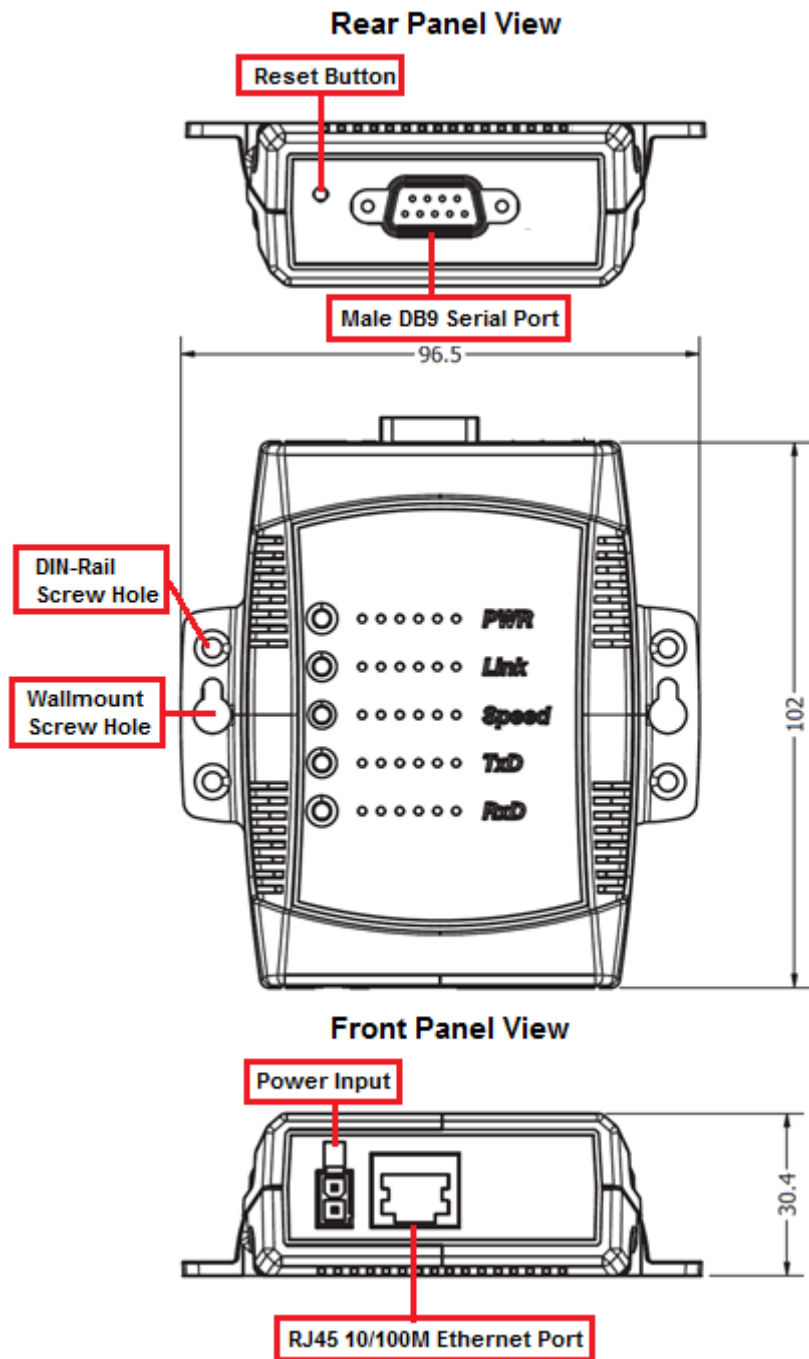
| Power Requirement        |   |
|--------------------------|---|
| <b>Power Input</b>       | 9VDC to 48VDC   |
| <b>Power Consumption</b> | NCOM-113: 100mA@12VDC, 40mA@48VDC<br>NCOM-112: 95mA@12VDC, 38mA@48VDC<br>NCOM-111: 80mA@12VDC, 30mA@48VDC |

| Environment                  |                               |
|------------------------------|-------------------------------|
| <b>Operating Temperature</b> | 0°C to 55°C (32°F to 131°F)   |
| <b>Storage Temperature</b>   | -20°C to 75°C (-4°F to 167°F) |
| <b>Humidity</b>              | 5% to 95% RH                  |
| <b>Safety Approvals</b>      | CE, FCC                       |



| Mechanical        |                                 |
|-------------------|---------------------------------|
| <b>Casing</b>     | Plastic                         |
| <b>Dimensions</b> | 106mm × 97mm × 32mm (L × W × H) |
| <b>Weight</b>     | 110g                            |

## 2. PANEL LAYOUT OF NCOM-113



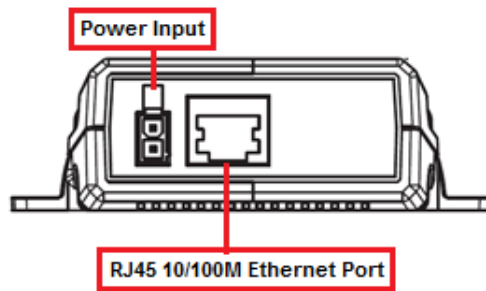
*Note: The layouts of NCOM-113 are the same as the ones for NCOM-112 and NCOM-111*

### 3. CONNECTING THE HARDWARE

Before connecting the NCOM serial device server for the first time, you may want to follow these instructions for testing purposes. We will describe how to connect to the network, power, your serial devices, and also state the functions of the LED indicators.

#### Step 1 – Connecting to the Network

First, connect an Ethernet cable to NCOM’s Ethernet port. Once the Ethernet cable is connected, connect the other end of the cable to your network. This can be a free Ethernet port on your DSL router, Ethernet hub/switch, or 802.11n router/base station. If you do not have a network, you can connect NCOM directly to the Ethernet port on your computer.

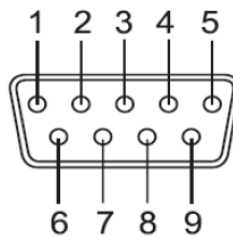


#### Step 2 – Connecting the Power

Connect the included power supply to NCOM’s power input connector. Once the NCOM is powered, the “PWR” LED turns ON. After a few seconds, the “PWR” LED will flash two times to indicate that the NCOM serial device server is ready.

#### Step 3 – Connecting to a Serial Device

Connect the serial data cable between NCOM and the serial device. The NCOM-111’s serial port provides RS-232, the NCOM-112 provides RS-422/485 and the NCOM-113 provides RS-232/422/485 interface for data transmission. The port uses a standard male DB9 pin assignment.



**DB9 Male connector pin numbers**

### 3.1 Serial Port Pin-Out Information of DB9 Connector

| Pin Number | Pin Type | Description             |
|------------|----------|-------------------------|
| 1          | Input    | DCD Data Carrier Detect |
| 2          | Input    | RxD Receive Data        |
| 3          | Output   | TxD Transmit Data       |
| 4          | Output   | DTR Data Terminal Ready |
| 5          | Ground   | GND Signal Ground       |
| 6          | Input    | DSR Data Set Ready      |
| 7          | Output   | RTS Request To Send     |
| 8          | Input    | CTS Clear To Send       |

RS-232 pin-out for DB9 connector

| Pin Number | Pin Type | Description                           |
|------------|----------|---------------------------------------|
| 1          | Output   | TxD- Transmit Data, negative polarity |
| 2          | Output   | TxD+ Transmit Data, positive polarity |
| 3          | Input    | RxD+ Receive Data, positive polarity  |
| 4          | Input    | RxD- Receive Data, negative polarity  |
| 5          | Ground   | GND Signal Ground                     |

RS-422/485 full duplex pin-out for DB9 connector

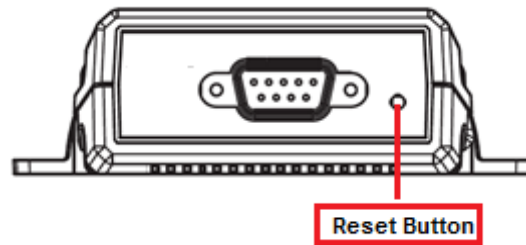
| Pin Number | Pin Type     | Description                                    |
|------------|--------------|--|
| 1          | Output/Input | Data- Transmit/Receive Data, negative polarity |
| 2          | Output/Input | Data+ Transmit/Receive Data, positive polarity |
| 5          | Ground       | GND Signal Ground                              |

RS-485 half duplex pin-out for DB9 connector

## 3.2 Hardware Reset Button

NCOM-113 has a hardware reset button for resetting the device. When the hardware reset button is pressed for a short duration, NCOM's power will be reset.

The hardware reset button can be used to restore all options to factory default states by pressing it until the "PWR" LED flashes.



## 3.3 Changing Serial Port Operation Mode in NCOM-113/NCOM-112

Serial port operation mode of NCOM-113/NCOM-112 can be easily changed via software. This can be done using our Windows utility software or the web console interface.

The web console interface is used to configure the serial device server. Open any web browser and enter the device's IP address in the address bar to access the firmware's "HOME" page.

Under the firmware's "HOME" page, select "SERIAL SETTINGS" under "Port 1 Settings". Under "Mode", select the proper serial port operation mode, check the "Make these the default settings" box and click "Submit" to set your device into the proper serial port operation mode.

The screenshot shows the NCOM web console interface. The top navigation bar includes the TITAN logo and the URL <http://www.titan.tw/>, and the NCOM logo. The left sidebar contains a menu with options: HOME, PORT 1 SETTINGS (highlighted), SERIAL SETTINGS (highlighted), NETWORK SETTINGS, SYSTEM SETTINGS, FIRMWARE UPDATE, CHANGE PASSWORD, ACCESSIBLE IP SETTINGS, and REBOOT. The main content area is titled 'Status' and displays the following information:

|                    |                   |
|--------------------|-------------------|
| Server Name:       | NCOM_410789456    |
| Product Name:      | NCOM-113          |
| Serial Number:     | 410789456         |
| Firmware Revision: | 1.0               |
| IP Address:        | 192.168.1.125     |
| MAC Address:       | 00-04-D9-80-78-87 |
| Uptime:            | 0 days 00:09:48   |

Below the status information is the 'Port 1 Serial Settings' section. It includes a 'Settings:' heading and a note: 'The current settings for port 2 may be changed using the form below. To make the new settings apply each time the NCOM is reset, ensure that "Make these the default settings" is checked before pressing the "Apply Changes" button. If this control is not checked, the changes are applied to the port but the existing defaults are used whenever the module is next reset.'

The settings form includes the following fields:

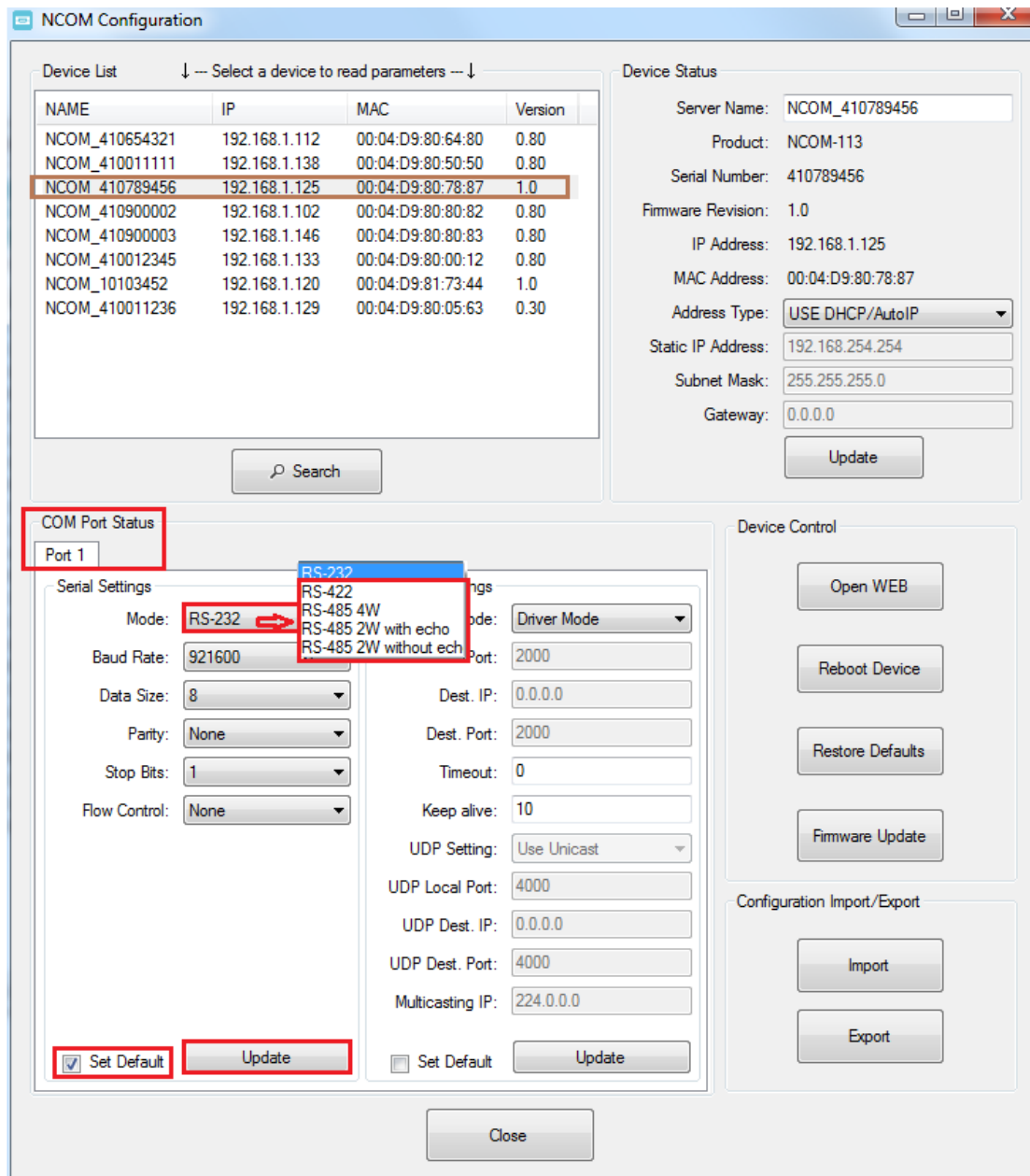
|               |                    |                  |
|---------------|--------------------|------------------|
| Mode:         | Current: RS422     | Updated: RS232   |
| Baud Rate:    | 921600 bits/second | 921600 bits/S    |
| Data Size:    | 8 bits/character   | 8 bits/character |
| Parity:       | None               | None             |
| Stop Bits:    | 1 bit(s)           | 1 bit(s)         |
| Flow Control: | None               | None             |

At the bottom of the form, there is a 'Submit' button and a checked checkbox labeled 'Make these the default settings.'

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The serial port operation mode can also be configured with our Windows utility software, NCOM Virtual Serial Port Manager.

After running NCOM Virtual Serial Port Manager, click on “Configuration” to enter the control menu page. Select an attached device to configure the virtual serial port parameters. You will find “Device Status”, “COM Port Status”, “Device Control” and “Configuration Import/Export” on the main window of NCOM Configuration.



Under the “COM Port Status” window, select “Port 1”. Under “Mode”, select the proper serial port operation mode, then check “Set Default” and click “Update” to set your NCOM-113/NCOM-112 in the proper serial port operation mode.

### 3.4 LED Indicators

The NCOM-113 has 5 LED indicators, as described in the following table:

| LED Name     | LED Color | LED Function   |
|--------------|-----------|--|
| <b>PWR</b>   | Red       | Steady on: Power is on and functioning normally.<br>Steady off: Power is off.<br>Flashes two times to indicate the device is ready.                |
| <b>Link</b>  | Yellow    | Steady on: The Ethernet link has established.<br>Steady off: Ethernet cable is disconnected.<br>Blinking: Ethernet data transmission is occurring. |
| <b>Speed</b> | Green     | Steady on: The device is connected to a 100M Ethernet connection.<br>Steady off: The device is connected to a 10M Ethernet connection.             |
| <b>TxD</b>   | Green     | Blinking: The serial port is transmitting data.  |
| <b>RxD</b>   | Yellow    | Blinking: The serial port is receiving data.   |



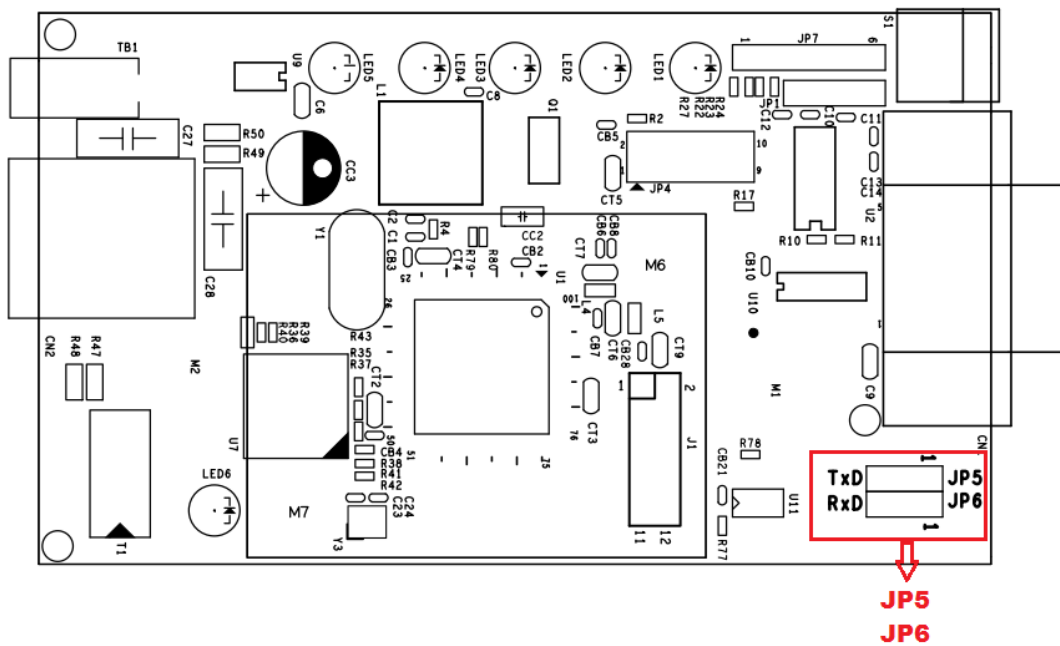
### 3.5 RS-422/485 Termination Resistors Option for NCOM-113/NCOM-112

In some critical environments, when transmitted RS-422/485 signals arrive at the end of a cable, they are reflected. This causes the signals to travel on the cable more than once, which is called ringing. This can cause false reading of transmitted data. For long cables, termination resistors are required. These increase the damping in order to reduce reflections. The value of the termination resistor must match the impedance of the cable, which is typically 120Ω. Generally, this must be done in the cabling, since this depends on the installation of connections. Before applying the option, check your cable specification for proper impedance matching.

Inside NCOM-113/NCOM-112, there are two 3-pin header blocks (JP5, JP6) for jumper caps to enable TxD+/-, RxD+/- 120Ω termination resistors. You will need to open up the case and set the jumper settings for RS-422 mode or RS-485 mode, as per the requirements of your application.

Settings are listed as follows:

| Jumper |     |         | Function                                  |
|--------|-----|---------|---|
| JP5    | 1-2 | Enable  | Enable TxD+/- 120Ω termination resistor.  |
|        | 2-3 | Disable | Disable TxD+/- 120Ω termination resistor. |
| JP6    | 1-2 | Enable  | Enable RxD+/- 120Ω termination resistor.  |
|        | 2-3 | Disable | Disable RxD+/- 120Ω termination resistor. |



The NCOM serial device server hardware installation is now complete. Please proceed to the next step to start the first time configuration of NCOM-113.

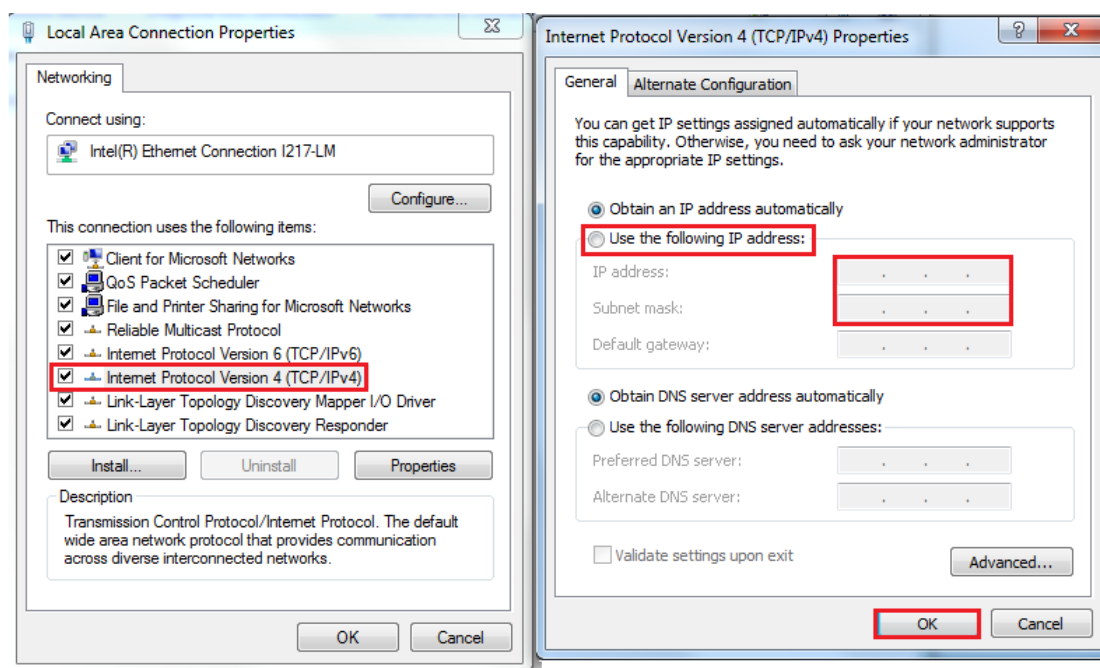
## 4. CONFIGURING NCOM-113 FOR THE FIRST TIME

### 4.1 Configuring Static IP Address

When setting up your NCOM-113 for the first time, it is important to configure the IP address in order to operate in your network. The NCOM-113 products are configured with the following default private IP address:

**Default private IP address: 192.168.254.254**

You need to set up your client computer to static IP address manually. Please go to “Internet Protocol Version 4 (TCP/IPv4)” under “Local Area Connection Properties” to change the IP address to a static IP address. (This can be found from Start → Settings → Control Panel → Network and Internet → Network and Sharing Center → Change Adapter Settings → Local Area Connection → Properties).



Under “Internet Protocol Version 4 (TCP/IPv4)”, select “Use the following IP address:” and enter the static IP address 192.168.254.XXX (such as 192.168.254.253) and Subnet mask (such as 255.255.255.0) then click “OK” to set your client computer to static IP address.

After setting your client computer to a static IP address and connecting to NCOM-113, you can configure NCOM-113 via its web console interface.

## 4.2 Opening the Web Console Interface of NCOM-113

NCOM-113 offers a web console interface to configure the serial device server. Open any web browser and enter “192.168.254.254” in the address bar to access the “HOME” page of NCOM-113’s firmware.

The screenshot displays the web console interface for the NCOM-113 device. The header features the TITAN logo on the left and the NCOM logo on the right. Below the header is a navigation menu with options: HOME, PORT 1 SETTINGS, SERIAL SETTINGS, NETWORK SETTINGS, SYSTEM SETTINGS, FIRMWARE UPDATE, CHANGE PASSWORD, ACCESSIBLE IP SETTINGS, and REBOOT. The main content area is divided into two sections: 'Status' and 'Current Port Operating Settings'. The 'Status' section lists device information: Server Name (NCOM\_410000002), Product Name (NCOM), Serial Number (410000002), Firmware Revision (0.1), IP Address (192.168.1.125), MAC Address (00-04-09-80-00-13), and Uptime (0 days 15:58:28). The 'Current Port Operating Settings' section shows Mode (RFC2217 - Server) for PORT 1. Below this is the 'Current Serial Settings' section, which lists: Mode (RS232), Baud Rate (1200 bits/second), Data Size (7 bits/character), Parity (None), Stop Bits (1 bit(s)), and Flow Control (None). A copyright notice at the bottom right reads: Copyright © 2015-2016 TITAN Electronics Inc. All Rights Reserved.

| Status             |                   |
|--------------------|-------------------|
| Server Name:       | NCOM_410000002    |
| Product Name:      | NCOM              |
| Serial Number:     | 410000002         |
| Firmware Revision: | 0.1               |
| IP Address:        | 192.168.1.125     |
| MAC Address:       | 00-04-09-80-00-13 |
| Uptime:            | 0 days 15:58:28   |

| Current Port Operating Settings: |                  |
|----------------------------------|------------------|
| PORT 1                           |                  |
| Mode:                            | RFC2217 - Server |

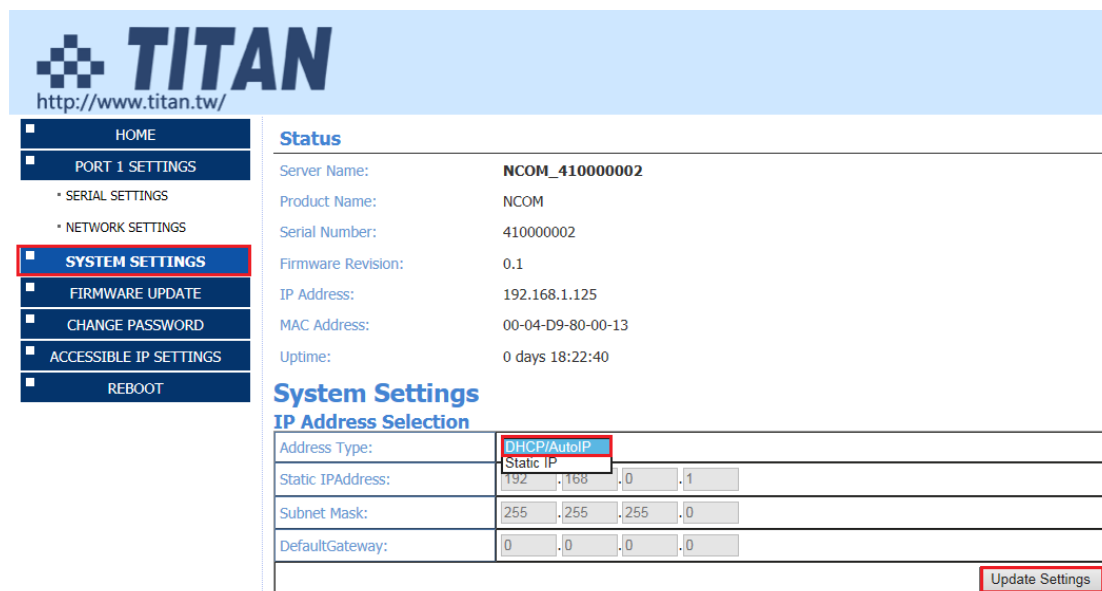
  

| Current Serial Settings: |                  |
|--------------------------|------------------|
| PORT 1                   |                  |
| Mode:                    | RS232            |
| Baud Rate:               | 1200 bits/second |
| Data Size:               | 7 bits/character |
| Parity:                  | None             |
| Stop Bits:               | 1 bit(s)         |
| Flow Control:            | None             |

## 4.3 Setting NCOM-113 to Work in DHCP Networks

Many networks are DHCP networks, which assign IP addresses for client computers and NCOM-113 automatically, in which case you would need to set the NCOM-113's IP address to DHCP/AutoIP mode.

Under the "HOME" page of NCOM-113's firmware, select "SYSTEM SETTINGS". Under "Address Type:", select "DHCP/AutoIP" and click "Update Settings". After clicking "OK", NCOM-113 will be set to DHCP mode.



The screenshot displays the NCOM-113 firmware web interface. The top header features the TITAN logo and the URL <http://www.titan.tw/>. A left-hand navigation menu includes options like HOME, PORT 1 SETTINGS, SERIAL SETTINGS, NETWORK SETTINGS, SYSTEM SETTINGS (highlighted with a red box), FIRMWARE UPDATE, CHANGE PASSWORD, ACCESSIBLE IP SETTINGS, and REBOOT. The main content area is divided into two sections: 'Status' and 'System Settings'. The 'Status' section lists server information: Server Name (NCOM\_41000002), Product Name (NCOM), Serial Number (41000002), Firmware Revision (0.1), IP Address (192.168.1.125), MAC Address (00-04-D9-80-00-13), and Uptime (0 days 18:22:40). The 'System Settings' section is titled 'IP Address Selection' and contains a table with the following data:

| Address Type:      | <input checked="" type="radio"/> DHCP/AutoIP   |
|--------------------|--|
| Static IP Address: | <input type="text" value="192"/> <input type="text" value=".168"/> <input type="text" value=".0"/> <input type="text" value=".1"/>   |
| Subnet Mask:       | <input type="text" value="255"/> <input type="text" value=".255"/> <input type="text" value=".255"/> <input type="text" value=".0"/> |
| Default Gateway:   | <input type="text" value="0"/> <input type="text" value=".0"/> <input type="text" value=".0"/> <input type="text" value=".0"/>       |

An 'Update Settings' button is located at the bottom right of the 'System Settings' section, also highlighted with a red box.

## 5. SETTING THE PROPER OPERATION MODE

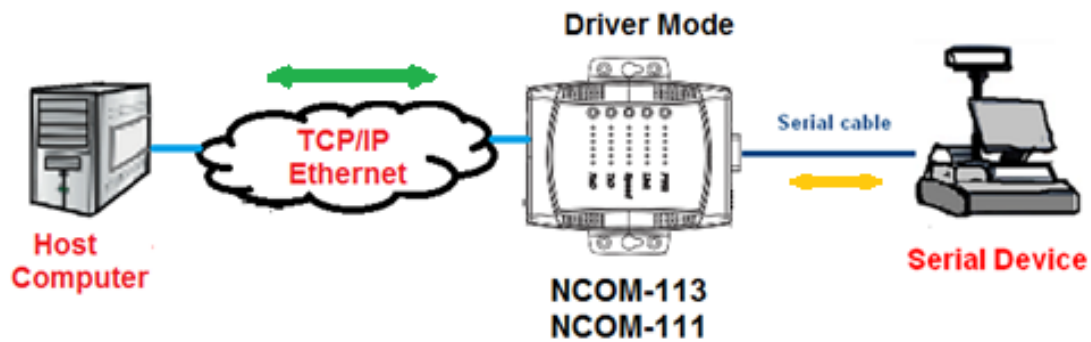
The NCOM-113 provides various operation modes, including Driver Mode, RFC2217 Server Mode, RFC2217 Client Mode, Pair Connection Master Mode, Pair Connection Slave Mode, TCP Raw Server Mode, TCP Raw Client Mode and UDP Mode. You need to choose the proper operation mode to control your serial devices located virtually anywhere through a network connection.

Under the “HOME” page of NCOM-113’s firmware, select “NETWORK SETTINGS” to find the “Port 1 Mode Settings” window. Under “Mode”, select the proper operation mode, check the “Make these the default settings” box and click “Apply Changes” to set your NCOM-113 in the proper operation mode.

The screenshot displays the NCOM-113 firmware web interface. The top navigation bar includes the TITAN logo and the URL <http://www.titan.tw/>, along with the NCOM logo. The left sidebar contains a menu with options: HOME, PORT 1 SETTINGS, NETWORK SETTINGS, SYSTEM SETTINGS, FIRMWARE UPDATE, CHANGE PASSWORD, ACCESSIBLE IP SETTINGS, and REBOOT. The main content area is titled "Port 1 Mode Settings" and includes a "Status" section with server information (Server Name: NCOM\_410000002, Product Name: NCOM, Serial Number: 410000002, Firmware Revision: 0.1, IP Address: 192.168.1.125, MAC Address: 00-04-09-80-00-13, Uptime: 0 days 19:17:46). Below this is the "Port 1 Mode Settings" section, which contains a "Mode" dropdown menu. The dropdown menu is open, showing the following options: Driver Mode, RFC2217 - Server, RFC2217 - Client, Pair Connection - Master, Pair Connection - Slave, TCP Raw - Server, TCP Raw - Client, and UDP. The "Driver Mode" option is highlighted. To the right of the dropdown menu is a checkbox labeled "Make these the default settings", which is checked. Below the dropdown menu is a "Timeout" field set to "10 min" and an "Apply Changes" button. At the bottom right, there is an "Updated" section with input fields for "seconds" (set to 0) and "min" (set to 10), and a checkbox labeled "Make these the default settings" which is checked. The footer of the page contains the text "Copyright © 2015-2016 TITAN Electronics Inc. All Rights Reserved."

## 5.1 Driver Mode

Driver mode uses a virtual serial redirection driver installed on Windows systems. The virtual serial redirection driver establishes a transparent connection between host computers and serial devices. This allows users to communicate using serial hardware and serial communication software, with the virtual serial port acting as a native Windows COM port compatible with Windows serial communication applications.

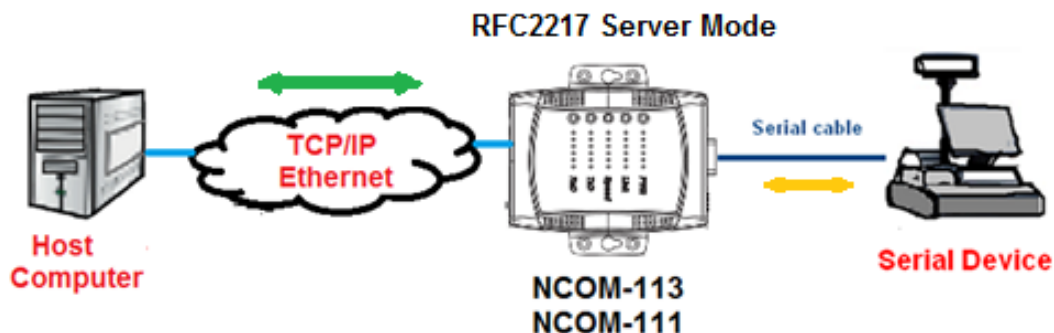


Under the “HOME” page of NCOM-113’s firmware, select “NETWORK SETTINGS” to find the “Port 1 Mode Settings” window. Under “Mode”, select “Driver Mode” and check the “Make these the default settings” box and click “Apply Changes” to set your NCOM-113 into Driver Mode.

|                 |  |                                     |                                  |
|-----------------|--|-------------------------------------|----------------------------------|
| Mode            | <input type="text" value="Driver Mode"/>     | Current                             | Updated                          |
| Timeout:        | 0 seconds                                    | 0 seconds (< 256, 0 for no timeout) |                                  |
| Keep alive time | 10 min                                       | 10 min (0 ~ 99)                     |                                  |
|                 | <input type="button" value="Apply Changes"/> | <input checked="" type="checkbox"/> | Make these the default settings. |

## 5.2 RFC2217 Server Mode

RFC2217 Server Mode is similar to Driver Mode, which also uses a virtual serial redirection driver to establish a transparent connection between host computers and serial devices. The RFC2217 Mode defines general COM port control options based on the standard Telnet protocol, which allows users to use anything that supports RFC2217 protocol's virtual serial redirection driver (such as com0com + com2tcp for Windows OS and microcom for Linux OS). The virtual serial port functions as a native COM port.

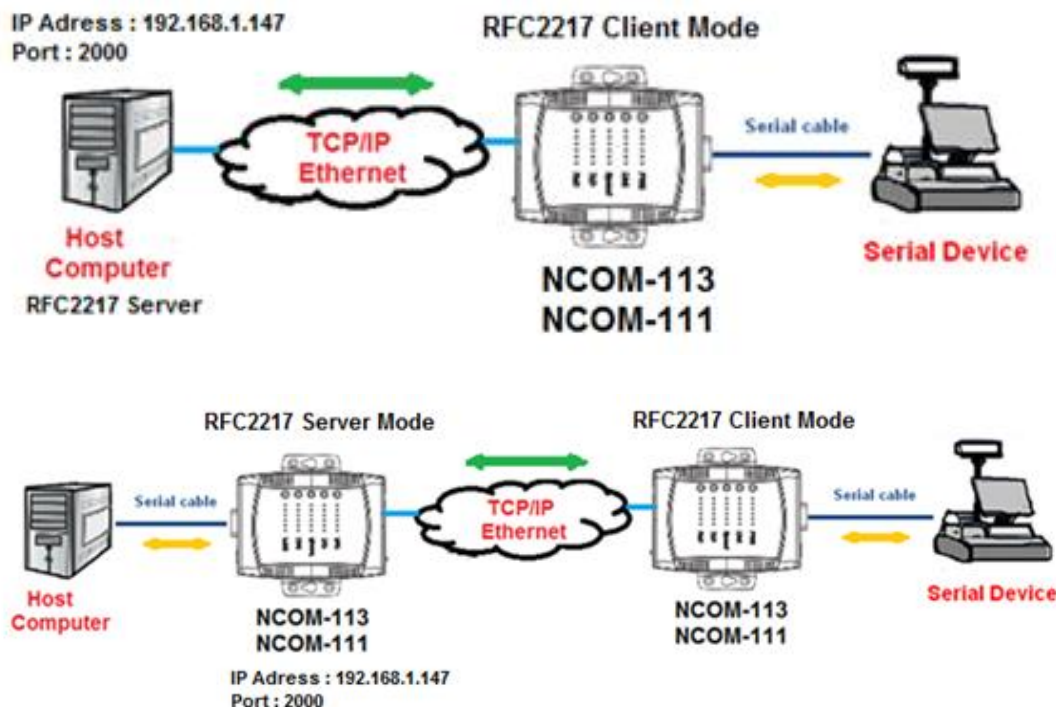


Under the “HOME” page of NCOM-113’s firmware, select “NETWORK SETTINGS” to find the “Port 1 Mode Settings” window. Under “Mode”, select “RFC2217-Server” and check the “Make these the default settings” box and click “Apply Changes” to set your NCOM-113 into RFC2217 Server Mode.

|                 |   |           |  |
|-----------------|---|-----------|--|
| Mode            | <input type="text" value="RFC2217 - Server"/> | Current   | Updated  |
| Timeout:        | 0 seconds                                     | 0 seconds | 0 seconds (< 256, 0 for no timeout)                                  |
| Keep alive time | 10 min  | 10 min    | 10 min (0 ~ 99)  |
|                 | <input type="button" value="Apply Changes"/>  |           | <input checked="" type="checkbox"/> Make these the default settings. |

## 5.3 RFC2217 Client Mode

In RFC2217 Client Mode, NCOM-113 can establish a TCP connection with a pre-determined host computer or a serial device server working in RFC2217 Server Mode. You need to define the IP address (telnet server's IP) to establish a TCP connection with a pre-determined host computer or a serial device server.



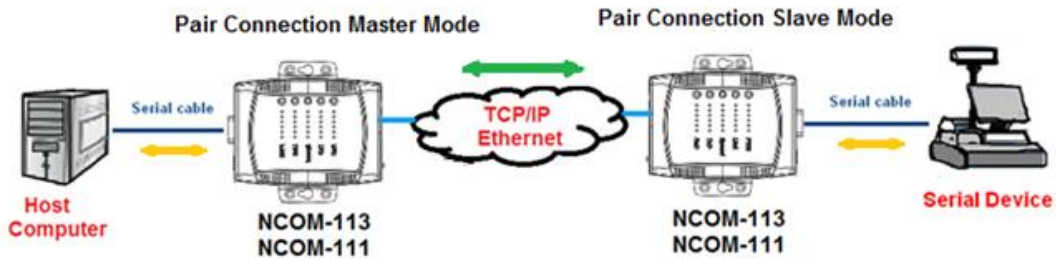
Under the “HOME” page of NCOM-113’s firmware, select “NETWORK SETTINGS” to find the “Port 1 Mode Settings” window. Under “Mode”, select “RFC2217-Client” and type “Telnet Server’s IP” and “Port” respectively (e.g. 192.168.1.147 Port: 2000) to establish a TCP connection with a pre-determined host computer or a serial device server. Check the “Make these the default settings” box and click “Apply Changes” to set your NCOM-113 into RFC2217 Client Mode.

|                           |   |  |  |
|---------------------------|---|--|--|
| Mode                      | <input type="text" value="RFC2217 - Client"/> | Current                                      | Updated  |
| Local Telnet Port Number: |   | 2000   | <input type="text" value="2000"/>  |
| Telnet Server IP:         |   | N/A Port:N/A                                 | <input type="text" value="192"/> <input type="text" value="."/> <input type="text" value="168"/> <input type="text" value="."/> <input type="text" value="1"/> <input type="text" value="."/> <input type="text" value="147"/> |
| Keep alive time           |   | 10 min                                       | Port: <input type="text" value="2000"/><br><input type="text" value="10"/> min (0 ~ 99)  |
|                           |   | <input type="button" value="Apply Changes"/> | <input checked="" type="checkbox"/> Make these the default settings.   |



## 5.4 Pair Connection Mode

Pair Connection Mode uses two NCOM devices in tandem, with one NCOM device in Pair Connection Master Mode and the other in Pair Connection Slave Mode. Two NCOM serial device servers are then connected to each other through Ethernet. Both may either be connected to the same LAN or over a WAN (i.e. through one or more routers). Pair Connection Mode transparently transfers both serial data and modem control signal without distance limitation.



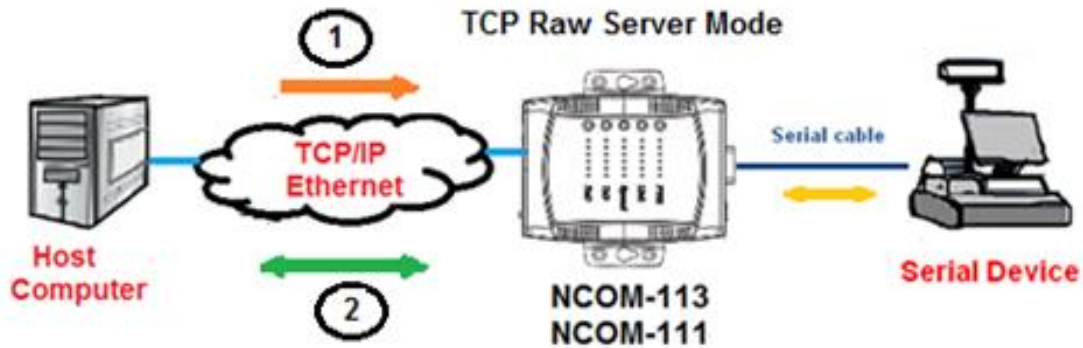
When setting two NCOM-113 devices in Pair Connection Mode, you need to set the “Destination IP Address” of the master serial device server as the IP address of the slave serial device server.

Under the “HOME” page of NCOM-113’s firmware, select “NETWORK SETTINGS” to find the “Port 1 Mode Settings” window. Under “Mode”, select “Pair Connection - Master” and type “Destination IP address” and “Port” of the slave serial device server respectively (e.g. 192.168.254.250 Port: 2000) to connect to a serial device server in Pair Connection Slave Mode. Check the “Make these the default settings” box and click “Apply Changes” to set two NCOM-113 devices in Pair Connection Mode.

|                         |   |   |
|-------------------------|---|---|
| Mode                    | <input type="text" value="Pair Connection - Master"/> |   |
|                         | Current   | Updated   |
| Local Port Number:      | 2000  | <input type="text" value="2000"/>   |
| Destination IP Address: | N/A Port:N/A  | <input type="text" value="192"/> <input type="text" value="168"/> <input type="text" value="254"/> <input type="text" value="250"/> |
|                         |   | Port: <input type="text" value="2000"/>   |
| Keep alive time         | 10 min  | <input type="text" value="10"/> min (0 ~ 99)  |
|                         | <input type="button" value="Apply Changes"/>          | <input type="checkbox"/> Make these the default settings.   |

## 5.5 TCP Raw Server Mode

In TCP Raw Server Mode, NCOM-113 is configured with a unique IP & Port combination on a TCP/IP network. It waits passively to be contacted by a host computer. After a host computer establishes a transparent connection, it then proceeds with data transmission.



In the figure, the data transmission proceeds as follows:

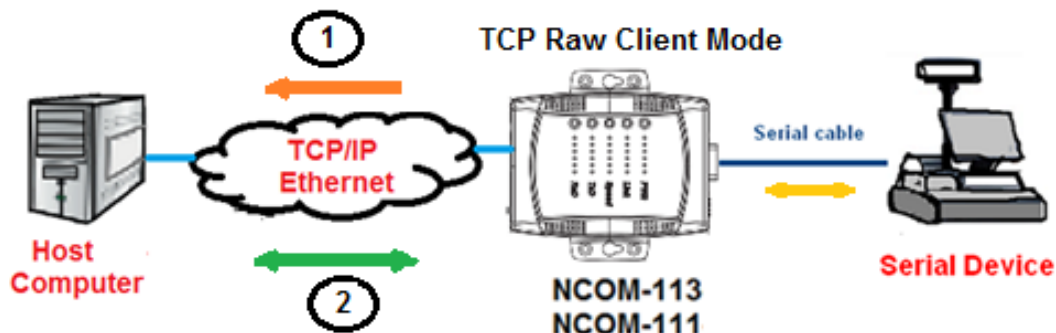
1. The host computer requests a connection from NCOM-113 configured for TCP Raw Server Mode.
2. Once the connection is established, data can be transmitted in both directions – from the host computer to NCOM-113 and from NCOM-113 to the host computer.

Under the “HOME” page of NCOM-113’s firmware, select “NETWORK SETTINGS” to find the “Port 1 Mode Settings” window. Under “Mode”, select “TCP Raw - Server” and check the “Make these the default settings” box and click “Apply Changes” to set your NCOM-113 into TCP Raw - Server Mode.

|                           |  |  |
|---------------------------|--|--|
| Mode                      | TCP Raw - Server                             |  |
| Local Telnet Port Number: | Current: 2000                                | Updated: 2000  |
| Telnet Timeout:           | 0 seconds                                    | 0 seconds (< 256, 0 for no timeout)                                  |
| Keep alive time           | 10 min                                       | 10 min (0 ~ 99)  |
|                           | <input type="button" value="Apply Changes"/> | <input checked="" type="checkbox"/> Make these the default settings. |

## 5.6 TCP Raw Client Mode

In TCP Raw Client Mode, NCOM-113 can establish a TCP connection with pre-determined host computers when serial data arrives.



In the figure, the data transmission proceeds as follows:

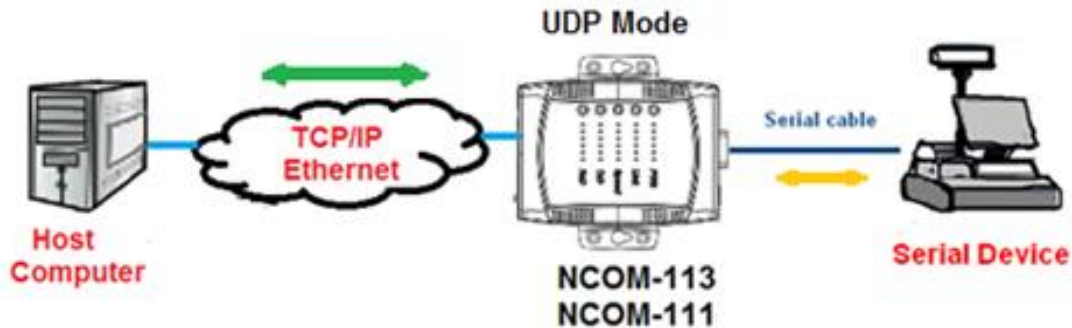
1. NCOM-113 configured for TCP Raw Client Mode requests a connection from the host computer.
2. Once the connection is established, data can be transmitted in both directions – from the host computer to NCOM-113 and from NCOM-113 to the host computer.

Under the “HOME” page of NCOM-113’s firmware, select “NETWORK SETTINGS” to find the “Port 1 Mode Settings” window. Under “Mode”, select “TCP Raw - Client” and type “Telnet Server’s IP” and “Port” respectively (e.g. 192.168.1.147 Port: 2000) to establish a TCP connection with a pre-determined host computer or a serial device server in TCP Raw Server Mode. Check the “Make these the default settings” box and click “Apply Changes” to set your NCOM-113 into TCP Raw Client Mode.

|                           |   |
|---------------------------|---|
| Mode                      | <input type="text" value="TCP Raw - Client"/>   |
| Local Telnet Port Number: | Current: 2000 Updated: <input type="text" value="2000"/>  |
| Telnet Server IP:         | N/A Port: N/A Updated: <input type="text" value="192"/> <input type="text" value="168"/> <input type="text" value="1"/> <input type="text" value="147"/><br>Port: <input type="text" value="2000"/> |
| Keep alive time           | 10 min Updated: <input type="text" value="10"/> min (0 ~ 99)  |
|                           | <input type="button" value="Apply Changes"/> <input checked="" type="checkbox"/> Make these the default settings.   |

## 5.7 UDP Mode

The UDP mode is a faster and more efficient mode. In UDP mode, you can unicast or multicast data from the serial device to one or multiple host computers, or receive data from one or multiple host computers. The UDP mode is ideal for applications such as message display.



In the figure, UDP mode directly proceeds with data transmission with no connection required.

Under the “HOME” page of NCOM-113’s firmware, select “NETWORK SETTINGS” to find the “Port 1 Mode Settings” window. Under “Mode”, select “UDP” and choose “Use Unicast” or “Use Multicast” under “Multicast Setting”. When selecting “Use Unicast”, you need to type a “Destination IP Address” (such as 192.168.1.147) to establish a UDP connection with a pre-determined host computer or serial device in UDP unicasting mode. When selecting “Use Multicast”, you need to type “Multicasting IP Address” (such as 224.0.0.0) for UDP multicasting group. Check the “Make these the default settings” box and click “Apply Changes” to set your NCOM-113 into UDP Mode.

**Port 1 Mode Settings**  
Settings:

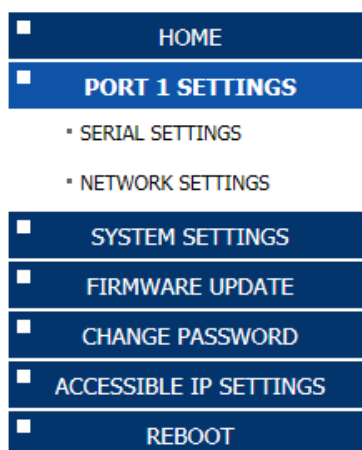
The current settings for port 1 may be changed using the form below. To make the new settings apply each time the NCOM is reset, ensure that “Make these the default settings” is checked before pressing the “Apply Changes” button. If this control is not checked, the changes are applied to the port but the existing defaults are used whenever the module is next reset.

|                           |  |  |
|---------------------------|--|--|
| Mode                      | UDP  |  |
| Multicast Setting:        | <input checked="" type="radio"/> Use Unicast | <input type="radio"/> Use Multicast                                  |
| Local Listen Port Number: | 4000   | 4000   |
| Destination Port Number:  | 4000   | 4000   |
| Destination IP Address:   | 0.0.0.0                                      | 192 . 168 . 1 . 147  |
| Multicasting IP Address:  | N/A  | 224 . 0 . 0 . 0  |
|                           | <input type="button" value="Apply Changes"/> | <input checked="" type="checkbox"/> Make these the default settings. |

|                           |  |  |
|---------------------------|--|--|
| Mode                      | UDP  |  |
| Multicast Setting:        | Current                                      | Updated  |
|                           | <input type="radio"/> Use Unicast            | <input checked="" type="radio"/> Use Multicast                       |
| Local Listen Port Number: | 4000   | 4000   |
| Destination Port Number:  | 4000   | 4000   |
| Destination IP Address:   | 0.0.0.0                                      | 192 . 168 . 1 . 147  |
| Multicasting IP Address:  | N/A  | 224 . 0 . 0 . 0  |
|                           | <input type="button" value="Apply Changes"/> | <input checked="" type="checkbox"/> Make these the default settings. |

## 6. WEB CONSOLE CONFIGURATION INTERFACE

The web console interface allows configuration of NCOM-113. These settings include “PORT 1 SETTINGS” (“SERIAL SETTINGS” & “NETWORK SETTINGS”), “SYSTEM SETTINGS”, “FIRMWARE UPDATE”, “CHANGE PASSWORD”, “ACCESSIBLE IP SETTINGS” and “REBOOT”.



To access the web console interface to configure the device, open any web browser and enter NCOM-113’s IP address in the address bar to access the “HOME” page of NCOM-113’s firmware.

## 6.1 Port 1 Settings

The “PORT 1 SETTINGS” include “SERIAL SETTINGS” and “NETWORK SETTINGS”.

Click “SERIAL SETTINGS” to display the current serial port settings for NCOM-113. To modify the serial settings for a particular port, select appropriate options located on the right side of “Port 1 Serial Settings”.

You can modify the following serial parameters for your NCOM-113 serial device server:

| Serial Parameters   | Setting                              | Default Values   |
|---------------------|--------------------------------------|------------------|
| <b>Mode</b>         | RS-232, RS-422, RS-485 4W, RS-485 2W | RS-232           |
| <b>Baud Rate</b>    | 300bps to 921600bps                  | 115200bps        |
| <b>Data Size</b>    | 5, 6, 7, 8 bits/character            | 8 bits/character |
| <b>Parity Check</b> | None, Odd, Even, Mark, Space         | None             |
| <b>Stop Bits</b>    | 1, 2, 1.5 bit(s)                     | 1 bit            |
| <b>Flow Control</b> | None or Hardware                     | None             |

*Note: The default mode for NCOM-112 is RS-422.*

After you modify the serial parameters for your NCOM-113, please check the “Make these the default settings” and click “Submit” to update the serial parameters for your device.

Click “NETWORK SETTINGS” to display the current network settings for NCOM-113. To modify the operation mode, refer to Chapter 5 for more detailed information. You can also modify the network parameters of NCOM-113. To modify the network parameter settings, select appropriate options located on the right side of “Port 1 Mode Settings”. Options include “Local Telnet Port Number”, “Telnet Timeout”, and “Keep alive time”.

|                           |   |  |
|---------------------------|---|--|
| Mode                      | <input type="text" value="RFC2217 - Server"/> |  |
|                           | Current                                       | Updated  |
| Local Telnet Port Number: | 2000  | <input type="text" value="2000"/>                                    |
| Telnet Timeout:           | 0 seconds                                     | <input type="text" value="0"/> seconds (< 256, 0 for no timeout)     |
| Keep alive time           | 10 min  | <input type="text" value="10"/> min (0 ~ 99)                         |
|                           | <input type="button" value="Apply Changes"/>  | <input checked="" type="checkbox"/> Make these the default settings. |

After you modify the network parameters for your NCOM-113, please check the “Make these the default settings” and click “Apply Changes” to update the network parameters for your device.



## 6.2 System Settings

The “SYSTEM SETTINGS” for NCOM-113 includes “IP Address Selection”, “General Configuration Settings” and “Restore Factory Defaults”.

### System Settings

| IP Address Selection |               |      |      |    |
|----------------------|---------------|------|------|----|
| Address Type:        | DHCP/AutoIP ▾ |      |      |    |
| Static IPAddress:    | 192           | .168 | .0   | .1 |
| Subnet Mask:         | 255           | .255 | .255 | .0 |
| DefaultGateway:      | 0             | .0   | .0   | .0 |
| Update Settings      |               |      |      |    |

| General Configuration Settings |                |
|--------------------------------|----------------|
| Server Name:                   | NCOM_410000002 |
| UPnP port number:              | 6042           |
| Update Settings                |                |

| Restore Factory Defaults                             |                  |
|--|------------------|
| Restore all options to their factory default states: | Restore Defaults |

Click “Address Type”, located under “IP Address Selection”, to select IP address type (DHCP/AutoIP or Static IP) for NCOM-113. When you select “Static IP”, you need to enter the static IP address (such as 192.168.254.254) and Subnet Mask (such as 255.255.255.0) then click “Update Settings” to set your device to static IP address.

### System Settings

| IP Address Selection |             |      |      |      |
|----------------------|-------------|------|------|------|
| Address Type:        | Static IP ▾ |      |      |      |
| Static IPAddress:    | 192         | .168 | .254 | .254 |
| Subnet Mask:         | 255         | .255 | .255 | .0   |
| DefaultGateway:      | 0           | .0   | .0   | .0   |
| Update Settings      |             |      |      |      |

*Note: The NCOM-113's default IP address is 192.168.254.254*

If you are working in a DHCP network, you need to select “DHCP/AutoIP” and click “Update Settings” to assign IP address for the NCOM-113 automatically.

### System Settings

| IP Address Selection |               |      |      |    |
|----------------------|---------------|------|------|----|
| Address Type:        | DHCP/AutoIP ▾ |      |      |    |
| Static IPAddress:    | 192           | .168 | .0   | .1 |
| Subnet Mask:         | 255           | .255 | .255 | .0 |
| DefaultGateway:      | 0             | .0   | .0   | .0 |
| Update Settings      |               |      |      |    |

You can change NCOM serial device server's name by modifying the "Server Name" under "General Configuration Settings". You need to enter a new name (such as NCOM-113) and click "Update Settings" to set your serial device server to a new name.

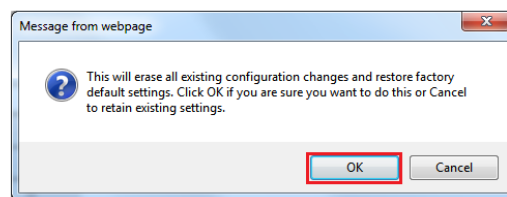
#### General Configuration Settings

|  |                                       |
|--|---------------------------------------|
| Server Name:                                   | <input type="text" value="NCOM-113"/> |
| <input type="button" value="Update Settings"/> |                                       |

The NCOM-113's firmware provides a function to restore settings to factory defaults. You can do so by clicking "Restore Defaults" under "Restore Factory Defaults". After clicking "OK", NCOM-113 will restore all options to factory default states.

#### Restore Factory Defaults

|  |   |
|--|---|
| Restore all options to their factory default states: | <input type="button" value="Restore Defaults"/> |
|--|---|



Following are the values of default states:

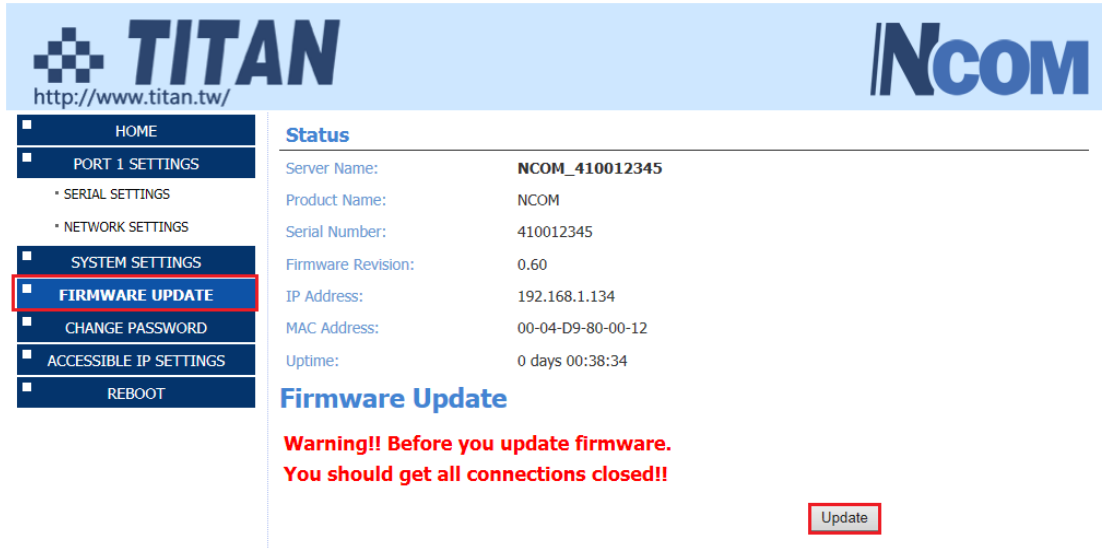
| Network Parameters       | Default Values  |
|--------------------------|-----------------|
| <b>Mode</b>              | Driver Mode     |
| <b>Timeout</b>           | 0 seconds       |
| <b>Keep alive time</b>   | 10 minutes      |
| <b>Address Type</b>      | Static IP       |
| <b>Static IP address</b> | 192.168.254.254 |
| <b>Subnet Mask</b>       | 255.255.255.0   |

| Serial Port Parameters | Default Values   |
|------------------------|------------------|
| <b>Mode</b>            | RS-232           |
| <b>Baud Rate</b>       | 115200 bits/S    |
| <b>Data Size</b>       | 8 bits/character |
| <b>Parity Check</b>    | None             |
| <b>Stop Bits</b>       | 1 bit            |
| <b>Flow Control</b>    | None             |

*Note: The default mode for NCOM-112 is RS-422.*

## 6.3 Firmware Update

Under the web console interface, select “FIRMWARE UPDATE” and click “Update” to enable the firmware update interface to upgrade to a new firmware.

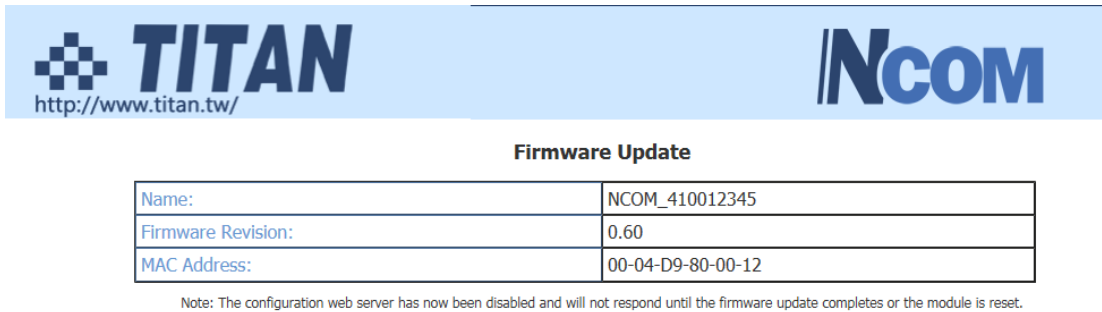


The screenshot shows the TITAN web console interface. The header includes the TITAN logo and URL (http://www.titan.tw/) on the left, and the NCOM logo on the right. A navigation menu on the left lists: HOME, PORT 1 SETTINGS (with sub-items SERIAL SETTINGS and NETWORK SETTINGS), SYSTEM SETTINGS, **FIRMWARE UPDATE** (highlighted with a red box), CHANGE PASSWORD, ACCESSIBLE IP SETTINGS, and REBOOT. The main content area is titled "Status" and displays the following information:

|                    |                   |
|--------------------|-------------------|
| Server Name:       | NCOM_410012345    |
| Product Name:      | NCOM              |
| Serial Number:     | 410012345         |
| Firmware Revision: | 0.60              |
| IP Address:        | 192.168.1.134     |
| MAC Address:       | 00-04-D9-80-00-12 |
| Uptime:            | 0 days 00:38:34   |

Below the status information, there is a section titled "Firmware Update" with a red warning message: **Warning!! Before you update firmware. You should get all connections closed!!** and an "Update" button.

When you click “Update”, you will find the following message. The web console interface then waits for the firmware update tool program to launch in order to continue upgrading NCOM-113’s firmware.



The screenshot shows the TITAN web console interface during the firmware update process. The header is the same as in the previous screenshot. The main content area is titled "Firmware Update" and contains a table with the following information:

|                    |                   |
|--------------------|-------------------|
| Name:              | NCOM_410012345    |
| Firmware Revision: | 0.60              |
| MAC Address:       | 00-04-D9-80-00-12 |

Below the table, there is a note: **Note: The configuration web server has now been disabled and will not respond until the firmware update completes or the module is reset.**

After enabling firmware update from the web console, please refer to page 60~62, 80~82 for instructions on how to launch the firmware update tool program to upgrade NCOM-113’s firmware.

## 6.4 Change Password

Input the “Old Login Password”, “New Login Password” and “Confirm New Login Password” to change the login password. After clicking “Set New Password” the NCOM-113 will have password protection.

The screenshot shows the TITAN web interface. The header includes the TITAN logo and the URL <http://www.titan.tw/>. A navigation menu on the left lists: HOME, PORT 1 SETTINGS (with sub-items SERIAL SETTINGS and NETWORK SETTINGS), SYSTEM SETTINGS, FIRMWARE UPDATE, CHANGE PASSWORD (highlighted with a red border), ACCESSIBLE IP SETTINGS, and REBOOT. The main content area is titled 'Change Password' and contains three input fields: 'Old Login Password:', 'New Login Password:', and 'Confirm New Login Password:'. All three input fields and the 'Set New Password' button below them are highlighted with a red border.

When password protection is enabled, you need to input the “Password” then click “Login” to access NCOM-113’s firmware to configure the device.

### Status

|                    |                   |
|--------------------|-------------------|
| Server Name:       | NCOM_410000007    |
| Product Name:      | NCOM              |
| Serial Number:     | 410000007         |
| Firmware Revision: | 0.1               |
| IP Address:        | 192.168.1.147     |
| MAC Address:       | 00-04-D9-80-00-17 |
| Uptime:            | 0 days 02:36:36   |

### Login

Password:

Login

If you **forget the password**, the **ONLY** way to configure NCOM-113 is by using the reset button to restore factory defaults (press the hardware reset button until the “PWR” LED flashes). The factory default settings have password protection disabled, allowing you to log in without a password.

## 6.5 Accessible IP Settings

The NCOM-113's firmware provides accessible IP settings. It uses an IP address based filtering method to control accessible IP addresses.

Accessible IP settings allows you to pass or block remote host IP addresses to prevent unauthorized access. Access to NCOM-113 is controlled by IP address. If a host's IP address is in the accessible IP table, then the host will be allowed to access the device. You can allow one of the following rules by setting the accessible IP table parameter.

1. Only one host with a specific IP address can access NCOM-113.

Check the "Enable" checkbox then enter IP address and "255.255.255.255" for Netmask.

| IP Address List |                                     |               |                 |
|-----------------|-------------------------------------|---------------|-----------------|
| No              | Enable                              | IPAddress     | Netmask         |
| 1               | <input checked="" type="checkbox"/> | 192.168.1.122 | 255.255.255.255 |

In this example, only the host with an IP address of 192.168.1.122 can access the device.

2. Hosts on a specific subnet can access NCOM-113.

Check the "Enable" checkbox then enter IP address and "255.255.255.0" for Netmask.

| IP Address List |                                     |             |               |
|-----------------|-------------------------------------|-------------|---------------|
| No              | Enable                              | IPAddress   | Netmask       |
| 1               | <input checked="" type="checkbox"/> | 192.168.1.0 | 255.255.255.0 |

In this example, only hosts with an IP address from 192.168.1.1 to 192.168.1.254 can access the device.

| IP Address List |                                     |             |             |
|-----------------|-------------------------------------|-------------|-------------|
| No              | Enable                              | IPAddress   | Netmask     |
| 1               | <input checked="" type="checkbox"/> | 192.168.0.0 | 255.255.0.0 |

In this example, only hosts with an IP address from 192.168.0.1 to 192.168.255.254 can access the device.

3. Any host can access NCOM-113.

Disable this function by unchecking "Enable".

### IP Address List

| No | Enable                   | IPAddress | Netmask |
|----|--------------------------|-----------|---------|
| 1  | <input type="checkbox"/> | 0.0.0.0   | 0.0.0.0 |
| 2  | <input type="checkbox"/> | 0.0.0.0   | 0.0.0.0 |
| 3  | <input type="checkbox"/> | 0.0.0.0   | 0.0.0.0 |
| 4  | <input type="checkbox"/> | 0.0.0.0   | 0.0.0.0 |
| 5  | <input type="checkbox"/> | 0.0.0.0   | 0.0.0.0 |
| 6  | <input type="checkbox"/> | 0.0.0.0   | 0.0.0.0 |

After you enter “IP address” and “Netmask” to set accessible IP for your NCOM-113 serial device server, please check the “Make these the default settings” and click “Update Settings” to update the accessible IP settings table for NCOM-113.

**TITAN**  
http://www.titan.tw/

- HOME
- PORT 1 SETTINGS
  - SERIAL SETTINGS
  - NETWORK SETTINGS
- SYSTEM SETTINGS
- FIRMWARE UPDATE
- CHANGE PASSWORD
- ACCESSIBLE IP SETTINGS**
- REBOOT

### Accessible IP Settings

Make these the default settings.

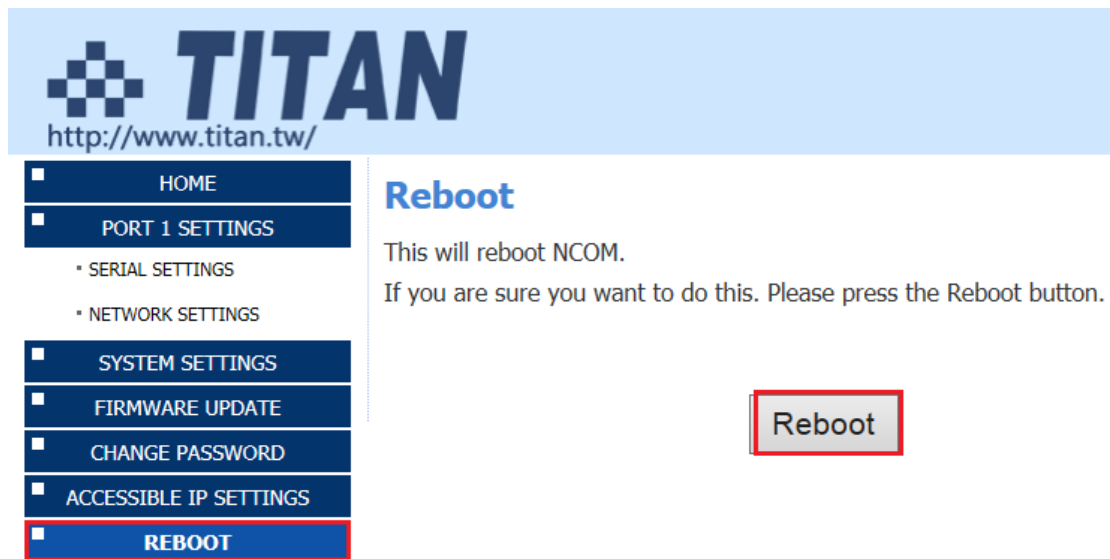
IP Address List

| No | Enable                              | IPAddress   | Netmask       |
|----|-------------------------------------|-------------|---------------|
| 1  | <input checked="" type="checkbox"/> | 192.168.1.0 | 255.255.255.0 |
| 2  | <input type="checkbox"/>            | 0.0.0.0     | 0.0.0.0       |
| 3  | <input type="checkbox"/>            | 0.0.0.0     | 0.0.0.0       |
| 4  | <input type="checkbox"/>            | 0.0.0.0     | 0.0.0.0       |
| 5  | <input type="checkbox"/>            | 0.0.0.0     | 0.0.0.0       |
| 6  | <input type="checkbox"/>            | 0.0.0.0     | 0.0.0.0       |

You can click “Reset” to allow any host to access NCOM-113. **The default accessible IP setting is to allow all hosts to access.**

## 6.6 Reboot

You can click “Reboot” to reboot/reset your NCOM-113 serial device server.



The screenshot shows the TITAN web interface. At the top left is the TITAN logo with the URL <http://www.titan.tw/>. A navigation menu on the left lists: HOME, PORT 1 SETTINGS (with sub-items SERIAL SETTINGS and NETWORK SETTINGS), SYSTEM SETTINGS, FIRMWARE UPDATE, CHANGE PASSWORD, ACCESSIBLE IP SETTINGS, and REBOOT (highlighted with a red border). The main content area is titled "Reboot" and contains the text: "This will reboot NCOM. If you are sure you want to do this. Please press the Reboot button." A "Reboot" button is located to the right of this text, also highlighted with a red border.



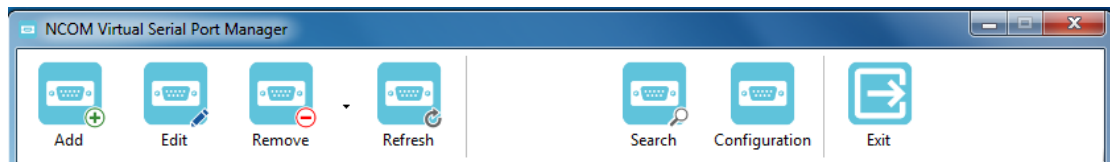
## 7. NCOM VIRTUAL SERIAL PORT MANAGER AND DRIVER INSTALLATION

### 7.1 NCOM Virtual Serial Port Manager and Virtual Serial Port Driver

*Note: The virtual serial port driver is bundled with NCOM Virtual Serial Port Manager and is automatically installed when you install NCOM Virtual Serial Port Manager!*

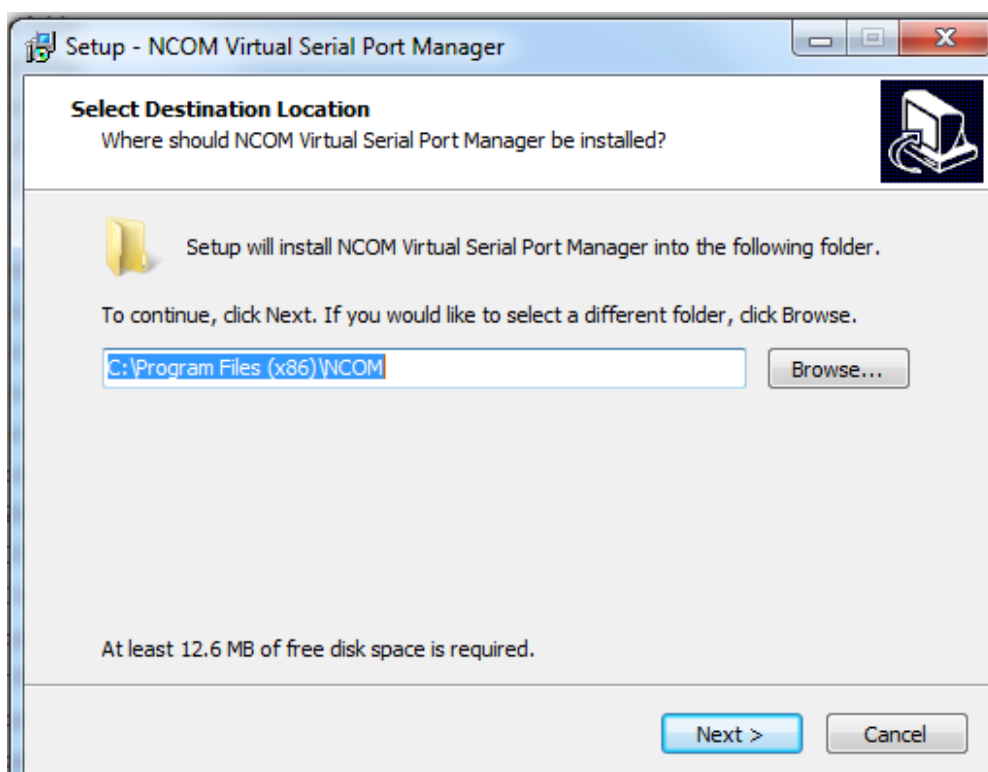
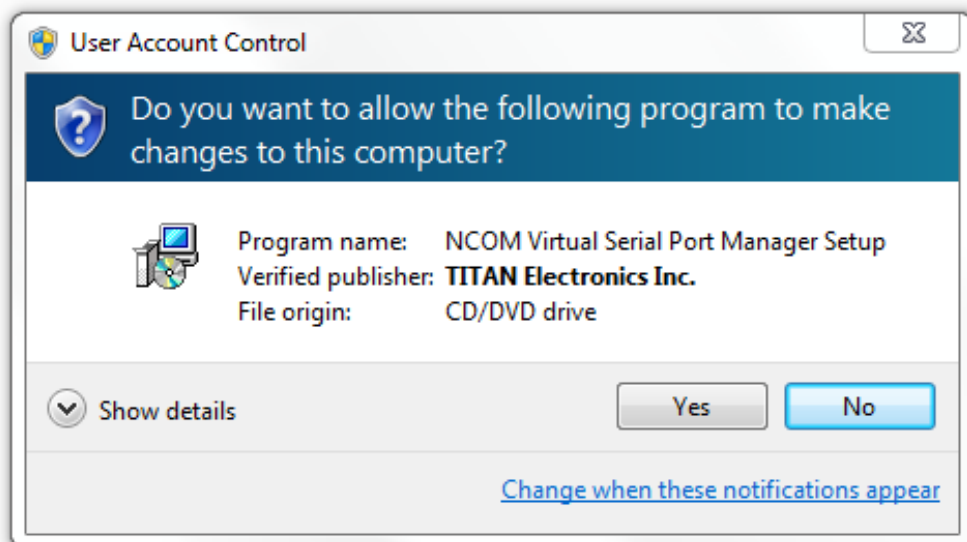
The NCOM Virtual Serial Port Manager is an advanced software-based solution that allows you to communicate with serial device servers over networks easily. Thus, any serial device connected to your NCOM serial device server could be accessed from anywhere in the world (via internet or LAN) as if it were attached directly to the remote PC.

When the attached serial port device sends communication data it is actually transmitted over TCP/IP network and back from the network to your serial device. NCOM Virtual Serial Port Manager has options to configure NCOM-113 with the options “Add” (add virtual serial port), “Edit” (edit virtual serial port parameters), “Remove” (remove virtual serial port), “Refresh” (refresh virtual serial port), “Search” (search all attached NCOM devices), “Configuration” (configure virtual serial port parameters) and “Exit” (exit NCOM Virtual Serial Port Manager).

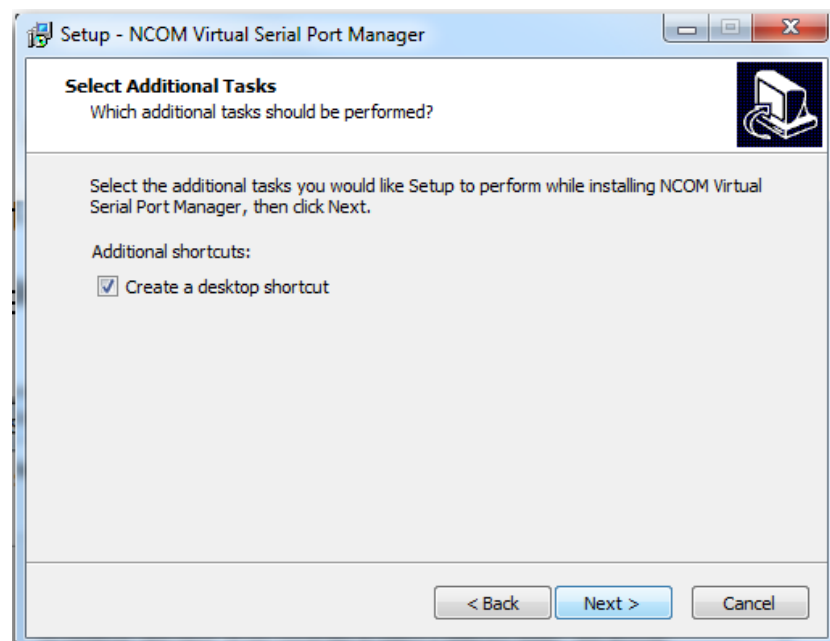
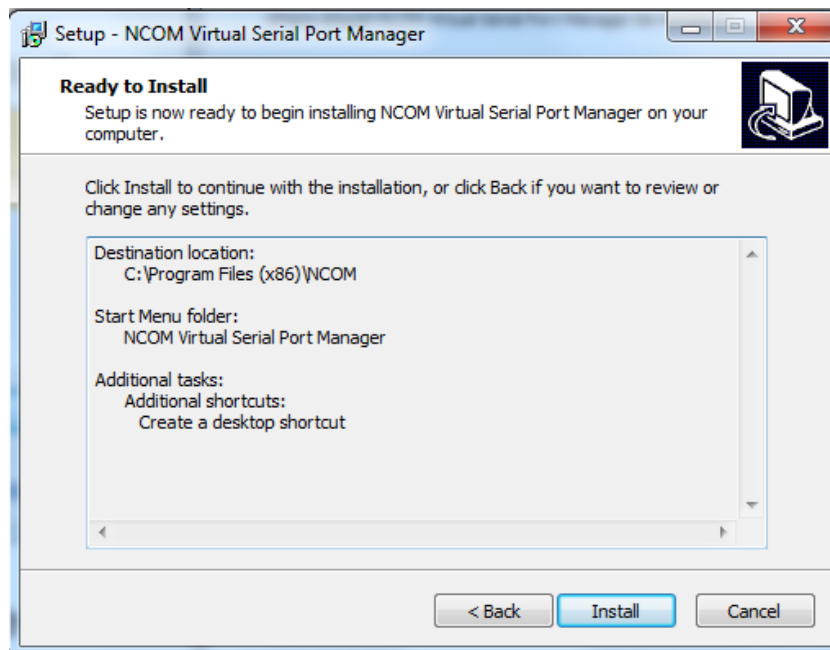


## 7.2 Installing NCOM Virtual Serial Port Manager

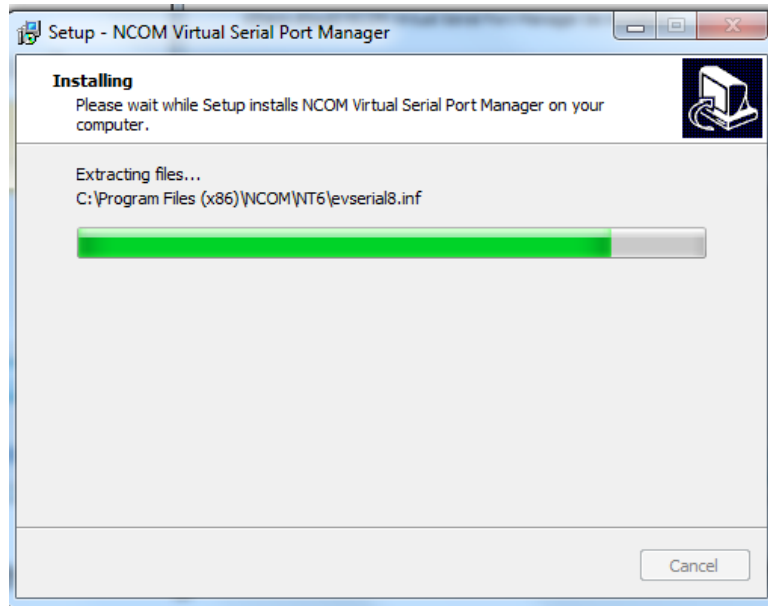
1. Insert the software CD into your CD-ROM or DVD-ROM drive.
2. Open files in the CD and double click "NCOM\_setup" to install NCOM Virtual Serial Port Manager.
3. When the confirmation for "User Account Control" appears, click "Yes" and the "Setup - NCOM Virtual Serial Port Manager" message appears. Click "Next" to proceed with the installation of NCOM Virtual Serial Port Manager.



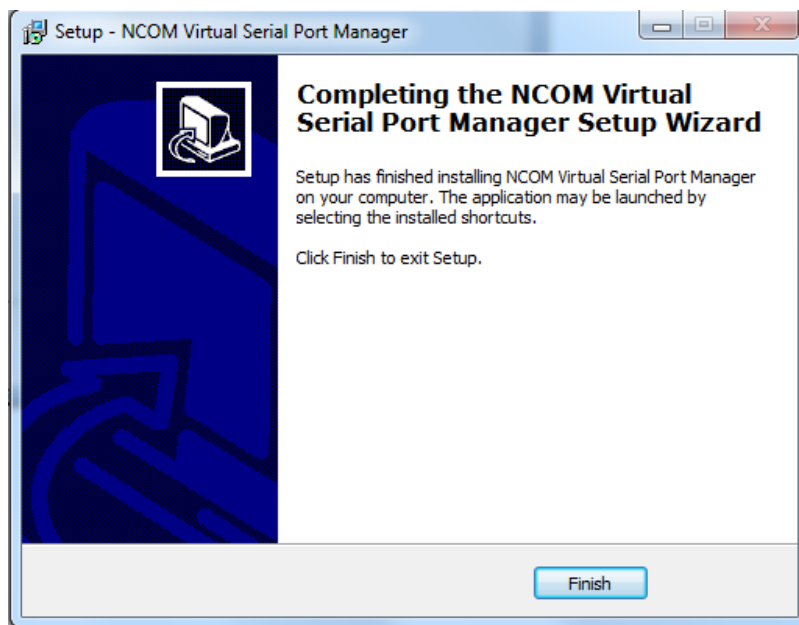
4. After you click “Next”, you will see following information. Click on “Next” and the “Ready to Install” message appears. Click “Install” to install NCOM Virtual Serial Port Manager.



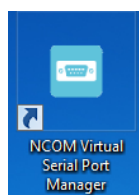
5. After you click “Install” to install NCOM Virtual Serial Port Manager and virtual serial port driver for NCOM devices, you will see the following information.



6. When the message “Completing the NCOM Virtual Serial Port Manager Setup Wizard” appears, click “Finish” to finish the installation and exit setup program.



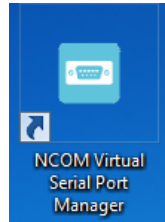
7. Double click the shortcut icon of “NCOM Virtual Serial Port Manager” on the desktop to launch NCOM Virtual Serial Port Manager.



8. You will see the main window of NCOM Virtual Serial Port Manager.

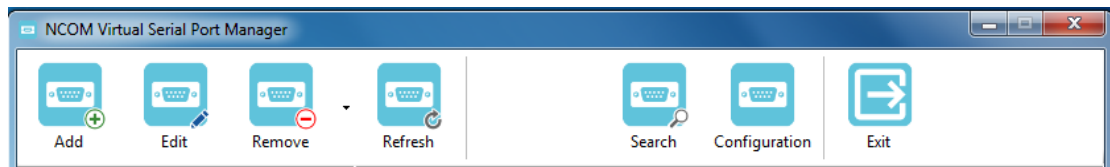
## 8. RUNNING NCOM VIRTUAL SERIAL PORT MANAGER

After installing NCOM-113 hardware and NCOM Virtual Serial Port Manager, double click the shortcut icon of “NCOM Virtual Serial Port Manager” on the Desktop to start NCOM Virtual Serial Port Manager.



## 8.1 NCOM Virtual Serial Port Manager Functions

NCOM Virtual Serial Port Manager has options to configure NCOM-113 with the options “Add” (add virtual serial port), “Edit” (edit virtual serial port parameters), “Remove” (remove virtual serial port), “Refresh” (refresh virtual serial port), “Search” (search all attached NCOM devices), “Configuration” (configure virtual serial port parameters) and “Exit” (exit NCOM Virtual Serial Port Manager).

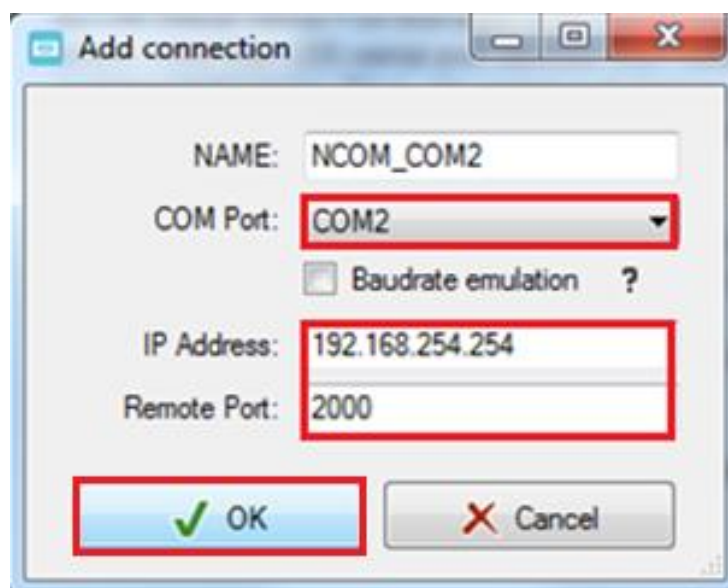


## 8.2 Manually Add Virtual Serial Port for NCOM Devices

After opening NCOM Virtual Serial Port Manager, click “Add” to open the “Add connection” window.



Under “Add connection”, select an available COM port (e.g. COM2. Note that NCOM Virtual Serial Port Manager will show your next available COM port) and type your NCOM device’s IP address and port in “IP Address” and “Remote Port” respectively (e.g. IP Address: 192.168.254.254 Port: 2000). After setting the COM port, IP address and remote port, click “OK” to add a new virtual serial port.



After adding a new virtual serial port for NCOM devices, you will find information about the virtual serial port in the main window of NCOM Virtual Serial Port Manager.

NCOM Virtual Serial Port Manager

Add
 Edit
 Remove
 Refresh
 Search
 Configuration
 Exit

**NCOM\_COM2**

- COM2 Virtual Created
- Connected to 0 from 1
- Sent: 0.0 KB / Received: 0.0 KB

### Information

COM port information

Port Name: **COM2**                      Port Type: **Virtual**

Port Status: **Created**                      Current Settings: -

Bytes Sent: **0.0 KB**                      Bytes Received: **0.0 KB**

Baudrate Emulation: **No**

Network information

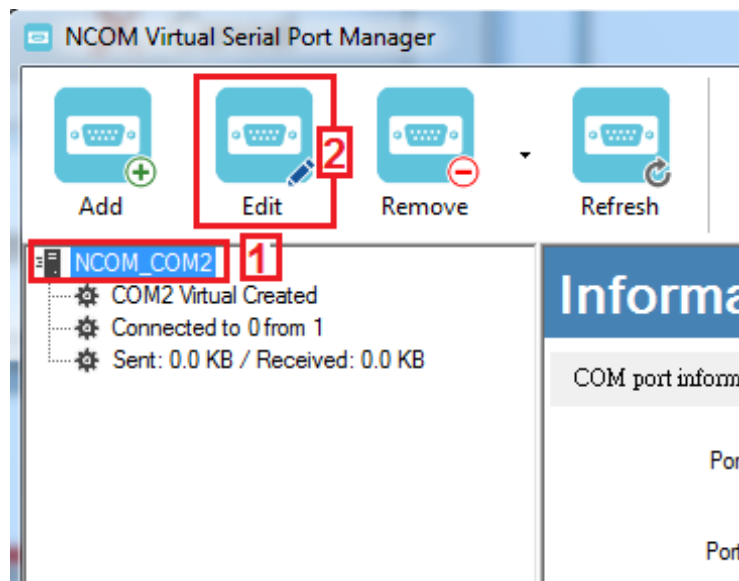
Protocol: **TELMET**

| Remote host          | Status       | Sent | Received | Active   |
|----------------------|--------------|------|----------|----------|
| 192.168.254.254:2000 | Disconnected | 0    | 0        | 00:00:00 |

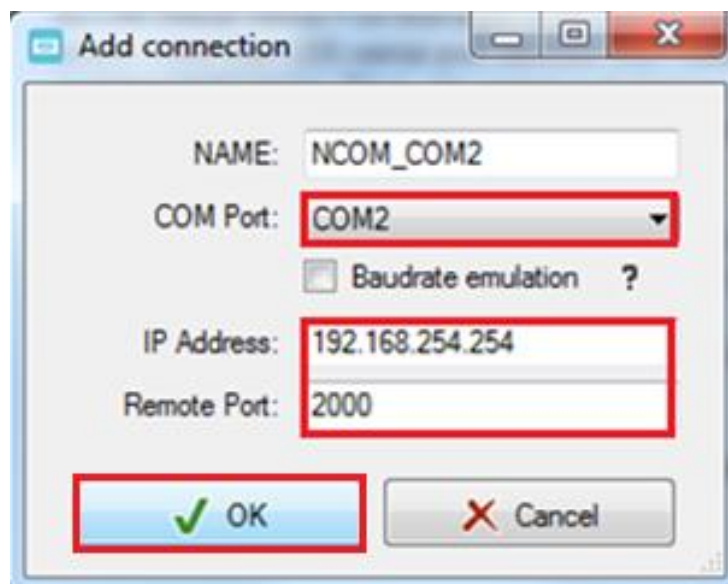


## 8.3 Manually Edit Existing Virtual Serial COM ports for NCOM Devices

To edit existing virtual serial COM port for NCOM devices, select the existing virtual serial COM port and click “Edit” to open the “Add connection” window.

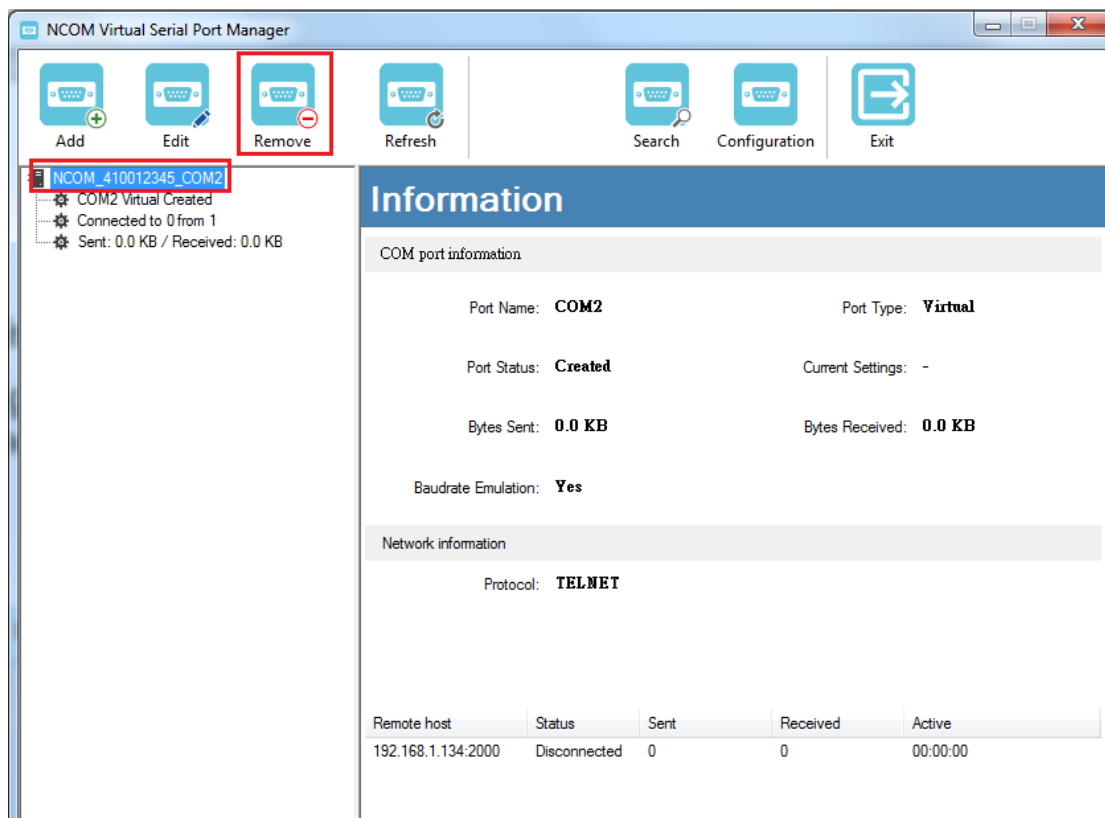


Under “Add connection”, you can change the COM port number with the “COM Port” option (e.g. changing from COM2 to COM3) or change the IP address and remote port with the “IP Address” and “Remote Port” options respectively. After you change the settings, click “OK” to confirm the changes of the virtual serial port for NCOM devices.

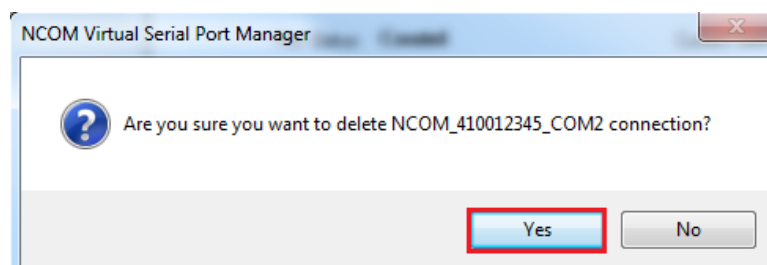


## 8.4 Manually Remove Existing Virtual Serial COM Ports for NCOM Devices

To remove an existing virtual serial port for NCOM devices, select an existing virtual serial port and click “Remove”.

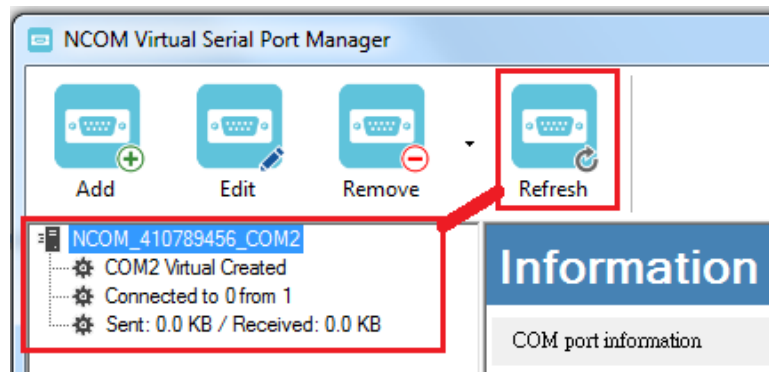


After clicking “Remove”, a confirmation message will appear asking “Are you sure you want to delete NCOM\_XXXXXXXX\_COMX connection?”. Confirm by clicking on “Yes”.



## 8.5 Refreshing Virtual Serial Port Information

The virtual serial port information on the main window of NCOM Virtual Serial Port Manager may be incorrect or absent in some cases. In case this happens, you can click “Refresh” to recover the virtual serial port information.




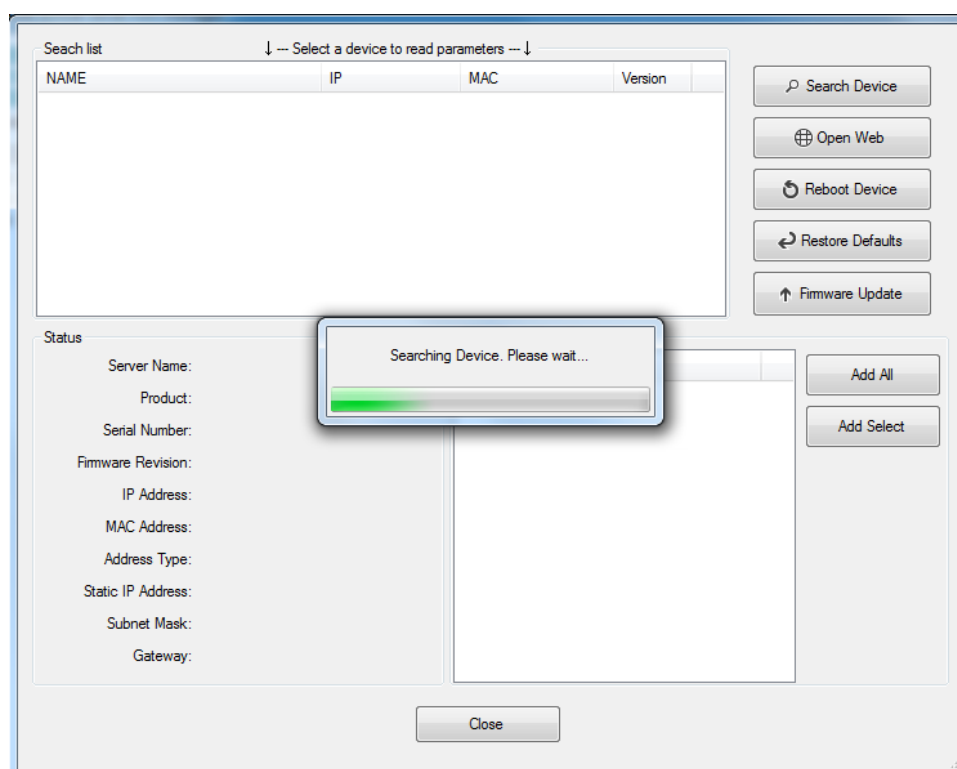
## 8.6 Automatically Search for NCOM Devices

NCOM Virtual Serial Port Manager provides a search function, which can search all attached NCOM devices and can also automatically install virtual serial port driver for NCOM devices. You may also open the web console interface to configure NCOM, reboot NCOM devices, restore factory defaults and execute firmware update from here.

“**Search**” (search all attached NCOM devices automatically).



Clicking on “Search  ” takes you to the control menu page shown below:



After a few seconds the NCOM Virtual Serial Port Manager will search and display all attached NCOM devices automatically.

Search list      ↓ -- Select a device to read parameters -- ↓

| NAME           | IP            | MAC               | Version |
|----------------|---------------|-------------------|---------|
| NCOM_410654321 | 192.168.1.117 | 00:04:D9:80:64:80 | 0.80    |
| NCOM_410135790 | 192.168.1.146 | 00:04:D9:88:00:50 | 0.80    |
| NCOM_410789456 | 192.168.1.125 | 00:04:D9:80:78:87 | 0.70    |
| NCOM_410900002 | 192.168.1.105 | 00:04:D9:80:80:82 | 0.60    |
| NCOM_410987654 | 192.168.1.148 | 00:04:D9:80:11:80 | 0.80    |
| NCOM_410900004 | 192.168.1.147 | 00:04:D9:80:80:84 | 0.60    |
| NCOM_410900001 | 192.168.1.112 | 00:04:D9:80:80:81 | 0.60    |
| NCOM_410012345 | 192.168.1.134 | 00:04:D9:80:00:12 | 0.60    |
| NCOM_410011111 | 192.168.1.140 | 00:04:D9:80:50:50 | 0.80    |
| NCOM_410900003 | 192.168.1.149 | 00:04:D9:80:80:83 | 0.60    |

Status

Server Name:  
 Product:  
 Serial Number:  
 Firmware Revision:  
 IP Address:  
 MAC Address:  
 Address Type:  
 Static IP Address:  
 Subnet Mask:  
 Gateway:

COM Port Information

| # | Port | State |
|---|------|-------|
|   |      |       |

## 8.6.1 Selecting an NCOM Device to Read Parameters

After you select an attached NCOM device to configure the virtual serial port parameters, you will find the NCOM device information on the main window of NCOM Virtual Serial Port Manager. The information includes “Server Name”, “Product”, “Serial Number”, “Firmware Revision”, “IP Address”, “MAC Address”, “Address Type”, “Static IP Address”, “Subnet Mask” and “Gateway”.

The screenshot displays the NCOM Virtual Serial Port Manager interface. At the top, there is a search bar and a dropdown menu labeled "Select a device to read parameters". Below this is a table listing several NCOM devices. The device with ID "NCOM\_410012345" is highlighted in blue. To the right of the table are several action buttons: "Search Device", "Open Web", "Reboot Device", "Restore Defaults", and "Firmware Update".

| NAME                  | IP                   | MAC                      | Version     |
|-----------------------|----------------------|--------------------------|-------------|
| NCOM_410654321        | 192.168.1.117        | 00:04:D9:80:64:80        | 0.80        |
| NCOM_410135790        | 192.168.1.146        | 00:04:D9:88:00:50        | 0.80        |
| NCOM_410789456        | 192.168.1.125        | 00:04:D9:80:78:87        | 0.70        |
| NCOM_410900002        | 192.168.1.105        | 00:04:D9:80:80:82        | 0.60        |
| NCOM_410987654        | 192.168.1.148        | 00:04:D9:80:11:80        | 0.80        |
| NCOM_410900004        | 192.168.1.147        | 00:04:D9:80:80:84        | 0.60        |
| NCOM_410900001        | 192.168.1.112        | 00:04:D9:80:80:81        | 0.60        |
| <b>NCOM_410012345</b> | <b>192.168.1.134</b> | <b>00:04:D9:80:00:12</b> | <b>0.60</b> |
| NCOM_410011111        | 192.168.1.140        | 00:04:D9:80:50:50        | 0.80        |
| NCOM_410900003        | 192.168.1.149        | 00:04:D9:80:80:83        | 0.60        |

Below the table, there are two main sections: "Status" and "COM Port Information".

**Status**

- Server Name: **NCOM\_410012345**
- Product: NCOM 1 Port
- Serial Number: 410012345
- Firmware Revision: 0.60
- IP Address: 192.168.1.134
- MAC Address: 00:04:D9:80:00:12
- Address Type: USE DHCP/AutoIP
- Static IP Address: 192.168.0.1
- Subnet Mask: 255.255.255.0
- Gateway: 0.0.0.0

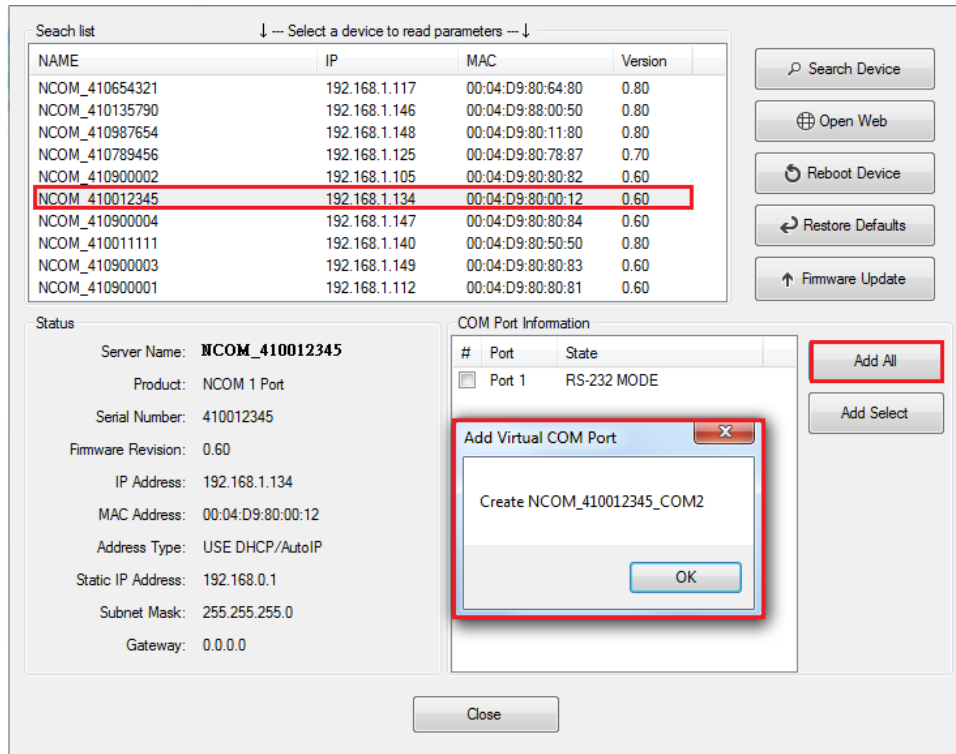
**COM Port Information**

| #                                   | Port   | State       |
|-------------------------------------|--------|-------------|
| <input checked="" type="checkbox"/> | Port 1 | RS-232 MODE |

Buttons for "Add All" and "Add Select" are located to the right of the COM Port Information table. A "Close" button is at the bottom center of the window.

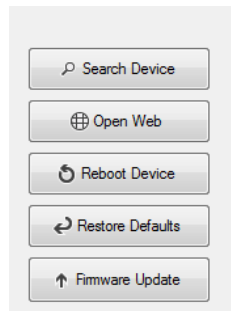
## 8.6.2 Installing Virtual Serial Port Driver for NCOM Devices

The search function can also create virtual COM ports and install virtual serial port drivers automatically. After selecting an attached NCOM device from the control menu click “**Add All**” button to install virtual serial port drivers automatically. After installation you will find the “Create NCOM\_XXXXXXXXX\_COMX” message and the virtual serial port created for the attached NCOM device.



Click “OK” to finish creating the virtual serial port for your NCOM device.

In the “Search” window, there are five control buttons: **“Search Device”**, **“Open Web”**, **“Reboot Device”**, **“Restore Defaults”** and **“Firmware Update”**.





## 8.6.3 Manually Search for NCOM Devices

The “**Search Device**” button searches for all attached NCOM devices. If a new NCOM device is attached to the network system, you can click “Search Device” to find new NCOM devices.

The interface consists of a 'Search list' table with columns for NAME, IP, MAC, and Version. Below the table are buttons for 'Search Device', 'Open Web', 'Reboot Device', 'Restore Defaults', and 'Firmware Update'. A 'Status' section contains fields for Server Name, Product, Serial Number, Firmware Revision, IP Address, MAC Address, Address Type, Static IP Address, Subnet Mask, and Gateway. A 'COM Port Information' table with columns for #, Port, and State is also present.

**Left Screenshot (Searching):**

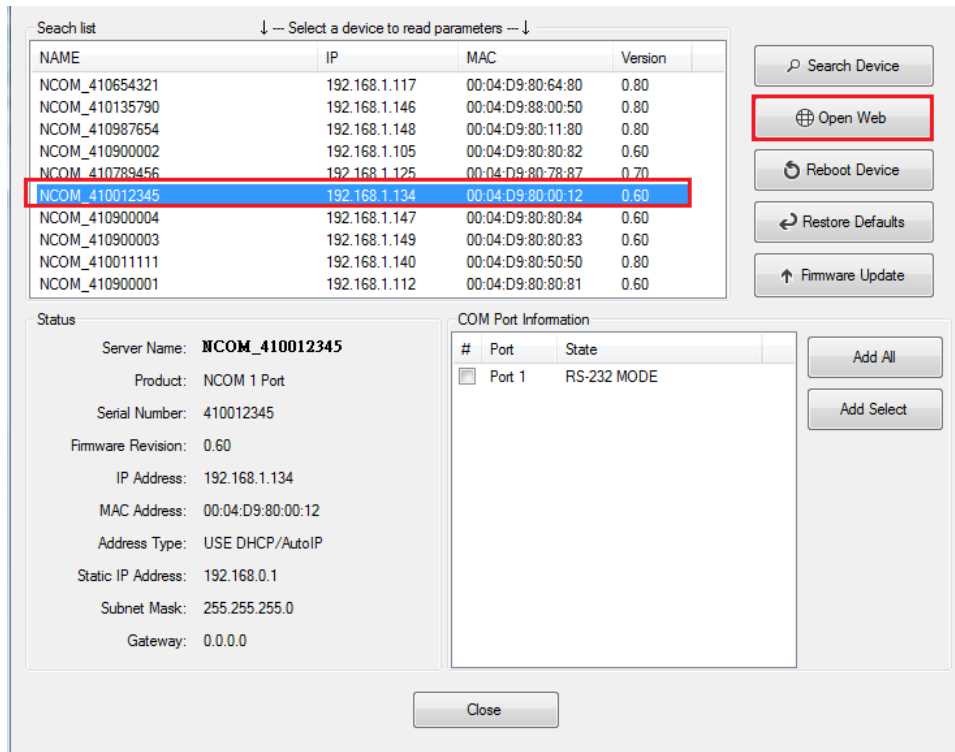
| NAME | IP | MAC | Version |
|------|----|-----|---------|
|      |    |     |         |

**Right Screenshot (Results):**

| NAME           | IP            | MAC               | Version |
|----------------|---------------|-------------------|---------|
| NCOM_410135790 | 192.168.1.146 | 00:04:09:80:00:50 | 0.60    |
| NCOM_410654321 | 192.168.1.117 | 00:04:09:80:64:80 | 0.80    |
| NCOM_410011111 | 192.168.1.140 | 00:04:09:80:50:50 | 0.80    |
| NCOM_410900003 | 192.168.1.149 | 00:04:09:80:80:83 | 0.60    |
| NCOM_410900002 | 192.168.1.105 | 00:04:09:80:00:82 | 0.60    |
| NCOM_410900001 | 192.168.1.112 | 00:04:09:80:80:81 | 0.60    |
| NCOM_410012345 | 192.168.1.134 | 00:04:09:80:00:12 | 0.60    |
| NCOM_410900000 | 192.168.1.118 | 00:04:09:80:80:80 | 0.60    |

## 8.6.4 Opening the Web Console Interface

The “**Open Web**” button opens the web console interface to configure NCOM. After selecting an attached NCOM device, click “Open Web” to open the web console interface for that particular NCOM device.



The screenshot displays the NCOM management interface. At the top, there is a search list with a dropdown menu to select a device for reading parameters. The search list contains the following data:

| NAME                  | IP                   | MAC                      | Version     |
|-----------------------|----------------------|--------------------------|-------------|
| NCOM_410654321        | 192.168.1.117        | 00:04:D9:80:64:80        | 0.80        |
| NCOM_410135790        | 192.168.1.146        | 00:04:D9:88:00:50        | 0.80        |
| NCOM_410987654        | 192.168.1.148        | 00:04:D9:80:11:80        | 0.80        |
| NCOM_410900002        | 192.168.1.105        | 00:04:D9:80:80:82        | 0.60        |
| NCOM_410789456        | 192.168.1.125        | 00:04:D9:80:78:87        | 0.70        |
| <b>NCOM_410012345</b> | <b>192.168.1.134</b> | <b>00:04:D9:80:00:12</b> | <b>0.60</b> |
| NCOM_410900004        | 192.168.1.147        | 00:04:D9:80:80:84        | 0.60        |
| NCOM_410900003        | 192.168.1.149        | 00:04:D9:80:80:83        | 0.60        |
| NCOM_410111111        | 192.168.1.140        | 00:04:D9:80:50:50        | 0.80        |
| NCOM_410900001        | 192.168.1.112        | 00:04:D9:80:80:81        | 0.60        |

Below the search list, the 'Status' section for the selected device (NCOM\_410012345) is shown:

- Server Name: **NCOM\_410012345**
- Product: NCOM 1 Port
- Serial Number: 410012345
- Firmware Revision: 0.60
- IP Address: 192.168.1.134
- MAC Address: 00:04:D9:80:00:12
- Address Type: USE DHCP/AutoIP
- Static IP Address: 192.168.0.1
- Subnet Mask: 255.255.255.0
- Gateway: 0.0.0.0

The 'COM Port Information' section shows a table with one port:

| #                                   | Port   | State       |
|-------------------------------------|--------|-------------|
| <input checked="" type="checkbox"/> | Port 1 | RS-232 MODE |

On the right side of the interface, there are several buttons: 'Search Device', 'Open Web' (highlighted with a red box), 'Reboot Device', 'Restore Defaults', and 'Firmware Update'. At the bottom, there is a 'Close' button.

## 8.6.5 Rebooting NCOM Devices

The “**Reboot Device**” button reboots/resets your NCOM device. After selecting an attached NCOM device, click “Reboot Device” and a message will ask “Are you sure you want to reboot device?”. Click “Yes” to reboot/reset your NCOM device.

The screenshot displays the NCOM Virtual Serial Port Manager interface. At the top, there is a search list with a dropdown menu to select a device for reading parameters. The list contains the following data:

| NAME           | IP            | MAC               | Version |
|----------------|---------------|-------------------|---------|
| NCOM_410135790 | 192.168.1.146 | 00:04:D9:88:00:50 | 0.80    |
| NCOM_410654321 | 192.168.1.117 | 00:04:D9:80:64:80 | 0.80    |
| NCOM_410011111 | 192.168.1.140 | 00:04:D9:80:50:50 | 0.80    |
| NCOM_410900003 | 192.168.1.149 | 00:04:D9:80:80:83 | 0.60    |
| NCOM_410900002 | 192.168.1.105 | 00:04:D9:80:80:82 | 0.60    |
| NCOM_410900001 | 192.168.1.112 | 00:04:D9:80:80:81 | 0.60    |
| NCOM_410012345 | 192.168.1.134 | 00:04:D9:80:00:12 | 0.60    |
| NCOM_410900000 | 192.168.1.118 | 00:04:D9:80:80:80 | 0.60    |

Below the search list is a status panel for the selected device, showing the following details:

- Server Name: NCOM\_410012345
- Product: NCOM 1 Po
- Serial Number: 410012345
- Firmware Revision: 0.60
- IP Address: 192.168.1.134
- MAC Address: 00:04:D9:80:00:12
- Address Type: USE DHCP/AutoIP
- Static IP Address: 192.168.0.1
- Subnet Mask: 255.255.255.0
- Gateway: 0.0.0.0

On the right side of the interface, there are several action buttons: Search Device, Open Web, Reboot Device (highlighted with a red box), Restore Defaults, and Firmware Update. At the bottom right, there are buttons for Add All and Add Select.

A confirmation dialog box titled "NCOM Virtual Serial Port Manager" is overlaid on the interface. It contains a question mark icon and the text "Are you sure you want to reboot device?". Below the text are two buttons: "Yes" (highlighted with a red box) and "No".

## 8.6.6 Restoring to Factory Defaults

The “**Restore Defaults**” button restores the firmware to factory defaults. When you select an attached NCOM device, you can restore all options to factory default states by clicking the “Restore Defaults” button; After clicking “Restore Defaults”, a message will ask “Are you sure you want to restore device to default?”. Confirm by clicking “Yes” and the NCOM device will restore all options to factory defaults.

The screenshot displays the NCOM Virtual Serial Port Manager interface. At the top, there is a search list with columns for NAME, IP, MAC, and Version. The second row, NCOM\_410012345, is highlighted with a red box. To the right of the search list are several buttons: Search Device, Open Web, Reboot Device, Restore Defaults (highlighted with a red box), and Firmware Update. Below the search list is a status section with various fields like Server Name, Product, Serial Number, Firmware Revision, IP Address, MAC Address, Address Type, Static IP Address, Subnet Mask, and Gateway. A confirmation dialog box titled "NCOM Virtual Serial Port Manager" is overlaid on the interface, asking "Are you sure you want to restore device to default?" with "Yes" and "No" buttons. The "Yes" button is highlighted with a red box.

| NAME           | IP            | MAC               | Version |
|----------------|---------------|-------------------|---------|
| NCOM_410135790 | 192.168.1.146 | 00:04:D9:88:00:50 | 0.80    |
| NCOM_410012345 | 192.168.1.134 | 00:04:D9:80:00:12 | 0.60    |
| NCOM_410900001 | 192.168.1.112 | 00:04:D9:80:80:81 | 0.60    |
| NCOM_410900002 | 192.168.1.105 | 00:04:D9:80:80:82 | 0.60    |
| NCOM_410900003 | 192.168.1.149 | 00:04:D9:80:80:83 | 0.60    |
| NCOM_410900000 | 192.168.1.118 | 00:04:D9:80:80:80 | 0.60    |

Status

Server Name: NCOM  
Product: NCOM  
Serial Number: 41001  
Firmware Revision: 0.60  
IP Address: 192.168.1.134  
MAC Address: 00:04:D9:80:00:12  
Address Type: USE DHCP/AutoIP  
Static IP Address: 192.168.0.1  
Subnet Mask: 255.255.255.0  
Gateway: 0.0.0.0

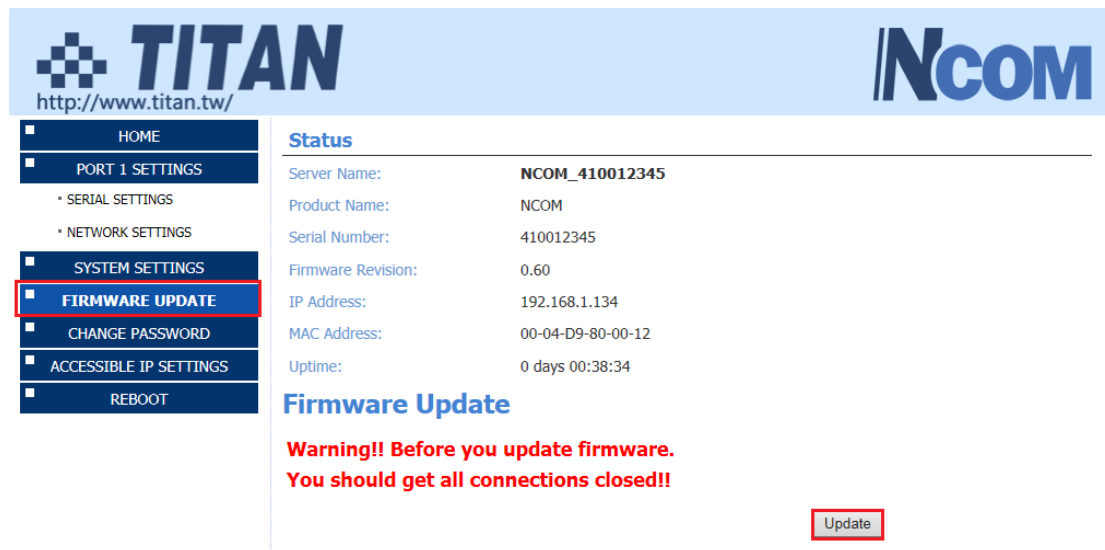
Are you sure you want to restore device to default?

Yes No

## 8.6.7 Firmware Update Tool

The “**Firmware Update**” button opens the firmware update tool to upgrade NCOM-113 firmware contents via Ethernet port. Before you click “Firmware Update”, please go to the web console interface of NCOM device firmware. Enable firmware update interface via Ethernet port in order to upgrade NCOM-113.

Under the web console interface, select “FIRMWARE UPDATE” and click “Update” to enable the firmware update interface to upgrade to a new firmware.

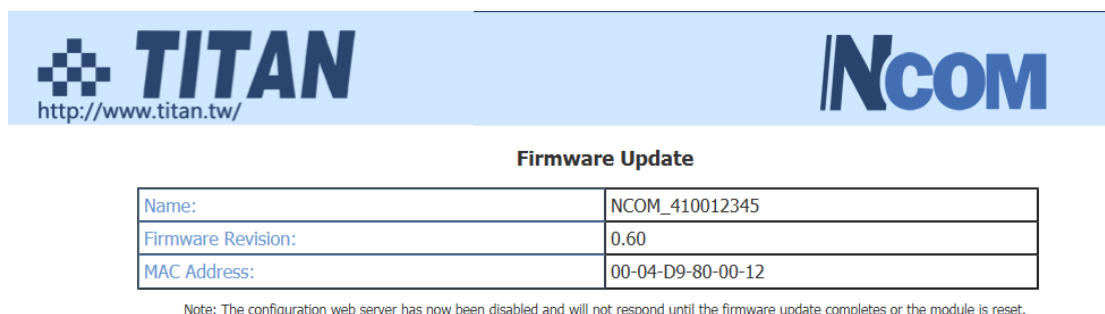


The screenshot shows the TITAN web console interface. The top header includes the TITAN logo and URL (http://www.titan.tw/) on the left, and the NCOM logo on the right. A left sidebar contains navigation menu items: HOME, PORT 1 SETTINGS, SERIAL SETTINGS, NETWORK SETTINGS, SYSTEM SETTINGS, FIRMWARE UPDATE (highlighted with a red box), CHANGE PASSWORD, ACCESSIBLE IP SETTINGS, and REBOOT. The main content area is titled "Status" and displays the following information:

|                    |                   |
|--------------------|-------------------|
| Server Name:       | NCOM_410012345    |
| Product Name:      | NCOM              |
| Serial Number:     | 410012345         |
| Firmware Revision: | 0.60              |
| IP Address:        | 192.168.1.134     |
| MAC Address:       | 00-04-D9-80-00-12 |
| Uptime:            | 0 days 00:38:34   |

Below the status information, there is a section titled "Firmware Update" with a red warning message: "Warning!! Before you update firmware. You should get all connections closed!!". A red-bordered "Update" button is located at the bottom right of this section.

When you click “Update”, you will find the following message. The web console interface then waits for the firmware update tool program to launch in order to continue upgrading NCOM-113’s firmware.

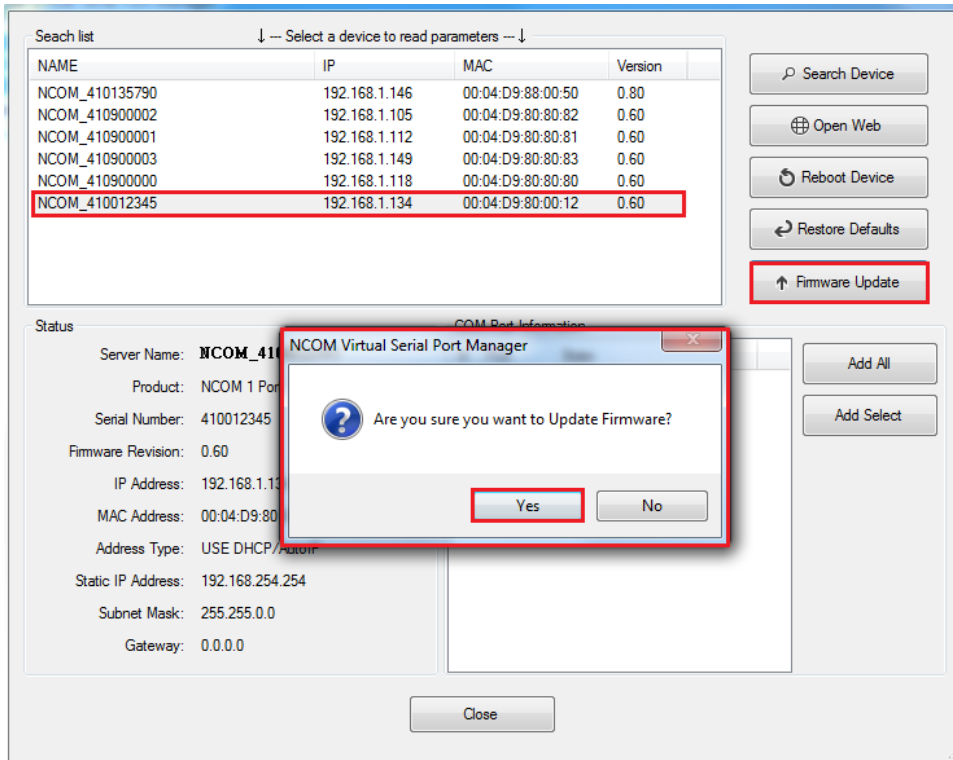


The screenshot shows the TITAN web console interface after clicking the "Update" button. The top header is the same as the previous screenshot. The main content area is titled "Firmware Update" and contains a table with the following information:

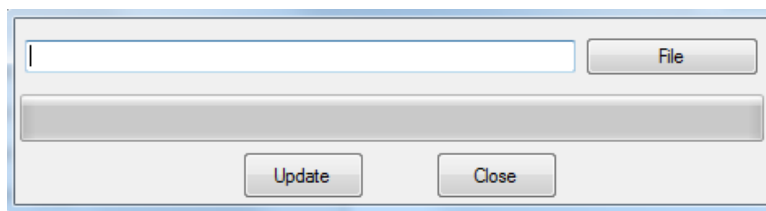
|                    |                   |
|--------------------|-------------------|
| Name:              | NCOM_410012345    |
| Firmware Revision: | 0.60              |
| MAC Address:       | 00-04-D9-80-00-12 |

Below the table, there is a note: "Note: The configuration web server has now been disabled and will not respond until the firmware update completes or the module is reset."

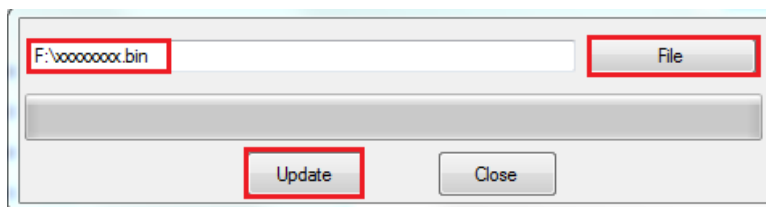
After enabling the firmware update interface, please select this NCOM device then click the “Firmware Update” button.



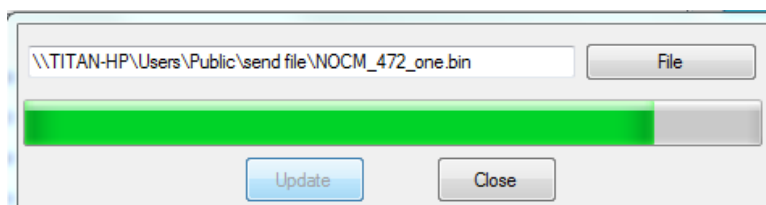
When you click “Firmware Update”, a message will ask “Are you sure you want to update firmware?”. Confirm by clicking “Yes” and the message “Input new firmware file” will appear.



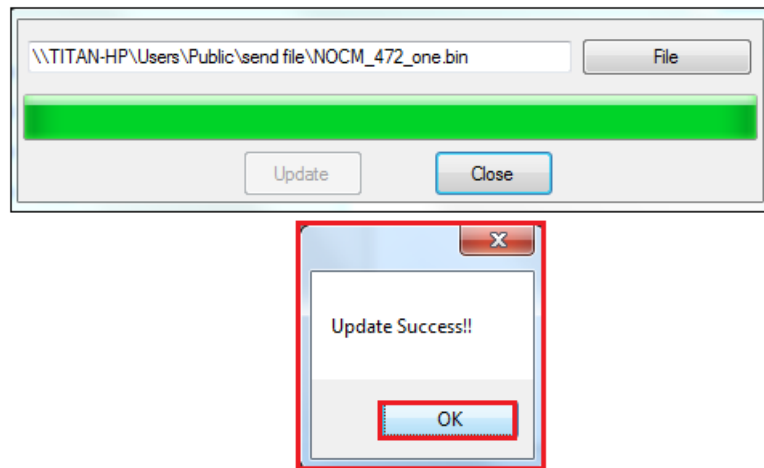
Use the “File” button to browse to the new firmware file and click on “Update” to start upgrading NCOM-113’s device firmware.



While upgrading, you will find the following message.



After successfully upgrading the firmware contents, there will be a message stating "Update Success!!".



Click on "OK" to finish the firmware update procedure.

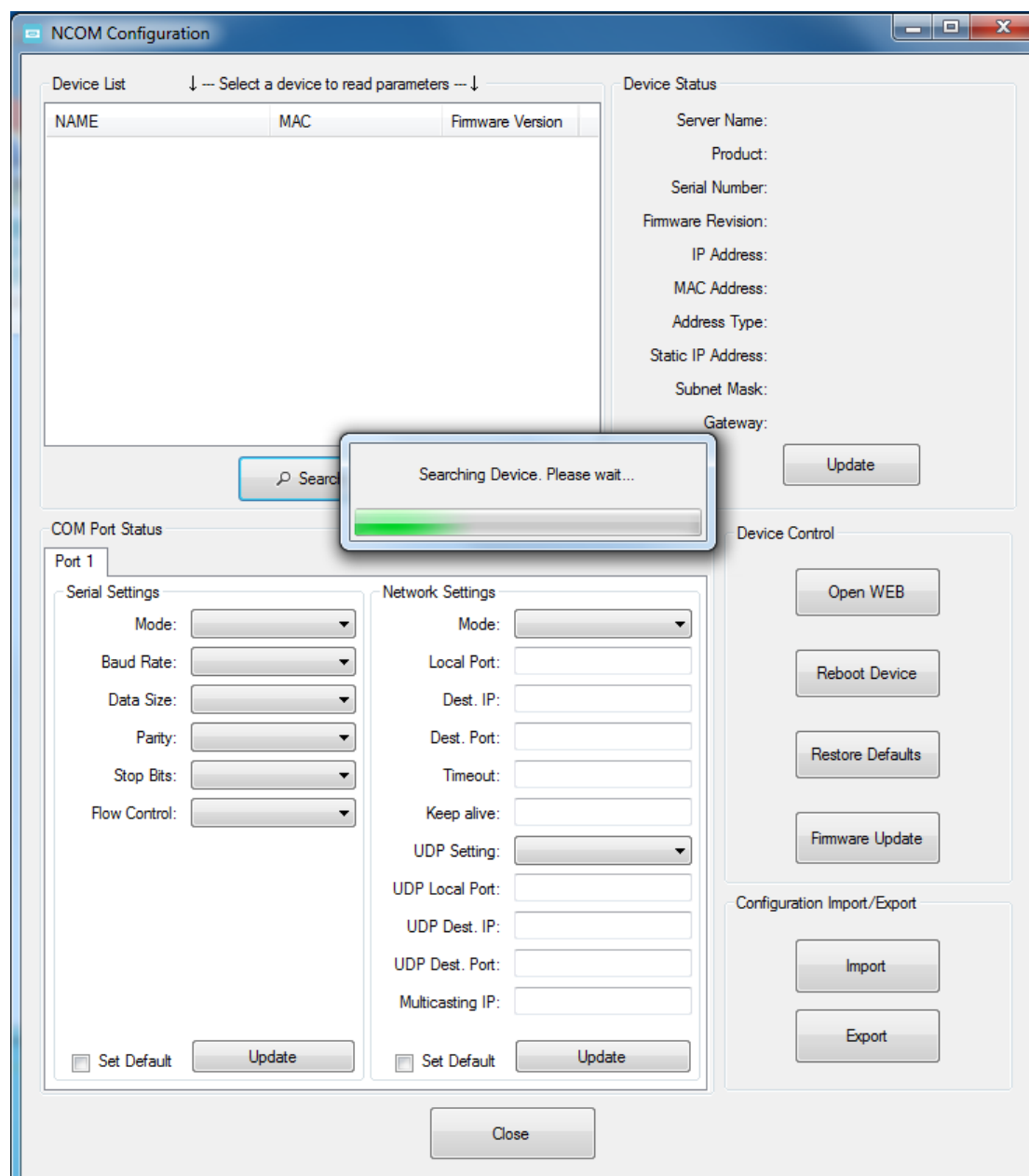
## 8.7 Configuring NCOM Devices

NCOM Virtual Serial Port Manager has a configuration function which can configure all attached NCOM devices. It can also import/export configuration files for NCOM devices, open web console interface to configure NCOM device, reboot NCOM devices, restore factory defaults and execute firmware update.

“**Configuration**” (configure all attached NCOM devices).

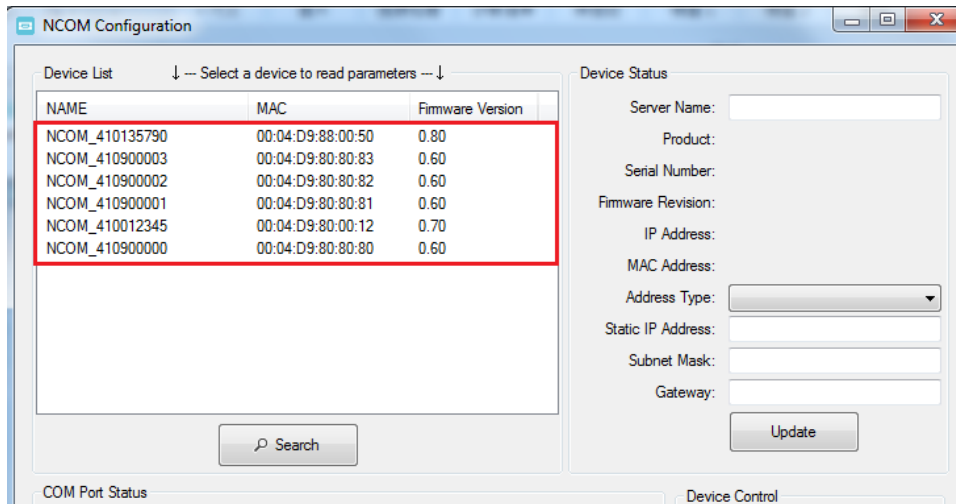


Clicking on “Configuration Configuration” takes you to the control menu page shown below:





After a few seconds, NCOM Virtual Serial Port Manager will search all attached NCOM devices automatically, and you will find a device list information for all NCOM devices.



## 8.7.1 Selecting an NCOM Device to Configure Parameters

When you select an attached NCOM device to configure the virtual serial port parameters, you will find “Device Status”, “COM Port Status”, “Device Control” and “Configuration Import/Export” on the main window of NCOM Configuration.

The screenshot displays the NCOM Configuration application window. It features a 'Device List' table with columns for NAME, IP, MAC, and Version. The device 'NCOM\_410789456' is highlighted. To the right, the 'Device Status' panel shows details for the selected device, including Server Name, Product, Serial Number, Firmware Revision, IP Address, MAC Address, Address Type, Static IP Address, Subnet Mask, and Gateway. Below the Device List is a 'Search' button. The bottom section contains three panels: 'COM Port Status' (with Serial and Network settings), 'Device Control' (with buttons for Open WEB, Reboot Device, Restore Defaults, and Firmware Update), and 'Configuration Import/Export' (with Import and Export buttons). A 'Close' button is located at the bottom center.

| NAME           | IP            | MAC               | Version |
|----------------|---------------|-------------------|---------|
| NCOM_410135790 | 192.168.1.146 | 00:04:D9:88:00:50 | 0.80    |
| NCOM_410900002 | 192.168.1.105 | 00:04:D9:80:80:82 | 0.60    |
| NCOM_410900001 | 192.168.1.112 | 00:04:D9:80:80:81 | 0.60    |
| NCOM_410900003 | 192.168.1.149 | 00:04:D9:80:80:83 | 0.60    |
| NCOM_410789456 | 192.168.1.125 | 00:04:D9:80:78:87 | 0.70    |
| NCOM_410900000 | 192.168.1.118 | 00:04:D9:80:80:80 | 0.60    |

**Device Status**

Server Name: NCOM\_410789456  
Product: NCOM 1 Port  
Serial Number: 410789456  
Firmware Revision: 0.70  
IP Address: 192.168.1.125  
MAC Address: 00:04:D9:80:78:87  
Address Type: USE DHCP/AutoIP  
Static IP Address: 192.168.254.254  
Subnet Mask: 255.255.255.0  
Gateway: 0.0.0.0

**COM Port Status**

Port 1

**Serial Settings**

Mode: RS-232  
Baud Rate: 115200  
Data Size: 7  
Parity: None  
Stop Bits: 1  
Flow Control: None

**Network Settings**

Mode: RFC2217 - Client  
Local Port: 2000  
Dest. IP: 0.0.0.0  
Dest. Port: 2000  
Timeout: 0  
Keep alive: 10  
UDP Setting: Use Unicast  
UDP Local Port: 4000  
UDP Dest. IP: 0.0.0.0  
UDP Dest. Port: 4000  
Multicasting IP: 224.0.0.0

**Device Control**

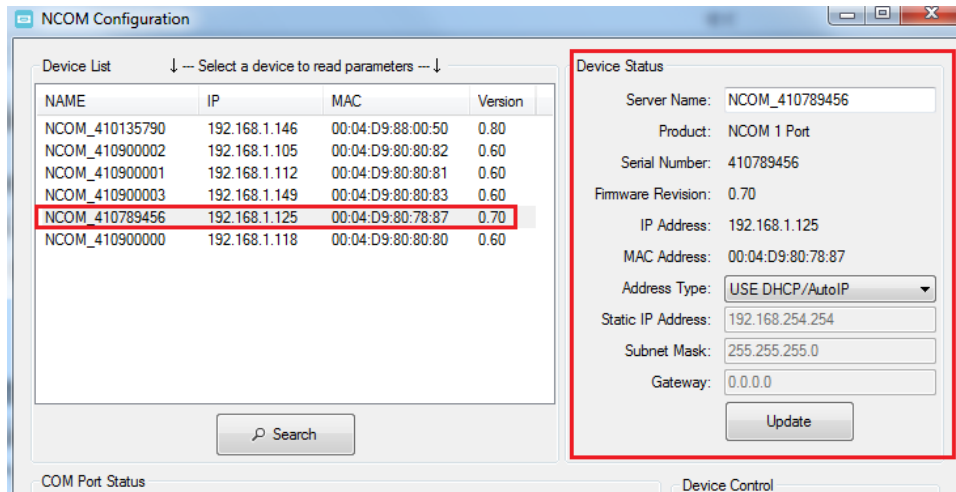
Open WEB  
Reboot Device  
Restore Defaults  
Firmware Update

**Configuration Import/Export**

Import  
Export

## 8.7.2 Device Status

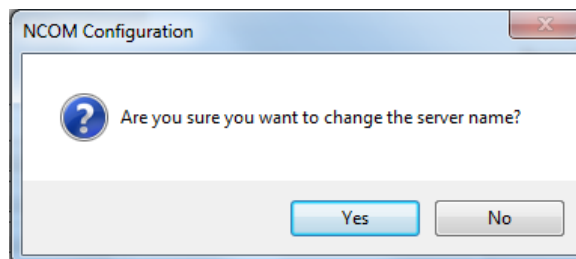
The “Device Status” section indicates the following information: “Server Name”, “Product”, “Serial Number”, “Firmware Revision”, “IP Address”, “MAC Address”, “Address Type”, “Static IP Address”, “Subnet Mask” and “Gateway”.



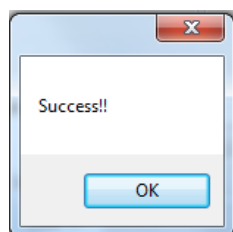
In “Device Status”, you can modify “Server Name”, “Address Type”, “Static IP Address”, “Subnet Mask” and “Gateway” depending on your application.

To change the serial device server name, modify the “Server Name” under “Device Status”. You need to enter a new name (such as NCOM-113) and click “Update” to set your serial device server to a new name.

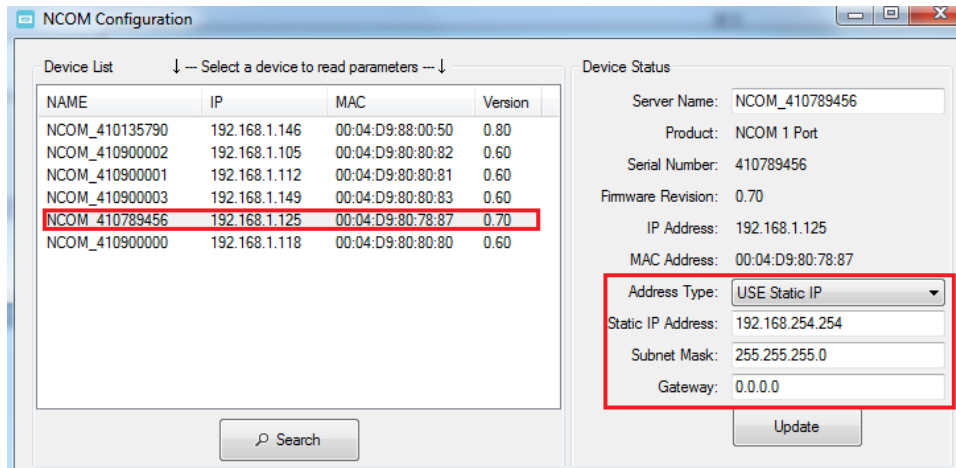
After clicking “Update” a confirmation message will ask “Are you sure you want to change server name?”. Confirm by clicking “Yes”.



After NCOM-113 successfully changes to a new name, a message will indicate “Success!!”. Click on “OK” to finish the procedure.

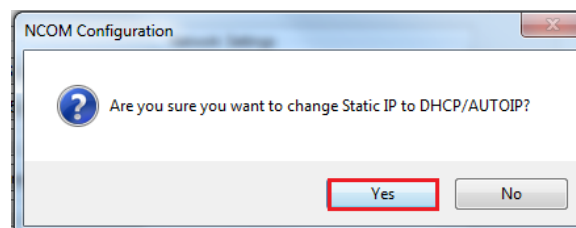
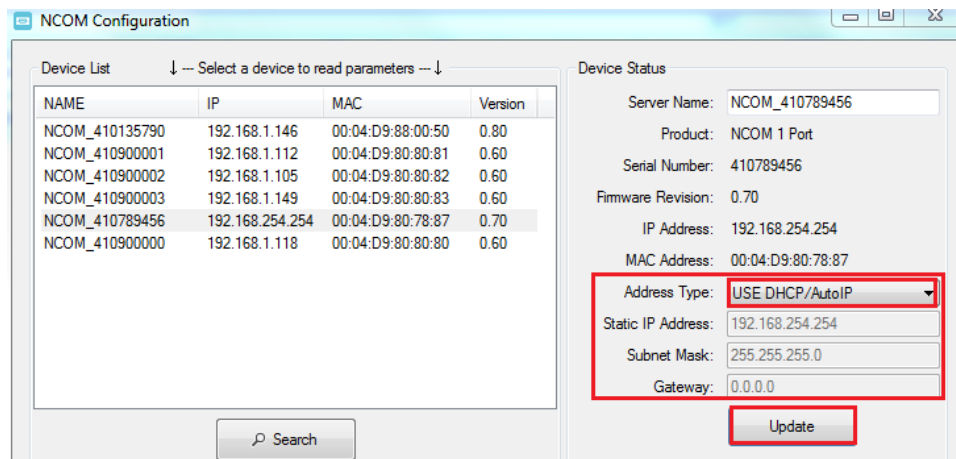


NCOM-113 serial device server is configured with a default private IP address (static IP address): **192.168.254.254**.

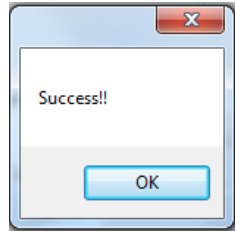


Many networks work in a DHCP network, which assigns IP addresses for client computers and NCOM-113 automatically. In this case, you need to set NCOM-113's IP address to DHCP/AutoIP mode.

Under "Device Status" of NCOM Configuration, select "USE DHCP/AutoIP" under "Address Type:" and click "Update". A message will ask "Are you sure you want to change Static IP to DHCP/AUTOIP?", confirm by clicking "Yes" and NCOM-113 will be set to DHCP/AutoIP mode.



After successfully setting NCOM-113 to DHCP/AutoIP mode, a message will indicate "Success!!". Click on "OK" to finish changing the IP address type.



When NCOM-113 is working in a static network environment, you need to set NCOM-113 to a fixed IP address mode.

Under "Device Status" of NCOM Configuration, select "USE Static IP" under "Address Type:" and enter a new static IP address (such as 192.168.0.1), subnet mask (such as 255.255.255.0) and gateway (such as 0.0.0.0). Afterwards, click "Update" to set NCOM to a new static IP address for static network environments.

After clicking "Update", a confirmation message saying "Are you sure you want to change new Static IP?" will appear. Confirm by clicking "Yes" and NCOM-113 will be set to a new static IP address.

### 8.7.3 COM Port Status

The “COM Port Status” section indicate the following information: “PortX”, “Serial Settings” and “Network Settings”.

The screenshot displays the NCOM Configuration interface. At the top, there is a "Device List" table and a "Device Status" panel. The "Device List" table contains the following data:

| NAME           | MAC               | Firmware Version |
|----------------|-------------------|------------------|
| NCOM_410135790 | 00:04:D9:88:00:50 | 0.80             |
| NCOM_410900002 | 00:04:D9:80:80:82 | 0.60             |
| NCOM_410900003 | 00:04:D9:80:80:83 | 0.60             |
| NCOM_410900001 | 00:04:D9:80:80:81 | 0.60             |
| NCOM_410012345 | 00:04:D9:80:00:12 | 0.70             |
| NCOM_410900000 | 00:04:D9:80:80:80 | 0.60             |

The "Device Status" panel for the selected device (NCOM\_410012345) shows the following information:

- Server Name: NCOM\_410012345
- Product: NCOM 1 Port
- Serial Number: 410012345
- Firmware Revision: 0.70
- IP Address: 192.168.254.254
- MAC Address: 00:04:D9:80:00:12
- Address Type: USE Static IP
- Static IP Address: 192.168.254.254
- Subnet Mask: 255.255.255.0
- Gateway: 0.0.0.0

The "COM Port Status" section is highlighted with a red box and contains the following settings for "Port 1":

- Serial Settings:**
  - Mode: RS-232
  - Baud Rate: 115200
  - Data Size: 8
  - Parity: None
  - Stop Bits: 1
  - Flow Control: None
- Network Settings:**
  - Mode: RFC2217 - Server
  - Local Port: 2000
  - Dest. IP: 0.0.0.0
  - Dest. Port: 2000
  - Timeout: 0
  - Keep alive: 10
  - UDP Setting: Use Unicast
  - UDP Local Port: 4000
  - UDP Dest. IP: 0.0.0.0
  - UDP Dest. Port: 4000
  - Multicasting IP: 224.0.0.0

Buttons for "Set Default" and "Update" are present for both Serial and Network Settings. To the right, the "Device Control" section includes buttons for "Open WEB", "Reboot Device", "Restore Defaults", and "Firmware Update". The "Configuration Import/Export" section includes "Import" and "Export" buttons. A "Close" button is located at the bottom center of the window.

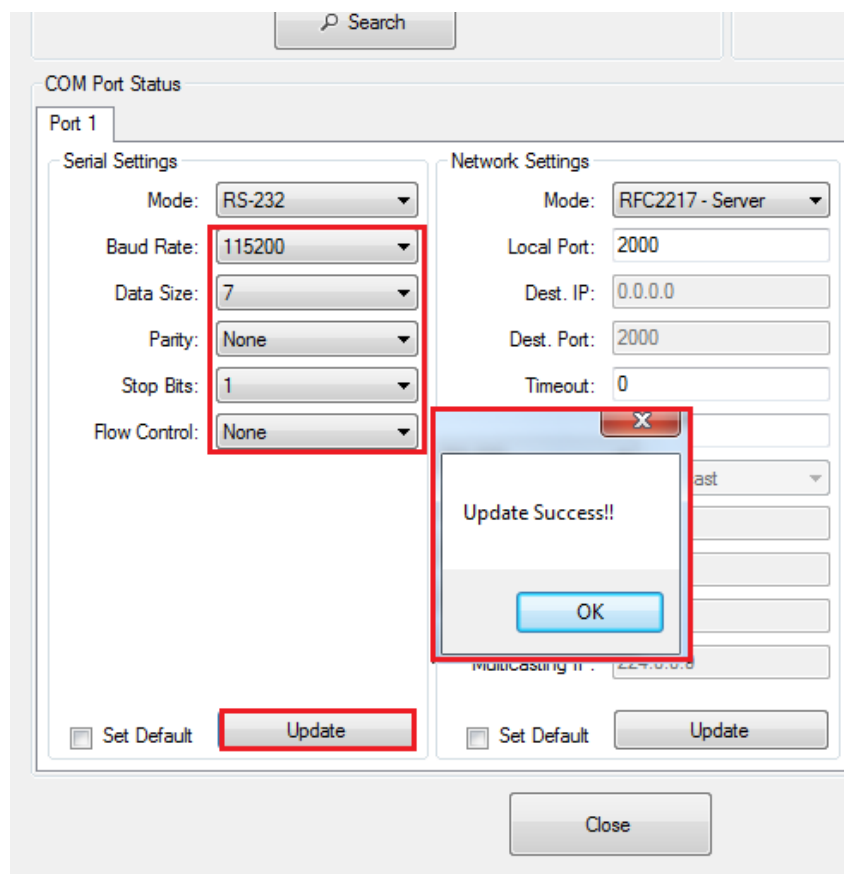
### 8.7.3.1 Changing Serial Parameters

To change serial parameters under “Serial Settings” for a virtual serial port, click “Port1” under “COM Port Status”. You can modify the following serial parameters:

| Serial Parameter    | Setting                              | Default Values   |
|---------------------|--------------------------------------|------------------|
| <b>Mode</b>         | RS-232, RS-422, RS-485 4W, RS-485 2W | RS-232           |
| <b>Baud Rate</b>    | 300 bps to 921600 bits/S             | 115200 bits/S    |
| <b>Data Size</b>    | 5, 6, 7, 8 bits/character            | 8 bits/character |
| <b>Parity Check</b> | None, Odd, Even, Mark, Space         | None             |
| <b>Stop Bits</b>    | 1, 2, 1.5 bit(s)                     | 1 bit            |
| <b>Flow Control</b> | None or Hardware                     | None             |

*Note: The default mode for NCOM-112 is RS-422.*

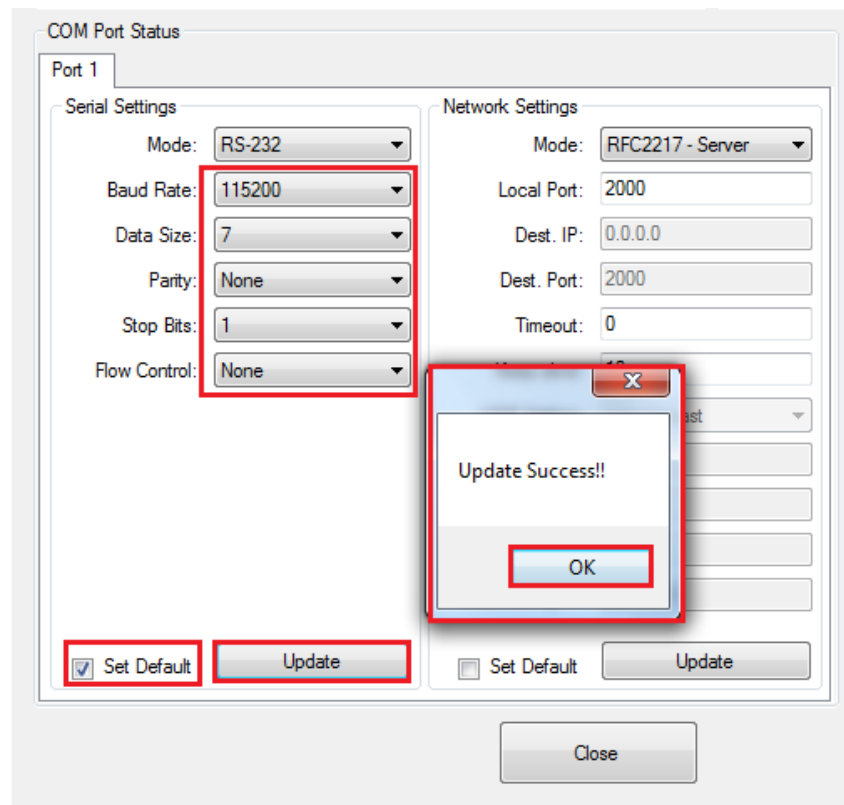
After changing the serial parameters, click “Update” to activate the new serial parameters. When the serial parameters are changed successfully, a message will indicate “Update Success!!”.



Click on “OK” to finish changing the serial parameters.

If you want to save these serial parameters as defaults, you need to check “Set Default” and click on “Update”. When the new serial parameters are saved, a message will

indicate “Update Success!!”.



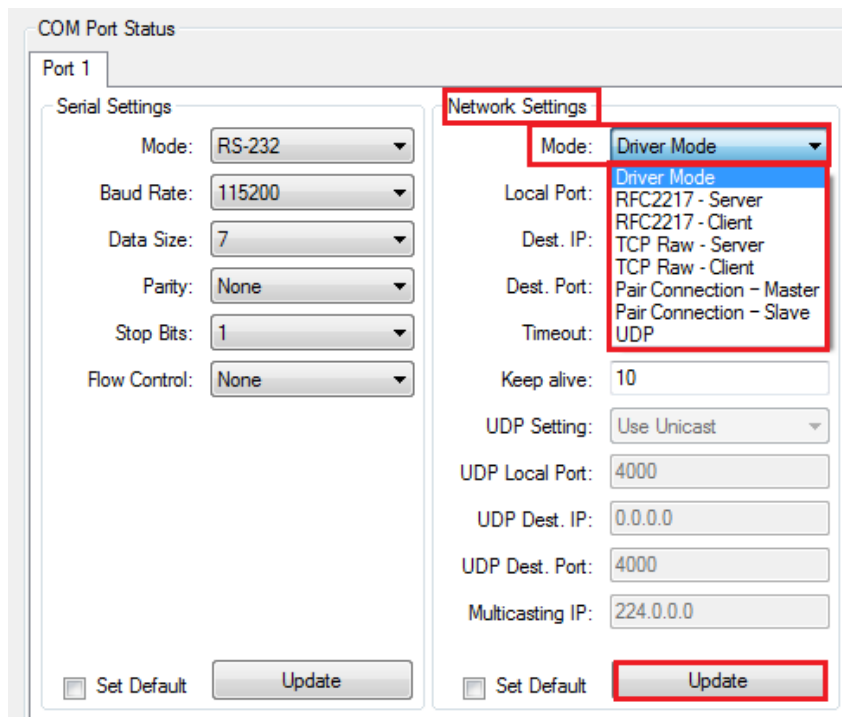
Click on “OK” to finish modifying serial parameters and saving new serial parameters.



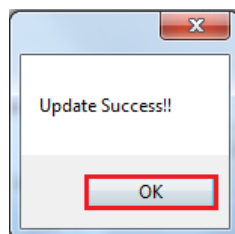
### 8.7.3.2 Changing Network Operation Mode

To change the network operation mode of a virtual serial port, click “Port1” under “COM Port Status”. Under “Network Settings”, you may choose “Driver Mode”, “RFC2217 - Server”, “RFC2217 - Client”, “TCP Raw - Server”, “TCP Raw - Client”, “Pair Connection Master Mode”, “Pair Connection Slave Mode” and “UDP” depending on your application.

After selecting an operation mode, click “Update” to set your NCOM-113 into the proper operation mode.

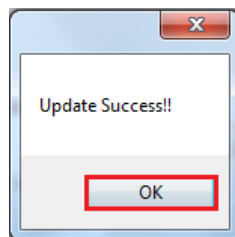
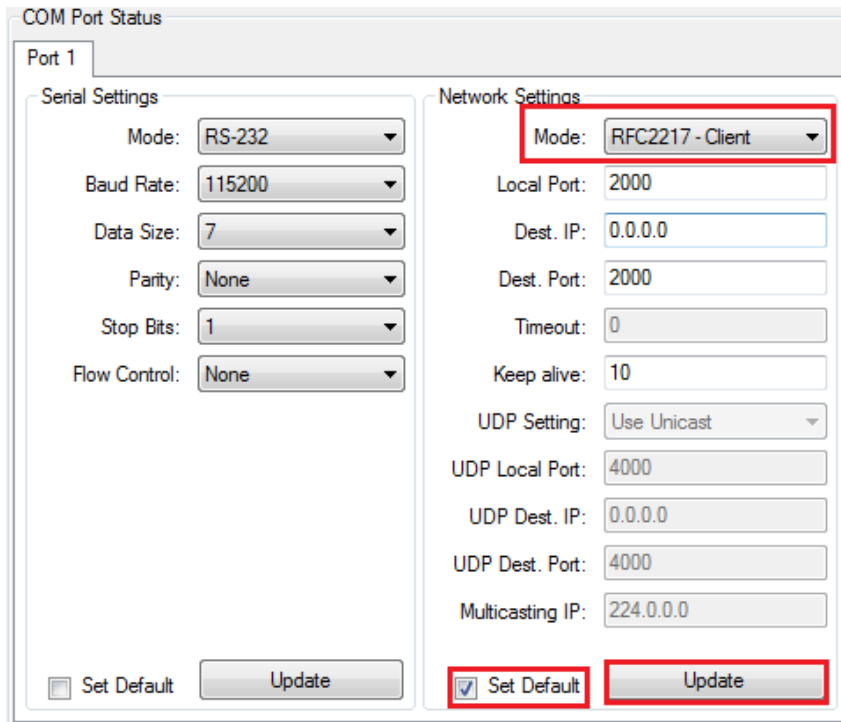


After clicking “Update” to set your NCOM-113’s operation mode, a message will indicate “Update Success!!”.



Click on “OK” to finish change operation mode procedure.

If you want to save the new operation mode as defaults, you need to check on “Set Default” and click on “Update”. When the new operation mode is saved, a message will indicate “Update Success!!”.



Click on “OK” to finish changing and saving a new operation mode.

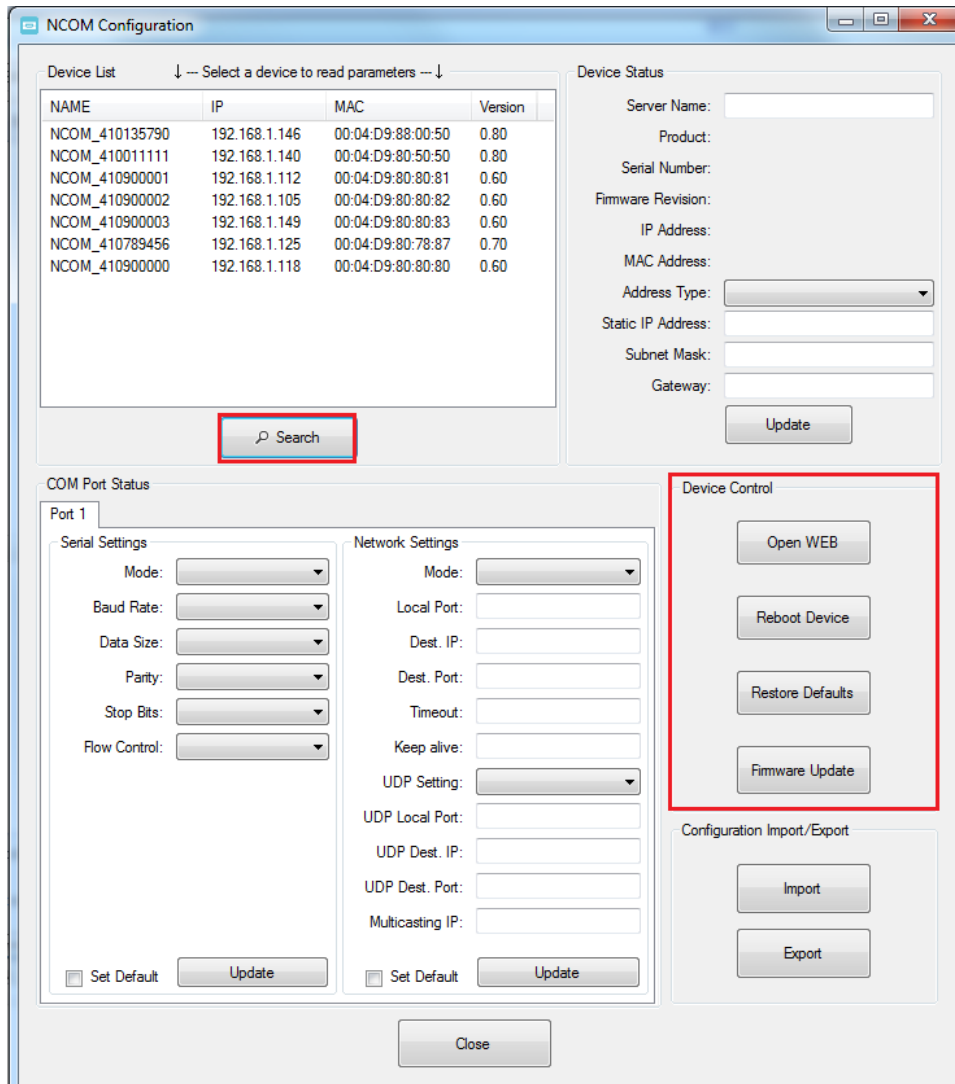
To modify the network settings for a chosen operation mode please refer to Chapter 5 for detailed information. You can also modify the network parameter settings for your NCOM-113 serial device server.

Following are the default values of network parameters:

| Network Parameters       | Default Values  |
|--------------------------|-----------------|
| <b>Mode</b>              | Driver Mode     |
| <b>Timeout</b>           | 0 seconds       |
| <b>Keep alive time</b>   | 10 minutes      |
| <b>Address Type</b>      | Static IP       |
| <b>Static IP address</b> | 192.168.254.254 |
| <b>Subnet Mask</b>       | 255.255.255.0   |

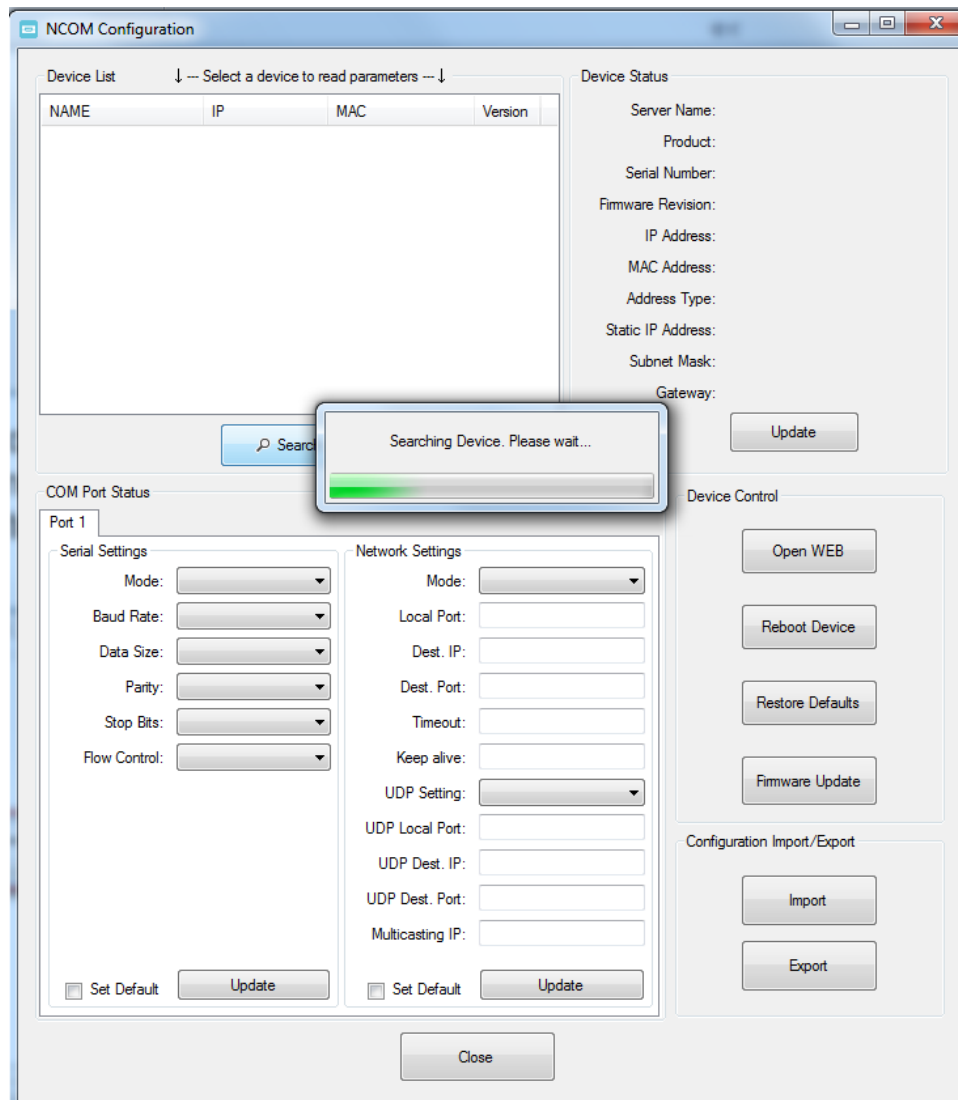
## 8.7.4 Device Control

The “Device Control” section contains the “Search Device”, “Open Web”, “Reboot Device”, “Restore Defaults” and “Firmware Update” functions.



### 8.7.4.1 Manually Search for NCOM Devices

The “Search” button searches for all attached NCOM devices. If a new NCOM device is attached to the network system, you can click “Search Device” to find new NCOM devices.



NCOM Configuration

Device List    ↓ -- Select a device to read parameters -- ↓

| NAME           | IP            | MAC               | Version |
|----------------|---------------|-------------------|---------|
| NCOM_410135790 | 192.168.1.146 | 00:04:D9:88:00:50 | 0.80    |
| NCOM_410011111 | 192.168.1.140 | 00:04:D9:80:50:50 | 0.80    |
| NCOM_410900001 | 192.168.1.112 | 00:04:D9:80:80:81 | 0.60    |
| NCOM_410900003 | 192.168.1.149 | 00:04:D9:80:80:83 | 0.60    |
| NCOM_410900002 | 192.168.1.105 | 00:04:D9:80:80:82 | 0.60    |
| NCOM_410789456 | 192.168.1.125 | 00:04:D9:80:78:87 | 0.70    |
| NCOM_410900000 | 192.168.1.118 | 00:04:D9:80:80:80 | 0.60    |

Device Status

Server Name:

Product:

Serial Number:

Firmware Revision:

IP Address:

MAC Address:

Address Type:

Static IP Address:

Subnet Mask:

Gateway:

COM Port Status

Port 1

Serial Settings

Mode:

Baud Rate:

Data Size:

Parity:

Stop Bits:

Flow Control:

Set Default   

Network Settings

Mode:

Local Port:

Dest. IP:

Dest. Port:

Timeout:

Keep alive:

UDP Setting:

UDP Local Port:

UDP Dest. IP:

UDP Dest. Port:

Multicasting IP:

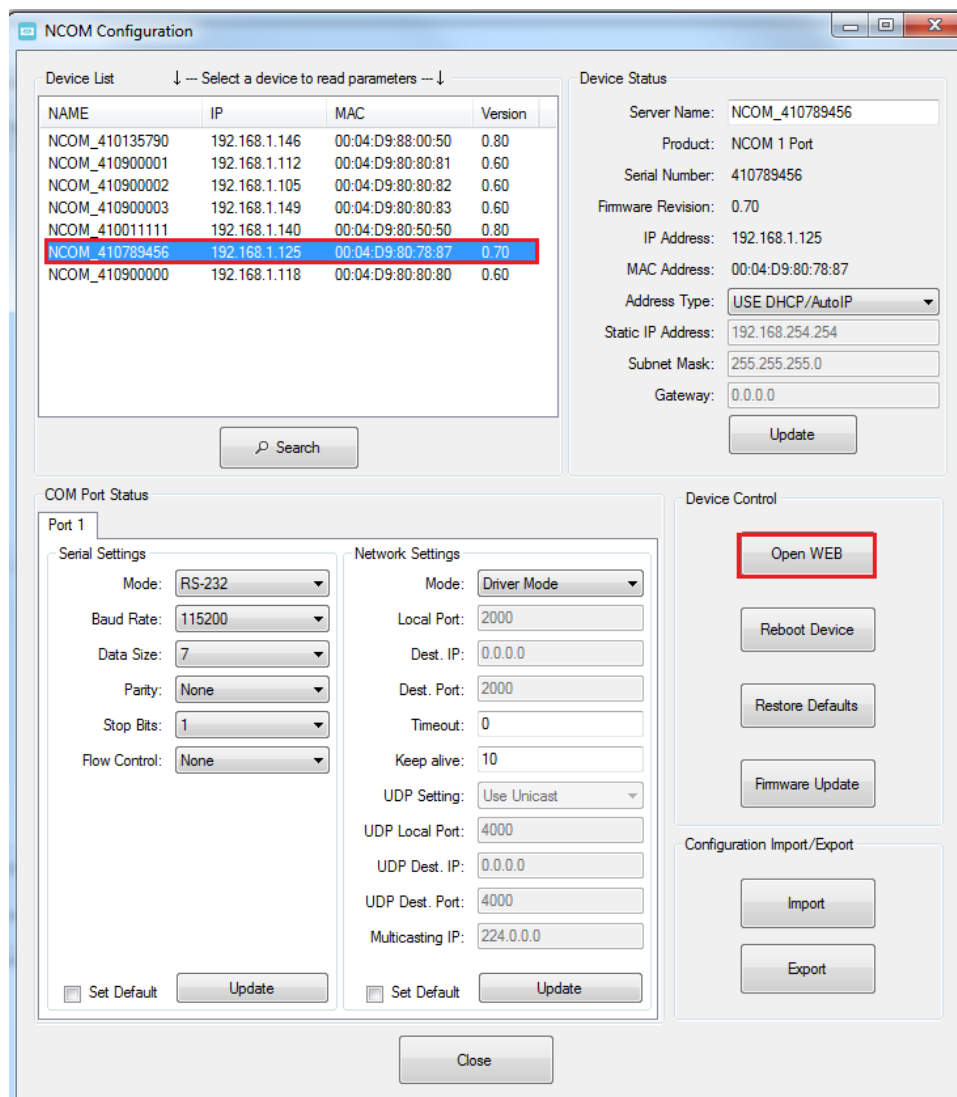
Set Default   

Device Control

Configuration Import/Export

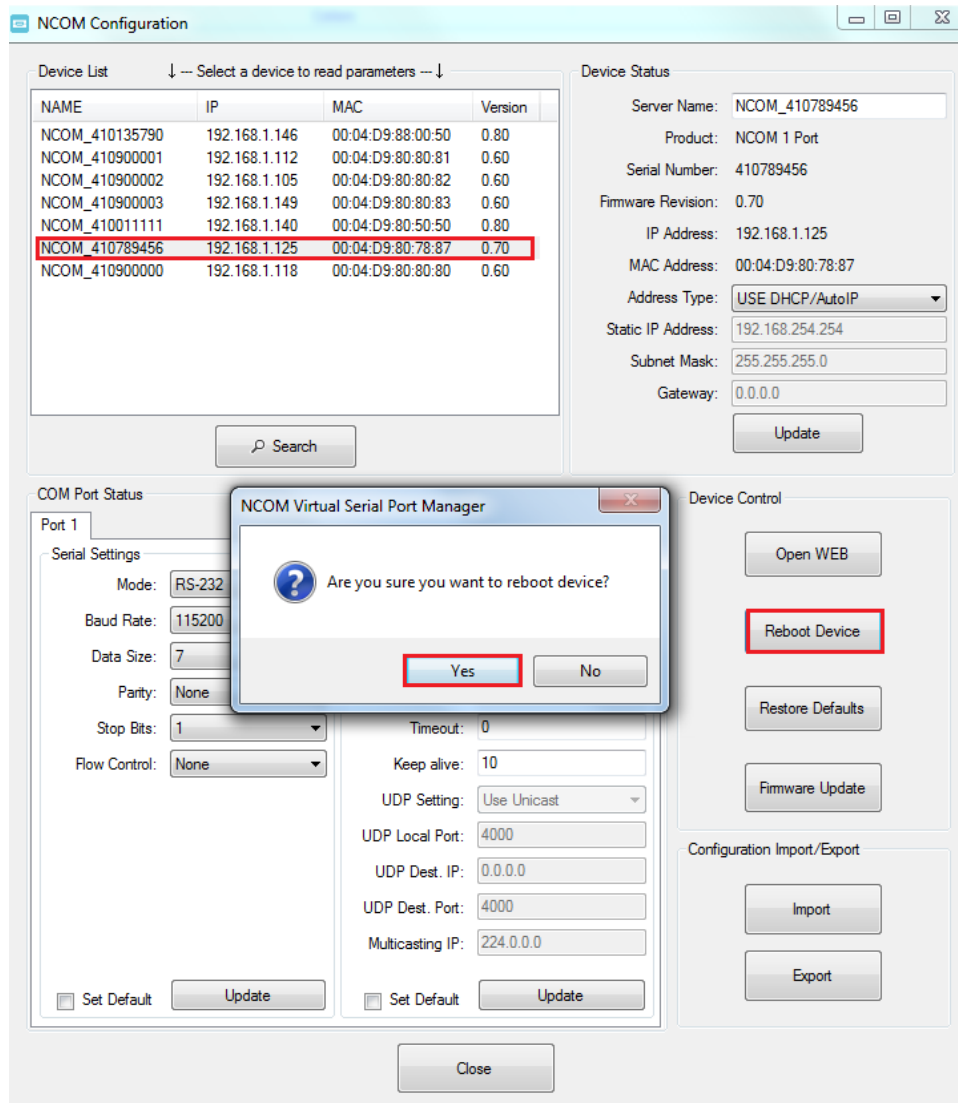
### 8.7.4.2 Opening the Web Console Interface

The “Open Web” button can be used to open the web console interface to configure NCOM. After selecting an attached NCOM device, click “Open Web” to open web console interface for that particular NCOM device.



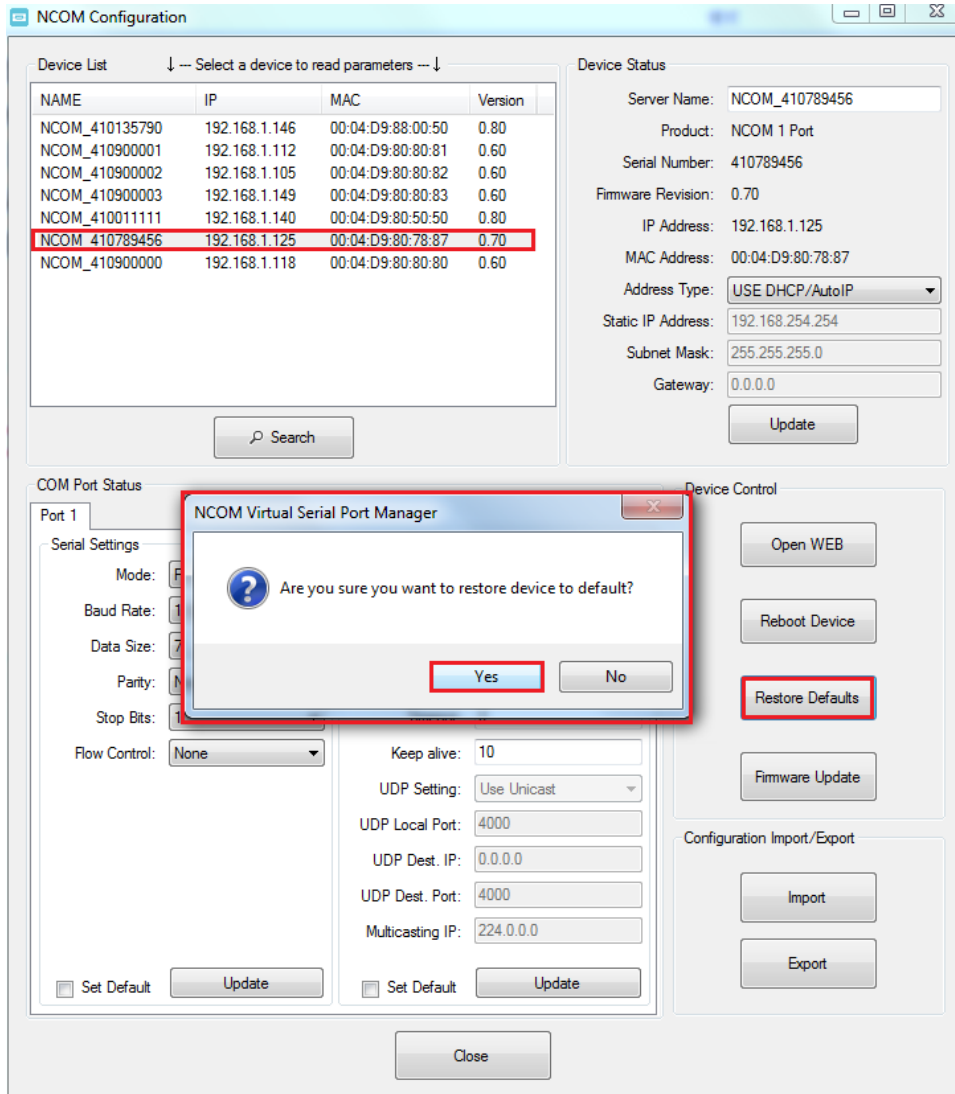
### 8.7.4.3 Rebooting NCOM Devices

The “Reboot Device” button reboots/resets your NCOM device when you need to. After selecting an attached NCOM device, click “Reboot Device” and a message will ask “Are you sure you want to reboot device?”. Click “Yes” to reboot/reset your NCOM device.

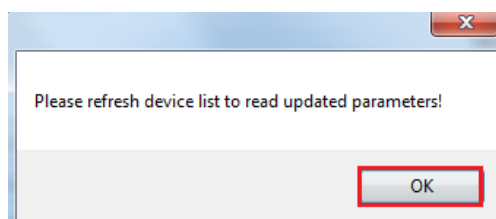


### 8.7.4.4 Restoring to Factory Defaults

The “Restore Defaults” button restores the firmware to factory defaults. When you select an attached NCOM device, you can restore all options to factory default states by clicking the “Restore Defaults” button; After clicking “Restore Defaults”, a message will ask “Are you sure you want to restore device to default?”. Confirm by clicking “Yes” and the NCOM device will restore all options to factory defaults.



After the NCOM device restores all options to factory default states, a message will indicate “Please refresh device list to read updated parameters!”. Click on “OK” to finish restoring device to factory defaults.





### 8.7.4.5 Firmware Update Tool

The “Firmware Update” button opens the firmware update tool to upgrade NCOM-113 firmware contents via Ethernet port. Before you click “Firmware Update”, please go to the web console interface of NCOM device firmware. Enable firmware update interface via Ethernet port in order to upgrade NCOM-113.

Under the web console interface, select “FIRMWARE UPDATE” and click “Update” to enable the firmware update interface to upgrade to a new firmware.

The screenshot shows the TITAN web console interface. The top header includes the TITAN logo and URL (http://www.titan.tw/) on the left, and the NCOM logo on the right. A navigation menu on the left contains options: HOME, PORT 1 SETTINGS (with sub-items SERIAL SETTINGS and NETWORK SETTINGS), SYSTEM SETTINGS, FIRMWARE UPDATE (highlighted with a red box), CHANGE PASSWORD, ACCESSIBLE IP SETTINGS, and REBOOT. The main content area is titled "Status" and lists the following information:

|                    |                   |
|--------------------|-------------------|
| Server Name:       | NCOM_410012345    |
| Product Name:      | NCOM              |
| Serial Number:     | 410012345         |
| Firmware Revision: | 0.60              |
| IP Address:        | 192.168.1.134     |
| MAC Address:       | 00-04-D9-80-00-12 |
| Uptime:            | 0 days 00:38:34   |

Below the status information is a section titled "Firmware Update" with a red warning message: "Warning!! Before you update firmware. You should get all connections closed!!". A red-bordered "Update" button is located at the bottom right of this section.

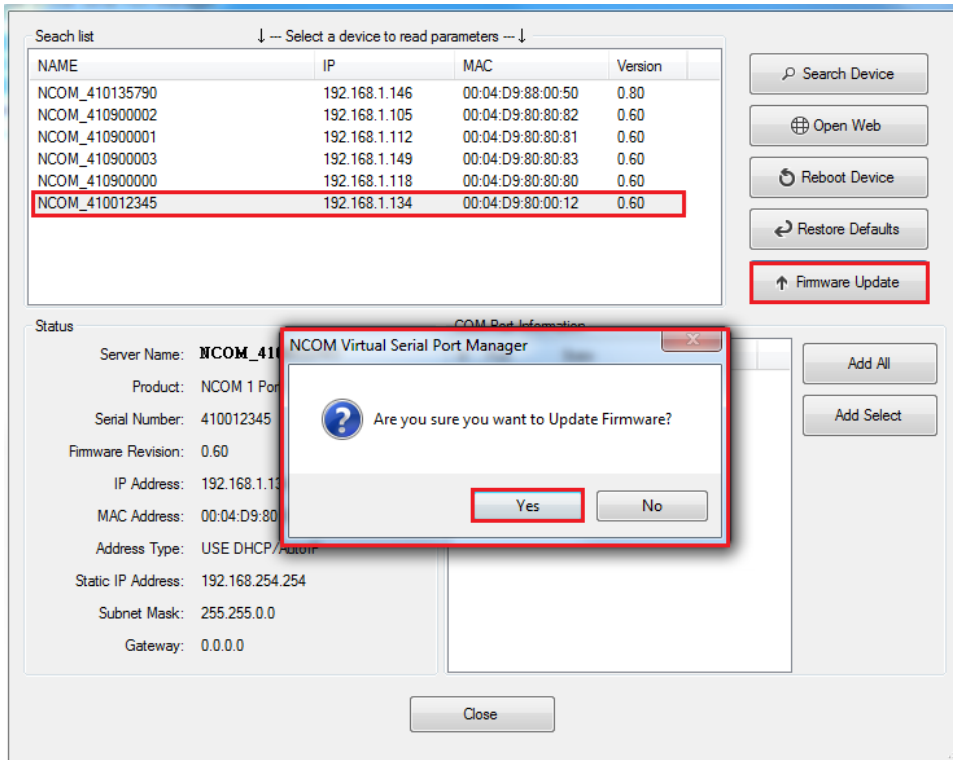
When you click “Update”, you will find the following message. The web console interface then waits for the firmware update tool program to launch in order to continue upgrading NCOM-113’s firmware.

The screenshot shows the TITAN web console interface with the "Firmware Update" section. It features a table with the following information:

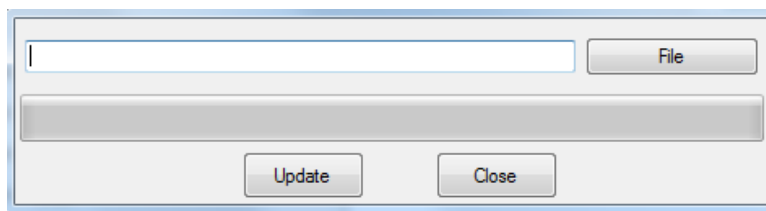
|                    |                   |
|--------------------|-------------------|
| Name:              | NCOM_410012345    |
| Firmware Revision: | 0.60              |
| MAC Address:       | 00-04-D9-80-00-12 |

Below the table is a note: "Note: The configuration web server has now been disabled and will not respond until the firmware update completes or the module is reset."

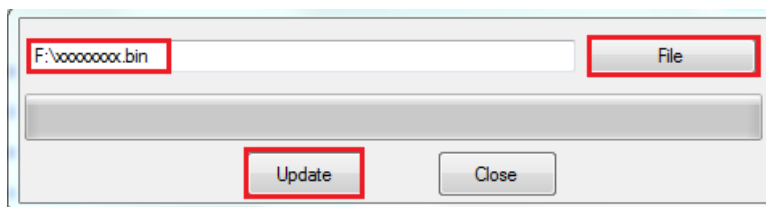
After enabling the firmware update interface, please select this NCOM device then click the “Firmware Update” button.



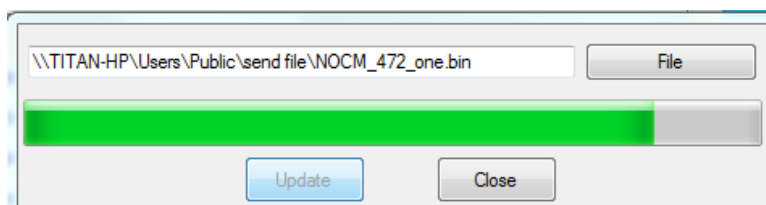
When you click “Firmware Update”, a message will ask “Are you sure you want to update firmware?”. Confirm by clicking “Yes” and the message “Input new firmware file” will appear.



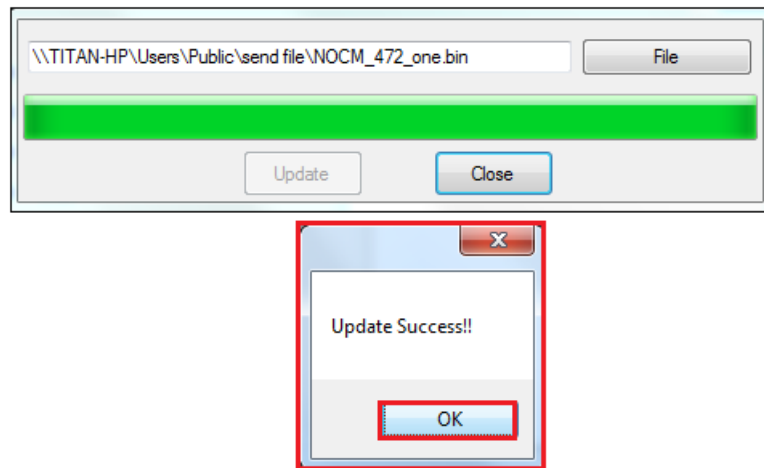
Use the “File” button to browse to the new firmware file and click on “Update” to start upgrading NCOM-113’s device firmware.



While upgrading, you will find the following message.



After successfully upgrading the firmware contents, there will be a message stating "Update Success!!".



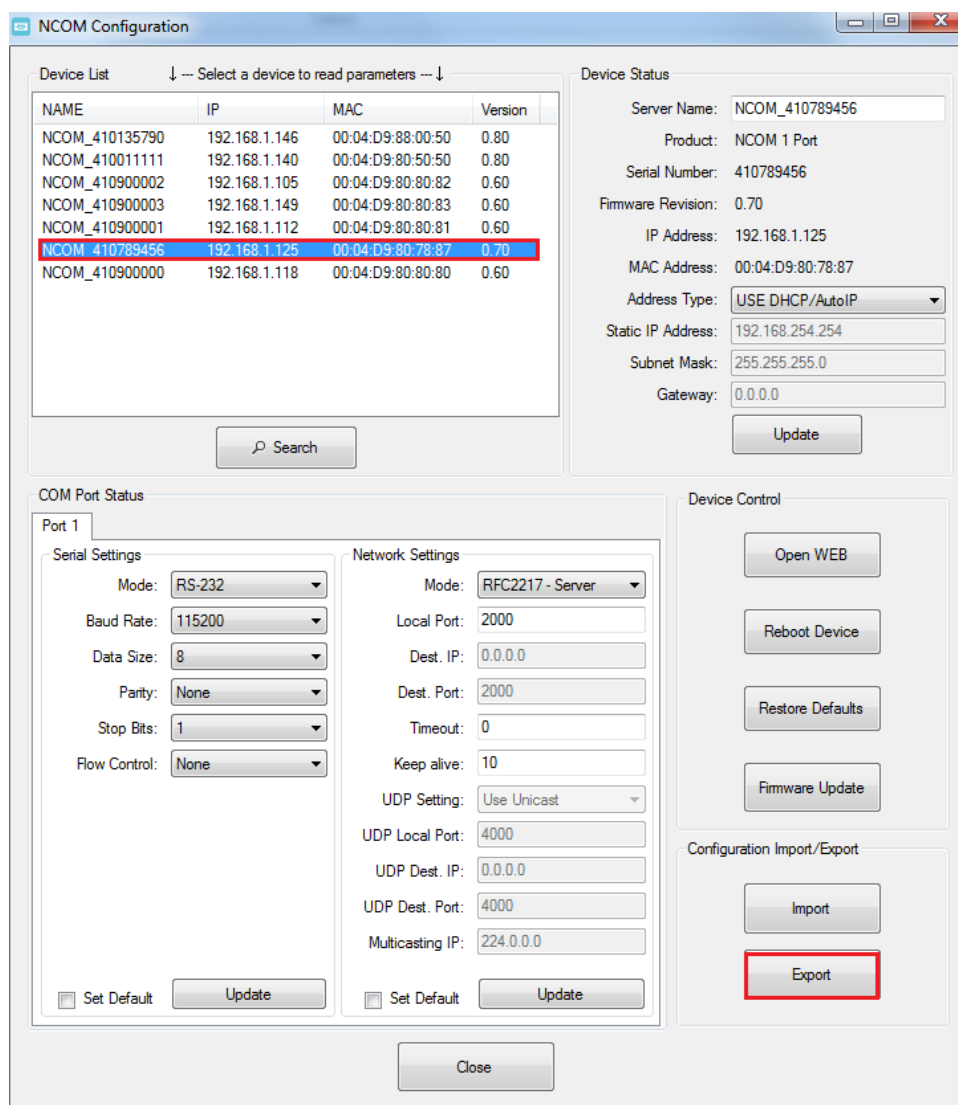
Click on "OK" to finish the firmware update procedure.

## 8.7.5 Importing/Exporting Configuration Settings

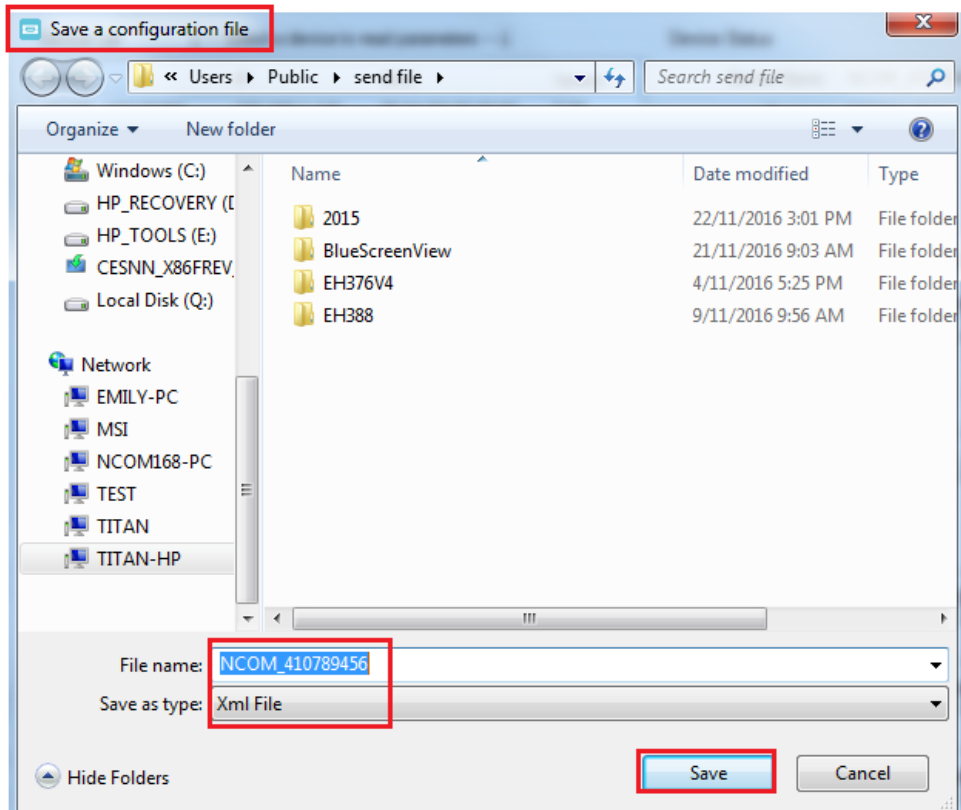
The “Configuration Import/Export” function allows you to back up and recover your NCOM device configuration settings.

### 8.7.5.1 Exporting Configuration Settings

Select an attached NCOM device then click the “Export” button.

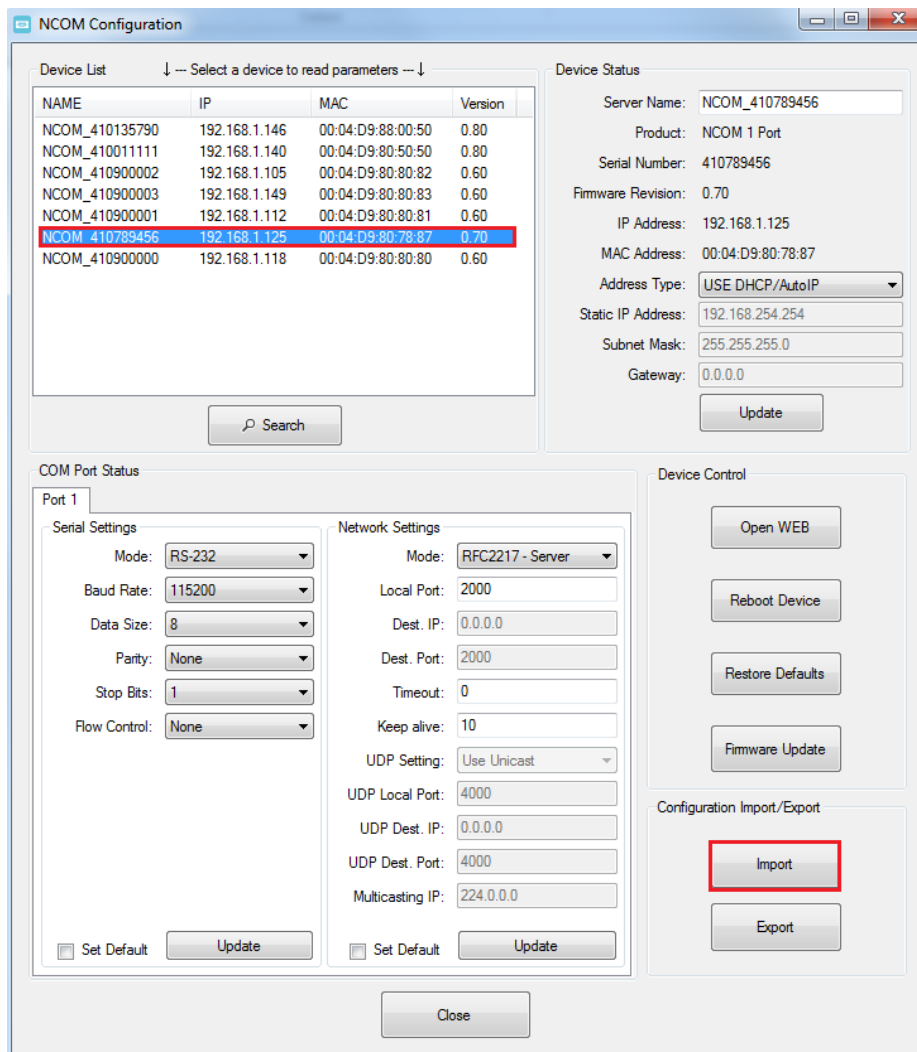


After you click “Export” you will find a “Save a configuration file” page. Click on “Save” to store the NCOM device configuration data to a NCOM\_XXXXXXXXX.xml file.

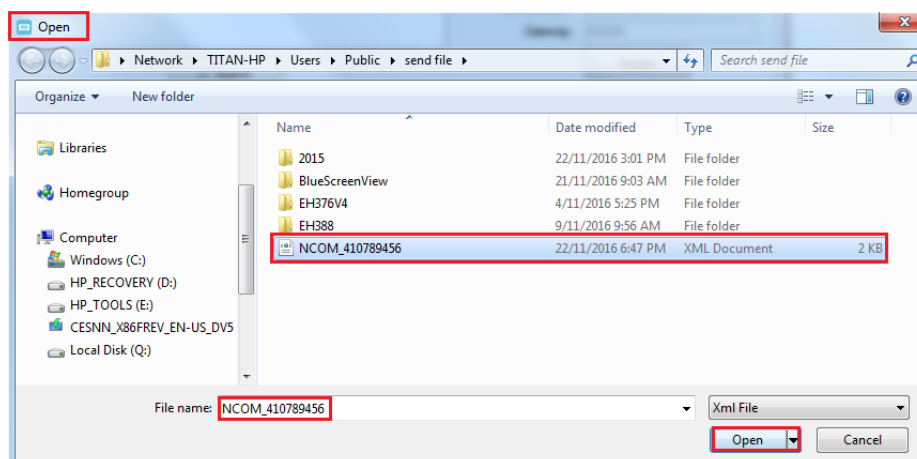


### 8.7.5.2 Importing Configuration Settings

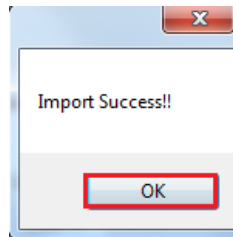
Select an attached NCOM device then click the “Import” button.



After you click “Import” you will find an “Open” page, select a NCOM configuration file and click “Open” to start uploading configuration data into NCOM.



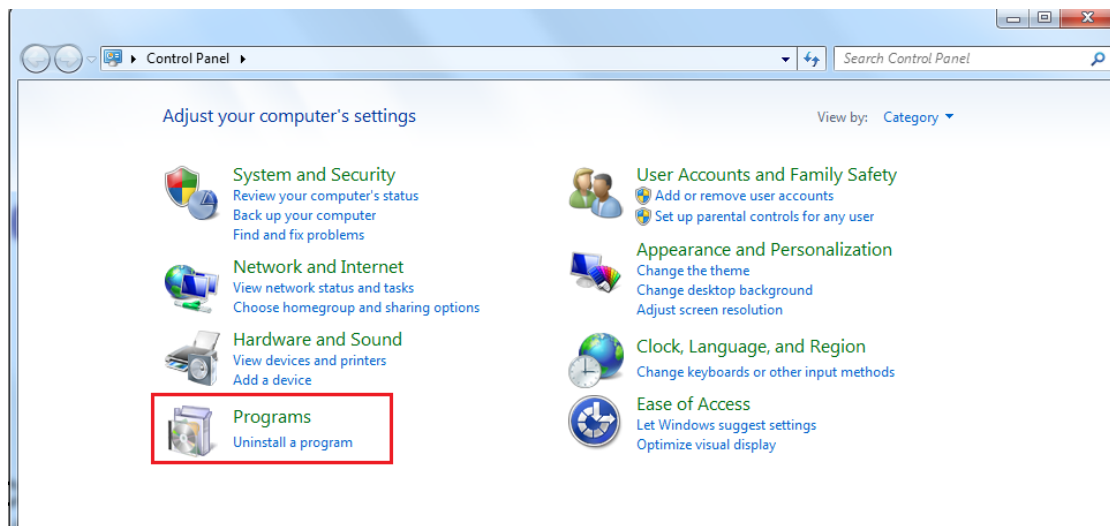
After all configuration data is uploaded into NCOM device, a message will indicate "Import Success!!". Click on "OK" to finish importing configuration data.



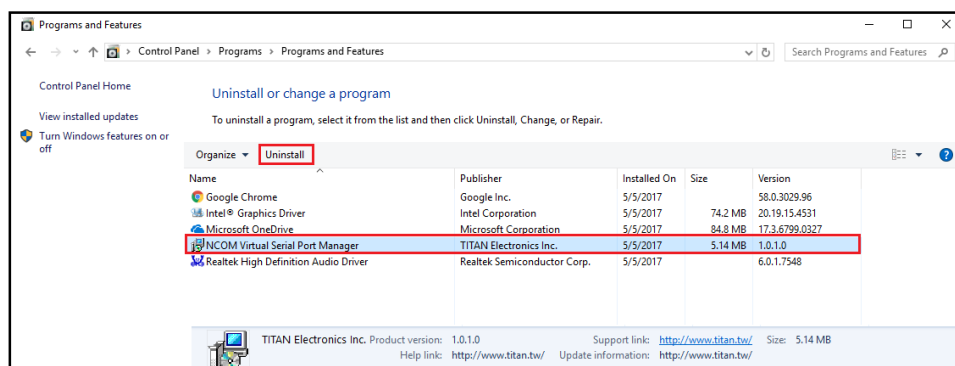
## 9. NCOM VIRTUAL SERIAL PORT MANAGER AND DRIVER UNINSTALLATION

### Uninstalling NCOM Virtual Serial Port Manager and Virtual COM Port Driver

To uninstall NCOM Virtual Serial Port Manager and virtual serial port driver, click the "Start" button and navigate to "Control Panel". Choose "Uninstall a program" under "Programs".

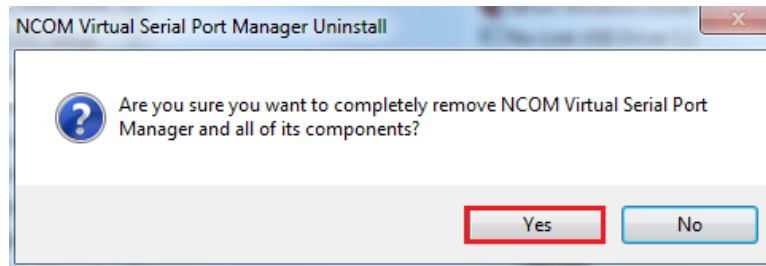


After you click "Uninstall a program", a page with a list of all your installed programs will be shown. Select "NCOM Virtual Serial Port Manager" and click on "Uninstall" to uninstall NCOM Virtual Serial Port Manager and virtual serial port driver.

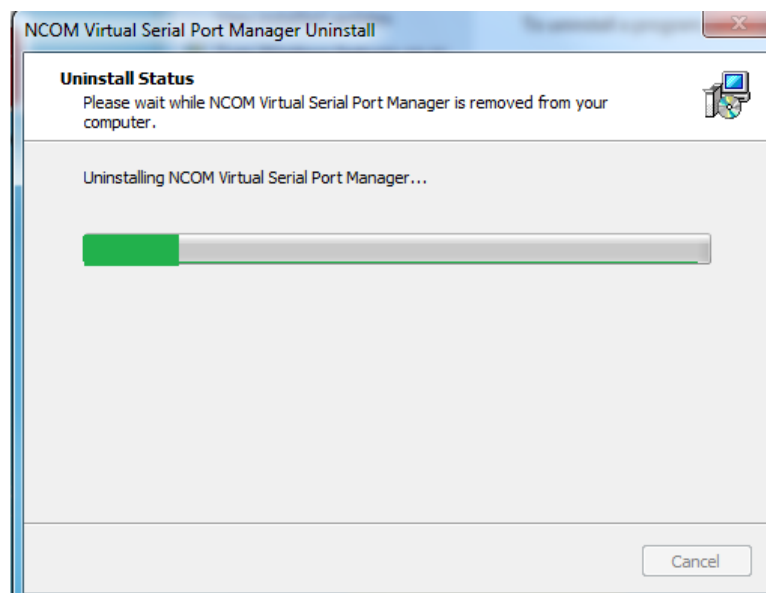




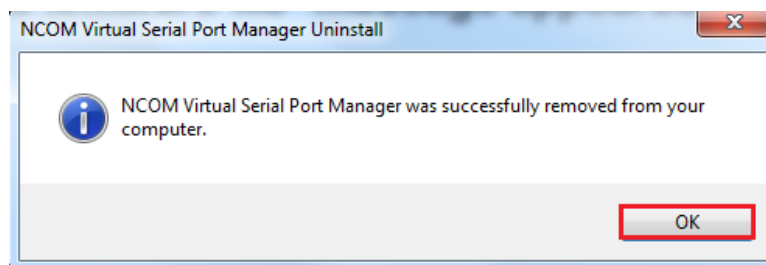
When you click on “Uninstall”, a message will ask “Are you sure you want to completely remove NCOM Virtual Serial Port Manager and all of its components?”. Confirm by click “Yes”.



When uninstalling NCOM Virtual Serial Manager Port and virtual serial port driver in, you will find the following message.



After successfully removing NCOM Virtual Serial Port Manager and virtual serial port driver, a message stating that “NCOM Virtual Serial Port Manager was successfully removed from your computer” will be shown.



Click on “OK” to finish removing NCOM Virtual Serial Port Manager and virtual serial port driver.