# **NPort 5100A Series Users Manual**

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www.moxa.com/product



# **NPort 5100A Series Users Manual**

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The NPort 5100A and NPort 5100A-T are advanced, 1-port RS-232/422/485 serial device servers with low power consumption and full surge protection.

The following topics are covered in this chapter:

- Overview
- Package Checklist
- Product Features
- Product Specifications

## **Overview**

NPort 5100A series device servers, which include the NPort 5110A, 5130A, 5150A, and P5150A, are designed to make your industrial serial devices Internet ready instantly. The compact size of NPort 5100A device servers makes them the ideal choice for connecting your RS-232/422/485 serial devices, such as card readers and payment terminals, to an IP-based Ethernet LAN, making it possible for your software to access serial devices located anywhere on a local LAN, or the Internet.

The NPort 5100A supports several operation modes, including TCP Server, TCP Client, UDP Server/Client, Pair Connection, and Ethernet Modem, ensuring the compatibility of network software that uses a standard network API (Winsock, BSD Sockets). In addition, NPort's Real COM / TTY drivers allow you to set up your COM/TTY port software to work over a TCP/IP network in no time. This excellent feature preserves your software investment and lets you enjoy the benefits of networking your serial devices instantly.

NPort 5100A device servers support automatic IP configuration protocols (DHCP, BOOTP) and manual configuration via the handy web browser console. Both methods ensure quick and effective installation. And with NPort 5100A's Windows Utility, installation is very straightforward, since all system parameters can be stored and then copied to other device servers simultaneously.

# Package Checklist

The NPort 5100A Series products are shipped with the following items:

## **Standard Accessories**

- 1 NPort 5100A serial device server
- Quick Installation Guide
- 4 stick-on pads
- Document & Software CD
- Product Warranty Statement

#### **Optional Accessories**

- DK-35A DIN-Rail Mounting Kit (35 mm)
- PWR-12150-USJP-SA-T: 100 to 240 VAC input, 12 VDC/1.5A output, -40 to 75°C, screw type, US/JP Plug
- PWR-12150-EU-SA-T: 100 to 240 VAC input, 12 VDC/1.5A output, -40 to 75°C, screw type, EU Plug
- PWR-12150-UK-SA-T: 100 to 240 VAC input, 12 VDC/1.5A output, -40 to 75°C, screw type, UK Plug
- PWR-12150-CN-SA-T: 100 to 240 VAC input, 12 VDC/1.5A output, -40 to 75°C, screw type, CN Plug
- PWR-12150-AU-SA-T: 100 to 240 VAC input, 12 VDC/1.5A output, -40 to 75°C, screw type, AU Plug

NOTE: Notify your sales representative if any of the above items are missing or damaged.

# **Product Features**

The NPort 5100A have the following features:

- Low cost, credit card size
- Makes your serial devices Internet ready
- Easy wall and DIN-Rail mounting
- Real COM / TTY driver for Windows and Linux
- Fixed TTY driver for SCO OpenServer, SCO Unixware 7, SCO Unixware 2.1
- Versatile socket operation modes: TCP Server, TCP Client, UDP, and Ethernet Modem
- Pair Connection mode for connecting two serial devices over a network without a PC

- Easy-to-use Windows Utility for mass installation
- Auto-detecting 10/100 Mbps Ethernet
- Built-in 15 KV ESD protection for all serial signals
- Supports SNMP MIB-II for network management
- Configuration via web/Telnet/serial console
- Configuration utility automatically finds NPort devices on the network
- Supports RFC 2217 and Reverse Telnet modes
- IEEE 802.3af compliant PoE (P5150A only)

# **Product Specifications**

#### **Ethernet Interface**

Number of Ports: 1 Speed: 10/100 Mbps, auto MDI/MDIX Connector: 8-pin RJ45 Magnetic Isolation Protection: 1.5 KV built-in

#### Serial Interface

Number of Ports: 1 Serial Standards: NPort 5110A: RS-232 NPort 5130A: RS-422/485 NPort 5150A: RS-232/422/485 Connector: DB9 male Serial Line Protection: 15 KV ESD protection for all signals, Level 1 Surge, EN61000-4-5 RS-485 Data Direction Control: ADDC® (automatic data direction control) Pull High/Low Resistor for RS-485: 1 KΩ, 150 KΩ

#### **Serial Communication Parameters**

Data Bits: 5, 6, 7, 8 Stop Bits: 1, 1.5, 2 Parity: None, Even, Odd, Space, Mark Flow Control: RTS/CTS and DTR/DSR (RS-232 only), XON/XOFF Baudrate: 50 bps to 921.6 Kbps

### Serial Signals

**RS-232:** TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND **RS-422:** Tx+, Tx-, Rx+, Rx-, GND **RS-485-4w:** Tx+, Tx-, Rx+, Rx-, GND **RS-485-2w:** Data+, Data-, GND

#### Software

**Network Protocols:** ICMP, IP, TCP, UDP, DHCP, BOOTP, Telnet, DNS, SNMP V1, HTTP, SMTP, IGMP V1/2 **Configuration Options:** Web Console (with new Quick Setup), Serial Console (NPort 5110A/5150A only), Telnet Console, Windows Utility

Windows Real COM Drivers: Windows 95/98/ME/NT/2000, Windows XP/2003/Vista/2008/7/8 x86/x64, 2012 x64

**Fixed TTY Drivers:** SCO Unix, SCO OpenServer, UnixWare 7, UnixWare 2.1, SVR 4.2, QNX 4.25, QNX 6, Solaris 10, FreeBSD, AIX 5.x, HP-UX 11i, Mac 10.3

Linux Real TTY Drivers: Linux kernel 2.4.x, 2.6.x, 3.x

#### Physical Characteristics

Housing: Metal Weight: 340 g Dimensions: Without ears: 52 x 80 x 22 mm (2.05 x 3.15 x 0.87 in) With ears: 75.2 x 80 x 22 mm (2.96 x 3.15 x 0.87 in)

### **Environmental Limits**

#### **Operating Temperature:**

Standard Models: 0 to 60°C (32 to 140°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F) Storage Temperature: -40 to 75°C (-40 to 167°F) Ambient Relative Humidity: 5 to 95% (non-condensing)

## **Power Requirements**

Input Voltage: 12 to 48 VDC Power Consumption: NPort 5110A: 82.5 mA @ 12 V, 47.3 mA @ 24 V NPort 5130A: 89.1 mA @ 12 V, 49.5 mA @ 24 V NPort 5150A: 92.4 mA @ 12 V, 52.8 mA @ 24 V

#### **Standards and Certifications**

Safety: UL 60950-1, EN 60950-1 EMC: CE, FCC EMI: EN 55022 Class A, FCC Part 15 Subpart B Class A EMS: EN 55024 Power Line Protection: EN 61000-4-4(EFT) Level 2, EN 61000-4-5(Surge) Level 3

#### Reliability

Automatic Reboot Trigger: Built-in WDT (watchdog timer) MTBF (mean time between failures): 2,231,530 hrs

#### Warranty

Warranty Period: 5 years Details: See www.moxa.com/warranty This chapter includes information about installing the NPort 5100A.

The following topics are covered in this chapter:

## Panel Layouts

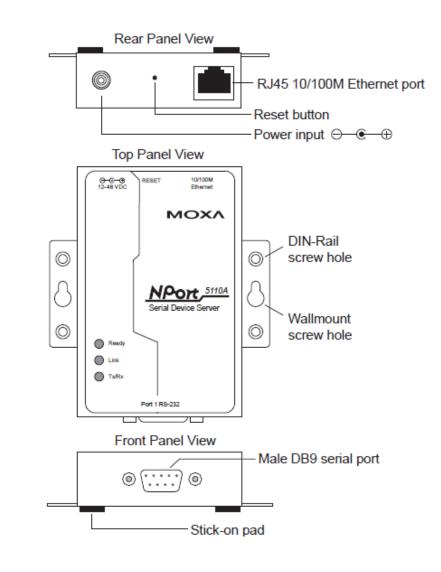
- > NPort 5110A, NPort 5130A, NPort 5150A
- > NPort P5150A

## Connecting the Hardware

- > Connecting the Power
- Connecting to the Network
- Connecting to a Serial Device
- LED Indicators
- > Adjustable Pull High/Low Resistor for the RS-485 Port

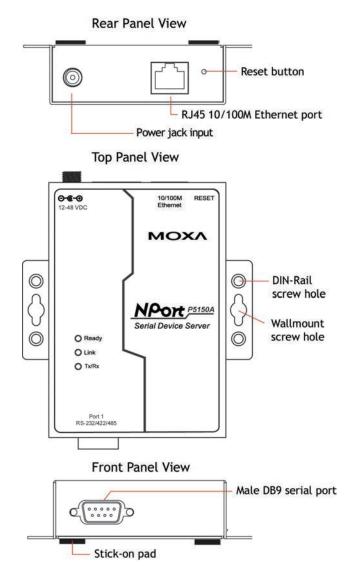
# **Panel Layouts**

## NPort 5110A, NPort 5130A, NPort 5150A



**NOTE** The layouts of the NPort 5130A and NPort 5150A are the same as the NPort 5110A.

## NPort P5150A



# **Connecting the Hardware**

This section describes how to connect the NPort 5100A to serial devices for first time testing purposes.

## **Connecting the Power**

## NPort P5150A

Connect the NPort P5150A's Ethernet port to a PoE switch. The P5150A will receive power from the switch.

## NPort 5150A/5130A/5150A

Connect the 12 to 48 VDC power cord to the NPort 5100A's power input. If the power is properly supplied, the "Ready" LED will glow a solid red color until the system is ready, at which time the "Ready" LED will change to a green color.

## **Connecting to the Network**

Connect one end of the Ethernet cable to the NPort 5100A's 10/100M Ethernet port and the other end of the cable to the Ethernet network. The NPort 5100A will indicate a valid connection to the Ethernet in the following ways:

- The Ethernet LED maintains a solid green color when connected to a 100 Mbps Ethernet network.
- The Ethernet LED maintains a solid orange color when connected to a 10 Mbps Ethernet network.
- The Ethernet LED will flash when Ethernet packets are being transmitted or received.

## **Connecting to a Serial Device**

Connect the serial data cable between the NPort 5100A and the serial device. The NPort 5100A's serial port uses the RS-232/422/485 interface to transmit data. The port uses a standard male DB9 pin assignment. Refer to Appendix A for the port's signal definitions.

## **LED Indicators**

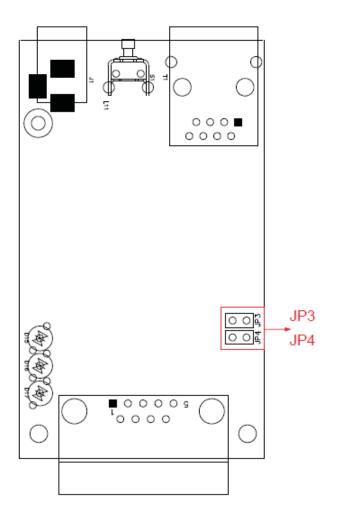
LED Name	LED Color	LED Functio	LED Function	
Ready	Red	Steady on:	Power is on and NPort 5100A is booting up.	
		Blinking:	Indicates an IP conflict, or DHCP or BOOTP server did not	
			respond properly.	
	Green	Steady on:	Power is on and the NPort 5100A is functioning normally.	
		Blinking:	The device server has been located by Administrator's	
			Location function.	
	Off	Power is off, or power error condition exists.		
Link	Orange	The device is connected to a 10 Mbps Ethernet connection.		
Green The device is connected to a 100 Mbps Ethernet connect		s connected to a 100 Mbps Ethernet connection.		
	Off	The Ethernet cable is disconnected.		
Tx/Rx	Orange	The serial port is receiving data.		
	Green	The serial po	rt is transmitting data.	
Off No data is being transmitted or received through th		eing transmitted or received through the serial port.		

The NPort 5100A has 3 LED indicators, as described in the following table.

## Adjustable Pull High/Low Resistor for the RS-485 Port

In some critical environments, you may need to add termination resistors to prevent the reflection of serial signals. When using termination resistors, it is important to set the pull high/low resistors correctly so that the electrical signal is not corrupted. Since a particular pull high/low resistor value cannot fit all environments, the NPort 5150A/5130A uses jumpers and the NPort P5150A uses dip switches to set the pull high/low resistor values for each serial port.

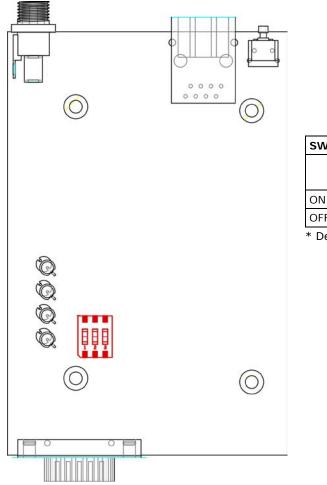
## NPort 5130A/5150A Jumpers



To set a pull high/low resistor to 150 k $\Omega$ , make sure that the two jumpers (JP3 and JP4) assigned to the serial port are not shorted by jumper caps. This is the default setting.

To set a pull high/low resistor to 1 k $\Omega$ , make sure that the two jumpers (JP3 and JP4) assigned to the serial port are shorted by jumper caps.

## NPort P5150A



ON			
	] [		
1	2	3	

SW	1	2	3
	Pull-high	Pull-low	Terminator
	resistor	resistor	
ON	1 kΩ	1 kΩ	120 Ω
OFF	150 kΩ*	150 kΩ*	_*

\* Default



## ATTENTION

Do not use the 1 k $\Omega$  setting on the NPort 5150A/P5150A when using the RS-232 interface. Doing so will degrade the RS-232 signals and shorten the maximum allowed communication distance.

# **Initial IP Address Configuration**

When setting up your NPort 5100A for the first time, you should first configure the IP address. This chapter introduces the method to configure the device server's IP address. For more details about network settings, see the Network Settings section from Chapter 5, *Web Console Configuration*.

The following topics are covered in this chapter:

- Initializing the NPort 5100A's IP Address
- Factory Default IP Address
- NPort Administration Suite
- 🗖 ARP
- Telnet Console
- Serial Console (19200, n, 8, 1) (NPort 5110A/5150A/P5150A only)

# Initializing the NPort 5100A's IP Address

- 1. Determine whether your NPort 5100A needs to use a Static IP or Dynamic IP (either DHCP or BOOTP application).
- 2. If the NPort 5100A is used in a Static IP environment, you can use NPort Administration Suite, ARP, Web Console, Telnet Console, or Serial Console to configure the new IP address.
- 3. If the NPort 5100A is used in a Dynamic IP environment, you can use NPort Administration suite, Web Console, Telnet Console, or Serial Console to configure the NPort 5100A to get an IP address dynamically with DHCP, DHCP/BOOTP, or BOOTP.



## ATTENTION

Consult your network administrator on how to reserve a fixed IP address for your NPort 5100A in the MAC-IP mapping table when using a DHCP Server or BOOTP Server. In most applications, you should assign a fixed IP address to your NPort 5100A.

# Factory Default IP Address

NPort 5100A products are configured with the following default private IP address:

#### Default IP address: 192.168.127.254

(IP addresses of the form 192.168.xxx.xxx are referred to as private IP addresses, since it is not possible to access a device configured with a private IP address directly from a public network. For example, you would not be able to ping such a device from an outside Internet connection. NPort 5100A applications that require sending data over a public network, such as the Internet, require setting up the server with a valid public IP address, which can be leased from a local ISP.)

# **NPort Administration Suite**

NPort Administration Suite consists of useful utility programs that are used to configure and manage your NPort 5100As.

See Chapter 6 for details on how to install NPort Administration Suite, and how to use this suite of useful utilities to set up IP addresses and configure your NPort 5100A serial device servers.

# ARP

You can make use of the ARP (Address Resolution Protocol) command to set up an IP address for your NPort 5100A. The ARP command tells your computer to associate the NPort 5100A's MAC address with the intended IP address. You must then use Telnet to access the NPort 5100A, at which point the device server's IP address will be reconfigured.



## ATTENTION

In order to use this setup method, both your computer and the NPort 5100A must be connected to the same LAN. Or, you may use a cross-over Ethernet cable to connect the NPort 5100A directly to your computer's Ethernet card. Your NPort 5100A must be configured with the factory default IP address—192.168.127.254— before executing the ARP command, as described below.

Take the following steps to use ARP to configure the IP address:

- 1. Obtain a valid IP address for your NPort 5100A from your network administrator.
- 2. Obtain the NPort 5100A's MAC address from the label on its bottom panel.
- 3. Execute the 'arp -s' command from your computer's MS-DOS prompt by typing: arp -s 192.168.200.100 00-90-E8-xx-xx
  This is where 192.168.200.100 is the new IP address and 00-90-E8-xx-xx is the MAC address for your NPort 5100A (be sure to use the numbers determined in steps 1 and 2).
- 4. Next, execute a special Telnet command by typing: telnet 192.168.200.100 6000

After issuing this command, a Connect failed message will appear, as shown here. After the NPort 5100A reboots, its IP address should be updated to the new address, and you can reconnect using either Telnet, Web, or Administrator to check that the update was successful.

Connect	failed 🔀
8	Could not open a connection to 192.168.200.100
	[0K]

## **Telnet Console**

Depending on how your computer and network are configured, you may find it convenient to use network access to set up your NPort 5100A's IP address. This can be done using Telnet.

- 1. From the Windows desktop, click Start and then select Run.
- 2. Type **telnet 192.168.127.254** (use the correct IP address if different from the default) in the **Open** text input box, and then click **OK**.

Run	? ×
<u> </u>	Type the name of a program, folder, document, or Internet resource, and Windows will open it for you.
<u>0</u> pen:	telnet 192.168.127.254
	OK Cancel <u>B</u> rowse

3. When the Telnet window opens, if you are prompted to input the **Console password**, input the password and then press **Enter**. Note that this page will only appear if the NPort 5100A is password protected.

<b>Telnet 192.168.127.254</b>		- 🗆 ×
Model name MAC address Serial No.	: 00:90:E8:99:31:25	<b>_</b>
	: 1.0 Build 10022314 : O days, OOh:07m:52s	
Please keyin you:	r password:	
•		• //

4. Type 2 to select Network settings, and then press Enter.



5. Type 1 to select IP address and then press Enter.

<< Ma:	in menu->Network settings >>
(1)	IP address
(2)	Netmask
(3)	Gateway
(4)	IP configuration
(5)	DNS server 1
<6>	DNS server 2
(7)	SNMP
<8>	SNMP community name
(9)	SNMP contact
(a)	SNMP location
(b)	Auto IP report to IP
<c></c>	Auto IP report to UDP port
(d)	Auto IP report period
<v></v>	View settings
<m></m>	Back to main menu
<q></q>	Quit
Key ir	your selection: 1_

6. Use the Backspace key to erase the current IP address, type in the new IP address, and then press Enter.

```
Main menu->Network settings >>
  (1) IP address
  (2) Netmask
 (3) Gateway
 (4) IP configuration
  (5) DNS server 1
 (6) DNS server 2
 (7) SNMP
 (8) SNMP community name
  (9) SNMP contact
 (a) SNMP location
 (b) Auto IP report to IP(c) Auto IP report to UDP port
 (d) Auto IP report period
  (v) View settings
 (m) Back to main menu
  (q) Quit
Key in your selection: 1
IP address: 192.168.127.253
```

7. Press any key to continue.

```
K Main menu->Network settings >>
  (1) IP address
  (2) Netmask
  (3) Gateway
  (4) IP configuration
  (5) DNS server 1(6) DNS server 2
  (7) SNMP
  (8) SNMP community name
  (9) SNMP contact
  (a) SNMP location
  (b) Auto IP report to IP
  (c) Auto IP report to UDP port
  (d) Auto IP report period
  (v) View settings
  (m) Back to main menu
  (q) Quit
Key in your selection: 1
IP address: 192.168.127.253
Set IP address success
Press any key to continue...
```

8. Type **m** and then press **Enter** to return to the main menu.

```
<< Main menu->Network settings >>
  (1) IP address
  (2) Netmask
  (3) Gateway
  (4) IP configuration
  (5) DNS server 1
  (6) DNS server 2
  (7) SNMP
  (8) SNMP community name
  (9) SNMP contact
  (a) SNMP location
  (b) Auto IP report to IP
  (c) Auto IP report to UDP port
  (d) Auto IP report to UDP port
  (d) Auto IP report period
  (v) Uiew settings
  (m) Back to main menu
  (q) Quit
Key in your selection: m_
```

9. Type s and then press Enter to Save/Restart the system.

<pre>K Main menu &gt;&gt;</pre>
<li>(1) Basic settings</li>
(2) Network settings
(3) Serial settings
(4) Operating settings
(5) Accessible IP settings
(6) Auto warning settings
(7) Monitor
<8> Ping
(9) Change password
(a) Load factory default
(v) View settings
(s) Save/Restart
(q) Quit
(ey in your selection: s

10. Type y and then press Enter to save the new IP address and restart the NPort 5100A.



# Serial Console (19200, n, 8, 1) (NPort 5110A/5150A/P5150A only)

You may use the RS-232 console port to set up the IP address for an NPort 5100A. We suggest using PComm Terminal Emulator, which is available free of charge as part of the PComm Lite program suite (found on the Software CD that comes with the product), to carry out the installation procedure, although other similar utilities may also be used.

Before you start to configure the NPort 5100A via serial console, turn off the power and connect the serial cable from the NPort 5100A to your computer's serial port.

- 1. Connect the NPort 5100A's serial port 1 directly to your computer's male RS-232/422/485 serial port.
- 2. From the Windows desktop, click Start  $\rightarrow$  Programs  $\rightarrow$  PComm Lite  $\rightarrow$  Terminal Emulator.
- 3. When the **PComm Terminal Emulator** window opens, first click on the **Port Manager** menu item and select **Open**, or simply click on the **Open** icon.



 The Property window opens automatically. From the Communication Parameter page, select the appropriate COM port for the connection, COM1 in this example, and 19200 for Baud Rate, 8 for Data Bits, None for Parity, and 1 for Stop Bits.

Lommunication raramet	er Terminal File Transfer Capturing
COM Options	
Ports :	COM1
Baud Rate :	19200 💌
Data Bits :	8
Parity :	None
Stop Bits :	1
- Flow Control	- Output State
RTS/CTS	DTR C ON C OFF
	RTS C ON C OFF

- From the Property window's Terminal page, select ANSI or VT100 for Terminal Type and then click OK. If you select Dumb Terminal as the terminal type, some of the console functions—especially the "Monitor" function—may not work properly.
- 6. Press the " ` " key continuously and then power on the NPort 5100A.



- 7. The NPort 5100A will receive the " ` " string continuously and then auto switch from data mode to console mode.
- 8. Input the password when prompted. Note that this page will only appear when the NPort 5100A has been set up for password protection.



9. Start configuring the IP address under **Network Settings**. Refer to step 4 in the **Telnet Console** section for the rest of the IP settings.

👪 C	COM1,19200,None,8,1,Dumb Terminal	
		^
DTR	Model name : NPort 5150A	
RTS	MAC address : 00:90:E8:99:31:25	
	Serial No. : 71	
	Firmware version : 1.0 Build 10022314	
	System uptime : O days, OOh:Olm:Ols	
	(1) Basic settings	
	(2) Network settings	
	(3) Serial settings	
	(4) Operating settings	
	(5) Accessible IP settings	
	(6) Auto warning settings	
	(7) Monitor	
	(8) Ping	
	(9) Change password	
	(a) Load factory default	
	(v) View settings	
	(s) Save/Restart	
	(q) Quit	
	Key in your selection:	
	ney in your selection:	~
State:	OPEN 📴 📴 📅 Ready	

# **Choosing the Proper Operation Mode**

In this section, we describe the various NPort 5100A operation modes. The options include Real COM Mode, which uses a driver installed on the host computer, and operation modes that rely on TCP/IP socket programming concepts. After choosing the proper operation mode in this chapter, refer to Chapter 5 for detailed configuration parameter definitions.

The following topics are covered in this chapter:

- Overview
- Real COM Mode
- RFC 2217 Mode
- TCP Server Mode
- TCP Client Mode
- UDP Mode
- Pair Connection Mode
- Ethernet Modem Mode
- Reverse Telnet Mode
- Disabled Mode

## **Overview**

NPort 5100A serial device servers network-enable traditional RS-232/422/485 devices. A serial device server is a tiny computer equipped with a CPU, real-time OS, and TCP/IP protocols that can bi-directionally translate data between the serial and Ethernet formats. Your computer can access, manage, and configure remote facilities and equipment over the Internet from anywhere in the world.

Traditional SCADA and data collection systems rely on serial ports (RS-232/422/485) to collect data from various kinds of instruments. Since NPort 5100A serial device servers network-enable instruments equipped with an RS-232/422/485 communication port, your SCADA and data collection system will be able to access all instruments connected to a standard TCP/IP network, regardless of whether the devices are used locally or at a remote site.

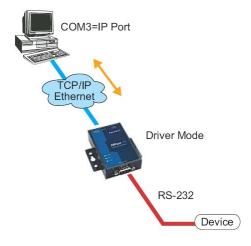
The NPort 5100A is an external IP-based network device that allows you to expand the number of serial ports for a host computer on demand. As long as your host computer supports the TCP/IP protocol, you won't be limited by the host computer's bus limitation (such as ISA or PCI), or lack of drivers for various operating systems.

In addition to providing socket access, the NPort 5100A also comes with a Real COM / TTY driver that transmits all serial signals intact. This means that your existing COM/TTY-based software can be preserved, without needing to invest in additional software.

Three different socket modes are available: TCP Server, TCP Client, and UDP Server/Client. The main difference between the TCP and UDP protocols is that TCP guarantees delivery of data by requiring the recipient to send an acknowledgement to the sender. UDP does not require this type of verification, making it possible to offer speedier delivery. UDP also allows data to be unicast to only one IP address, or multicast to groups of IP addresses.

# **Real COM Mode**

The NPort 5100A comes equipped with COM drivers that work with Windows systems, and also TTY drivers for Linux systems. The driver establishes a transparent connection between host and serial device by mapping the IP:Port of the NPort 5100A's serial port to a local COM/TTY port on the host computer. Real COM Mode also supports up to 4 simultaneous connections, so that multiple hosts can collect data from the same serial device at the same time.





## ATTENTION

The driver used for Real COM Mode is bundled with NPort Administrator. The driver is installed on your computer automatically when you install NPort Administration Suite.

One of the major conveniences of using Real COM Mode is that Real COM Mode allows users to continue using RS-232/422/485 serial communications software that was written for pure serial communications applications. The driver intercepts data sent to the host's COM port, packs it into a TCP/IP packet, and then redirects it through the host's Ethernet card. At the other end of the connection, the NPort 5100A accepts the Ethernet frame, unpacks the TCP/IP packet, and then sends it transparently to the appropriate serial device attached to one of the NPort 5100A's serial ports.



## ATTENTION

Real COM Mode allows several hosts to have access control of the same NPort 5100A. The driver that comes with your NPort 5100A controls host access to attached serial devices by checking the host's IP address. Refer to the Accessible IP Settings section of Chapter 5 for more details.

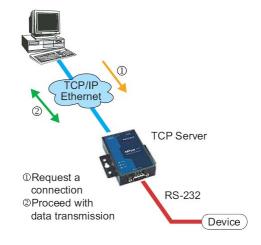
# RFC 2217 Mode

RFC 2217 mode is similar to Real COM mode in that a driver is used to establish a transparent connection between a host computer and a serial device by mapping the serial port on the NPort 5100A to a local COM port on the host computer. RFC 2217 defines general COM port control options based on the Telnet protocol. Third party drivers supporting RFC 2217 are widely available on the Internet and can be used to implement Virtual COM mapping to your NPort 5100A serial port(s).

# **TCP Server Mode**

In **TCP Server Mode**, NPort 5100A is configured with a unique IP: Port combination on a TCP/IP network. In this case, the NPort 5100A waits passively to be contacted by the host computer. After the host computer establishes a connection with the serial device, it can then proceed with data transmission. TCP Server mode also supports up to 4 simultaneous connections, so that multiple hosts can collect data from the same serial device—at the same time. As illustrated in the figure, data transmission proceeds as follows:

- 1. The host requests a connection from the NPort 5100A configured for TCP Server Mode.
- Once the connection is established, data can be transmitted in both directions—from the host to the NPort 5100A, and from the NPort 5100A to the host.

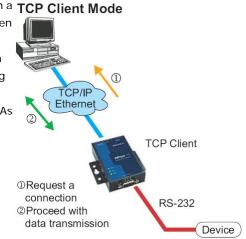


# **TCP Client Mode**

In TCP Client Mode, the NPort 5100A can actively establish a **TCP Client Mode** TCP connection with a pre-determined host computer when serial data arrives.

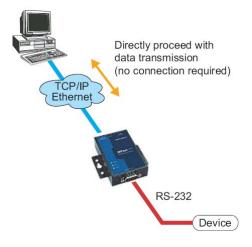
After the data has been transferred, the NPort 5100A can disconnect automatically from the host computer by using the **TCP alive check time** or **Inactivity time** settings. Refer to Chapter 5 for detailed configuration instructions. As illustrated in the figure, data transmission proceeds as follows:

- 1. The NPort 5100A configured for TCP Client Mode requests a connection from the host.
- Once the connection is established, data can be transmitted in both directions—from the host to the NPort 5100A, and from the NPort 5100A to the host.



## **UDP Mode**

Compared to TCP communication, UDP is faster and more efficient. In UDP mode, you can unicast or multicast data from the serial device to one or multiple host computers, and the serial device can also receive data from one or multiple host computers, making this mode ideal for message display applications.



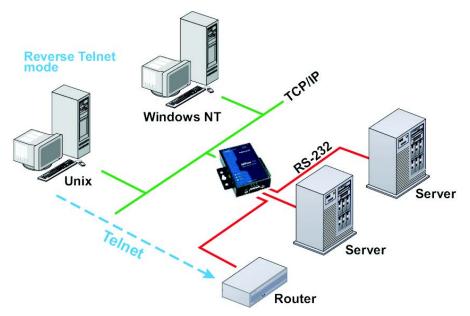
# **Pair Connection Mode**

Pair Connection Mode employs two NPort 5100A units in tandem, and can be used to remove the 15-meter distance limitation imposed by the RS-232 interface. One NPort 5100A is connected from its RS-232/422/485 port to the COM port of a PC or other type of computer, such as hand-held PDAs that have a serial port, and the serial device is connected to the RS-232/422/485 port of the other NPort 5100A. The two NPort 5100A units are then connected to each other with a cross-over Ethernet cable, both are connected to the same LAN, or in a more advanced setup, they communicate with each other over a WAN (i.e., through one or more routers). Pair Connection Mode transparently transfers both data and modem control signals (although it cannot transmit the DCD signal) between the two NPorts.

## **Ethernet Modem Mode**

Ethernet Modem Mode is designed for use with legacy operating systems, such as MS-DOS, that do not support TCP/IP Ethernet. By connecting one of NPort 5100A's serial ports to the MS-DOS computer's serial port, it is possible to use legacy software originally designed to transmit data via modem, but now transmit the data over the Ethernet.

# **Reverse Telnet Mode**



Console management is commonly used by connecting to Console/AUX or COM ports of routers, switches, and UPS units. Rtelnet works the same as TCP Server mode in that only one TCP port is listened to after booting up. The system then waits for a host on the network to initiate a connection. The difference is that the TCP Server mode does not provide the conversion function provided by Telnet. If the connected devices need to use the CR/LF conversion function when controlling, then users must choose Reverse Telnet mode.

# **Disabled Mode**

When the Operation Mode for a particular port is set to **Disabled**, that port will be disabled.

# Web Console Configuration

The Web Console is the most user-friendly method available to configure the NPort 5100A. In this chapter, we introduce the Web Console function groups and function definitions.

The following topics are covered in this chapter:

- Opening Your Browser
- Quick Setup
- Export/Import
- Basic Settings
- Network Settings
  - SNMP Settings
  - IP Address Report
- Serial Settings
- Serial Parameters

#### Operating Settings

- Real COM Mode
- > RFC 2217 Mode
- TCP Server Mode
- TCP Client Mode
- UDP Mode
- UDP Multicast
- Pair Connection Mode
- Ethernet Modem Mode
- Dial-in
- > Dial-out
- > Disconnection Request from the Local Site
- > Disconnection Request from the Remote Site
- AT Commands
- S Registers
- Reverse Telnet Mode
- Disabled Mode

## Accessible IP Settings

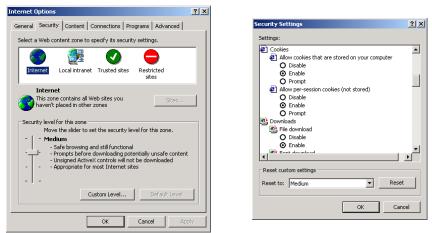
- Auto Warning Settings
  - > Auto warning: Email and SNMP trap
  - Event Type
- Upgrade Firmware

#### Monitor

- Monitor Line
- > Monitor Async
- Monitor Async-Settings
- Change Password
- Load Factory Default

# **Opening Your Browser**

1. Open your browser with the cookie function enabled. (To enable your browser for cookies, right click on your desktop Internet Explorer icon, select Properties, click on the Security tab, and then select the three Enable options as shown in the figure below.)



- 2. Type 192.168.127.254 in the Address input box (use the correct IP address if different from the default), and then press Enter.
- 3. Input the password if prompted. The password will be transmitted with MD5 encryption over the Ethernet. Note that you will not be prompted to enter the password if the NPort 5100A is not currently password protected.

<b>MOXA®</b> Total Solution for Industrial Device Networking					
	- 192.168.127.254 - 71	<ul> <li>MAC Address - 00:90:E8:99:31:25</li> <li>Firmware - 1.0 Build 10022314</li> </ul>			
Password:	Login				
	150A <b>IP</b> IA_71 <b>Serial NO.</b>	150A IP - 192.168.127.254 IA_71 Serial NO 71 Password:			



## ATTENTION

If you use other web browsers, remember to Enable the functions to "allow cookies that are stored on your computer" or "allow per-session cookies." NPort 5100A uses cookies only for "password" transmission.



## ATTENTION

Refer to Chapter 3, Initial IP Address Configuration, to see how to configure the IP address. Examples shown in this chapter use the Factory Default IP address (192.168.127.254).

4. The NPort 5100A homepage will open next. There are two buttons on this page: Quick setup and Export/Import. You can click Overview at any time to go back to this page. The following sections introduce these two convenient functions and all the other specific settings in the left Main Menu.

MOX/	www.moxa.com					
= Model	- NPort 5150A	= IP	- 192.168.127.254		MAC Address	- 00:90:E8:99:31:25
Name	- NP5150A_71	<ul> <li>Serial NO.</li> </ul>	- 71		Firmware	- 1.0 Build 10022314
	÷We	elcome to NP	ort web cons	ole		
Main Menu						
Overview						
Quick Setup		Click 'Quick Setup' to go through three simple steps making your NPort				
Export/Import						
Basic Settings	Q	uick Setup ready to a				
Network Settings						
- Serial Settings		Click Tur	and from and the			
- Operating Settings			ort/import' to configuration			
Accessible IP Settings	Ex	port/Import	r recovery.			
- Auto Warning Settings						
Upgrade Firmware						
- Monitor						
Change Password						
Load Factory Default						
Save/Restart						



## ATTENTION

If you can't remember the password, the ONLY way to start configuring the NPort 5100A is to load factory defaults by using the Reset button located near the NPort 5100A's RJ45 Ethernet port.

Remember to export the configuration file when you have finished the configuration. After using the Reset button to load factory defaults, your configuration can be easily reloaded into the NPort 5100A using the Import function.



## ATTENTION

If your NPort 5100A application requires using password protection, you must enable the cookie function in your browser. If the cookie function is disabled, you will not be allowed to enter the Web Console Screen.

# **Quick Setup**

**Quick Setup** streamlines configuration of your NPort into three basic and quick steps that cover the most commonly-used settings. At any time while in Quick Setup you may click the **Back** button to return to the previous step, or the **Cancel** button to reverse all settings. For more detailed settings, please refer to the "Basic Settings," "Network Settings," "Serial Settings," and "Operating Settings," sections later in this chapter.

**Step 1/3:** In this step, you must assign a valid IP address to the NPort 5100A before it will work in your network environment. Your network system administrator should provide you with an IP address and related settings for your network. In addition, the server name field is a useful way to specify the location or application of different NPort 5100As.

MO	XV	Total Solution for Indu	strial Device Networkin	g	www.moxa.com	
<ul><li>Model</li><li>Name</li></ul>	- NPort 51504 - NP5150A_7		- 192.168.127.254 <b>D.</b> - 71		AC Address - 00:90:E8:99:31:25 rmware - 1.0 Build 10022314	
		• Step 1/3				
		Server Settings				
		Server name	NP5150A_71			
		Network Settings				
		IP settings	Static 💌			
		IP address	192.168.127.253			
		Netmask	255.255.255.0			
		Gateway				
		_				
			Back Next	C	ancel	

**Step 2/3:** In this step, you must specify which operation mode you will use. If your operation mode is not **Real COM**, **TCP Server**, **TCP Client**, or **UDP mode**, click **Cancel** to return to the main menu and choose **Operating Settings** to select your proper setting.

MOX		otal Solution for Industrial De	vice Networking		www.moxa.com
<ul> <li>Model</li> <li>Name</li> </ul>	- NPort 5150A - NP5150A_1	<ul><li>IP</li><li>Serial NO.</li></ul>	- 192.168.32.212 - 1	<ul> <li>MAC Address</li> <li>Firmware</li> </ul>	- 00:90:E8:33:FF:FF - 1.0 Build 10032917
		• Step 2/3			
		Operation Mode Settings			
		Real COM PC communicate with serial device			
		Remember to install Real COM TCP PC communicate with serial device		etail information please	e refer to User's Manual.
		Device is TCP client	anongin rot pora	Port 4001	
		O UDP PC communicate with serial device	through UDP port.		
		Destination IP address	Port 4001		
			Back Next	Cancel	

Step 3/3: In this step, you can modify the serial settings.

MOX	<b>(^</b> ° T	otal Solution fo	r Industr	ial Device	Networking	I	W	ww.moxa.com
<ul><li>Model</li><li>Name</li></ul>	- NPort 5150A - NP5150A_71		P Serial NO.	- 192.168 - 71	.127.254		MAC Address Firmware	- 00:90:E8:99:31:25 - 1.0 Build 10022314
		Step :	3/3					
		Serial Settings						
		Baud rate Data bits Stop bits	٤	15200 🗸				
		Parity Interface		None 🗸	*			
				Back	Next		Cancel	

Review your settings on the **Finish Settings** page to confirm that they are correct, and then click the **Save/Restart** button to restart the device with the new settings.

÷	Model Name	- NPort 5150A - NP5150A_71	1	IP Serial NO.	- 192.168.127.254 - 71		MAC Address Firmware	- 00:90:E8:99:31:25 - 1.0 Build 10022314
			Your change Save/Restar	t for the updat	ttings en saved. Please check that res to take effect or click Ba			wing and click
			Basic Setti	-				
			Server name	1	NP5150A_71			
			Network Se	ettings				
			IP settings		Static			
			IP		192.168.127.253			
			Netmask		255.255.255.0			
			Gateway					
			Operation I	Aode Settings				
			Mode		RealCOM			
			Parameters					
			Serial Setti	ngs				
			Baudrate		115200			
			Parameters		Data bits: 8, Stop bits: 1	Parity: N	lone	
			Interface		RS-232			
		<b>сл</b> ° то	tal Solution 1	for Industri	Back Save/Res		Cancel W	ww.moxa.co
•	Model	- NPort 5150A		IP	- 192.168.127.254	•		- 00:90:E8:99:31:25
	Name	- NP5150A_71		Serial NO.			Firmware	- 1.0 Build 10022314
					Settings saved / Res	tarting	J	
					Home			

**NOTE** If you have changed the IP address, you will not be able to return to the Home Page with the **Home** button.

# Export/Import

Export/Import allows you to back up and recover your settings.

MOX/	* Total Solut	tion for Industrial Devi	ice Networking			www.moxa.com
<ul><li>Model</li><li>Name</li></ul>	- NPort 5150A - NP5150A_71	<ul><li>IP</li><li>Serial NO.</li></ul>	- 192.168.127.253 - 71	•	MAC Address Firmware	- 00:90:E8:99:31:25 - 1.0 Build 10022314
	÷Exp	ort / Import (	Configuratio	n		
- Main Menu	Confirmation	Gla Europet				
Overview	Configuration	file Export				
Quick Setup						_
Export/Import	Upload config	uration file		Browse	Import	
Basic Settings						
Network Settings						
- Serial Settings						
- Operating Settings						
Accessible IP Settings						
- Auto Warning Settings						
Upgrade Firmware						
- Monitor						
Change Password						
Load Factory Default						
Save/Restart						

Click **Export** to store all configuration data into a default file, **Servername>.txt**. Click the **Import** button to upload a configuration file to the NPort 5100A.

# **Basic Settings**

MOX	<b>(</b> \"	otal Solution for Indu	ng	www.moxa.co		
<ul><li>Model</li><li>Name</li></ul>	- NPort 5150A - NP5150A_71	<ul><li>IP</li><li>Serial NO</li></ul>	- 192.168.127.253 71		MAC Address Firmware	<ul> <li>- 00:90:E8:99:31:25</li> <li>- 1.0 Build 10022314</li> </ul>
		Basic Se	ettings			
Main Menu		Server Settings				
Overview						
Quick Setup		Server name	NP5150A_71			
Export/Import						
Basic Settings		Console Settings				
Network Settings						
- Serial Settings		Web console	💿 Enable 🔘 Disable			
- Operating Settings		Teinet console	💿 Enable 🔘 Disable			
Accessible IP Setting	gs	Reset button protect	⊙No OYes			
- Auto Warning Settir	ngs		0110 0100			
Upgrade Firmware			Submit			
- Monitor			Submit			
Change Password						
Load Factory Default	t					
Save/Restart						

#### Server name

Setting	Factory Default	Necessity
1 to 39 characters	NP[model name]_[Serial No.]	Optional

This option is useful for specifying the location or application of different NPort 5100As.

## Web/Telnet Console

The "Disable" option for "Web Console" and "Telnet Console" is included for security reasons. In some cases, you may want to disable one or both of these console utilities as an extra precaution to prevent unauthorized users from accessing your NPort 5100A. The factory default for both Web console and Telnet console is **Enable**.

## Web console

Setting	Factory Default	Necessity
Enable or Disable	Enable	Required

#### Telnet console

Setting	Factory Default	Necessity
Enable or Disable	Enable	Required



## ATTENTION

If you disable both the "Web console" and "Telnet console," you can still use NPort Administrator to configure NPort 5100A device servers either locally or remotely over the network. Refer to Chapter 6 for more details.

Reset button protect		
Setting	Factory Default	Necessity
No or Yes	None	Optional

**NOTE:** Select the **Yes** option to allow limited use of the Reset Button. In this case, the Reset Button can be used for only 60 seconds. I.e., 60 seconds after booting up, the Reset Button will be disabled automatically.

# **Network Settings**

MOX	<b>()</b>	otal Solution for Industrial Device Networking		g WWW.MOXa.cor
<ul><li>Model</li><li>Name</li></ul>	- NPort 5150A - NP5150A_71	<ul><li>IP</li><li>Serial NO.</li></ul>	- 192.168.127.253 - 71	<ul> <li>MAC Address - 00:90:E8:99:31:25</li> <li>Firmware - 1.0 Build 10022314</li> </ul>
		Network	Settings	
lain Menu		Network Settings		
Overview Oviek Setur			402 400 407 052	
Quick Setup Export/Import		IP address	192.168.127.253	
Exportimpon Basic Settings		Netmask	255.255.255.0	
Network Settings		Gateway		
- Serial Settings		IP configuration	Static 🖌 🖌	
- Operating Settings		DNS server 1		
Accessible IP Setting	gs	DNS server 2		
- Auto Warning Settir	ngs			
Upgrade Firmware		SNMP Settings		
- Monitor				
Change Password		SNMP	💿 Enable 🔘 Disable	
Load Factory Defaul Save/Restart	t	Community name	public	
Save/Restan		Contact		
		Location		
		IP Address Report		
		Auto report to IP		
		Auto report to UDP port	4002	
		Auto report period	10 seconds	
			Submit	

You must assign a valid IP address to the NPort 5100A before it will work in your network environment. Your network system administrator should provide you with an IP address and related settings for your network. The IP address must be unique within the network (otherwise, the NPort 5100A will not have a valid connection to the network). First time users can refer to Chapter 3, **Initial IP Address Configuration**, for more information.

You can choose from four possible **IP Configuration** modes—**Static**, **DHCP**, **DHCP/BOOTP**, and **BOOTP**— OTndBfigunder the web console screen's IP configuration drop-down box.

#### IP configuration

Method	Function Definition
Static	User defined IP address, Netmask, Gateway
DHCP	DHCP Server assigned IP address, Netmask, Gateway, DNS, and Time Server
DHCP/BOOTP	DHCP Server assigned IP address, Netmask, Gateway, DNS, and Time Server, or BOOTP
	Server assigned IP address (if the DHCP Server does not respond)
BOOTP	BOOTP Server assigns IP address

## IP address

Setting	Factory Default	Necessity
E.g., 192.168.1.1 (IP addresses of the	192.168.127.254	Required
form x.x.x.0 and x.x.x.255 are invalid.)		

An IP address is a number assigned to a network device (such as a computer) as a permanent address on the network. Computers use the IP address to identify and talk to each other over the network. Choose a proper IP address that is unique and valid in your network environment.

## Netmask

Setting	Factory Default	Necessity
E.g., 255.255.255.0	255.255.255.0	Required

A subnet mask represents all of the network hosts at one geographic location, in one building, or on the same local area network. When a packet is sent out over the network, the NPort 5100A will use the subnet mask to check whether the desired TCP/IP host specified in the packet is on the local network segment. If the address is on the same network segment as the NPort 5100A, a connection is established directly from the NPort 5100A. Otherwise, the connection is established through the given default gateway.

## Gateway

Setting	Factory Default	Necessity
E.g., 192.168.1.1	None	Optional

A gateway is a network gateway that acts as an entrance to another network. Usually, the computers that control traffic within the network or at the local Internet service provider are gateway nodes. NPort 5100A needs to know the IP address of the default gateway computer in order to communicate with the hosts outside the local network environment. For correct gateway IP address information, consult the network administrator.

#### **IP** configuration

Setting	Factory Default	Necessity
Static, DHCP,	Static	Required
DHCP/BOOTP, BOOTP		



## ATTENTION

In Dynamic IP environments, the firmware will retry 3 times every 30 seconds until network settings are assigned by the DHCP or BOOTP server. The Timeout for each try increases from 1 second, to 3 seconds, to 5 seconds.

If the DHCP/BOOTP Server is unavailable, the firmware will use the default IP address (192.168.127.254), Netmask, and Gateway for IP settings.

#### DNS server 1 / DNS server 2

Setting	Factory Default	Necessity
E.g., 192.168.1.1 (IP addresses of the	None	Optional
form x.x.x.0 and x.x.x.255 are invalid.)		

When the user wants to visit a particular website, the computer asks a Domain Name System (DNS) server for the website's correct IP address, and then the computer uses the response to connect to the web server. DNS is the way that Internet domain names are identified and translated into IP addresses. A domain name is an alphanumeric name, such as moxa.com, that it is usually easier to remember. A DNS server is a host that translates this kind of text-based domain name into the numeric IP address used to establish a TCP/IP connection.

In order to use the NPort 5100A's DNS feature, you need to configure the DNS server. Doing so allows the NPort 5100A to use a host's domain name to access the host. The NPort 5100A provides DNS server 1 and DNS server 2 configuration items to configure the IP address of the DNS server. DNS Server 2 is included for use when DNS sever 1 is unavailable.

The NPort 5100A plays the role of DNS client, in the sense that the NPort 5100A will actively query the DNS server for the IP address associated with a particular domain name. The NPort 5100A functions that support domain name are **Time server**, **Destination IP Address in TCP Client mode**, **Mail Server**, **SNMP trap server**, and **Auto report to IP**.

## **SNMP Settings**

#### Community name

Setting	Factory Default	Necessity
1 to 39 characters	public	Optional

A community name is a plain-text password mechanism that is used to weakly authenticate queries to agents of managed network devices.

#### Contact

Setting	Factory Default	Necessity
1 to 39 characters	None	Optional
(e.g., Support, 886-89191230 #300)		

The SNMP contact information usually includes an emergency contact name and telephone or pager number.

#### Location

Setting	Factory Default	Necessity
1 to 39 characters	None	Optional
(E.g., Floor 1, office 2)		

Specify the location string for SNMP agents such as NPort 5100A. This string is usually set to the street address where the NPort 5100A is physically located.

## **IP Address Report**

When NPort 5100A products are used in a dynamic IP environment, users must spend some time on IP management tasks. For example, if the NPort 5100A works as a server (TCP or UDP), then the host, which acts as a client, must know the IP address of the server. If the DHCP server assigns a new IP address to the NPort 5100A, the host must have some way of determining the NPort 5100A's new IP address.

NPort 5100A products periodically report their IP address to the IP location server in case the dynamic IP has changed. The parameters shown below are used to configure the Auto IP report function. There are two ways to develop an "Auto IP report Server" to receive an NPort 5100A's Auto IP report.

Use Device Server Administrator's IP Address Report function.

"Auto IP report protocol", which can automatically receive the Auto IP report on a regular basis, is also available to help you develop your own software. Refer to Appendix E for the "Auto IP report protocol."

### Auto report to IP

Setting	Factory Default	Necessity
E.g., 192.168.1.1 or URL (IP addresses of the	None	Optional
form x.x.x.0 and x.x.x.255 are invalid.)		

Reports generated by the Auto report function will be automatically sent to this IP address.

### Auto report to UDP port

Setting	Factory Default	Necessity
E.g., 4001	4002	Optional

### Auto report period

Setting	Factory Default	Necessity
Time interval (in seconds)	10	Optional

# **Serial Settings**

Click Serial Settings, located under Main Menu, to display serial port settings for port 1.

мох	∧°	Total	Solution for In	dustrial	g	www.moxa.com				
	- NPort 5150A - NP5150A_71		■ IP ■ Serial		92.168.127 1	.253	1	MAC Addres Firmware		8:99:31:25 5 10022314
			:• Serial	Setti	ngs					
- Main Menu		Port	Alias	Baud rate	Data bits	Stop bits	Parity	FIFO	Flow ctrl	Interface
Overview		1		115200	8	1	None	Enable	RTS/CTS	RS-232
Quick Setup Export/Import										
Basic Settings										
Network Settings										
Serial Settings										
Port 1										
- Operating Settings										
Accessible IP Settings										
- Auto Warning Settings	3									
Upgrade Firmware										
- Monitor										
Change Password										
Load Factory Default										
Save/Restart										

To modify serial settings click **Port 1** under **Serial Settings**, located under **Main Menu** on the left side of the browser window.

MOX	<b>∧</b> ° ⊺	otal Solution for Indus	www.moxa.co			
	- NPort 5150A - NP5150A_71	<ul><li>IP</li><li>Serial NO.</li></ul>	- 192.168.127.253 - 71	1	MAC Address Firmware	- 00:90:E8:99:31:25 - 1.0 Build 10022314
		Serial Se	ttings			
Main Menu		Port 1				
Overview		POILI				
Quick Setup		Port alias				
Export/Import						
Basic Settings		Serial Settings				
Network Settings		Serial Settings				
- Serial Settings		Baud rate	115200 🔽			
Port 1		Data bits	8 🕶			
- Operating Settings		Stop bits	1 🗸			
Accessible IP Settings						
- Auto Warning Settings	3	Parity	None 💌			
Upgrade Firmware		Flow control	RTS/CTS 🗸			
- Monitor		FIFO	💿 Enable 🔘 Disable			
Change Password		Interface	RS-232			
Load Factory Default						
Save/Restart			Submit			

#### Port alias

Setting	Factory Default	Necessity
1 to 15 characters	None	Optional
(E.g., PLC-No.1)		

"Port alias" is included to allow easy identification of the serial devices that are connected to the NPort 5100A's serial port.

# **Serial Parameters**



### ATTENTION

Check the serial communication parameters in your Serial Device's user's manual. You should set up NPort 5100A's serial parameters with the same communication parameters used by your serial devices.

### Baudrate

Setting	Factory Default	Necessity
50 bps to 921.6 kbps	115.2 kbps	Required

## Data bits

Setting	Facto	Factory Default						Necessity			
5, 6, 7, 8	8										Required
	 			<u>.</u>							

When the user sets Data bits to 5 bits, the Stop bits setting will automatically change to 1.5 bits.

### Stop bits

Setting	Factory Default	Necessity
1, 1.5, 2	1	Required

Stop bits will be set to 1.5 when Data bits is set to 5 bits.

### Parity

Setting	Factory Default	Necessity
None, Even, Odd,	None	Required
Space, Mark		

#### Flow control

Setting	Setting Factory Default I				
None, RTS/CTS,	RTS/CTS	Required			
DTR/DSR, Xon/Xoff					

### FIFO

Setting	Factory Default	Necessity
Enable, Disable	Enable	Required

NPort 5100A's serial ports provide a 16-byte FIFO both in the Tx and Rx directions. To prevent data loss during communication, disable the FIFO setting when your serial device does not have a FIFO.

### Interface

Setting	Factory Default	Necessity
RS-232/422/485	RS-232(NPort 5110A/5150A /P5150A)	Required
	RS-422 (NPort 5130A)	

# **Operating Settings**

мох	<b>∧</b> °	Total Solution for Industrial Device Networking WWW.MOX8.Co			noxa.co			
<ul><li>Model</li><li>Name</li></ul>	- NPort 5150A - NP5150A_71		= IP = Seria		192.168.127.253 71		MAC Address - 00:90 Firmware - 1.0 B	:E8:99:31:25 uild 1002231
			:•Opera	tion I	Nodes			
- Main Menu				Packing	Deline terret	D		Force
Overview		Ροπ	Operating Mode	Length	Delimiter 1	Delimiter 2	Delimiter Process	Transmit
Quick Setup Export/Import				0	00 (Disable)	00 (Disable)	Do Nothing	0
Basic Settings		1	RealCOM	TCP alive	check time: 7			
Network Settings				Max conne	ection: 1			
- Serial Settings								
Port 1								
Operating Settings								
Port 1								
Accessible IP Settings								
- Auto Warning Setting:	3							
Upgrade Firmware								
- Monitor								
Change Password								
Load Factory Default								
Save/Restart								

Click **Operating Settings**, located under **Main Menu**, to display the operating settings for both of NPort 5100A's serial ports.

# **Real COM Mode**

Model - NPort 5150A     Name - NP5150A_71	<ul><li>IP</li><li>Serial NO.</li></ul>	- 192.168.127.253         MAC Address         - 00.90:E8.99:31:25           - 71         Firmware         - 1.0 Build 10022314
	:•Operatio	n Modes
Main Menu	Port 1	
Overview	FULL	
Quick Setup	Operation mode	RealCOM
Export/Import	TCP alive check time	7 (0 - 99 min)
Basic Settings	Max connection	1 •
Network Settings	Ignore jammed IP	
- Serial Settings		
Port 1	Allow driver control	No O Yes
- Operating Settings		
Port 1	Data Packing	
Accessible IP Settings - Auto Warning Settings	Packing length	0 (0 - 1024)
Upgrade Firmware	Delimiter 1	00 (Hex) Enable
- Monitor	Delimiter 2	00 (Hex) Enable
Change Password	Delimiter process	
Load Factory Default	-	
Save/Restart	Force transmit	0(0 - 65535 ms)

#### TCP alive check time

Setting	Factory Default	Necessity
0 to 99 min	7 min	Optional

0 min: TCP connection is not closed due to an idle TCP connection.

1 to 99 min: The NPort 5100A automatically closes the TCP connection if there is no TCP activity for the given time. After the connection is closed, the NPort 5100A starts listening for another Real COM driver connection from another host.

#### Max connection

Setting	Factory Default	Necessity
1, 2, 3, 4, 5, 6, 7, 8	1	Required

*Max connection* is usually used when the user needs to receive data from different hosts simultaneously. The factory default is 1. In this case, only one specific host can access this port of the NPort 5100A, and the Real COM driver on that host will have full control over the port.

Max. Connection 1: Allows only 1 host's Real COM driver to open the specific NPort 5100A serial port.

*Max Connection 2 to 8:* Allows 2 to 8 host's Real COM drivers to open the specific NPort 5100A serial port, at the same time. When multiple hosts' Real COM drivers open the serial port at the same time, the COM driver only provides a pure data tunnel without control ability. That is, this serial port parameter will use the firmware's settings, not depend on your application program (AP).

Application software that is based on the COM driver will receive a driver response of "success" when the software uses any of the Win32 API functions. The firmware will only send the data back to the driver on the host.

Data will be sent first-in-first-out when data comes into the NPort 5100A from the Ethernet interface.



## ATTENTION

When Max connection > 1, this means that the NPort 5100A will be using a "multi connection application" (i.e., 2 or more hosts are allowed access to the port at the same time). When using a multi connection application, the NPort 5100A will use the serial communication parameters set in the console. All of the hosts connected to that port must use the same serial settings. If one of the hosts opens the COM port with parameters that are different from the NPort 5100A's console setting, data communication may not work properly.

### Ignore jammed IP

i giller e fallinieu i i		
Setting	Factory Default	Necessity
No or Yes	No	Optional

Previously, when Max connections > 1, and the serial device is transmitting data, if any one of the connected hosts is not responding, it will wait until the data has been transmitted successfully before transmitting the second group of data to all hosts. Currently, if you select Yes for "Ignore jammed IP," the host that is not responding will be ignored, but the data will still be transmitted to the other hosts.

### Allow driver control

Setting	Factory Default	Necessity
No or Yes	No	Optional

If "max connection" is greater than 1, NPort will ignore driver control commands from all connected hosts. However, if you set "Allow driver control" to YES, control commands will be accepted. Note that since the NPort 5100A may get configuration changes from multiple hosts, the most recent command received will take precedence.

### Packing length

Setting	Factory Default	Necessity
0 to 1024	0	Optional

Default = 0: The Delimiter Process will be followed, regardless of the length of the data packet. If the data length (in bytes) matches the configured value, the data will be forced out. The data length can be configured for 0 to 1024 bytes. Set to 0 if you do not need to limit the length.

### Delimiter 1

Setting	Factory Default	Necessity
00 to FF (hex)	None	Optional

### Delimiter 2

Setting	Factory Default	Necessity
00 to FF (hex)	None	Optional

Once the NPort 5100A receives both delimiters through its serial port, it immediately packs all data currently in its buffer and sends it to the NPort 5100A's Ethernet port.



### ATTENTION

Delimiter 2 is optional. If left blank, then Delimiter 1 alone trips clearing of the buffer. If the size of the serial data received is greater than 1 KB, the NPort 5100A will automatically pack the data and send it to the Ethernet. However, to use the delimiter function, you must at least enable Delimiter 1. If Delimiter 1 is left blank and Delimiter 2 is enabled, the delimiter function will not work properly.

### Delimiter process

Setting	Factory Default	Necessity
Do nothing, Delimiter +	Do Nothing	Optional
1, Delimiter + 2, Strip		
Delimiter		

[Delimiter + 1] or [Delimiter + 2]: The data will be transmitted when an additional byte (for Delimiter +1), or an additional 2 bytes (for Delimiter +2) of data are received after receiving the Delimiter.

[Strip Delimiter]: When the Delimiter is received, the Delimiter is deleted (i.e., stripped), and the remaining data is transmitted.

[Do nothing]: The data will be transmitted when the Delimiter is received.

#### Force transmit

Setting	Factory Default	Necessity
0 to 65535 ms	0 ms	Optional

0: Disable the force transmit timeout.

1 to 65535: Forces the NPort 5100A's TCP/IP protocol software to try to pack serial data received during the specified time into the same data frame.

This parameter defines the time interval during which NPort 5100A fetches the serial data from its internal buffer. If data is incoming through the serial port, the NPort 5100A stores the data in the internal buffer. The NPort 5100A transmits data stored in the buffer via TCP/IP, but only if the internal buffer is full or if the Force transmit time interval reaches the time specified under Force transmit timeout.

The optimal Force transmit timeout depends on your application, but it must be at least larger than one character interval within the specified baudrate. For example, assume that the serial port is set to 1200 bps, 8 data bits, 1 stop bit, and no parity. In this case, the total number of bits needed to send a character is 10 bits, and the time required to transfer one character is

(10 (bits) / 1200 (bits/s)) \* 1000 (ms/s) = 8.3 ms.

Therefore, you should set Force transmit timeout to be larger than 8.3 ms, so in this case, it must be greater than or equal to 10 ms.

If the user wants to send a series of characters in the same packet, the serial device attached to the NPort 5100A should send that series of characters during a time interval less than the Force transmit timeout for the NPort 5100A, and the total length of data must be less than or equal to the NPort 5100A's internal buffer size. The serial communication buffer size for the NPort 5100A is 1 KB per port.

# RFC 2217 Mode

= Model	- NPort 5150A	= IP	- 192.168.127.253	MAC Address - 00:90:E8:99:31:25
Name	- NP5150A_71	<ul> <li>Serial NO.</li> </ul>	- 71	Firmware - 1.0 Build 1002231
		:•Operatio	on Modes	
Main Menu		Port 1		
Overview		FULL		
Quick Setup		Operation mode	RFC2217 🗸	
Export/Import		TCP alive check time	7 (0 - 99 min)	
Basic Settings		Local TCP port	4001	
Network Settings		Local ICP port	4001	
- Serial Settings				
Port 1		Data Packing		
- Operating Setting:	5	Packing length	0 (0 - 1024)	
Port 1		Delimiter 1	0 10217	
Accessible IP Settin	ngs		00 (Hex) 🗌 Enable	
- Auto Warning Sett	ings	Delimiter 2	00 (Hex) 📃 Enable	
Upgrade Firmware		Delimiter process	Do Nothing 🛛 🔽 (Proces	sed only when packing length is 0)
- Monitor		Force transmit	0 (0 - 65535 ms)	
Change Password			R3 - 63333 may	
Load Factory Defau	lt		Submit	
Save/Restart			Oubmit	

### TCP alive check time

Setting	Factory Default	Necessity
0 to 99 min	7 min	Optional

0 min: TCP connection is not closed due to an idle TCP connection.

1 to 99 min: The NPort 5100A automatically closes the TCP connection if there is no TCP activity for the given time. After the connection is closed, the NPort 5100A starts listening for another host's TCP connection.

### Local TCP port

Setting	Factory Default	Necessity
1 to 65535	4001	Required

The "Local TCP port" is the TCP port that the NPort 5100A uses to listen to connections, and that other devices must use to contact the NPort 5100A. To avoid conflicts with well known TCP ports, the default is set to 4001.

### Packing length

Setting	Factory Default	Necessity
0 to 1024	0	Optional

Default = 0: The Delimiter Process will be followed, regardless of the length of the data packet. If the data length (in bytes) matches the configured value, the data will be forced out. The data length can be configured for 0 to 1024 bytes. Set to 0 if you do not need to limit the length.

### Delimiter 1

Setting	Factory Default	Necessity
00 to FF	None	Optional

### Delimiter 2

Setting	Factory Default	Necessity
00 to FF	None	Optional

Once the NPort 5100A receives both delimiters through its serial port, it immediately packs all data currently in its buffer and sends it out the NPort 5100A's Ethernet port.

### **Delimiter process**

Setting	Factory Default	Necessity
Do Nothing,	Do Nothing	Optional
Delimiter + 1,		
Delimiter + 2,		
Strip Delimiter		

[Delimiter + 1] or [Delimiter + 2]: The data will be transmitted when an additional byte (for Delimiter +1), or an additional 2 bytes (for Delimiter +2) of data is received after receiving the Delimiter.

[Strip Delimiter]: When the Delimiter is received, the Delimiter is deleted (i.e., stripped), and the remaining data is transmitted.

[Do Nothing]: The data will be transmitted when the Delimiter is received.

#### Force transmit

Setting	Factory Default	Necessity
0 to 65535 ms	0 ms	Optional

0: Disable the force transmit timeout.

1 to 65535: Forces the NPort 5100A's TCP/IP protocol software to try to pack serial data received during the specified time into the same data frame.

This parameter defines the time interval during which the NPort 5100A fetches the serial data from its internal buffer. If data is incoming through the serial port, the NPort 5100A stores the data in the internal buffer. The NPort 5100A transmits data stored in the buffer via TCP/IP, but only if the internal buffer is full or if the Force transmit time interval reaches the time specified under Force transmit timeout.

The optimal Force transmit timeout depends on your application, but it must be at least larger than one character interval within the specified baudrate. For example, assume that the serial port is set to 1200 bps, 8 data bits, 1 stop bit, and no parity. In this case, the total number of bits needed to send a character is 10 bits, and the time required to transfer one character is

(10 (bits) / 1200 (bits/s)) \* 1000 (ms/s) = 8.3 ms.

Therefore, you should set Force transmit timeout to a value larger than 8.3 ms, so in this case, it must be greater than or equal to 10 ms.

If the user wants to send a series of characters in the same packet, the serial device attached to the NPort 5100A should send that series of characters during a time interval less than the Force transmit timeout for the NPort 5100A, and the total length of data must be less than or equal to the NPort 5100A's internal buffer size. The serial communication buffer size for the NPort 5100A is 1 KB per port.

## **TCP Server Mode**

= Model = Name	- NPort 5150A - NP5150A_71	<ul><li>IP</li><li>Serial NO.</li></ul>	- 192.168.127.253 - 71	<ul> <li>MAC Address</li> <li>Firmware</li> </ul>	- 00:90:E8:99:31:25 - 1.0 Build 10022314
		:•Operatio	n Modes		
- Main Menu		Port 1			
Overview					
Quick Setup		Operation mode	TCP Server 🗸		
Export/Import		TCP alive check time	7 (0 - 99 min)		
Basic Settings		Inactivity time	0 (0 - 65535 ms)		
Network Settings - Serial Settings		Max connection	1 🗸		
Port 1		Ignore jammed IP	• No OYes		
- Operating Settings		Allow driver control	No OYes		
Port 1					
Accessible IP Settin	gs	Local TCP port	4001		
- Auto Warning Setti	ngs	Command port	966		
Upgrade Firmware					
- Monitor		Data Packing			
Change Password		Packing length	0 (0 - 1024)		
Load Factory Defau	It				
Save/Restart		Delimiter 1	00 (Hex) Enable		
		Delimiter 2	00 (Hex) 🔲 Enable		
		Delimiter process	Do Nothing 🛛 👻 (Processed o	only when packing len	gth is 0)
		Force transmit	0 (0 - 65535 ms)		

### TCP alive check time

Setting	Factory Default	Necessity
0 to 99 min	7 min	Optional

0 min: TCP connection is not closed due to an idle TCP connection.

1 to 99 min: The NPort 5100A automatically closes the TCP connection if there is no TCP activity for the given time. After the connection is closed, the NPort 5100A starts listening for another host's TCP connection.

### Inactivity time

Setting	Factory Default	Necessity
0 to 65535 ms	0 ms	Optional

0 ms: TCP connection is not closed due to an idle serial line.

0-65535 ms: The NPort 5100A automatically closes the TCP connection if there is no serial data activity for the given time. After the connection is closed, the NPort 5100A starts listening for another host's TCP connection.

This parameter defines the maintenance status as Closed or Listen for the TCP connection. The connection is closed if there is no incoming or outgoing data through the serial port during the specific Inactivity time.

If the Inactivity time is set to 0, the current TCP connection is kept active until a connection close request is received. Although Inactivity time is disabled, the NPort 5100A will check the connection status between the NPort 5100A and remote host by sending "keep alive" packets periodically. If the remote host does not respond to the packet, the NPort 5100A assumes that the connection was closed down unintentionally. The NPort 5100A will then force the existing TCP connection to close.



### ATTENTION

The Inactivity time should at least be set larger than that of the Force transmit timeout. To prevent the unintended loss of data due to the session being disconnected, it is highly recommended that this value is set large enough so that the intended data transfer is completed.

### Max connection

Setting	Factory Default	Necessity
1, 2, 3, 4, 5, 6, 7, 8	1	Required

*Max connection* is usually used when the user needs to receive data from different hosts simultaneously. The factory default only allows 1 connection at a time.

Max. connection 1: The NPort only allows 1 host to open the TCP connection to the specific serial port.

*Max connection 2 to 8:* Allows 2 to 8 host's TCP connection request to open this NPort 5100A's serial port, at the same time. When multiple hosts establish a TCP connection to the specific serial port at the same time, the NPort 5100A will duplicate the serial data and transmit to all of the hosts. Ethernet data is sent on a first-in-first-out basis to the serial port when data comes into the NPort 5100A from the Ethernet interface.

### Ignore jammed IP

Setting	Factory Default	Necessity
No or Yes	No	Optional

Previously, when Max connections > 1, and the serial device is transmitting data, if any one of the connected hosts is not responding, it will wait until the data has been transmitted successfully before transmitting the second group of data to all hosts. Currently, if you select Yes for "Ignore jammed IP," the host that is not responding will be ignored, but the data will still be transmitted to the other hosts.

### Allow driver control

Setting	Factory Default	Necessity
No or Yes	No	Optional

If "max connection" is greater than 1, the NPort will ignore driver control commands from all connected hosts. However, if you set "Allow driver control" to YES, control commands will be accepted. Note that since the NPort 5100A may get configuration changes from multiple hosts, the most recent command received will take precedence.

### Packing length

Setting	Factory Default	Necessity
0 to 1024	0	Optional

Default = 0, The Delimiter Process will be followed, regardless of the length of the data packet. If the data length (in bytes) matches the configured value, the data will be forced out. The data length can be configured for 0 to 1024 bytes. Set to 0 if you do not need to limit the length.

### Delimiter 1

Setting	Factory Default	Necessity
00 to FF	None	Optional

### Delimiter 2

Setting	Factory Default	Necessity
00 to FF	None	Optional

Once the NPort 5100A receives both delimiters through its serial port, it immediately packs all data currently in its buffer and sends it out the NPort 5100A's Ethernet port.



### ATTENTION

Delimiter 2 is optional. If left blank, then Delimiter 1 alone trips clearing of the buffer. If the size of the serial data received is greater than 1 KB, the NPort 5100A will automatically pack the data and send it to the Ethernet. However, to use the delimiter function, you must at least enable Delimiter 1. If Delimiter 1 is left blank and Delimiter 2 is enabled, the delimiter function will not work properly.

### Delimiter process

Setting	Factory Default	Necessity
Do Nothing,	Do Nothing	Optional
Delimiter + 1,		
Delimiter + 2,		
Strip Delimiter		

[Delimiter + 1] or [Delimiter + 2]: The data will be transmitted when an additional byte (for Delimiter +1), or an additional 2 bytes (for Delimiter +2) of data are received after receiving the Delimiter.

[Strip Delimiter]: When the Delimiter is received, the Delimiter is deleted (i.e., stripped), and the remaining data is transmitted.

[Do Nothing]: The data will be transmitted when the Delimiter is received.

### Force transmit

Setting	Factory Default	Necessity
0 to 65535 ms	0 ms	Optional

0: Disable the force transmit timeout.

1 to 65535: Forces the NPort 5100A's TCP/IP protocol software to try to pack serial data received during the specified time into the same data frame.

This parameter defines the time interval during which the NPort 5100A fetches the serial data from its internal buffer. If data is incoming through the serial port, the NPort 5100A stores the data in the internal buffer. The

NPort 5100A transmits data stored in the buffer via TCP/IP, but only if the internal buffer is full or if the Force transmit time interval reaches the time specified under Force transmit timeout.

The optimal Force transmit timeout depends on your application, but it must be at least larger than one character interval within the specified baudrate. For example, assume that the serial port is set to 1200 bps, 8 data bits, 1 stop bit, and no parity. In this case, the total number of bits needed to send a character is 10 bits, and the time required to transfer one character is

(10 (bits) / 1200 (bits/s)) \* 1000 (ms/s) = 8.3 ms.

Therefore, you should set Force transmit timeout to be larger than 8.3 ms, so in this case, it must be greater than or equal to 10 ms.

If the user wants to send a series of characters in the same packet, the serial device attached to the NPort 5100A should send that series of characters during a time interval less than the Force transmit timeout for the NPort 5100A, and the total length of data must be less than or equal to the NPort 5100A's internal buffer size. The serial communication buffer size for the NPort 5100A is 1 KB per port.

#### Local TCP port

Setting	Factory Default	Necessity
1 to 65535	4001	Required

The "Local TCP port" is the TCP port the NPort 5100A uses to listen to connections, and that other devices must use to contact the NPort 5100A. To avoid conflicts with well known TCP ports, the default is set to 4001.

#### Command port

Setting	Factory Default	Necessity
1 to 65535	966	Optional

The "Command port" is a listen TCP port for IP-Serial Lib commands from the host. In order to prevent a TCP port conflict with other applications, the user can set the Command port to another port if needed. IP-Serial Lib will automatically check the Command Port on the NPort 5100A so that the user does not need to configure the program.

# **TCP Client Mode**

I

MOX/	<b>∧</b> ° ⊺	otal Solution for Industrial Device Networking		www.moxa.com	
	NPort 5150A NP5150A_71	<ul><li>IP</li><li>Serial NO.</li></ul>	- 192.168.127.253 - 71	MAC Address         - 00:90:E8:99:31:25           Firmware         - 1.0 Build 10022314	
- Main Menu Overview Quick Setup Export/Import Basic Settings Network Settings Port 1 - Operating Settings Port 1 Accessible IP Settings - Auto Warning Settings Upgrade Firmware - Monitor Change Password Load Factory Default Save/Restart		Port 1 Operation mode TCP alive check time Inactivity time Ignore jammed IP Destination IP address 1 Destination IP address 2 Destination IP address 3 Destination IP address 4 Designated local port 1 Designated local port 3 Designated local port 4 Connection control Data Packing Packing length Delimiter 1 Delimiter 2 Delimiter process Force transmit	TCP Client     ▼       7     (0 - 99 min)       0     (0 - 65535 ms)       © No     Yes       5011     5012       5013     5014       Startup/None     ▼       0     (0 - 1024)       00     (Hex)       □     (0 - 1024)       00     (Hex)       □     (0 - 1024)	Port 4001 Port 4001 Port 4001 Port 4001	

### TCP alive check time

Setting	Factory Default	Necessity
0 to 99 min	7 min	Optional

0 min: TCP connection is not closed due to an idle TCP connection.

1 to 99 min: The NPort 5100A automatically closes the TCP connection if there is no TCP activity for the given time.

### Inactivity time

Setting	Factory Default	Necessity
0 to 65535 ms	0 ms	Optional

0 ms: TCP connection is not closed due to an idle serial line.

0-65535 ms: The NPort 5100A automatically closes the TCP connection if there is no serial data activity for the given time.

This parameter defines the maintenance status as Closed or Listen for the TCP connection. The connection is closed if there is no incoming or outgoing data through the serial port during the specific Inactivity time.

If the Inactivity time is set to 0, the current TCP connection is kept active until a connection close request is received. Although Inactivity time is disabled, the NPort 5100A will check the connection status between the NPort 5100A and remote host by sending "keep alive" packets periodically. If the remote host does not respond to the packet, the NPort 5100A assumes that the connection was closed down unintentionally. The NPort 5100A will then force the existing TCP connection to close.



### ATTENTION

The Inactivity time should at least be set larger than that of Force transmit timeout. To prevent the unintended loss of data due to the session being disconnected, it is highly recommended that this value is set large enough so that the intended data transfer is completed.



## ATTENTION

. . .

Inactivity time is ONLY active when "TCP connect on" is set to "Any character."

Ignore Jammed IP				
Setting	Necessity			
No or Yes	No	Optional		

Previously, when Max connections > 1, and the serial device is transmitting data, if any one of the connected hosts is not responding, it will wait until the data has been transmitted successfully before transmitting the second group of data to all hosts. Currently, if you select Yes for "Ignore jammed IP," the host that is not responding will be ignored, but the data will still be transmitted to the other hosts.

### Packing length

Setting	Factory Default	Necessity
0 to 1024	0	Optional

Default = 0: The Delimiter Process will be followed, regardless of the length of the data packet. If the data length (in bytes) matches the configured value, the data will be forced out. The data length can be configured for 0 to 1024 bytes. Set to 0 if you do not need to limit the length.

### Delimiter 1

Setting	Factory Default	Necessity
00 to FF (hex)	None	Optional

### Delimiter 2

Setting	Factory Default	Necessity
00 to FF (hex)	None	Optional
	1	

Once the NPort 5100A receives both delimiters through its serial port, it immediately packs all data currently in its buffer and sends it to the NPort 5100A's Ethernet port.



### ATTENTION

Delimiter 2 is optional. If left blank, then Delimiter 1 alone trips clearing of the buffer. If the size of the serial data received is greater than 1 KB, the NPort 5100A will automatically pack the data and send it to the Ethernet. However, to use the delimiter function, you must at least enable Delimiter 1. If Delimiter 1 is left blank and Delimiter 2 is enabled, the delimiter function will not work properly.

#### Delimiter process

Setting	Factory Default	Necessity	
Do Nothing,	Do Nothing	Optional	
Delimiter + 1,			
Delimiter + 2,			
Strip Delimiter			

[Delimiter + 1] or [Delimiter + 2]: The data will be transmitted when an additional byte (for Delimiter +1), or an additional 2 bytes (for Delimiter +2) of data is received after receiving the Delimiter.

[Strip Delimiter]: When the Delimiter is received, the Delimiter is deleted (i.e., stripped), and the remaining data is transmitted.

[Do Nothing]: The data will be transmitted when the Delimiter is received.

#### Force transmit

Setting	Factory Default	Necessity
0 to 65535 ms	0 ms	Optional

0: Disable the force transmit timeout.

1 to 65535: Forces the NPort 5100A's TCP/IP protocol software to try to pack serial data received during the specified time into the same data frame.

This parameter defines the time interval during which the NPort 5100A fetches the serial data from its internal buffer. If data is incoming through the serial port, the NPort 5100A stores the data in the internal buffer. The NPort 5100A transmits data stored in the buffer via TCP/IP, but only if the internal buffer is full or if the Force transmit time interval reaches the time specified under Force transmit timeout.

The optimal Force transmit timeout depends on your application, but it must be at least larger than one character interval within the specified baudrate. For example, assume that the serial port is set to 1200 bps, 8 data bits, 1 stop bit, and no parity. In this case, the total number of bits needed to send a character is 10 bits, and the time required to transfer one character is

(10 (bits) / 1200 (bits/s)) \* 1000 (ms/s) = 8.3 ms.

Therefore, you should set Force transmit timeout to be larger than 8.3 ms, so in this case, it must be greater than or equal to 10 ms.

If the user wants to send a series of characters in the same packet, the serial device attached to the NPort 5100A should send that series of characters during a time interval less than the Force transmit timeout for the NPort 5100A, and the total length of data must be less than or equal to the NPort 5100A's internal buffer size. The serial communication buffer size for the NPort 5100A is 1 KB per port.

### Destination IP address 1/2/3/4

Setting	Factory Default	Necessity
IP address or Domain	None	Required
Name		
(E.g., 192.168.1.1)		

Allows the NPort 5100A to connect actively to the remote host whose IP address is set by this parameter.



### ATTENTION

Up to 4 connections can be established between the NPort 5100A and hosts. The connection speed or throughput may be low if one of the four connections is slow, since the 1 slow connection will slow down the other 3 connections.



### ATTENTION

The "Destination IP address" parameter can use both IP address and Domain Name. For some applications, the user may need to send the data actively to the remote destination domain name.

### Designated Local Port 1/2/3/4

Setting	Factory Default	Necessity
TCP Port No.	5011 (Port 1)	Required
	5012 (Port 2)	
	5013 (Port 3)	
	5014 (Port 4)	

### **Connection control**

Setting	Factory Default	Necessity
Startup/None, Any Character/None,	Startup/None	Required
Any Character/Inactivity Time,		
DSR ON/DSR OFF, DSR ON/None,		
DCD ON/DCD OFF, DCD ON/None		

The meaning of each of the above settings is given in the table below. In general, both the Connect condition and Disconnect condition are given.

Connect/Disconnect	Description			
Startup/None	A TCP connection will be established on startup, and will remain active indefinitely.			
(default)				
Any Character/None	A TCP connection will be established when any character is received from the serial			
	interface, and will remain active indefinitely.			
Any Character/	A TCP connection will be established when any character is received from the serial			
Inactivity Time	interface, and will be disconnected when the Inactivity time out is reached.			
DSR On/DSR Off	A TCP connection will be established when a DSR "On" signal is received, and will be			
	disconnected when a DSR "Off" signal is received.			
DSR On/None	A TCP connection will be established when a DSR "On" signal is received, and will			
	remain active indefinitely.			
DCD On/DCD Off	A TCP connection will be established when a DCD "On" signal is received, and will be			
	disconnected when a DCD "Off" signal is received.			
DCD On/None	A TCP connection will be established when a DCD "On" signal is received, and will			
	remain active indefinitely.			

# **UDP Mode**

ΜΟΧΛ Το	tal Solution for Indust	rial Device Networ	king	W	/ww.moxa.com
Model - NPort 5150A Name - NP5150A_71	<ul><li>IP</li><li>Serial NO.</li></ul>	- 192.168.127.253 - 71		MAC Address Firmware	s - 00:90:E8:99:31:25 - 1.0 Build 10022314
	:•Operation	n Modes			
1ain Menu	Port 1				
Overview Quick Setup	Operation mode	UDP	~		
Export/Import	operation mode	Begin	End	F	Port
Basic Settings	Destination IP address 1	_		: 40	001
Network Settings - Serial Settings	Destination IP address 2			: 40	001
Port 1	Destination IP address 3			: 40	001
- Operating Settings	Destination IP address 4			: 40	001
Port 1 Accessible IP Settings	Local listen port	4001			
- Auto Warning Settings Upgrade Firmware	Data Packing				
- Monitor	Packing length	0 (0 - 1024)			
Change Password	Delimiter 1	00 (Hex) Enabl	e		
Load Factory Default Save/Restart	Delimiter 2	00 (Hex) Enabl	e		
ourontoount	Delimiter process	Do Nothing 🔽 (Pro	cessed only wh	en packing len	gth is 0)
	Force transmit	0 (0 - 65535 m	s)		

### Packing length

Setting	Factory Default	Necessity
0 to 1024	0	Optional

Default = 0: The Delimiter Process will be followed, regardless of the length of the data packet. If the data length (in bytes) matches the configured value, the data will be forced out. The data length can be configured for 0 to 1024 bytes. Set to 0 if you do not need to limit the length.

### Delimiter 1

Setting	Factory Default	Necessity
00 to FF	None	Optional

### Delimiter 2

Setting	Factory Default	Necessity
00 to FF	None	Optional

Once the NPort 5100A receives both delimiters through its serial port, it immediately packs all data currently in its buffer and sends it out the NPort 5100A's Ethernet port.



### ATTENTION

Delimiter 2 is optional. If left blank, then Delimiter 1 alone trips clearing of the buffer. If the size of the serial data received is greater than 1 KB, the NPort 5100A will automatically pack the data and send it to the Ethernet. However, to use the delimiter function, you must at least enable Delimiter 1. If Delimiter 1 is left blank and Delimiter 2 is enabled, the delimiter function will not work properly.

Delimiter process					
Setting	Factory Default	Necessity			
Do Nothing,	Do Nothing	Optional			
Delimiter + 1,					
Delimiter + 2,					
Strip Delimiter					

[Delimiter + 1] or [Delimiter + 2]: The data will be transmitted when an additional byte (for Delimiter +1), or an additional 2 bytes (for Delimiter +2) of data is received after receiving the Delimiter.

[Strip Delimiter]: When the Delimiter is received, the Delimiter is deleted (i.e., stripped), and the remaining data is transmitted.

[Do nothing]: The data will be transmitted when the Delimiter is received.

#### Force transmit

Setting	Factory Default	Necessity
0 to 65535 ms	0 ms	Optional

0: Disable the force transmit timeout.

1 to 65535: Forces the NPort 5100A's TCP/IP protocol software to try to pack serial data received during the specified time into the same data frame.

This parameter defines the time interval during which the NPort 5100A fetches the serial data from its internal buffer. If data is incoming through the serial port, the NPort 5100A stores the data in the internal buffer. the NPort 5100A transmits data stored in the buffer via TCP/IP, but only if the internal buffer is full or if the Force transmit time interval reaches the time specified under Force transmit timeout.

The optimal Force transmit timeout depends on your application, but it must be at least larger than one character interval within the specified baudrate. For example, assume that the serial port is set to 1200 bps, 8 data bits, 1 stop bit, and no parity. In this case, the total number of bits needed to send a character is 10 bits, and the time required to transfer one character is

(10 (bits) / 1200 (bits/s)) \* 1000 (ms/s) = 8.3 ms.

Therefore, you should set Force transmit timeout to be larger than 8.3 ms, so in this case, it must be greater than or equal to 10 ms.

If the user wants to send a series of characters in the same packet, the serial device attached to the NPort 5100A should send that series of characters during a time interval less than the Force transmit timeout for the NPort 5100A, and the total length of data must be less than or equal to the NPort 5100A's internal buffer size. The serial communication buffer size for the NPort 5100A is 1 KB per port.

#### **Destination IP address 1**

Setting	Factory Default		Necessity
IP address range	Begin:	Empty	Required
E.g., Begin: 192.168.1.1	End:	Empty	
End: 192.168.1.10	Port:	4001	

#### Destination IP address 2/3/4

Setting	Factory De	efault	Necessity
IP address range	Begin:	Empty	Optional
E.g., Begin: 192.168.1.11	End:	Empty	
End: 192.168.1.20	Port:	4001	

#### Local listen port

Setting	Factory Default	Necessity
1 to 65535	4001	Required

The UDP port that the NPort 5100A listens to, and that other devices must use to contact the NPort 5100A. To avoid conflicts with well known UDP ports, the default is set to 4001.

## **UDP Multicast**

A multicast is a packet sent by one host to multiple hosts. In multicast, each host that belongs to a specific multicast group will receive multicast packets for that group. To configure a host as a multicast receiver over the Internet, it must inform the routers on its LAN. The Internet Group Management Protocol (IGMP) is used to communicate group membership information between hosts and routers on a LAN. The NPort 5100A supports IGMP version 2.

You could type the IP address (e.g., 239.1.1.1) of the assigned multicast group into the Destination IP address column, after which the NPort will automatically add the Group and start receiving all packets from the group in accordance with the multicast function.

# **Pair Connection Mode**

## **Pair Connection Master Mode**

When you select **Pair Connection Master Mode** for the Operation mode of one of the NPort 5100A device servers this NPort 5100A will be acting as a TCP client.

MOX	 	Total Solution for Indust	rial Device Networking		www.moxa.com
<ul><li>Model</li><li>Name</li></ul>	- NPort 5150/ - NP5150A_7		- 192.168.127.253 - 71	-	MAC Address - 00:90:E8:99:31:25 Firmware - 1.0 Build 10022314
		:•Operation	n Modes		
- Main Menu		Port 1			
Overview		Port I			
Quick Setup		Operation mode	Pair Connection Master 🔽		
Export/Import		TCP alive check time	7 (0 - 99 min)		
Basic Settings		Destination IP address	(=======,		Port 4001
Network Settings		Destination iP address			POR 4001
- Serial Settings					
Port 1		1	Submit		

### TCP alive check time

Setting	Factory Default	Necessity
0 to 99 min	7 min	Required

0 min: TCP connection is not closed due to an idle TCP connection.

1 to 99 min: The NPort 5100A closes the TCP connection automatically if there is no TCP activity for the given time.

#### **Destination IP address**

Setting	Factory Default	Necessity
IP address or Domain	blank	Optional
Name		
(E.g., 192.168.1.1)		
TCP port No.	4001	Required

The Pair Connection "Master" will contact the network host that has this IP address. Data will be transmitted through the port No. (4001 by default). Note that you must configure the same TCP port No. for the device server acting as the Pair Connection "Slave."

## **Pair Connection Slave Mode**

When you select **Pair Connection Slave Mode** for the Operation mode of one of the NPort 5100A device servers this NPort 5100A will be acting as a TCP server.

MOX	< A	Total Solution for Indu	strial Device Networking	W	/ww.moxa.com
= Model = Name	- NPort 5150A - NP5150A_71	<ul><li>IP</li><li>Serial NC</li></ul>	- 192.168.127.253 • - 71	MAC Addres: Firmware	<ul> <li>a - 00:90:E8:99:31:25</li> <li>- 1.0 Build 10022314</li> </ul>
		• Operatio	on Modes		
- Main Menu		Port 1			
Overview		POILT			
Quick Setup		Operation mode	Pair Connection Slave 🛛 👻		
Export/Import		TCP alive check time	7 (0 - 99 min)		
Basic Settings		Local TCD part	4001		
Network Settings		Local TCP port	4001		
- Serial Settings					
Port 1			Submit		

### TCP alive check time

Setting	Factory Default	Necessity
0 to 99 min	7 min	Required

0 min: TCP connection is not closed due to an idle TCP connection.

1 to 99 min: The NPort 5100A closes the TCP connection automatically if there is no TCP activity for the given time.

### Local TCP port

Setting	Factory Default	Necessity
TCP port No. (e.g.,	4001	Required
4001)		

This Port No. must be the same port No. that you set up for the Pair Connection "Master" device server

# **Ethernet Modem Mode**

MOX	 	Total Solution for Indu	strial Device Networking	www.moxa.com
Model Name	- NPort 5150A		- 192.168.127.253 ) 71	MAC Address - 00:90:E8:99:31:25 Firmware - 1.0 Build 10022314
- Name	- NP5150A_71	• Operatio		Pirmware - 1.0 Bullu 10022314
- Main Menu		Port 1		
Overview		FUILT		
Quick Setup		Operation mode	Ethernet Modern 🛛 👻	
Export/Import		TCP alive check time	7 (0 - 99 min)	
Basic Settings		Logal TCD part	4001	
Network Settings		Local TCP port	4001	
- Serial Settings				
Port 1			Submit	

## Dial-in

The NPort 5100A listens for a TCP/IP connection request from the remote Ethernet modem or host. The NPort 5100A's response depends on the ATSO value, as outlined below.

### ATS0=0 (default):

The NPort 5100A will temporarily accept the TCP connection and then send the "RING" signal out through the serial port. The serial controller must reply with "ATA" within 2.5 seconds to accept the connection request, after which the NPort 5100A enters data mode. If no "ATA" command is received, the NPort 5100A will disconnect after sending three "RING" signals.

### ATS0≧1:

The NPort 5100A will accept the TCP connection immediately and then send the "CONNECT <baud>" command to the serial port, in which <baud> represents the baudrate of the NPort 5100A's serial port. After that, the NPort 5100A immediately enters data mode.

# **Dial-out**

The NPort 5100A accepts the AT command "ATD <IP>: <TCP port>" from the serial port and then requests a TCP connection from the remote Ethernet Modem or PC. This is where <IP> is the IP address of the remote Ethernet modem or PC, and <TCP port> is the TCP port number of the remote Ethernet modem or PC. Once the remote unit accepts this TCP connection, the NPort 5100A will send out the "CONNECT <baud>" signal via the serial port and then enter data mode.

# **Disconnection Request from the Local Site**

When the NPort 5100As is in data mode, the user can drive the DTR signal to OFF, or send "+++" from the local serial port to the NPort 5100A. The NPort 5100A will enter command mode and return "NO CARRIER" via the serial port, and then input "ATH" to shut down the TCP connection after 1 second.

**NOTE** The "+++" command cannot be divided. The "+" character can be changed in register S2, and the guard time, which prefixes and suffixes the "+++" in order to protect the raw data, can be changed in register S12.

# **Disconnection Request from the Remote Site**

After the TCP connection has been shut down by the remote Ethernet modem or PC, the NPort 5100A will send the "NO CARRIER" signal via the serial port and then return to command mode.

# **AT Commands**

The NPort 5100A supports the following common AT commands used with a typical modem:

No.	AT command	Description	Remarks
1	ATA	Answer manually	
2	ATD <ip>:<port></port></ip>	Dial up the IP address: Port No.	
3	ATE	ATE0=Echo OFF	
		ATE1=Echo ON (default)	
4	ATH	ATH0=On-hook (default)	
		ATH1=Off-hook	
5	ATI, ATIO, ATI1, ATI2	Modem version	reply "OK" only
6	ATL	Speaker volume option	reply "OK" only
7	ATM	Speaker control option	reply "OK" only
8	ATO	On line command	
9	ATP, ATT	Set Pulse/Tone Dialing mode	reply "OK" only
10	ATQ0, ATQ1	Quiet command (default=ATQ0)	
11	ATSr=n	Change the contents of S register	See "S registers"
12	ATSr?	Read the contents of S register	See "S registers"
13	ATV	Result code type	
		ATVO for digit code	
		ATV1 for text code	
		0=0K	
		1=connect (default)	
		2=ring	
		3=No carrier	
		4=error	
14	ATZ	Reset (disconnect, enter command mode and	
		restore the flash settings)	
15	AT&C	Serial port DCD control AT&C0=DCD always on	
		AT&C1=DTE detects connection by DCD on/off	
		(default)	
16	AT&D	Serial port DTR control AT&D0=recognize DTE	
		always ready AT&D1, AT&D2=reply DTE when DTR	
		On (default)	
17	AT&F	Restore manufacturer's settings	
18	AT&G	Select guard time	reply "OK" only
19	AT&R	Serial port RTS option command	reply "OK" only
20	AT&S	Serial port DSR control	reply "OK" only
21	AT&V	View settings	
22	AT&W	Write current settings to flash for next boot up	

# **S** Registers

No.	S Register	Description & default value	Remarks
1	S0	Ring to auto-answer (default=0)	
2	S1	Ring counter (always=0)	no action applied
3	S2	Escape code character (default=43 ASCII "+")	
4	S3	Return character (default=13 ASCII)	
5	S4	Line feed character (default=10 ASCII)	
6	S5	Backspace character (default = 8 ASCII)	
7	S6	Wait time for dial tone (always=2, unit=sec)	no action applied
8	S7	Wait time for carrier (default=3, unit=sec)	
9	S8	Pause time for dial delay (always=2, unit=sec)	no action applied
10	S9	Carrier detect response time (always=6, unit 1/10 sec)	no action applied
11	S10	Delay for hang up after carrier	no action applied
		(always=14, unit 1/10 sec)	
12	S11	DTMF duration and spacing (always=100 ms)	no action applied
13	S12	Escape code guard time	
		(default=50, unit 1/50 sec)	
		to control the idle time for "+++"	

### TCP alive check time

Setting	Factory Default	Necessity
0 to 99 min	7 min	Required

0 min: TCP connection is not closed due to an idle TCP connection.

1 to 99 min: The NPort 5100A closes the TCP connection automatically if there is no TCP activity for the given time.

### Local TCP port

Setting	Factory Default	Necessity
1 to 65535	4001	Required

The TCP port that other devices must use to contact this device. To avoid conflicts with standard TCP ports, the default is set to 4001.

# **Reverse Telnet Mode**



### TCP alive check time

Setting	Factory Default	Necessity
0 to 99 min	7 min	Optional

0 min: TCP connection is not closed due to an idle TCP connection.

1 to 99 min: The NPort 5100A automatically closes the TCP connection if there is no TCP activity for the given time.

### Inactivity time

Setting	Factory Default	Necessity
0 to 65535 ms	0	Optional

Idle time setting for auto-disconnection. 0 min. means it will never disconnect.

#### Local TCP port

Setting	Factory Default	Necessity
1 to 65535	4001	Required

Each of the NPort 5100A's serial ports is mapped to a TCP port. To avoid conflicts with common TCP port numbers, set port numbers to 4001 for port 1, 4002 for port 2, etc.

### Map <CR-LF>

Setting	Factory Default	Necessity
CR, LF, or CR-LF	CR-LF	Required

If data received through the NPort 5100A's Ethernet port is sent using the "enter" command, the data will be transmitted out the serial port with additional characters, as described below:

- "carriage return + line feed" if you select the <CR-LF> option (i.e., the cursor will jump to the next line, and return to the first character of the line)
- "carriage return" if you select the <CR> option
   (i.e., the cursor will return to the first character of the line)
- "line feed" if you select the <LF> option.
   (i.e., the cursor will jump to the next line, but not move horizontally)

# **Disabled Mode**

MO)	<b>(^</b> To	otal Solution for Industrial Device Networking			www.moxa.com		
= Model = Name	- NPort 5150A - NP5150A_71	<ul><li>IP</li><li>Serial NO.</li></ul>	- 192.168.127.253 - 71		MAC Address - 00:90:E8:99:31:25 Firmware - 1.0 Build 10022314		
		• Operation	Modes				
- Main Menu Overview	-	Port 1					
Quick Setup Export/Import		Operation mode	Disable 🗸				
Basic Settings			Submit				

When Operation mode is set to Disabled, that particular port will be disabled. Check the "Apply the above settings to all serial ports" to apply this setting to the other port.

# Accessible IP Settings

MOX	<b>∧</b> ° Tota	l Solution for l	ndustrial D	evice Netw	vorking		V	www.moxa.com
<ul><li>Model</li><li>Name</li></ul>	- NPort 5150A - NP5150A_71		IP Serial NO.	- 192.168.1: - 71	27.253		MAC Address Firmware	- 00:90:E8:99:31:25 - 1.0 Build 10022314
		Acces	sible l	P List				
- Main Menu Overview	E	nable the accessib	le IP list (Not ch	ecking "Enabl	e" will allow all IPs to o	onr	ect.)	
Quick Setup	No.	Activate the rule	IP Address		Netmask			
Export/Import	1							
Basic Settings Network Settings	2							
- Serial Settings	3							
Port 1	4							
- Operating Settings Port 1	5							
Accessible IP Settings	6							
- Auto Warning Settings	7							
Upgrade Firmware	8							
- Monitor	9							
Change Password	10							
Load Factory Default Save/Restart	11					۲		
	12							

The NPort 5100A uses an IP address based filtering method to control access to itself.

Accessible IP Settings allows you to add or block remote host IP addresses to prevent unauthorized access. Access to the NPort 5100A is controlled by IP address. That is, if a host's IP address is in the accessible IP table, then the host will be allowed to access the NPort 5100A. You can allow one of the following cases by setting the parameter.

- Only one host with a specific IP address can access the NPort 5100A Enter "IP address/255.255.255.255" (e.g., "192.168.1.1/255.255.255.255").
- Hosts on a specific subnet can access the NPort 5100A
   Enter "IP address/255.255.255.0" (e.g., "192.168.1.0/255.255.255.0").

### Any host can access the NPort 5100A

Disable this function by un-checking the "Enable the accessible IP list" checkbox. Refer to the following table for more configuration examples.

Allowable Hosts	Input format
Any host	Disable
192.168.1.120	192.168.1.120 / 255.255.255.255
192.168.1.1 to 192.168.1.254	192.168.1.0 / 255.255.255.0
192.168.0.1 to 192.168.255.254	192.168.0.0 / 255.255.0.0
192.168.1.1 to 192.168.1.126	192.168.1.0 / 255.255.255.128
192.168.1.129 to 192.168.1.254	192.168.1.128 / 255.255.255.128

# **Auto Warning Settings**

# Auto warning: Email and SNMP trap

MOX/		tal Solution for Industrial Devic	I Solution for Industrial Device Networking			
<ul><li>Model</li><li>Name</li></ul>	- NPort 5150A - NP5150A_71	<ul><li>IP</li><li>Serial NO.</li></ul>	- 192.168.127.253 - 71	<ul> <li>MAC Address</li> <li>Firmware</li> </ul>	- 00:90:E8:99:31:25 - 1.0 Build 10022314	
		₽ E-mail and SNI	MP Trap Setti	ngs		
- Main Menu Overview		Mail Server				
Quick Setup		Mail server				
Export/Import		My server requires authentication				
Basic Settings		User name				
Network Settings						
- Serial Settings		Password				
Port 1		From E-mail address	NP5150A_71@NP5150A			
- Operating Settings		E-mail address 1				
Accessible IP Settings		E-mail address 2				
- Auto Warning Settings						
E-mail and SNMP Trap	g	E-mail address 3				
Event Type		E-mail address 4				
Upgrade Firmware						
- Monitor		SNMP Trap Server				
Change Password						
Load Factory Default		SNMP trap server IP or domain name				
Save/Restart						
			Submit			

## **Mail Server**

### Mail server

Setting	Factory Default	Necessity
IP Address or Domain	None	Optional
Name		

### User name

Setting	Factory Default	Necessity
1 to 15 characters	None	Optional

### Password

Setting	Factory Default	Necessity
1 to 15 characters	None	Optional

### From E-mail address

Setting	Factory Default	Necessity
1 to 63 characters	None	Optional

### E-mail address 1/2/3/4

Setting	Factory Default	Necessity
1 to 63 characters	None	Optional



## ATTENTION

Consult your Network Administrator or ISP for the proper mail server settings. The Auto warning function may not work properly if it is not configured correctly. The NPort 5100A SMTP AUTH supports LOGIN, PLAIN, CRAM-MD5 (RFC 2554).

### **SNMP Trap Server**

SNMP trap server IP or domain name

Setting	Factory Default	Necessity
IP address or Domain	None	Optional
Name		

# Event Type

MOX		tal Solution for Indust	rial Device Ne	tworking		www.moxa.com
<ul><li>Model</li><li>Name</li></ul>	- NPort 5150A - NP5150A_71	■ IP ■ Seri	- 19 i <b>al NO.</b> - 71	02.168.127.253	<ul> <li>MAC Addres</li> <li>Firmware</li> </ul>	s - 00:90:E8:99:31:25 - 1.0 Build 10022314
		:•Event Set	ttings			
- Main Menu Overview		System Event				
Quick Setup Export/Import Basic Settings Network Settings		Cold start Warm start	🗌 Mail	🗖 Trap		
- Serial Settings Port 1		Config Event Authentication failure	🗌 Mail	Trap		
- Operating Settings Accessible IP Settings - Auto Warning Settings		IP changed Password changed	🗌 Mail			
E-mail and SNMP Tra Event Type	ap	DCD Changed				
Upgrade Firmware - Monitor		Port 1	🔲 Mail	Trap		
Change Password Load Factory Default		DSR Changed				
Save/Restart		Port 1	🗌 Mail	Trap		
			Subm	it		

### Cold start

"Cold start" refers to starting the system from power off (contrast this with warm start). When performing a cold start, the NPort 5100A will automatically issue an Auto warning message by e-mail, or send an SNMP trap after booting up.

#### Warm start

"Warm start" refers to restarting the computer without turning the power off. When performing a warm start, the NPort 5100A will automatically send an e-mail, or send an SNMP trap after rebooting.

### Authentication failure

The user inputs a wrong password from the Console or Administrator. When authentication failure occurs, the NPort will immediately send an e-mail or send an SNMP trap.

#### IP address changed

The user has changed the NPort 5100A's IP address. When the IP address changes, the NPort 5100A will send an e-mail with the new IP address before the NPort 5100A reboots. If the NPort 5100A is unable to send an e-mail message to the mail server within 15 seconds, the NPort 5100A will reboot anyway, and abort the e-mail auto warning.

#### Password changed

The user has changed the NPort 5100A's password. When the password changes, the NPort 5100A will send an e-mail with the password changed notice before the NPort 5100A reboots. If the NPort 5100A is unable to send an e-mail message to the mail server within 15 seconds, the NPort 5100A will reboot anyway, and abort the e-mail auto warning.

## DCD changed

The DCD (Data Carrier Detect) signal has changed, also indicating that the modem connection status has changed. For example, a DCD change to high also means "Connected" between local modem and remote modem. If the DCD signal changes to low, it also means that the connection line is down.

When the DCD changes, the NPort 5110A/5150A/P5150A will immediately send an e-mail or send an SNMP trap.

## **DSR** changed

The DSR (Data Set Ready) signal has changed, also indicating that the data communication equipment's power is off. For example, a DSR change to high also means that the DCE is powered ON. If the DSR signal changes to low, it also means that the DCE is powered off.

When the DSR changes, the NPort 5110A/5150A/P5150A will immediately send an e-mail or send an SNMP trap.

Mail

Setting	Factory Default	Necessity
Enable, Disable	Disable	Optional

This feature helps the administrator manage how the NPort 5100A sends e-mail to pre-defined e-mail boxes when the enabled events—such as Cold start, Warm start, Authentication failure, etc.—occur. To configure this feature, click the Event Type Mail checkbox.

### Trap

Setting	Factory Default	Necessity
Enable, Disable	Disable	Optional

This feature helps the administrator manage how the NPort 5100A sends SNMP Trap to a pre-defined SNMP Trap server when the enabled events—such as Cold start, Warm start, Authentication failure, etc.—occur. To configure this feature, click the Event Type Trap checkbox.

# Upgrade Firmware

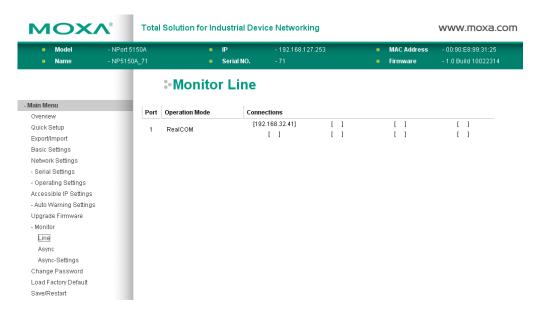
MOX/	Total Solution for Industrial Device Networking				www.moxa.com	
<ul><li>Model</li><li>Name</li></ul>	- NPort 5150A - NP5150A_71	<ul><li>IP</li><li>Serial NO.</li></ul>	- 192.168.127.253 - 71		MAC Address Firmware	- 00:90:E8:99:31:25 - 1.0 Build 10022314
	:• Upgrad	de Firmwa	re			
Main Menu	the sector framework			1	Import	
Overview	Upgrade firmware	1997		Browse	Import	
Quick Setup						
Export/Import						
Basic Settings						
Network Settings						
- Serial Settings						
- Operating Settings						
Accessible IP Settings						
- Auto Warning Settings						
Upgrade Firmware						
- Monitor						
Change Password						
Load Factory Default						
Save/Restart						

Keep your NPort 5100A up to date with the latest firmware from Moxa. Occasionally, compare your NPort firmware to the version currently available at the Moxa website (<u>www.moxa.com</u>). If a new firmware version is available, you can download it and click Import to upgrade your firmware.

# Monitor

# **Monitor Line**

Click **Line** under **Monitor** to show the operation mode and status of each TCP/IP connection (IPx) for the serial port.



# **Monitor Async**

Click Async under Monitor to show the current status of the serial port.

<ul><li>Model</li><li>Name</li></ul>	- NPort 5 - NP5150			<ul><li>IP</li><li>Serial NO.</li></ul>	- 192.168.127.2 - 71	253		: Addres Iware			:99:31:25 10022314
			:•Mon	itor Asyno	:						
Main Menu		Port	TxCnt	RxCnt	TxTotalCnt	RxTotalCnt	DSR	DTR	RTS	CTS	DCD
Overview Quick Setup		1	0	0	0	112					•
Export/Import											
Basic Settings											
Network Settings											
- Serial Settings											
- Operating Settings											
Accessible IP Settings											
- Auto Warning Settings											
Upgrade Firmware											
- Monitor											
Line											
Async											
Async-Settings											
Change Password											
Load Factory Default											
Save/Restart											

# **Monitor Async-Settings**

Click Async Setting under Monitor to show the run-time settings for the serial port.

MOX/	Total Solution for Industrial Device Networking								www.moxa.com		
= Model = Name	- NPort 51 - NP5150			■ IP ■ Seria		- 192.168. - 71	127.253			AC Address mware	- 00:90:E8:99:31:25 - 1.0 Build 10022314
			:-Mon	itor A	sync-S	Settir	ngs				
- Main Menu Overview								Flow Contro	d		
Quick Setup		Port	Baud Rate	Data Bits	Stop Bits	Parity	RTS/CTS	XON/XOFF	DTR/DSR	FIFO	Interface
Export/Import		1	19200	8	1	None	OFF	OFF	OFF	Enable	RS-232
Basic Settings											
Network Settings											
- Serial Settings											
- Operating Settings											
Accessible IP Settings											
- Auto Warning Settings											
Upgrade Firmware											
- Monitor											
Line											
Async											
Async-Settings											
Change Password											
Load Factory Default											
Save/Restart											

# **Change Password**

MOX	<b>∧</b> ® Tot	al Solution for Ind	www.moxa.com			
■ Model ■ Name	- NPort 5150A - NP5150A_71		IP Serial NO.	- 192.168.127.253 - 71	MAC Address Firmware	- 00:90:E8:99:31:25 - 1.0 Build 10022314
		:-Change		word		
- Main Menu						
Overview		Password				
Quick Setup		Old password				
Export/Import		New password				
Basic Settings						
Network Settings		Retype password				
- Serial Settings						
- Operating Settings				Submit		
Accessible IP Settings						
- Auto Warning Settings						
Upgrade Firmware						
- Monitor						
Line						
Async						
Async-Settings						
Change Password						

Input the "Old password" and "New password" to change the password. Leave the password boxes blank to erase the password. If the password is erased, then NPort 5100A will not have password protection.



### ATTENTION

If you forget the password, the ONLY way to configure the NPort 5100A is by using the Reset button on the NPort 5100A's casing to "Load Factory Default."

Remember to export the configuration file when you finish the configuration. By using the Import function your configuration can be re-loaded into the NPort 5100A after using "Load Factory Default."

# Load Factory Default

MOX/	www.moxa.com					
= Model = Name	- NPort 5150A - NP5150A_71	<ul><li>IP</li><li>Serial NO.</li></ul>	- 192.168.127.253 - 71		MAC Address Firmware	- 00:90:E8:99:31:25 - 1.0 Build 10022314
		Load Factory	/ Default			
Main Menu		This function will reset all MOXA NF	ort Server settings to their factory	default valu	es	
Overview		Be aware that previous settings wil		donadit raid.		
Quick Setup						
Export/Import						
Basic Settings			Submit			
Network Settings						
- Serial Settings						
- Operating Settings						
Accessible IP Settings						
- Auto Warning Settings						
Upgrade Firmware						
- Monitor						

This function will reset all of the NPort 5100A's settings to the factory default values. Be aware that previous settings will be lost.

# **Configuring NPort Administrator**

The following topics are covered in this chapter:

- Overview
- Installing NPort Administrator
- Configuration
  - Broadcast Search
  - Unlock Password Protection
  - Configuring the NPort 5100A
  - > Upgrading the Firmware
  - Export Configuration
  - Import Configuration

### Monitor

- > Initiating the Monitor Function
- Using the Monitor Function

### Port Monitor

- COM Mapping
  - On-line COM Mapping
  - ➢ Off-line COM Mapping

### COM Grouping

- Creating a COM Group
- > Deleting a COM Group
- > Adding a Port to a COM Group
- Removing a Port from a COM Group
- > Modify Ports in a COM Group

### IP Address Report

# **Overview**

Device Server Administrator lets you install and configure your NPort 5100A Series products easily over the network. Five function groups are provided to ease the installation process, allow off-line COM mapping, and provide monitoring and IP location server functions.

Device Server Administrator is an integrated software suite that bundles Device Server Administrator and the IP Serial Library, and provides everything you need to manage, monitor, and modify your NPort 5100A from a remote location.

# **Installing NPort Administrator**

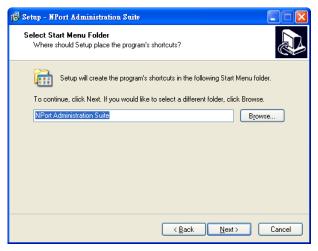
1. Once the Setup program starts running, click **Next** when the Welcome window opens to proceed with the installation.

15 Setup - NPort Administration Suite						
	Welcome to the NPort Administration Suite Setup Wizard This will install NPort Administration Suite Ver1.13 on your computer. It is recommended that you close all other applications before continuing. Click Next to continue, or Cancel to exit Setup.					
	Next> Cancel					

2. Click Next to install program files in the default directory, or select an alternative location.

j 🛱 Setup - NPort Administration Suite
Select Destination Location Where should NPort Administration Suite be installed?
Setup will install NPort Administration Suite into the following folder.
To continue, click Next. If you would like to select a different folder, click Browse.
C:\Program Files\NPortAdminSuite Browse
At least 2.8 MB of free disk space is required.
<u> </u>

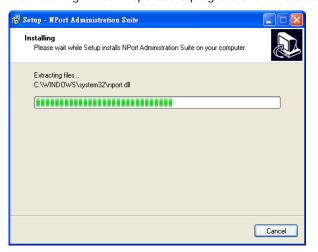
3. Click Next to install the program using the default program name, or select a different name.



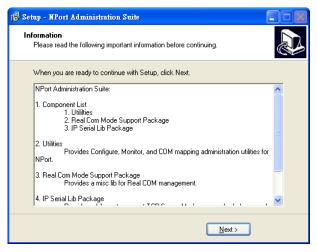
4. Click Install to proceed with the installation.

18 Set	tup - NPort Administration Suite	
	eady to Install Setup is now ready to begin installing NPort Administration Suite on your computer	
	Click Install to continue with the installation, or click Back if you want to review or change any settings.	
	Destination location: C:\Program Files\NPortAdminSuite	-
	Start Menu folder: NPort Administration Suite	
	<	>
	< <u>B</u> ack Install	Cancel

5. The Installing window reports the progress of the installation.



6. Click **Next** to proceed with the installation.



7. Click Finish to complete the installation of NPort Administration Suite.

🕞 Setup - NPort Administrat	tion Suite
	Completing the NPort Administration Suite Setup Wizard Setup has finished installing NPort Administration Suite on your computer. The application may be launched by selecting the installed icons. Click Finish to exit Setup. I Launch NPort Administrator
	Kack <u>Finish</u>

# Configuration

The Administrator-Configuration window is divided into four parts.

- The top section contains the function list and online help area. (Windows NT does not support this .chm file format.)
- The five Administrator function groups are listed in the left section.
- A list of the NPort 5100A serial device servers, each of which can be selected to process user requirements, is displayed in the right section.
- The activity Log, which displays messages that record the user's processing history, is shown in the bottom section.

🐝 NPort Administrator-Co	onfiguration								
<u>File Function Configuration</u>	n <u>V</u> iew <u>H</u> elp								
👖 🔮 💁 Exit Search Search	nIP <sub>Locate</sub>	Configure Web							
Function Configuration - 0 NPort(s)									
🖃 🔊 NPort	No 🛆	Model	MAC Address	IP Address	Server Name	Status			
Configuration									
💽 Monitor 💽 Port Monitor									
📷 COM Mapping									
🔤 🖗 IP Address Report									
	<					>			
Message Log - 0 Monitor Log	g.0]								
No Time		Description							
Now: 2010/2/23 上午 10:19:19						1			

# **Broadcast Search**

The **Broadcast Search** function is used to locate all NPort 5100As that are connected to the same LAN as your computer. Since the Broadcast Search function searches by MAC address and not IP address, all NPort 5100As connected to the LAN will be located, regardless of whether or not they are part of the same subnet as the host.

1. Position the cursor in the right middle section of the Administrator window and then click the right mouse button.

🐐 NPort Administrator-Co	nfiguration						
<u>File Function Configuration</u>	n <u>V</u> iew <u>H</u> elp						
📕 🚅 🔮	ilP Locate	<b>S</b> Configure	U Web				
Function				Configuration -	0 NPort(s)		
E- 🔊 NPort	No 🛆	Model		MAC Address	IP Address	Server Name	Status
Configuration							
Monitor			2	<u>B</u> roadcast Search			
(COM Mapping 영문 IP Address Report			2	Specify by IP Address			
······································			滍	Locate			

2. The **Broadcast Search** window will open and display the **Model**, **IP Address**, **MAC Address**, and Progress of the search for that particular device.

ching			
-	for NPort NPort(s), remain tim	neout = 4 second(s)	✓ <u>S</u> top
No	Model	MAC Address	IP Address
1	NPort 5150A	00:90:E8:99:31:25	192.168.127.254

3. When the search is complete, the Broadcast Search window will close, and the NPort 5100As that were located will be displayed in the right pane of the Administrator window. If you found more than one server connected to this network, refer to the MAC address sticker on your server(s) to determine which server(s) are the ones you wish to configure. To configure an NPort 5100A, place the cursor over the row displaying that NPort 5100A's information, and then double click the left mouse button.

🔹 NPort Administrator-Co	nfiguration					
<u>File Function Configuration</u>	n <u>V</u> iew <u>H</u> elp					
📄 🧟 🔮	nIP Locate	Configure Web				
Function			Configuration -	1 NPort(s)		
⊡- 🔊 NPort	No 🛆	Model	MAC Address	IP Address	Server Name	Status
Configuration	1	NPort 5150A	00:90:E8:99:31:25	192.168.127.254	NP5150A_71	
- 🖾 Monitor						
Port Monitor						
COM Mapping	L					
IP Address Report	L					
	-					-

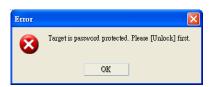


## ATTENTION

Before modifying the NPort 5100A's configuration, use Broadcast Search to locate all NPort 5100As connected to the LAN, or use Specify by IP Address to locate a particular NPort 5100A.

## **Unlock Password Protection**

If the NPort 5100A is password protected (indicated by "Lock" for Status), you will receive the following error, and you will not be able to use the right click method to open the configuration page.



In this case, proceed as follows to "Unlock" the device server.

1. Select the NPort 5100A with "Lock" status, click the right mouse button, and then select Unlock.

🔹 NPort Administrator-Configuration							
Eile Eunction Configuration View Help							
👖 🤗 🗯 🗊 📃 Exit Search Search IP Locate Configure Web							
Function		Configuration - 1 NPort(s)					
⊡- NPort	No 🛆	Model	MAC Address	IP Address	Se	erver Name	Status
Configuration	1	NPort 5150A	00:90:E8:99:31:25	192.168.127.254	2	<u>B</u> roadcast Searcl	1
Port Monitor					2	Specify by IP Ad	ldress
COM Mapping					<u>*</u>	<u>L</u> ocate	
					ם	<u>U</u> nlock	
					P	<u>C</u> onfigure	

2. After inputting the correct password, the Administrator will display an "Unlock ok" message.



3. The "Lock" status will change to "Unlock," and the Administrator utility will keep this NPort 5100A in the Unlock status throughout this Administrator session.

🐝 NPort Administrator-Co	onfiguration					
Eile Eunction Configuration View Help						
武 ペ 発 準 日 Exit Search Search IP Locate Configure Web						
Function		Configuration - 1 NPort(s)				
⊡-    NPort   NPort	No 🛆	Model	MAC Address	IP Address	Server Name	Status
Configuration	1	NPort 5150A	00:90:E8:99:31:25	192.168.127.254	NP5150A_71	Unlock
- 🖾 Monitor						
Port Monitor						
📷 COM Mapping						
COM Mapping						

The meanings of the six "Status" states are given below (note that the term Fixed is borrowed from the standard fixed IP address networking terminology):

### Lock

The NPort 5100A is password protected, "Broadcast Search" was used to locate it, and the password has not yet been entered from within the current Administrator session.

#### Unlock

The NPort 5100A is password protected, "Broadcast Search" was used to locate it, and the password has been entered from within the current Administrator session. Henceforth during this Administrator session, activating various utilities for this NPort 5100A will not require re-entering the server password.

### Blank

The NPort 5100A is not password protected, and "Broadcast Search" was used to locate it.

### Fixed

The NPort 5100A is not password protected, and "Search by IP address" was used to locate it.

### Lock Fixed

The NPort 5100A is password protected, "Specify by IP address" was used to locate it, and the password has not yet been entered from within the current Administrator session.

#### Unlock Fixed

The NPort 5100A is password protected, "Specify by IP address" was used to locate it, and the password has been entered from within the current Administrator session. Henceforth during this Administrator session, activating various utilities for this NPort 5100A will not require re-entering the server password.

# **Configuring the NPort 5100A**

In this section, we illustrate how to access the NPort 5100A's configuration utility. You should first make sure that you can connect over the network from your computer to the NPort 5100A.

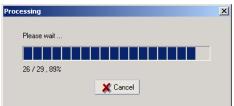
 To start NPort Administrator, click Start → Programs → NPort Administration Suite → NPort Administrator.

🔚 Programs	Contraction in the second seco	•
Programs ,	🛅 Startup	•
	🛅 UC Finder	•
	🖮 NPort Administration Suite	🕨 👔 IP Serial Lib Reference
	🛅 NPort Windows Driver Manager	🕩 ﴿ NPort Administrator
	×	🗐 Version info

2. Unlock the NPort 5100A you wish to configure if it is password protected. Right click the NPort 5100A and select **Configure** to start the configuration process.

🐝 NPort Administrator-Configuration							
<u>File Function Configuration</u>	_Eile_Eunction_Configuration_⊻iew_Help						
Exit Search Search	n IP Locate	Configure We	eb				
Function			С	onfiguration -	1 NPort(s)		
⊡ NPort	No 🛆	Model	N	IAC Address	IP Address	Server Name	Status
Configuration	1	NPort 5150A	_ 10	0:90:E8:99:31:25	192.168.127.254	NP5150A_71	Unlock
Monitor			2	Broadcast Search			
Port Monitor			2	Specify by IP Adda	ess		
COM Mapping			*	<u>L</u> ocate			
			<b>=</b>	<u>U</u> nlock			
			<b>F</b>	Configure			
				<u>W</u> eb			

3. The progress bar shows that Administrator is retrieving configuration information from the specific NPort 5100A.



4. Refer to Chapter 5 for each parameter's function definition. To modify the configuration, you must first click in the modify box to activate the parameter setting box.

Configuration	
Information Model Name NPort 5150A	Accessible IPs Auto Warning IP Address Report Password Basic Network Serial Operating Mode
MAC Address 00:90:E8:99:31:25	Modify Server Name NP5150A_71
Serial Number 71	Time Zone   Cocal Date 2000/ 1/ 1
Firmware Version Ver 1.0	Local Date 2000/ 1/ 1 Local Time L4 12:00:00 ÷
System Uptime 0 days, 00h:27m:38s	<ul> <li>Modify</li> <li>✓ Enable Web Console</li> <li>✓ Enable Telnet Console</li> </ul>
	Click the "Modify" check box to modify configuration



#### ATTENTION

You can simultaneously modify the configurations of multiple NPort 5100As that are of the same model. To select multiple NPort 5100As, hold down the Ctrl key when selecting additional NPort 5100As, or hold down the Shift key to select a group of NPort 5100As.

#### **Upgrading the Firmware**

Follow these steps to upgrade the firmware of an NPort 5100A.

1. To start NPort Administrator, click **Start → NPort Administration Suite → NPort Administrator**.



2. Unlock the NPort 5100A you wish to configure if it is password protected. Right click a specific NPort 5100A and select the **Upgrade Firmware** function to start upgrading the firmware.

🐝 NPort Administrator-Co	nfiguration									
<u>File Function Configuration View H</u> elp										
🖡 🔗 🎘 📅 🖳										
Function			С	onfiguration -	1 NPort(s)					
	No 🛆	Model	1	AC Address	IP Address	Server Name	Status			
Configuration     Monitor     Cont Monitor     Cont Monitor     Cont Monitor     Cont Mapping     On Mapping     On IP Address Report		NPort 5150		Specify by IP Add Locate Unlock Configure Web	1855	NP5150A_71	Unlock			
			-	U <u>p</u> grade Firmware						
				Export Configurat	ion					

3. Select the correct ROM file to download.

Select File	X
Select File File Name:	D:\NP51004, Ver1.0_Build_10022314.rom
r ile Manie.	Browse
	V OK X Cancel

4. Wait while the **Upgrade Firmware** action is processed.

8	tatus				
	Processing, (	blease wait			🗙 Cancel
	No	Model	MAC Address	IP Address	Status
	1	NPort 5150A	00:90:E8:99:31:25	192.168.127.254	Transmit - 30%

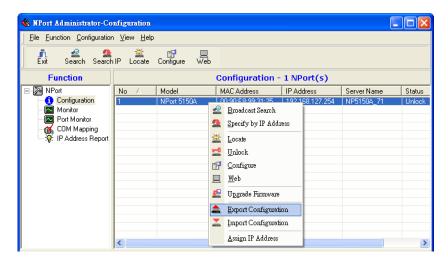


#### ATTENTION

You can simultaneously upgrade the firmware of multiple NPort 5100As that are of the same model. To select multiple NPort 5100As, hold down the Ctrl key when selecting an additional NPort 5100A, or hold down the Shift key to select a block of NPort 5100As.

#### **Export Configuration**

To export the configuration of an NPort 5100A, right click the NPort 5100A, select **Export Configuration**, and then follow the onscreen instructions. The Export Configuration function is a handy tool that can be used to produce a text file containing the current configuration of a particular NPort 5100A.



#### **Import Configuration**

The Import Configuration function is used to import an NPort 5100A configuration from a file into one or more NPort 5100As of the same model. To import a configuration, first select the target servers, click the right mouse button, and then select **Import Configuration**. Follow the onscreen instructions to locate the configuration file and start downloading the file.

<b>WPort Administrator-Co</b> <u>File Function Configuration</u>									
👖 🔮 😫 Exit Search Search	n IP Locate	Configure	Web						
Function Configuration - 1 NPort(s)									
⊡- 🔊 NPort	No 🛆	Model			Address	IP Addres:		Server Name	Status
Configuration     Configuration     Monitor     Or Monitor     Off, CDM Mapping     Off, CDM Mapping     Off, CDM Mapping     Off, CDM Mapping	<	NPort 5150	4		ECODE 21.7E Broadcast Sean Specify by IP & Locate Unlock Configure Web Upgrade Firmw Export Configu Import Configu	ch Address vare uration aration	27.254	NP5150A_71	

## Monitor

#### **Initiating the Monitor Function**

To initiate the Monitor function, click **Broadcast Search**  $\rightarrow$  **Monitor**  $\rightarrow$  **Add Target**.

1. With Configuration selected under Function, use Broadcast Search to locate all NPorts on your LAN.

🐝 NPo	ort Administrator-Config	guration										
<u> </u>	Elle Eunction Configuration View Help											
ļ	Configuration	🛎	Configure Web									
_ E:	Monitor	Locate	Configure Web									
	Port Monitor			Configuration -	1 NPort(s)							
	🔣 COM Mapping	Δ	Model	MAC Address	IP Address	Server Name	Status					
	🔅 IP Address Report		NPort 5150A	00:90:E8:99:31:25	192.168.127.254	NP5150A_71	Unlock					
	Reference American Port Monitor											

2. Next, click **Monitor**  $\rightarrow$  **Add Target** and select your targets from the list, and then click **OK**.

Select Fr		не	scan	Select		Clear All
No	Model		MAC Add		IP Ad	
<b>☑</b> 1	NPort 515	0A	00:90:E8	:99:31:25	192.1	68.127.254
) Input Mar	ouallu					
		Mod		NPort 5	5110	
		Por	ts	1 Port(s		

#### **Using the Monitor Function**

1. The NPort 5100A list will appear on the Monitor screen.

🐝 NPort Administrator-Mo	onitor									
Eile Eunction Monitor View Help										
🕺 🚄 🎽 Exit Add Remo		Go	Stop							
Function			Mo	onitor - Stopped	d - 1 NPort(s)					
⊡-	No	Δ	Model	MAC Address	IP Address	Alive				
Configuration	1		NPort 5150A	00:90:E8:99:31:25	192.168.127.254	Not Alive				
Monitor										
Port Monitor	L									
- of the second										
Ally in Address freport										

2. Right click the panel and select **Settings**.

🔹 NPort Administrator-Monitor										
Eile <u>F</u> unction Monitor <u>V</u> iew <u>H</u> elp										
Exit Add Remove Go Stop										
Function		м	lonitor - Stopped	i - 1 NPort(s)						
⊡-≫ NPort	No 🛆	Model	MAC Address	IP Address	Alive					
- 1 Configuration - Monitor - M Port Monitor - M COM Mapping - N IP Address Report	1	NPort 5150A	Add Target Add Target Remove Targe Load Configur		Not Alive					
			• <u>G</u> o							

3. Select or de-select **Monitor I tems**. Use the single arrowhead buttons to move highlighted items from one box to the other. Use the double arrowhead buttons to move all items in one box to the other.

Monitor Settings	$\mathbf{X}$
Monitor Items     General Settings       De-selected Items     Selected Items       Server Name     Model       COM Number     Model       IP Address     IP Address       Alive     IP Address	
<	
Load Default	

4. Select a Refresh Rate (the default is 3 seconds) on the General Settings page.

Mo	nitor	Settings			X
	Mon	itor Items General S	Settings Advanced Settings		
		Refresh Rate:	3	Second(s)	
		Auto save mo	onitored NPort list.		
				🗸 ОК 🔰	Cancel

5. On the Advanced Settings page, select Display warning message for new event and/or Play warning music for new event. In the second case, you must enter the path to the WAV file that you want to be played. "New event" means that one of the NPort 5100As in the monitor is "Alive" or "Not Alive," or has lost connection with the Monitor program.

onitor Settings
Monitor Items General Settings Advanced Settings
Monitor and Port Monitor Message Box Setting
✓ Display warning message for new event.
Play warning music for new event.
C:\WINDOWS\Media\notify.wav Browse
V QK X Cancel

6. Right click in the NPort 5100A list section and select **Go** to start Monitoring the NPort 5100A.

🔹 NPort Administrator-Ma	onitor						
<u>] F</u> ile <u>F</u> unction Monitor ⊻ie	w <u>H</u> elp						
Exit Add Remo	ve Go	Stop					
Function			Мо	nitor - Stopped	i - 1 NPort(s)	)	
⊡-	No 🛆	Model		MAC Address	IP Address	Alive	
(1) Configuration	1	NPort 5150A		ND-90-E8-99-31-25	<u>192 168 127.254</u>	Not Alive	
- Monitor			2	<u>A</u> dd Target			
Port Monitor			<b></b>	<u>R</u> emove Target			
- of COM Mapping 				Load Configured CC	M Port		
			P	Settings			
				<u>G</u> o			
			-	Stop			
			_				

7. For this example, the NPort 5100As shown in the list will be monitored.

🐝 NPort Administrator-Mo	onitor					
<u> </u>	w <u>H</u> elp					
Exit 🔏 🎽	ve Go	Stop				
Function		M	onitor - Running	j - 1 NPort(s)		
🔊 NPort	No 🛆	Model	MAC Address	IP Address	Alive	
Configuration	1	NPort 5150A	00:90:E8:99:31:25	192.168.127.254	Alive	
Monitor						
🔤 Port Monitor						
COM Mapping	L					
IP Address Report						-

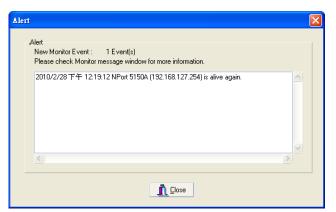
8. When one of the NPort 5100As loses connection with the Monitor program, a warning alert will display automatically. The warning music will be played at the same time.

Aler	t 🛛
	Alert New Monitor Event : 1 Event(s) Please check Monitor message window for more information.
	2010/2/28 下午 12:18:05 NPort 5150A (192:168:127:254) is lost connection.
	<u>I</u> <u>C</u> lose

9. In the Monitor screen, you can see that the NPort 5100As that are "Not Alive" are shown in red color.

🐝 NPort Administrator-Mo	onitor									
Eile Eunction Monitor View Help										
🗼 🚄 👗 Exit Add Remo	ve Go	Stop								
Function		M	onitor - Running	j - 1 NPort(s)						
⊡- NPort	No 🛆	Model	MAC Address	IP Address	Alive					
<ol> <li>Configuration</li> </ol>	1	NPort 5150A	00:90:E8:99:3	192.168.127	Not Alive					
Monitor										
- 🖾 Port Monitor										
COM Mapping	-									
P Address Report										

10. If the NPort 5100A gets reconnected, a warning will be displayed to remind the user that the NPort 5100A is now "Alive."



11. The NPort 5100As that were reconnected, and are now "Alive," will be shown in black color.

🔹 NPort Administrator-Mo	onitor								
<u>F</u> ile <u>F</u> unction Monitor <u>V</u> iew <u>H</u> elp									
Exit Add Remo	ve	► Go	Stop						
Function			M	onitor - Running	j - 1 NPort(s)				
⊡- 🔊 NPort	No	Δ	Model	MAC Address	IP Address	Alive			
Configuration	1		NPort 5150A	00:90:E8:99:31:25	192.168.127.254	Alive			
- Monitor									
- R Port Monitor									
🛛 📶 COM Mapping	L								
COM Mapping									

## **Port Monitor**

The process described here is the same as in the previous "Monitor" section. The only difference is that you can select more items under Port Monitor than under Monitor.

🐝 NPort Administrator-Po	rt Monitor					
<u>File</u> Eunction Port Monitor	⊻iew <u>H</u> elp					
Exit Add Remove		top				
Function		Port	t Monitor - Stop	ped - 1 Port(s	)	
□-≫ NPort	No 🛆	Model	MAC Address	IP Address	Port	OP Mode
Configuration	<b>⊡</b> 1	NPort 5150A	00:90:E8:99:31:25	192.168.127.254	1	Real COM Mode
Monitor						
Port Monitor     COM Mapping						
- of the two second se						

Select or de-select **Monitor I tems**. Use the single arrowhead buttons to move highlighted items from one box to the other. Use the double arrowhead buttons to move all items in one box to the other.

Monitor Settings	Advanced S	ettings	
De-selected Items Corn Status Remote IP Serial Line Status Ts/Rx after Conn. Ts/Rx after Conn. Ts/Rx after Mon Ts/Rx Throu. TS/Rx Ihrou. COM Number Server Name Alias	> >> <	Selected Items MAC Address IP Address Port OP Mode Alive	<b>†</b>
Load Default			
		<b>~</b> 0K	🗙 Cancel

## **COM Mapping**

Windows Administration Suite comes with Windows Real COM drivers. After you install NPort Administration Suite, there are two ways to set up the NPort 5100A serial port as your host's remote COM port.

The first way is with **On-line COM Mapping**. On-line COM Mapping will check to make sure that the NPort 5100A is connected correctly to the network and then install the driver on the host computer.

The second way is with **Off-line COM Installation**, without first connecting the NPort 5100A to the network. Off-line COM Mapping can decrease the system integrator's effort by solving different field problems. Via off-line installation, users can first process software installation for the host, and then install the NPort 5100A to different fields.

Use the following procedure to map COM ports:

- On-line COM Mapping: Connect the NPort 5100A to the network → Set NPort 5100A to the proper IP address → Map COMs to your host → Apply Change.
- Off-line COM Mapping: Map COMs to your host → Apply Change → Connect the NPort 5100A to the network → Configure NPort 5100A's IP address.

#### **On-line COM Mapping**

1. Broadcast Search for NPort 5100As on the network.

🐝 NPort Administrator-Co	nfiguration				_	
<u>File Function Configuration</u>	n <u>V</u> iew <u>H</u> elp					
👖 🔮 🔮 Exit Search Search	nIP Locate	Configure We				
Function			Configuration -	0 NPort(s)		
⊡- NPort	No 🛆	Model	MAC Address	IP Address	Server Name	Status
Configuration						
Monitor		2	<u>B</u> roadcast Search			
COM Mapping		2	Specify by IP Address			

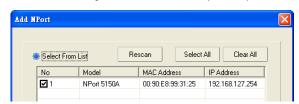
2. Select the COM Mapping function group.

🄹 NPort Administrator-CC	)M Mapping									
Eile Eunction COM Mapping View Help										
Exit Add Remo		Configure								
Function			COM Mappir	ng - 0 C	ом					
NPort  Nonitor  Monitor  Monitor  Monitor  M COM Mapping  N P Address Report	No A	Model	IP Address	Port	COM Port	Mode				

3. Add the target to which you would like to map COM ports.

🐝 NPort Administrator-CO	)M Mapping										
Elle Eunction COM Mapping ⊻iew Help											
Exit Add Remo		Configure									
Function			СОМ Марр	ing - O	сом						
🖃 🔊 NPort	No 🛆	Model	IP Address	Port	COM Port	Mode					
Configuration											
💽 Monitor 💽 Port Monitor		🖴 I	dd Target								
COM Mapping		ž F	lemove Target								

4. The NPort 5100A list that appears is the list generated by the previous Broadcast Search. Select the NPort 5100A to which you would like to map COM ports.



5. Select COM Settings to modify COM No., default setting, etc.

🐝 NPort Administrator-CC	)M Mapping								
Eile Eunction COM Mapping View Help									
Exit Add Remo	ve Apply	Configure							
Function				COM Mappir	ng - 1 C	юм			
⊡-	No 🛆	Model	1	P Address	Port	COM Port	Mode		
Configuration     Monitor     Monitor     Monitor     Mc Dott Monitor     Mc CDM Mapping     P Address Report		NPort 5150A		Add Target Remove Target Enable Disable		COM4 +	Hi-Performance, FIFO En		
			F	COM Settings					
			H	Apply Change					

#### 6. Select the COM Number.

COM ports that are "In use" or "Assigned" will also be indicated in this drop-down list. If you select multiple serial ports or multiple NPort 5100As, remember to check the "Auto Enumerating" function to use the COM No. you select as the first COM No.

COM Port Settings	COM Port Settings
Port Number: 2 Port(s) Selected, 1st port is Port 1	Port Number: 1 Port(s) Selected. 1st port is Port 1
Basic Settings Advanced Settings Serial Parameters COM Grouping	Basic Settings Advanced Settings Serial Parameters COM Grouping
COM Number COM7 -	COM Number COM4 (current) (assigned)  COM4 (current) (assigned) COM5 (in use)
Auto enumerating COM number for selected ports.	Auto enumerati COM6 COM7 COM8 COM9
Grouping selected port(s) together.	Grouping selec COM10
🗸 OK 🛛 🗶 Cancel	V OK X Cancel

7. **Hi-performance** mode is the default for Tx mode. If the driver completes sending data out to the NPort 5100A, the driver will respond "Tx Empty" to the program.

Under **classical mode**, the driver will not notify the user's program that Tx is completed until all Tx data has been sent out from the NPort 5100A; this mode will cause lower throughput. If you want to ensure that all data is sent out before further processing, classical mode is recommended.

**Enable/Disable Tx/Rx FIFO**. If disabled, the NPort 5100A will send one byte each time the Tx FIFO becomes empty; and an Rx interrupt will be generated for each incoming byte. This will result in a faster response and lower throughput. If you want to use XON/XOFF flow control, we recommend setting FIFO to Disable.

#### Fast Flush (only flush local buffer)

- We have added one optional Fast Flush function to Moxa's new NPort Real COM driver. Starting from version 1.2, **NPort Administrator Suite for NPort** supports Fast Flush.
- For some applications, the user's program will use the Win32 "PurgeComm()" function before it reads or writes data. With our design, after the program uses this Purge Comm() function, the NPort driver will keep querying the NPort's firmware several times to make sure there is really no data queued in the NPort firmware buffer, rather than just flushing the local buffer. This kind of design is used because of some special considerations. However, it might take more time (on the order of several hundred

milliseconds) than a native COM1, because it needs to work via Ethernet. That's why the native COM ports on the motherboard can work fast with this function call, but the NPort requires much more time. In order to accommodate other applications that require a faster response time, the new NPort driver implements a new "Fast Flush" option. Note that by default, this function is disabled.

- To begin with, make sure there are some "PurgeComm()" functions being used in your application program. In this kind of situation, you might find that your NPort exhibits a much poorer operation performance than when using the native COM1 port. Once you have enabled the "Fast Flush" function, you can check to see if there has been an improvement in performance.
- By default, the optional "Fast Flush" function is disabled. If you would like to enable this function, from "NPort Administrator" double click the COM ports that are mapped to the NPort, and then select the "Fast Flush" checkbox. You should find that when "Fast Flush" is enabled, the NPort driver will work faster with "PurgeComm()."

COM Port Settings				X
Port Number: 1	Port(s) Selected.	1st port is F	Port 1	
Basic Settings Adva	nced Settings   S	erial Param	eters COM Grouping	
Tx Mode	Hi-Performance		•	
FIFO	Enable		-	
Network Timeout	5000	(500-2000	00 ms)	
🖌 Fast Flush (Or	ıly Flush Local Bu	ffer)		
Apply All Selec	oted Ports			
				]
		<b>~</b> 0	K 🛛 🗙 Cancel	

8. The Serial Parameter settings shown here are the default settings when the NPort 5100A is powered on. However, the program can redefine the serial parameters to different values after the program opens the port via the Win 32 API.

COM Port Settings			
Port Number: 1	Port(s) Selecti	ed. 1st port is Port 1	
Basic Settings Adva	nced Settings	Serial Parameters	COM Grouping
Baud Rate	9600	-	
Parity	None	-	
Data Bits	8	•	
Stop Bits	1	-	
Flow Control	None	-	
🗌 Apply All Sele	oted Ports		
		🗸 ОК	🗙 Cancel

 After setting the COM Mapping, remember to select **Apply Change** to save the information in the host system registry. The host computer will not have the ability to use the COM port until after **Apply Change** is selected.

🔹 NPort Administrator-COM Mapping									
Eile Eunction COM Mapping View Help									
Exit Add Remove Apply Configure									
Function				COM Mappir	ng - 1 C	юм			
E NPort	No 🛆	Model		Address	Port	COM Port	Mode		
Configuration     Monitor     Port Monitor     Configuration     Configuration     Monitor     Configuration     For Address Report	1	NPort 5150A		Add Target <u>Remove Target</u> <u>Enable</u> <u>Disable</u> <u>COM Settings</u> <u>Apply Change</u>		COM4 +	Hi-Performance, FIFO En		
				Discard Change					

10. Select **Discard Change** to tell Administrator NOT to save the COM Mapping information to the host.

🐝 NPort Administrator-COM Mapping										
<u>File</u> <u>F</u> unction COM Mapping <u>V</u> iew <u>H</u> elp										
Exit Add Remove Apply Configure										
Function	Function COM Mapping - 1 COM									
⊡ 🔊 NPort	No 🛆	Model	IP Address	Port	COM Port	Mode				
Configuration	1	NPort 5150A		1 4	COM4 +	Hi-Performance, FIFO Ena				
Monitor	-		🔮 Add Target							
Port Monitor	L		<u> </u>							
COM Mapping			Enable							
W. IF Addless Report			-							
			Disable							
			🚰 🖸 COM Settings							
	L		Apply Change							
			Discard Change							
			<u> </u>							

11. To save the configuration to a text file, select **Export COM Mapping**. You will then be able to import this configuration file to another host and use the same COM Mapping settings in the other host.

🔹 NPort Administrator-COM Mapping									
Eile Eunction COM Mapping View Help									
Exit Add Remove Apply Configure									
Function COM Mapping - 1 COM									
⊡-  NPort	No 🛆	Model	IF	<sup>o</sup> Address	Port	COM Port	Mode		
🚺 Configuration	1	NPort 5150A	-	92 168 127 254	1	COM4	Hi-Performance, FIFO Ena		
Monitor	L		2	<u>A</u> dd Target		L			
			<b>~</b>	<u>R</u> emove Target					
IP Address Report	<u> </u>			<u>E</u> nable					
				<u>D</u> isable					
			P	<u>C</u> OM Settings					
	L		H	Apply Change					
		Discard Change							
			٢	Export COM Ma	pping				
			-	Import COM Ma	pping				

#### **Off-line COM Mapping**

1. Add a target by inputting the IP address and selecting the Model Name without physically connecting the NPort 5100A to the network.

Select Fro	m List	Rescan	Sel	ect All Clear Al
No	Model	MAC A	ddress	IP Address
🖲 Input Man	ually	IP Address	192.	168.127.254
		Model	NPo	rt 5110A
		Ports	1 Po	t(s)

2. Modify the port settings as needed.

🐝 NPort Administrator-COM Mapping								
_ <u>F</u> ile_Eunction_COM_Mapping_⊻iew_ <u>H</u> elp								
Exit Add Remove Apply Configure								
Function				COM Mappir	ng - 1 C	сом		
⊡- 🔊 NPort	No 🛆	Model	IF	<sup>D</sup> Address	Port	COM Port	Mode	
Configuration	1	NPort 5110A		00 100 107 DEA	11	COM6 +	Hi-Performance, FIFO Ena	
Monitor			2	<u>A</u> dd Target				
Port Monitor			<b>~</b>	<u>R</u> emove Target				
COM Mapping			-	<u>E</u> nable				
				<u>D</u> isable				
			P	<u>C</u> OM Settings				
			H	Apply Change				

3. Right click in the NPort list section and select Apply Change.

🐝 NPort Administrator-COM Mapping									
Eile Eunction COM Mapping View Help									
Exit Add Remove Apply Configure									
Function				COM Mappir	ng - 1 C	юм			
⊡- 🔊 NPort	No 🛆	Model	IF	<sup>o</sup> Address	Port	COM Port	Mode		
🚹 Configuration	1	NPort 5110A		00 100 107 OEA	1	COM6 +	Hi-Performance, FIFO Ena		
Monitor	L		2	<u>A</u> dd Target					
Port Monitor			<b>~</b>	<u>R</u> emove Target					
₩ COM Mapping W: IP Address Report				<u>E</u> nable					
				Disable					
			P	<u>C</u> OM Settings					
	L			Apply Change					
				Discard Change					

## **COM Grouping**

The "COM Grouping" function is designed to simulate the multi-drop behavior of serial communication over an Ethernet network. COM Grouping allows you to create a COM Group and redirect data from it to several physical COM ports on NPort device servers. With COM Grouping, you will be able to control multiple physical serial ports simultaneously by operating only one COM port.

#### **Creating a COM Group**

Follow the steps below to add multiple COM ports into one group:

1. Select serial port(s) for the group that you are going to create, and right-click to select COM Settings.

🐝 NPort Administrator-CC	)M Mapping									
<u>File</u> Eunction COM Mappir	ng <u>V</u> iew <u>H</u> elj	D								
Exit Add Remove Apply Configure										
Function COM Mapping - 3 COM										
□- → NPort	No 🛆	Model	IF	<sup>o</sup> Address	Port	COM Port	Mode			
Configuration	1	NPort 5150A		92.168.127.254	1	COM4	Hi-Performance, FIFO Ena			
- 🖾 Monitor	2	NPort 5110A		92.168.127.253	1	COM6 +	Hi-Performance, FIFO Ena			
Port Monitor	3	NPort 5110A	-	92.168.127.252		COM7 +	Hi-Performance, FIFO Ena			
COM Mapping	L		2	<u>A</u> dd Target		L				
IP Address Report			<b>~</b>	<u>R</u> emove Target						
				<u>E</u> nable						
				<u>D</u> isable						
			<b>F</b>	<u>C</u> OM Settings						
			H	Apply Change						
				D <u>i</u> scard Change						
				Export COM Ma	pping					
	<		-	Import COM Ma	pping		>			

2. Select a COM number for this COM group. You may select one of the ports already assigned to a member of the COM Group. However, once the COM Group is configured, all of the original COM number(s) within the group will be released simultaneously.

COM Port Settings
Port Number: 2 Port(s) Selected. 1st port is Port 2
Basic Settings   Advanced Settings   Serial Parameters   COM Grouping
COM Number COM6 (current) (assigned)  COM6 (current) (assigned) COM7 (assigned)
Auto enumerat COM9 ports. COM10 COM11 COM11 Grouping selec COM12 COM12 COM12 COM13
V DK X Cancel



#### ATTENTION

The COM Grouping function only supports Windows NT, 2000, and later. The maximum number of ports for each group is 32.

3. Select the Grouping selected port(s) together checkbox.

COM Port Settings	×
Port Number: 2 Port(s) Selected. 1st port is Port 2	
Basic Settings Advanced Settings Serial Parameters COM Grouping	
COM Number COM8 •	
Auto enumerating COM number for selected ports.	
Grouping selected port(s) together.	
V OK X Cancel	

4. On the COM Grouping page, you can set "Read" and "Write" permissions for every serial port. It is necessary to set Signal Status in order to control the data transmission with specified control signals (e.g., DTR/RTS). You can assign one serial port whose signals will be taken into account by the COM Group.

С	:0ŀ	f Port Settings							X
	F	Port Number: 2	2 Port(s)	) Selected	d. 1st port	is Port 2			
		sic Settings   Adva Serial ports:	anced S	iettings	Serial Par	ameters	COM G	irouping	,
		IP Address	Port	Read	Write	Signal	Status		
		192.168.127.253 192.168.127.252	1	V V	V	<b>₽</b> F			
-						OK	× 0	Cancel	]

5. Click **OK**, and confirm that the serial ports were assigned. The COM Port column confirms that your selected ports are labeled as part of a "Group." You will be able to view the serial ports that were assigned to and removed from the Group. Click **Apply** to apply the settings.

🔹 NPort Administrator-COM Mapping										
Eile Eunction COM Mapping View Help										
Exit Add Remove Apply Configure										
Function			COM Mappir	ng - 3 C	юм					
🖃 洒 NPort	No 🛆	Model	IP Address	Port	COM Port	Mode				
🔄 🚹 Configuration	1	NPort 5150A	192.168.127.254	1	COM4	Hi-Performance, FIFO E				
Monitor	2	NPort 5110A	192.168.127.253	1	COM8 (Group)	Hi-Performance, FIFO E				
- R Port Monitor	3	NPort 5110A	192.168.127.252	1	COM8 (Group)	Hi-Performance, FIFO E				
COM Mapping										

6. Finally, click **Yes** to confirm.



#### **Deleting a COM Group**

Follow the steps below to delete a COM Group and then auto-assign COM numbers for each port in the Group:

1. Select all serial ports in the Group you are deleting and then right-click to select COM Settings.

🔹 NPort Administrator-COM Mapping									
Eile Eunction COM Mapping View Help									
Exit Add Remove Apply Configure									
Function COM Mapping - 3 COM									
⊡- 🔊 NPort	No 🛆	Model	IP.	Address	Port	COM Port	Mode		
1 Configuration	1	NPort 5150A	19	2.168.127.254	1	COM4	Hi-Performance, FIFO E		
🔤 Monitor	2	NPort 5110A		2.168.127.253	1	COM8 (Group)	Hi-Performance, FIFO E		
🔤 Port Monitor	3	NPort 5110A	119	2.168.127.252	1	COM8 (Group)	Hi-Performance, FIFO E		
🔣 🔣 📶 📶 СОМ Марріод	L		2	<u>A</u> dd Target		I			
			<b>~</b>	<u>R</u> emove Target					
			Enable						
	L			<u>D</u> isable					
			ð	<u>C</u> OM Settings					
			H	Apply Change					
				Discard Change					

2. Select a COM number for this COM group and check the **Auto enumerating COM number for selected ports** to use the COM number you select as the first starting COM number, and then click **OK**.

COM Port Settings								
Port Number: 2 Port(s) Selected. 1st port is Port 2								
Basic Settings Advanced Settings Serial Parameters COM Grouping								
COM Number COM9 -								
<ul> <li>Auto enumerating COM number for selected ports.</li> </ul>								
<ul> <li>Grouping selected port(s) together.</li> </ul>								
V OK X Cancel								

4.

3. You will be able to view the serial ports that were assigned to and removed from the Group. Click **Apply** to apply the settings.

NPort Administrator-COM Mapping     File Function COM Mapping View Help									
Function	Function COM Mapping - 3 COM								
⊡-  NPort	No 🛆	Model	IP Address	Port	COM Port	Mode			
Configuration Configuration Port Monitor COM Mapping Report PAddress Report	1 2 3	NPort 5150A NPort 5110A NPort 5110A	192.168.127.254 192.168.127.253 192.168.127.252	1 1 1	COM4 COM9 COM10	Hi-Performance, FIFO E Hi-Performance, FIFO E Hi-Performance, FIFO E			
Finally, click <b>Yes</b> to confirm.									
Information 🔀									
Do you want to apply the changes?									

#### Adding a Port to a COM Group

Cancel

<u>Y</u>es

Follow the steps below to add a serial port into an existing COM Group:

1. Select the serial port that you are adding and right-click to select COM Settings.

🔹 NPort Administrator-COM Mapping								
Eile Eunction COM Mapping View Help								
Exit Add Remove Apply Configure								
Function COM Mapping - 5 COM								
	No 🛆	Model	IP Address	Po	ort COM Port	Mode		
🗌 🗍 Configuration	1	NPort 5150A	192.168.127.254	1	COM4	Hi-Performance, FIFO Ena		
Monitor	2	NPort 5110A	192.168.127.253	1	COM8 (Group)	Hi-Performance, FIFO Ena		
Port Monitor	3	NPort 5110A	192.168.127.252	1	COM8 (Group)	Hi-Performance, FIFO Ena		
🔣 COM Mapping	4	NPort 5210A	192.168.127.250	1	COM6	Hi-Performance, FIFO Ena		
P Address Report	5	NPort 5210A	192.168.127.250	2	L COMZ	Hi-Performance, FIFO Ena		
Jac In Hadices Hopert	L			2	<u>A</u> dd Target			
				<b>~</b>	<u>R</u> emove Target			
					<u>E</u> nable			
					Disable			
				ð	<u>C</u> OM Settings			
				H	Apply Change			
					Discard Change			

2. Select the COM number of the COM Group you are adding and check mark the **Grouping selected port(s)** together check box and then click **OK**.

COM Port Settings
Port Number: 1 Port(s) Selected. 1st port is Port 5
Basic Settings Advanced Settings Serial Parameters COM Grouping
COM Number COM8 (Group)
<ul> <li>Auto enumerating COM number for selected ports.</li> </ul>
Grouping selected port(s) together.
OK X Cancel

3. You will be able to view the serial ports that were assigned to and removed from the Group. Click **Apply** to apply the settings.

🗱 NPort Administrator-COM Mapping								
<u>File</u> Eunction COM Mappir	<u>File</u> <u>Function</u> COM Mapping <u>View</u> <u>H</u> elp							
Exit Add Remove Apply Configure								
Function			COM Mappir	ng - 5 C	юм			
	No 🛆	Model	IP Address	Port	COM Port	Mode		
🗌 🚺 Configuration	1	NPort 5150A	192.168.127.254	1	COM4	Hi-Performance, FIFO B		
Monitor	2	NPort 5110A	192.168.127.253	1	COM8 (Group)	Hi-Performance, FIFO B		
- R Port Monitor	3	NPort 5110A	192.168.127.252	1	COM8 (Group)	Hi-Performance, FIFO B		
	4	NPort 5210A	192.168.127.250	1	COM6	Hi-Performance, FIFO B		
COM Mapping	5	NPort 5210A	192.168.127.250	2	COM8 (Group)	Hi-Performance, FIFO E		

4. Finally, click Yes to confirm.



#### Removing a Port from a COM Group

Follow the steps below to remove a serial port from a COM Group:

1. Select a serial port in the Group and right-click to select COM Settings.

🔹 NPort Administrator-COM Mapping									
<u> </u>	<u>File</u> Eunction COM Mapping <u>V</u> iew <u>H</u> elp								
Exit Add Remove Apply Configure									
Function COM Mapping - 5 COM									
	No 🛆	Model	IP Address	Po	rt C	COM Port	Mode		
Configuration Monitor 	1 2 3	NPort 5150A NPort 5110A NPort 5110A	192.168.127.254 192.168.127.253 192.168.127.252	1 1 1	C	COM4 COM8 (Group) COM8 (Group)	Hi-Performance, FIFO E Hi-Performance, FIFO E Hi-Performance, FIFO E		
COM Mapping	4	NPort 5210A NPort 5210A	192.168.127.250 192.168.127.250	1		COM6 COM8 (Group) 1	Hi-Performance, FIFO E Hi-Performance, FIFO E		
······································				$\overset{o}{=}$	<u>A</u> dd Ta				
				<b>~</b>	<u>R</u> emove	e Target			
	L				<u>E</u> nable				
					Disable				
				ð	<u>C</u> OM S				
				H	Apply Change				
					Discard	Change			

2. Select a COM number that is not in use or assigned to a Group and click OK.

COM Port Settings	×
Port Number: 1 Port(s) Selected. 1st port is Port 5	
Basic Settings Advanced Settings Serial Parameters COM Grouping	
COM Number COM7  Auto enumerating COM number for selected ports. Grouping selected port(s) together.	
OK X Cancel	

3. You will be able to view the serial ports that were assigned to and removed from the Group. Click **Apply** to apply the settings.

🔹 NPort Administrator-COM Mapping									
<u>File</u> Function COM Mappir	Eile Eunction COM Mapping View Help								
Exit Add Remove Apply Configure									
Function			COM Mappir	ng - 5 C	ом				
	No 🛆	Model	IP Address	Port	COM Port	Mode			
🗌 🚺 Configuration	1	NPort 5150A	192.168.127.254	1	COM4	Hi-Performance, FIFO Ena			
- Monitor	2	NPort 5110A	192.168.127.253	1	COM8 (Group)	Hi-Performance, FIFO Ena			
- R Port Monitor	3	NPort 5110A	192.168.127.252	1	COM8 (Group)	Hi-Performance, FIFO Ena			
	4	NPort 5210A	192.168.127.250	1	COM6	Hi-Performance, FIFO Ena			
COM Mapping	5	NPort 5210A	192.168.127.250	2	COM7	Hi-Performance, FIFO Ena			

4. Finally, click **Yes** to confirm.



#### Modify Ports in a COM Group

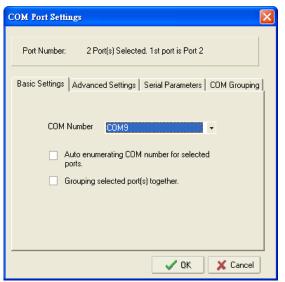
In the following subsections we examine three ways in which the serial ports in a COM Group can be modified:

#### Changing the COM Number of a COM Group

1. Select all serial ports in the Group and right-click to select COM Settings.

🔹 NPort Administrator-COM Mapping										
<u>File Eunction COM Mapping View Help</u>										
Exit Add Remove Apply Configure										
Function	Function COM Mapping - 3 COM									
	No 🛆	Model	1	P Address	Port	COM Port	Mode			
Configuration	1	NPort 5150A	192.168.127.254		1	COM4	Hi-Performance, FIFO Ena			
🔤 Monitor	2	NPort 5110A		92.168.127.253	1	COM8 (Group)	Hi-Performance, FIFO Ena			
- R Port Monitor	3	NPort 5110A	-	92 169 127 252	1	COM8 (Group)	Hi-Performance, FIFO Ena			
📶 COM Mapping			2	<u>A</u> dd Target						
COM Mapping			<b>~</b>	<u>R</u> emove Target						
	L			Enable						
				<u>D</u> isable						
			ð	<u>C</u> OM Settings						
			H	Apply Change						
				Discard Change						

2. Select a COM number that is not in use or assigned to a Group.



3. Select the Grouping selected port(s) together checkbox and then click OK.

COM Port Settings	$\times$
Port Number: 2 Port(s) Selected. 1st port is Port 2	
Basic Settings Advanced Settings Serial Parameters COM Grouping	1
COM Number COM9 🔹	
<ul> <li>Auto enumerating COM number for selected ports.</li> </ul>	
Grouping selected port(s) together.	
V OK X Cancel	J

4. You will be able to view the serial ports that were assigned to and removed from the Group. Click **Apply** to apply the settings.

🔹 NPort Administrator-COM Mapping								
<u> </u>	<u>File Eunction</u> COM Mapping <u>V</u> iew <u>H</u> elp							
Exit Add Remove Apply Configure								
Function			COM Mappir	ng - 3 C	ом			
🖃 🔊 NPort	No 🛆	Model	IP Address	Port	COM Port	Mode		
Configuration	1	NPort 5150A	192.168.127.254	1	COM4	Hi-Performance, FIFO Ena		
Monitor	2	NPort 5110A	192.168.127.253	1	COM9 (Group)	Hi-Performance, FIFO Ena		
- Regional Port Monitor	3	NPort 5110A	192.168.127.252	1	COM9 (Group)	Hi-Performance, FIFO Ena		
COM Mapping								
← 🚮 COM Mapping 								

5. Finally, click Yes to confirm.



#### Changing Advanced Settings and Serial Parameters of the COM Group

1. Check the port specified on the COM Grouping page as the signal port.

COM Port Settings						×
Port Number:	2 Port(s)	Selectec	l. 1st port	is Port 2		
Basic Settings Adva Serial ports:	anced S	ettings	Serial Par	ameters (	COM Grou	aping
IP Address	Port	Read	Write	Signal S	itatus	-
192.168.127.253 192.168.127.252		2		F		
				OK	🗙 Can	icel

2. Select the "Signal Status" controlled port and then right-click and select COM Settings.

🔹 NPort Administrator-COM Mapping							
Eile Eunction COM Mapping View Help							
Exit Add Remove Apply Configure							
Function COM Mapping - 3 COM							
	No 🛆	Model		IP Address	Port	COM Port	Mode
Configuration	1	NPort 5150A		192.168.127.254	1	COM4	Hi-Performance, FIFO Ena
Monitor	2	NPort 5110A		192.168.127.253	1	COM8 (Group)	Hi-Performance, FIFO Ena
Port Monitor	3	NPort 5110A	2	<u>A</u> dd Tar <u>g</u> et		COM8 (Group)	Hi-Performance, FIFO Ena
COM Mapping			~	<u>R</u> emove Target			
Alt in Hadross Hopold				Enable			
				_ Disable			
			<b>F</b>	<u>C</u> OM Settings			
			H	Apply Change			
				Discard Change			

3. The Advanced Settings and Serial Parameters pages will be available for modification.

COM Port Settings						
Port Number: 1 Port(s	s) Selected. 1st port is Port 2					
Basic Settings Advanced	Settings Serial Parameters COM Grouping					
Tx Mode	Hi-Performance -					
FIFO	Enable -					
Network Timeout	5000 (500-20000 ms)					
Fast flush (only flush local buffer)						
Apply all selected ports						
	🗸 QK 🛛 🗶 Cancel					

COM Port Settings		×					
Port Number: 1 Port(s) Selected, 1st port is Port 2							
Basic Settings Advanced Settings Serial Parameters COM Grouping							
Baud Rate	9600	•					
Parity	None	•					
Data Bits	8	•					
Stop Bits	1	•					
Flow Control	None	-					
Apply all selected ports							
	🗸 01	K 🗙 Cancel					

#### Changing the Serial Port Specified as Signal Port for the COM Group

1. Select a serial port in the Group and then right-click and select COM Settings.

🔹 NPort Administrator-COM Mapping							
<u>F</u> ile <u>F</u> unction COM Mapping <u>V</u> iew <u>H</u> elp							
Exit Add Remove Apply Configure							
Function	Function COM Mapping - 3 COM						
	No 🛆	Model	IP Address	Port	COM Port	Mode	
🗌 🗍 Configuration	1	NPort 5150A	192.168.127.254	1	COM4	Hi-Performance, FIFO Ena	
Monitor	2	NPort 5110A	192.168.127.253	1	COM8 (Group)	Hi-Performance, FIFO Ena	
፼ Port Monitor <mark>∭ COM Mapping</mark> ∰ IP Address Report	3	NPort 5110A	<ul> <li><u>A</u>dd Target</li> <li><u>▲</u> Remove Target</li> </ul>		COM8 (Group)	Hi-Performance, FIFO Ena	
IP Address Report			<u>E</u> nable				
	<u> </u>		Disable				
			🚰 🖸 COM Settings				
			Apply Change				
			Discard Change				

2. Check the Grouping selected port(s) together check box.

COM Port Settings
Port Number: 1 Port(s) Selected. 1st port is Port 2
Basic Settings Advanced Settings Serial Parameters COM Grouping
COM Number COM8 (current) (Group) -
<ul> <li>Auto enumerating COM number for selected ports.</li> </ul>
Grouping selected port(s) together.
✓ OK X Cancel

3. On the **COM Grouping** page, you can specify one serial port whose signals will be taken into account by the COM Group and change the Read/Write status for each serial port.

COM Port Setting	<b>;s</b>					×
Port Number:	1 Port(s)	) Selected	d. 1st port	is Port 2		
Basic Settings A Serial ports:	dvanced S	iettings	Serial Par	ameters	COM GI	ouping
IP Address	Port	Read	Write	Signal	Status	-
192.168.127.2 192.168.127.2	253 1			 Г ▼		
V OK X Cancel						

## **IP Address Report**

When an NPort 5100A is used in a dynamic IP environment, users must spend more time with IP management tasks. NPort 5100A Series products periodically report their IP address to the IP location server, in case the dynamic IP has changed.

1. Configure the NPort 5100A with Dynamic IP settings (DHCP, BOOTP, or DHCP/BOOTP). Assign the remote Auto IP report server's IP address and UDP port.

nformation	Accessible IPs Auto Warning IP Address Report Passwor
Model Name NPort 5150A	Basic Network Serial Operating Mode
MAC Address 00:90:E8:99:31:25	Modify IP Address 192.168.127.254
Serial Number 71	✓ Modify Netmask 255.255.0
Firmware Version	Gateway IP Configuration DHCP
Ver 1.0	DNS Server 1
System Uptime	DNS Server 2
0 days, 00h:02m:41s	Modify
	Community Name public
	Location
	Contact

2. Select the IP Address Report, and click the right mouse button to select Settings.

& NPort Administrator-IP Address Report							
<u>File</u> <u>F</u> unction <u>I</u> PAddress Report <u>V</u> iew <u>H</u> elp							
Exit Settings Go Stop							
Function	Function IP Address Report - Stopped - Port:4002 - 0						
⊡- 🔊 NPort	No 🛆	Model		MAC Address	IP Address	Count	Previous Time
Configuration			<b>8</b> Se	ttings			
Port Monitor			• <u>G</u>				
IP Address Report			■ S <u>t</u>	op			
			<u>C</u>	lear			

3. Configure the Local Listen Port to be the same as the NPort 5100A's "Auto report to UDP port" setting.



4. Click Go to start receiving the Auto IP address report from the NPort 5100A.

😵 NPort Administrator-IP Address Report						
<u>File</u> <u>F</u> unction <u>I</u> P Address Report <u>V</u> iew <u>H</u> elp						
Exit Settings Go Stop						
Function	Function IP Address Report - Stopped - Port:4002 - 0					
⊡-  NPort	No 🛆	Model	MAC Address	IP Address	Count	Previous Time
Configuration						
Monitor		B	Settings			
COM Mapping		•	<u>G</u> o			
W: IP Address Report			Stop			
			<u>C</u> lear			

## 7 IP Serial LIB

The following topics are covered in this chapter:

#### Overview

- > What is IP Serial Library?
- > Why Use IP Serial Library?
- ➢ How to Install IP Serial Library
- IP Serial LIB Function Groups
- Sample Program

#### **Overview**

#### What is IP Serial Library?

IP Serial Library is a Windows library with frequently used serial command sets and subroutines. IP Serial Library is designed to reduce the complexity and poor efficiency of serial communication over TCP/IP. For example, Telnet can only transfer data, but it can't monitor or configure the serial line's parameters.

#### Why Use IP Serial Library?

For programmers familiar with serial communication, IP Serial Library provides well-designed function calls that have the same style as Moxa's PComm Library.

IP Serial Library is amazingly simple and easy to understand. By including it in your VB, C, or Delphi programming environment, you can program your own TCP/IP application with the ability to control serial communication parameters.

The NPort 5100A uses 2 TCP ports for communication between the NPort 5100A and host computer's Real COM driver. The NPort 5100A uses a data port and command port to provide pure data transfer without decode and encode. Compared to using only one TCP port to control serial communication (such as RFC 2217), IP Serial Library uses a command port to communicate with the NPort 5100A from the user's program. IP Serial Library not only runs with excellent efficiency but also runs without any decode or encode problems.

#### How to Install IP Serial Library

IP Serial Lib comes with the NPort Administration Suite. Refer to the IPSerial directory for more detail about the function definitions.

🔍 NPortAdminSuite									
File Edit View Favorites Tools Help									
j 4= Back • ⇒ ∞ 🖬   @ Search   🏊 Folders (@ History   🚰 💱 🗶 🕫 ) 🔠 •									
Address 🗀 NPortAdminSuite									
Folders ×	2	Name 🛆	Size	Туре	Modified				
🚮 Desktop		in him		File Folder	4/50/2000 10:27 AM				
🖻 😋 My Documents		🚞 IPSerial		File Folder	4/28/2003 4:01 PM				
- My Pictures	NPortAdminSuite	RealCom		File Folder	4/29/2888 1.01 PM				
My Computer		= 🗒 readme	1 KB		4/1/2003 11:26 AM				
⊡	VERSION Text Document	🔄 unins000		DAT File	4/28/2003 4:01 PM				
Documents and Settings		🥑 unins000	85 KB		1/8/2003 12:00 AM				
Office2000SR-1	Modified: 3/17/2003 3:23 AM	VERSION	1 KB	Text Document	3/17/2003 3:23 AM				
🕀 🧰 Personal Data	Size: 110 bytes								
🖃 🧰 Program Files									
Accessories	Attributes: (normal)								
E Common Files									
ComPlus Applications									
Internet Explorer      Internet Explorer									
H Microsoft Office									
Hidrosoft Visual Studio									
H MWSnap									
NetMeeting									
🗈 🔄 NPortAdminSuite									
Outlook Express									
THE ANTOIN I	I								

## **IP Serial LIB Function Groups**

Server Control	Port Control	Input/Output Data	Port Status Inquiry	Miscellaneous
nsio_init	nsio_open	nsio_read	nsio_lstatus	nsio_break
nsio_end	nsio_close	nsio_SetReadTimeouts	nsio_data_status	nsio_break_on
nsio_resetserver	nsio_ioctl	nsio_write		nsio_break_off
nsio_checkalive	nsio_flowctrl	nsio_SetWriteTimeouts		nsio_breakcount
	nsio_DTR			
	nsio_RTS			
	nsio_lctrl			
	nsio_baud			
	nsio_resetport			

## Sample Program

```
char NPort 5100A-Nip="192.168.1.10";
char buffer[255];
                                                    /*data buffer, 255 chars */
int port = 1;
                                                    /*1st port */
                                                    /* port handle */
int portid;
                                                    /*initial IP Serial Library */
nsio_init();
portid = nsio_open(NPort 5100Aip, port);
                                                    /*1st port, NPort 5100A IP=192.168.1.10 */
nsio_ioctl(portid, B9600, (BIT_8 | STOP_1 | P_NONE) );/*set 9600, N81 */
sleep(1000);
                                                    /* wait for 1000 ms for data */
nsio_read(port, buffer, 200);
                                                    /* read 200 bytes from port 1 */
nsio_close(portid);
                                                    /* close this serial port */
                                                    /* close IP Serial Library */
nsio_end();
```

A

## **Pinouts and Cable Wiring**

The following topics are covered in this appendix:

#### Port Pinout Diagrams

- Ethernet Port Pinouts
- NPort 5110A Serial Port Pinouts
- NPort 5130A Serial Port Pinouts
- > NPort 5150A/P5150A Serial Port Pinouts

#### Cable Wiring Diagrams

Ethernet Cables

## **Port Pinout Diagrams**

#### **Ethernet Port Pinouts**

Pin	Signal	
1	Tx+	
2	Tx-	
3	Rx+	
6	Rx-	

#### **NPort 5110A Serial Port Pinouts**

DB9 Male RS-232 Port Pinouts for NPort 5110A

Pin	RS-232
1	DCD
2	RxD
3	TxD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS

_	12345
0	( <u>;;;;</u> ) o
	6789

#### NPort 5130A Serial Port Pinouts

DB9 Male RS-422/485 Port Pinouts for the NPort 5130A

Pin	RS-422 / 4-wire RS-485	2-wire RS-485
1	TxD-(A)	_
2	TxD+(B)	_
3	RxD+(B)	Data+(B)
4	RxD-(A)	Data-(A)
5	GND	GND
6	-	-
7	-	_
8	_	_



#### NPort 5150A/P5150A Serial Port Pinouts

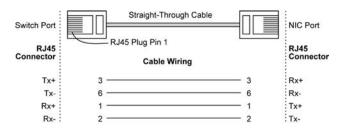
DB9 Male RS-232/422/485 Port Pinouts for the NPort 5150A

Pin	RS-232	RS-422 / 4-wire RS-485	2-wire RS-485
1	DCD	TxD-(A)	_
2	RxD	TxD+(B)	-
3	TxD	RxD+(B)	Data+(B)
4	DTR	RxD-(A)	Data-(A)
5	GND	GND	GND
6	DSR	-	_
7	RTS	-	_
8	CTS	-	_



## **Cable Wiring Diagrams**

#### **Ethernet Cables**



Switch (NIC	Port Port)		Cross-Over Cable		Switc (NIC	h Port Port)
Conn	RJ45 ector	RJ45	Plug Pin 1 Cable Wiring		RJ45 Conr	nector
(Rx+)	Tx+	3 ——		- 1	Rx+	(Tx+)
(Rx-)	Tx-	6 ——		- 2	Rx-	(Tx-)
(Tx+)	Rx+	1 ——		— 3	Tx+	(Rx+)
(Tx-)	Rx- :	2 —		- 6	Tx-	(Rx-)

## **Well Known Port Numbers**

In this appendix, which is included for your reference, we provide a list of Well Known port numbers that may cause network problems if you set the NPort 5100A to one of these ports. Refer to RFC 1700 for Well Known port numbers, or refer to the following introduction from the IANA.

The port numbers are divided into three ranges: the Well Known Ports, the Registered Ports, and the Dynamic and/or Private Ports.

The Well Known Ports range from 0 through 1023.

The Registered Ports range from 1024 through 49151.

The Dynamic and/or Private Ports range from 49152 through 65535.

The Well Known Ports are assigned by the IANA, and on most systems, can only be used by system processes or by programs executed by privileged users. The following table shows famous port numbers among the well-known port numbers. For more details, please visit the IANA website at http://www.iana.org/assignments/port-numbers.

TCP Socket	Application Service	
0	Reserved	
1	TCP Port Service Multiplexer	
2	Management Utility	
7	Echo	
9	Discard	
11	Active Users (systat)	
13	Daytime	
15	Netstat	
20	FTP data port	
21	FTP CONTROL port	
23	Telnet	
25	SMTP (Simple Mail Transfer Protocol)	
37	Time (Time Server)	
42	Host name server (names server)	
43	Whois (nickname)	
49	(Login Host Protocol) (Login)	
53	Domain Name Server (domain)	
79	Finger protocol (Finger)	
80	World Wide Web HTTP	
119	Network News Transfer Protocol (NNTP)	
123	Network Time Protocol	
213	IPX	
160 – 223	Reserved for future use	

UDP Socket	Application Service	
0	Reserved	
2	Management Utility	
7	Echo	
9	Discard	
11	Active Users (systat)	
13	Daytime	
35	Any private printer server	
39	Resource Location Protocol	
42	Host name server (names server)	
43	Whois (nickname)	
49	(Login Host Protocol) (Login)	
53	Domain Name Server (domain)	
69	Trivial Transfer Protocol (TETP)	
70	Gopher Protocol	
79	Finger Protocol	
80	World Wide Web HTTP	
107	Remote Telnet Service	
111	Sun Remote Procedure Call (Sunrpc)	
119	Network News Transfer Protocol (NNTP)	
123	Network Time Protocol (NTP)	
161	SNMP (Simple Network Mail Protocol)	
162	SNMP Traps	
213	IPX (Used for IP Tunneling)	

С

# SNMP Agents with MIB II & RS232/422/485 Link Groups

The NPort 5100A has a built-in SNMP (Simple Network Management Protocol) software agent that supports SNMP Trap, RFC1317 RS-232/422/485 like groups, and RFC 1213 MIB-II. The following table lists the standard MIB-II groups, as well as the variables implemented for the NPort 5100A.

## **RFC1213 MIB-II Supported SNMP Variables**

System MIB	Interfaces MIB	IP MIB	ICMP MIB
SysDescr	itNumber	ipForwarding	IcmpInMsgs
SysObjectID	ifIndex	ipDefaultTTL	IcmpInErrors
SysUpTime	ifDescr	ipInreceives	IcmpInDestUnreachs
SysContact	ifType	ipInHdrErrors	IcmpInTimeExcds
SysName	ifMtu	ipInAddrErrors	IcmpInParmProbs
SysLocation	ifSpeed	ipForwDatagrams	IcmpInSrcQuenchs
SysServices	ifPhysAddress	ipInUnknownProtos	IcmpInRedirects
	ifAdminStatus	ipInDiscards	IcmpInEchos
	ifOperStatus	ipInDelivers	IcmpInEchoReps
	ifLastChange	ipOutRequests	IcmpInTimestamps
	ifInOctets	ipOutDiscards	IcmpTimestampReps
	ifInUcastPkts	ipOutNoRoutes	IcmpInAddrMasks
	ifInNUcastPkts	ipReasmTimeout	IcmpOutMsgs
	ifInDiscards	ipReasmReqds	IcmpOutErrors
	ifInErrors	ipReasmOKs	IcmpOutDestUnreachs
	ifInUnknownProtos	ipReasmFails	IcmpOutTimeExcds
	ifOutOctets	ipFragOKs	IcmpOutParmProbs
	ifOutUcastPkts	ipFragFails	IcmpOutSrcQuenchs
	ifOutNUcastPkts	ipFragCreates	IcmpOutRedirects
	ifOutDiscards	ipAdEntAddr	IcmpOutEchos
	ifOutErrors	ipAdEntIfIndex	IcmpOutEchoReps
	ifOutQLen	ipAdEntNetMask	IcmpOutTimestamps
	ifSpecific	ipAdEntBcastAddr	IcmpOutTimestampReps
		ipAdEntReasmMaxSize	IcmpOutAddrMasks
		IpNetToMediaIfIndex	IcmpOutAddrMaskReps
		IpNetToMediaPhysAddress	
		IpNetToMediaNetAddress	
		IpNetToMediaType	
		IpRoutingDiscards	

UDP MIB	ТСР МІВ	SNMP MIB
UdpInDatagrams	tcpRtoAlgorithm	snmpInPkts
UdpNoPorts	tcpRtoMin	snmpOutPkts
UdpInErrors	tcpRtoMax	snmpInBadVersions
UdpOutDatagrams	tcpMaxConn	snmpInBadCommunityNames
UdpLocalAddress	tcpActiveOpens	snmpInASNParseErrs
UdpLocalPort	tcpPassiveOpens	snmpInTooBigs
	tcpAttempFails	snmpInNoSuchNames
Address Translation MIB	tcpEstabResets	snmpInBadValues
AtlfIndex	tcpCurrEstab	snmpInReadOnlys
AtPhysAddress	tcpInSegs	snmpInGenErrs
AtNetAddress	tcpOutSegs	snmpInTotalReqVars
AtNetAddress	tcpRetransSegs	snmpInTotalSetVars
	tcpConnState	snmpInGetRequests
	tcpConnLocalAddress	snmpInGetNexts
	tcpConnLocalPort	snmpInSetRequests
	tcpConnRemAddress	snmpInGetResponses
	tcpConnRemPort	snmpInTraps
	tcpInErrs	snmpOutTooBigs
	tcpOutRsts	snmpOutNoSuchNames
		snmpOutBadValues
		snmpOutGenErrs
		snmpOutGetRequests
		snmpOutGetNexts
		snmpOutSetRequests
		snmpOutGetResponses
		snmpOutTraps
		snmpEnableAuthenTraps

## RFC1317: RS-232/422/485 MIB Objects

Generic RS-232/422/485-like	RS-232/422/485-like General	RS-232/422/485-like
Group	Port Table	Asynchronous Port Group
rs232Number	rs232PortTable	rs232AsyncPortTable
	rs232PortEntry	rs232AsyncPortEntry
	rs232PortIndex	rs232AsyncPortIndex
	rs232PortType	rs232AsyncPortBits
	rs232PortInSigNumber	rs232AsyncPortStopBits
	rs232PortOutSigNumber	rs232AsyncPortParity
	rs232PortInSpeed	
	rs232PortOutSpeed	

Input Signal Table	Output Signal Table
rs232InSigTable	rs232OutSigTable
rs232InSigEntry	rs232OutSigEntry
rs232InSigPortIndex	rs232OutSigPortIndex
rs232InSigName	rs232OutSigName
rs232InSigState	rs232OutSigState

## **Auto IP Report Protocol**

The NPort Series provides several ways to configure Ethernet IP addresses. One of them is DHCP Client. When you set up the NPort to use DHCP Client to configure Ethernet IP addresses, it will automatically send a DHCP request over the Ethernet to find the DHCP Server. And then the DHCP Server will send an available IP address to the NPort. The NPort will use this IP address for a period of time after receiving it. But the NPort will send a DHCP request again to the DHCP Server. Once the DHCP Server realizes that this IP address is to be released to another DHCP Client, the NPort then will receive a different IP address. For this reason, users sometimes find that the NPort will use different IP addresses, not a fixed IP address.

In order to know what IP address the NPort is using, you need to set up parameters in Network Settings via the Web browser. The figure below is the NPort Web console configuration window. Enter the IP address and the Port number of the PC that you want to send this information to.

Total Solution for Industrial Device Networking WWW.INOXA.CO					www.moxa.co	
<ul><li>Model</li><li>Name</li></ul>	- NPort 5150A - NP5150A_71	<ul><li>IP</li><li>Serial N</li></ul>	- 192.168.127.254 <b>O.</b> - 71		MAC Address Firmware	- 00:90:E8:99:31:25 - 1.0 Build 10022314
		•Network Se	ettings			
Main Menu	- 11	Network Settings				
Overview Quick Setup		IP address	192.168.127.254			
Export/Import		Netmask	255.255.255.0			
Basic Settings			203.203.203.0			
Network Settings		Gateway				
- Serial Settings		IP configuration	DHCP			
- Operating Settings		DNS server 1				
Accessible IP Settings		DNS server 2				
- Auto Warning Settings Upgrade Firmware - Monitor		SNMP Settings				
Change Password		SNMP	💿 Enable 🔘 Disable			
Load Factory Default		Community name	public	7		
Save/Restart		Contact				
		Location				
		IP Address Report				
		Auto report to IP	192.168.1.2			
		Auto report to UDP port	4002			
		Auto report period	10 seconds			

## **Auto IP Report Format**

"Moxa", 4 bytes	Info[0]	Info[1]		Info[n]
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## Info [n]

Field	ID	Length	Data
Length	1	1	Variable, Length is "Length Field"

## ID List

ID Value	Description	Length	Note
1	Server Name	Variable	ASCII char
2	Hardware ID	2	Little-endian
3	MAC Address	6	6 bytes MAC address. If the MAC address is "00-90-E8-01-02-03", the MAC[0] is 0, MAC[1] is 0x90(hex), MAC[2] is 0xE8(hex), and so on.
4	Serial Number	4, DWORD	Little-endian
5	IP Address	4, DWORD	Little-endian
6	Netmask	4, DWORD	Little-endian
7	Default Gateway	4, DWORD	Little-endian
8	Firmware Version	4, DWORD	Little-endian Ver1.3.4= 0x0103040
9	AP ID	4, DWORD	Little-endian

## AP ID & Hardware ID Mapping Table

APID	Device ID	Product
0x80015100	0x511A	5110A
0x80015100	0x513A	5130A
0x80015100	0x515A	5150A
0x80015200	0x521A	5210A
0x80015200	0x523A	5230A
0x80015200	0x525A	5250A
0x80005110	0x5110	5110
0x80005100	0x5130	5130
0x80005100	0x5150	5150
0x80005000	0x0504	NPort 5410
0x80005000	0x0534	NPort 5430
0x80005000	0x1534	NPort 5430I
0x80000312	0x0312	NPort 5230
0x80000312	0x0322	NPort 5210
0x80000312	0x0332	NPort 5232
0x80000312	0x1332	NPort 5232I
0x80005610	0x5618	NPort 5610-8
0x80005610	0x5613	NPort 5610-16
0x80005610	0x5638	NPort 5630-8
0x80005610	0x5633	NPort 5630-16
0x80015100	0x5157	NPort P5150A

## **Compliance Notice**



#### **CE Warning**

This is a Class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take appropriate measures.

## Federal Communications Commission Statement

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.



#### FCC Warning

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his or her own expense.