# NPort 5600 Series User's Manual

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# NPort 5600 Series User's Manual

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# 1 Introduction

Welcome to the MOXA NPort 5600 Series of advanced serial device servers that make it easy to network-enable your serial devices. The NPort 5600 Series has six models: NPort 5610-16, NPort 5610-8 (16/8 ports for RS-232, with AC power), NPort 5610-16-48V, NPort 5610-8-48V (16/8 ports for RS-232, with DC power), NPort 5630-16, and NPort 5630-8 (16/8 ports for RS-422/485, with AC power). In this manual, we often refer to the six products collectively as "5600" or "5600 Series."

The following topics are covered in this chapter:

- **Overview**
- Package Checklist
- Product Features
- **D** Product Specifications

#### Overview

NPort 5600 Series serial device servers are designed to make your industrial serial devices Internet ready instantly. The compact size of NPort 5600 device servers makes them the ideal choice for connecting your RS-232 (NPort 5610-16/8) or RS-422/485 (NPort 5630-16/8) serial devices—such as PLCs, meters, and sensors—to an IP-based Ethernet LAN, making it possible for your software to access serial devices anywhere over a local LAN or the Internet.

NPort 5600 serial device servers ensure the compatibility of network software that uses a standard network API (Winsock or BSD Sockets) by providing TCP Server Mode, TCP Client Mode, and UDP Mode. And thanks to NPort's Real COM/TTY drivers, software that works with COM/TTY ports can be set up 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 5600 serial device servers support automatic IP configuration protocols (DHCP, BOOTP) and manual configuration via NPort's handy web browser console. Both methods ensure quick and effective installation. And with NPort 5600's Windows Utility, installation is very straightforward, since all system parameters can be stored and then copied to other device servers simultaneously.

# Package Checklist

MOXA NPort 5600 Series products are shipped with the following items:

Standard Accessories

- 1 16- or 8-port serial device server
- NPort Documentation & Software CD
- NPort 5600 Quick Installation Guide
- Power cord

#### **Optional Accessories**

- CBL-RJ45M9-150 RJ45 8-pin to DB9 Male cable, 150 cm
- CBL-RJ45F9-150 RJ45 8-pin to DB9 Female cable, 150 cm
- CBL-RJ45M25-150 RJ45 8-pin to DB25 Male cable, 150 cm
- CBL-RJ45F25-150 RJ45 8-pin to DB25 Female cable, 150 cm

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

### **Product Features**

NPort 5600 Series products have the following features:

- Make your serial devices Internet ready
- Easy-to-use LCM (Liquid Crystal Module) interface for setting up the IP address
- Versatile socket operation modes, including TCP Server, TCP Client, and UDP
- Easy-to-use Windows Utility for mass installation
- Supports 10/100 Mbps Ethernet—auto-detectable
- Supports 16/8-port RS-232 or RS-422/485 interface
- Built-in 15 KV ESD protection for all serial signals
- Supports SNMP MIB-II for network management

# **Product Specifications**

LAN	
Ethernet	10/100 Mbps, RJ45
Protection	Built-in 1.5 KV magnetic isolation

#### NPort 5610 Serial Interface

Interface	RS-232
No. of Ports	16/8
Port Type	RJ45 8-pin
Signals	TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
Serial Line Protection	15 KV ESD for all signals

#### NPort 5630 Serial Interface

Interface	RS-422/485	
No. of Ports	16/8	
Port Type	RS45 8-pin	
Signals	RS-422:	Tx+, Tx-, Rx+, Rx-, GND
	RS-485 (2-wire):	Data+, Data-, GND
	RS-485 (4-wire):	Tx+, Tx-, Rx+, Rx-, GND
Serial Line Protection	15 KV ESD for all	signals
RS-485 Data Direction	ADDC <sup>™</sup> (Automa	tic Data Direction Control)

#### **Power Line Protection**

4 KV Burst (EFT), EN61000-4-4 2 KV Surge, EN61000-4-5

#### **Advanced Built-in Features**

HMILCM display with four push buttonsBuzzerReal-Time ClockWatch Dog Timer

#### **Serial Communication Parameters**

one, Even, Odd, Space, Mark
6, 7, 8
1.5, 2
TS/CTS, XON/XOFF
0 bps to 230.4 Kbps

#### **Software Features**

Protocols	ICMP, IP, TCP, UDP, DHCP, BOOTP, Telnet, DNS, SNMP, HTTP, SMTP, SNTP
Utilities	NPort Administrator for Windows 95/98/ME/NT/2000/XP
Real COM/TTY Drivers	Windows 95/98/ME/NT/2000/XP Real COM driver, Linux real TTY driver
Configuration	Web Browser, Telnet Console, or Windows Utility
<b>Power Requirements</b>	
Power Input	100 to 240 VAC, 47 to 63 Hz, or 48 VDC
Power Consumption	NPort 5610-16/8: 200 mA for 100V, 145 mA for 240V
	NPort 5610-16/8-48V: 250 mA (at 48V max.)
	NPort 5630-16/8: 212 mA for 100V, 130 mA for 240V
Mechanical	
Material	SECC sheet metal (1 mm)
Dimensions ( $W \times H \times D$ )	$190 \times 44.5 \times 478$ mm (including ears)
	$190 \times 44.5 \times 440$ mm (without ears)
Environment	
Operating Temperature	0 to 55°C (32 to 131°F), 5 to 95%RH
Storage Temperature	-20 to 85°C (-4 to 185°F), 5 to 95%RH
<b>Regulatory</b> Approvals	
EMC	FCC Class A, CE Class A
Safety	UL, CUL, TÜV
WARRANTY	5 years

# 2

# **Getting Started**

This chapter includes information about installing NPort 5600 Series. The following topics are covered:

#### Panel Layout

#### **Connecting the Hardware**

- Wiring Requirements
- ➢ Connecting NPort 5610/30-16/8's Power
- ➢ Connecting NPort 5610-16/8-48V's Power
- ➢ Grounding NPort 5610-16/8-48V
- Connecting to the Network
- Connecting to a Serial Device
- LED Indicators

# **Panel Layout**

Front panel of NPort 5610-16-48V



Font panel of NPort 5630-16



#### Rear panel of NPort 5610-16 (AC Power)

OCH	al po	ns													
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	1	1 2	1 2 3	1 2 3 4	1 2 3 4 5	1 2 3 4 5 6	1 2 3 4 5 6 7	1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9 10	1 2 3 4 5 6 7 8 9 10 11	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12 13	1 2 3 4 5 6 7 8 9 10 11 12 13 14	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

#### Rear panel of NPort 5610-16 -48V (DC Power)



**Reset Button**—<u>Press the *Reset button* continuously for 5 sec to load factory defaults</u>: Use a pointed object, such as a straightened paper clip or toothpick, to press the reset button. This will cause the Ready LED to blink on and off. The factory defaults will be loaded once the Ready LED stops blinking (after about 5 seconds). At this point, you should release the reset button.

# **Connecting the Hardware**

This section describes how to connect NPort 5600 Series to serial devices for first time testing purposes. We cover Wiring Requirements, Connecting NPort 5610/30-16/8's Power, Connecting NPort 5610-16/8-48V's Power, Grounding NPort 561-16/8-48V, Connecting to the Network, Connecting to a Serial Device, and LED Indicators.

#### Wiring Requirements

#### ATTENTION



Safety First!

Be sure to disconnect the power cord before installing and/or wiring your NPort 5600.

# 

 $\triangle$ 

Calculate the maximum possible current in each power wire and common wire. Observe all electrical codes dictating the maximum current allowable for each wire size.

Wiring Caution!

If the current goes above the maximum ratings, the wiring could overheat, causing serious damage to your equipment.

#### ATTENTION



#### **Temperature Caution!**

Please take care when handling NPort 5600. When plugged in, NPort 5600's internal components generate heat, and consequently the casing may feel hot to the touch.

You should also pay attention to the following points:

• Use separate paths to route wiring for power and devices. If power wiring and device wiring paths must cross, make sure the wires are perpendicular at the intersection point.

**NOTE**: Do not run signal or communication wiring and power wiring in the same wire conduit. To avoid interference, wires with different signal characteristics should be routed separately.

- You can use the type of signal transmitted through a wire to determine which wires should be kept separate. The rule of thumb is that wiring that shares similar electrical characteristics can be bundled together.
- Keep input wiring and output wiring separate.
- Where necessary, it is strongly advised that you label wiring to all devices in the system.

#### Connecting NPort 5610/30-16/8's Power

Connect NPort 5610/30-16/8's 100-240 VAC power line with its AC connector. If the power is properly supplied, the "Ready" LED will show a solid red color until the system is ready, at which time the "Ready" LED will change to a green color.

#### Connecting NPort 5610-16/8-48V's Power

To connect NPort 5610-16/8-48V's power cord with its terminal block, follow the steps given below:



- 1. Loosen the screws on the  $V_+$  and  $V_-$  terminals of NPort 5610-16/8-48V's terminal block.
- 2. Connect the power cord's 48 VDC wire to the terminal block's V<sub>+</sub> terminal, and the power cord's DC Power Ground wire to the terminal block's V. terminal, and then tighten the terminal block screws. (Note: NPort 5610-16/8-48V can still operate even if the DC 48V and DC Power Ground are reversed.)

If the power is properly supplied, the "Ready" LED will show a solid red color until the system is ready, at which time the "Ready" LED will change to a green color.

**NOTE** You should use 8 kg-cm of screw torque and 22-14 AWG of suitable electric wire to connect NPort 5610-16/8-48V's power cord to its terminal block.

#### Grounding NPort 5610-16/8-48V

Grounding and wire routing helps limit the effects of noise due to electromagnetic interference (EMI). Run the ground connection from the ground screw to the grounding surface prior to connecting devices.



The Shielded Ground (sometimes called Protected Ground) contact is the second contact from the right of the 5-pin power terminal block connector located on the rear panel of NPort 5610-16-48V/5610-8-48V. Connect the SG wire to the Earth ground.

#### ATTENTION

This product is intended to be mounted to a well-grounded mounting surface such as a metal panel.

### Connecting to the Network

Connect one end of the Ethernet cable to NPort 5600's 10/100M Ethernet port and the other end of the cable to the Ethernet network. There are 2 LED indicators located on the bottom left and right corners of the Ethernet connector. If the cable is properly connected, NPort 5600 will indicate a valid connection to the Ethernet in the following ways:



The bottom right corner LED indicator maintains a solid green color when the cable is properly connected to a 100 Mbps Ethernet network.



The bottom left corner LED indicator maintains a solid orange color when the cable is properly connected to a 10 Mbps Ethernet network.

### Connecting to a Serial Device

Connect the serial data cable between NPort 5600 and the serial device.

#### LED Indicators

The front panels of NPort 5600 have several LED indicators, as described in the following table.

LED Name	LED Color	LED Function
	off	Power is off, or power error condition exists.
	1	Steady on: Power is on and NPort is booting up.
Ready	red	Blinking: Indicates an IP conflict, or DHCP or BOOTP server did not respond properly.
		Steady on: Power is on and NPort is functioning normally.
	green	Blinking: The NPort has been located by NPort Administrator's Location function.
	orange	Serial port is receiving data.
1-16	green	Serial port is transmitting data.
1 10	off	No data is being transmitted or received through the serial port.

# **Real Time Clock**

NPort 5600's real time clock is powered by a lithium battery. We strongly recommend that you do not replace the lithium battery without the presence of Moxa's technical support engineers. If you need a battery change, contact Moxa for assistance.



There is risk of explosion if the battery is replaced by an incorrect type. You need to dispose used batteries according to the instructions.

# **Initial IP Address Configuration**

When setting up your NPort 5600 for the first time, the first thing you should do is configure the IP address. This chapter introduces several methods to configure NPort's IP address. Select the method that is the most convenient for you. For more details about network settings, see the *Network Settings* section from Chapter 5, *Web Console Configuration*.

This chapter includes the following sections:

- □ Initializing NPort's IP Address
- **Gamma Factory Default IP Address**
- □ LCM Display

 $\leftarrow$  recommended configuration method

- □ NPort Administration Suite ← recommended configuration method
- □ ARP
- □ Telnet Console

# Initializing NPort's IP Address

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

# **Factory Default IP Address**

NPort 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 directly access a device configured with a private IP address from a public network. For example, you would not be able to ping such a device from an outside Internet connection. NPort 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.)

# LCM Display

We recommend using the LCM display and four push buttons to configure the IP address for the first time.

#### **Basic Operation**

If the NPort is working properly, the LCM panel will display a green color. The red Ready LED will also light up, indicating that the NPort is receiving power. After the red Ready LED turns green, you will see a display similar to:

Ν	Р	5	6	1	0	-	1	6	_	3	8				
1	9	2		1	6	8		1	2	7		2	5	4	

This is where

• NP5610-16	is the NPort's name
• 38	is the NPort's serial number
• 192.168.127.254	is the NPort's IP address

Button	Name	Action
MENU	menu	activates the main menu, or returns to an upper level
$\bigtriangleup$	up cursor	scrolls up through a list of items shown on the LCM panel's second line
$\bigtriangledown$	down cursor	scrolls down through a list of items shown on the LCM panel's second line
SEL	select	selects the option listed on the LCM panel's second line

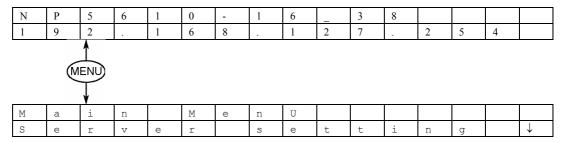
There are four push buttons on NPort's nameplate. Going from left to right, the buttons are:

The buttons are manipulated in a manner similar to the way a modern cellular phone operates. As you move through the various functions and setting options, note that the top line shows the current menu or submenu name, and the bottom line shows the submenu name or menu item that is activated by pressing the SEL button.

#### **Detailed Menu Options**

The best way to explain all of NPort's LCM functions is to refer to the table shown on the next page. There are three main levels—1, 2, and 3—with each level represented by a separate column.

The first thing to remember is that the MENU button is used to move back and forth between the LCM panel's default screen, and main menu screen:



In addition, you only need to remember to:

- Use the SEL button to move up one level (i.e., left to right on the tree graph)
- Use the MENU button to move down one level (i.e., right to left on the tree graph)
- Use the cursor keys,  $\triangle$  and  $\nabla$ , to scroll between the various options within a level (i.e., up and down on the tree graph).

As you use the buttons to operate the LCM display, you will notice that with very few exceptions, moving up one level causes the bottom line of the display to move to the top line of the display. You will also notice that the bottom three options in level 2, and all of the options in level 3 have either a C or D attached. The meaning is as follows: • C = configurable (i.e., you are allowed to change the setting of this option)

• D = display only (i.e., the setting for this option is displayed, but it cannot be changed)

This does NOT necessarily mean that the number doesn't change; only that you can't change it.

Level 1	Level 2	Level 3				
Main Menu						
	Server	Serial number				D
	setting	Server name				С
		Firmware ver				D
		Model name				D
	Network	Ethernet status				D
	setting	MAC address				D
		IP config				С
		IP address				С
		Netmask				С
		Gateway				С
		DNS server 1				С
		DNS server 2				С
	Serial set	Select port				C
		Baud rate				C
		Data bit				C
		Stop bit				C
		Parity				C
		Flow control Tx/Rx fifo				C
		Interface				C C
		Tx/Rx bytes				C D
		Line status				D
	Op Mode set					C
	Op Mode set	Select mode				C
		[mode]				C
		Real COM	TCP server	TCP client	UDP svr/cli	
					obr stillen	
		Alive timeout	Alive timeout	Alive timeout	Delimiter 1	С
		Max connection	Inact. time	Inact. time	Delimiter 2	С
		Delimiter 1	Max connection	Delimiter 1	Force Tx	С
		Delimiter 2	Delimiter 1	Delimiter 2	Dest IP start-1	С
		Force Tx	Delimiter 2	Force Tx	Dest IP end-1	С
			Force Tx	Dest IP-1	Dest port-1	C
			Local TCP port	TCP port-1	Dest IP start-2	С
			Command port	Dest IP-2	Dest IP end-2	С
				TCP port-2	Dest port-2	С
				Dest IP-3	Dest IP start-3	С
				TCP port-3	Dest IP end-3	С
				Dest IP-4	Dest port-3	С
				TCP port-4	Dest IP start-4	С
				TCP connect	Dest IP end-4	С
					Dest port-4	$C_{\widetilde{\alpha}}$
					Local port	С
	Console	Web console				C
		Telnet console				C
	Ping					С
	Save/Restart					С

The part of the LCM operation that still requires some explanation is how to edit the configurable options. In fact, you will only encounter two types of configurable options.

The first type involves entering numbers, such as IP addresses, Netmasks, etc. In this case, you change the number one digit at a time. The up cursor  $(\triangle)$  is used to decrease the highlighted digit, the down cursor  $(\nabla)$  is used to increase the highlighted digit, and the sel button is used to move to the next digit. When the last digit has been changed, pressing sel simply enters the number into NPort 5600 Series' memory.

The second type of configurable option is when there are only a small number of options from which to choose (although only one option will be visible at a time). Consider the Parity attribute under Serial set as an example. Follow the tree graph to arrive at the following Parity screen. The first option, None, is displayed, with a down arrow all the way to the right. This is an indication that there are other options from which to choose.

Р	a	r	i	t	Y					
Ν	0	n	U							$\downarrow$

Press the down cursor button once to see Odd as the second option.

Р	a	r	i	t	Y					$\uparrow$
0	d	d								$\downarrow$

Press the down cursor button again to see Even as the third option.

	Ρ	A	R	I	Т	Y								$\uparrow$
	Е	v	е	n										$\rightarrow$
Т	Prose the down ourser button again to see Space as the fourth ontion													

Press the down cursor button again to see Space as the fourth option.

Ρ	A		R	I	Т	Y								$\uparrow$
S	р		a	С	е									$\downarrow$
D														

Press the down cursor button yet again to see the last option, Mark.

Р	А	R	Ι	Т	Y					$\uparrow$
М	a	r	k							

To choose the desired option, press the SEL button when the option is showing on the screen.

### NPort Administration Suite

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

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.

#### ARP

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



In order to use this setup method, both your computer and NPort must be connected to the same LAN. Or, you may use a cross-over Ethernet cable to connect the NPort directly to your computer's Ethernet card.

Your NPort 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 from your network administrator.
- 2. Obtain the NPort'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-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. You will need to change both numbers, as described above in points 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 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
	<u> </u>

### **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's IP address. This can be done using the Telnet program.

#### ATTENTION

Figures in this section will use 5610-8 as an example.

- 1. From the Windows desktop, click on 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>O</u> pen:	telnet 192.168.127.254
	OK Cancel <u>B</u> rowse

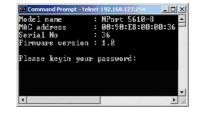
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- When the Telnet window opens, if you are prompted to input the Console password, input the password and then press Enter. Note that this page will only appear if the NPort is password protected.
- 4. Type **2** to select **Network settings**, and then press **Enter**.

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

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

#### Initial IP Address Configuration





	<< 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 TCP port
	(d) Auto IP report period
	(v) View settings
	(m) Back to main menu
	(q) Quit
	Key in your selection: 1_
1	

<< Main Menu->Networ	k settings >>
(1) IP address	
(2) Netmask	
(3) Gateway	
(4) IP configurati	lon
(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 TCP port
(d) Auto IP report	period
(v) View settings	
(m) Back to main m	ienu
(q) Quit	
Key in your selectio	in: 1
IP address: 192.168.	127.253

#### NPort 5600 Series User's Manual

7. Press any key to continue...

Initial IP Address Configuration

```
<< 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 TCP port
  (d) Auto IP report period
  (v) View settings
  (m) Back to main menu
  (q) Quit
  Key in your selection: 1
  IP address: 192.168.127.254
  Set IP address success
  Press any key to continue..._
```

- 8. Type **m** or **M** and then press **Enter** to return to the main menu.
- the (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 contact (a) SNMP location (b) Auto IP report to IP (c) Auto IP report to TCP port (d) Auto IP report period (v) Uiew settings (m) Back to main menu (q) Quit Key in your selection: m\_
- 9. Type **s** or **S** and then press **Enter** to **Save/Restart** the system.

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

10. Type **y** or **Y** and then press **Enter** to save the new IP address and restart NPort.

Ready (y) (n)			
Key ir	your selectio	n: y_	

# 4

# **Choosing the Proper Operation Mode**

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

- **Overview**
- **TCP Server Mode**
- **TCP** Client Mode
- **UDP Mode**
- □ Real COM Mode

### Overview

NPort Device Servers network-enable traditional RS-232/422/485 devices, in which a 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 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.

NPort 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, NPort 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.

In addition to providing socket access, 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.

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 multicasting of data to groups of IP addresses.

### **TCP Server Mode**

In **TCP Server mode**, NPort provides a unique IP:Port address on a TCP/IP network. NPort waits passively to be contacted by the host computer, allowing the host computer to establish a connection with and get data from the serial device. This operation 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 configured for TCP Server Mode.
- 2. Once the connection is established, data can be transmitted in both directions—from the host to the NPort, and from the NPort to the host.





TCP Client Mode

### **TCP Client Mode**

In **TCP Client mode**, NPort can actively establish a TCP connection to a pre-defined host computer when serial data arrives.

After the data has been transferred, NPort can automatically disconnect from the host computer by using the **TCP alive check time** or **Inactivity time** settings. Refer to Chapter 5 for more details

As illustrated in the figure, data transmission proceeds as follows:

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

# **UDP Mode**

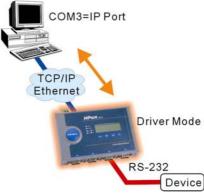
Compared to TCP communication, UDP is faster and more efficient. In UDP mode, you can unicast or multicast data from the serial device to one or multiple host computers, and the serial device can also receive data from multiple host computers, making this mode ideal for message display applications.

# Request a connection 2 Proceed with data transmission $(\mathbf{T})$ TCP/IP Ethernet TCP Client RS-232 Device UDP Mode Directly proceed with data transmission (no connection required) TCP/IP Ethernet RS-232 Device

# Real COM Mode

NPort comes equipped with COM drivers that work with Windows 95/98/ME/NT/2000/XP 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's serial port to a local COM/TTY port on the host computer. This operation 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 comes with the NPort Windows Administrator which will install automatically on your computer when you install NPort Administration Suite.

The important point 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 accepts the Ethernet frame, unpacks the TCP/IP packet, and then transparently sends it to the appropriate serial device attached to one of the NPort's serial ports.



Real COM Mode allows several hosts to have access control of the same NPort. The Moxa driver that comes with your NPort controls host access to attached serial devices by checking the host's IP address.

Refer to Accessible IP Settings in Chapter 5 for more details.

# **Web Console Configuration**

The Web Console is the most user-friendly method available to configure NPort 5600 Series. This chapter will introduce the Web Console function groups and function definitions. The figures in this chapter were borrowed from the manual for NPort 5200, which uses the same Web Console user interface as NPort 5600.

- **D** Opening Your Browser
- □ Basic Settings
- Network Settings
- □ Serial Settings
- **D** Operating Settings
  - Real COM Mode
  - ➢ TCP Server Mode
  - TCP Client Mode
  - > UDP Mode
- □ Accessible IP Settings
- □ Auto Warning Settings
  - ➢ Auto warning: E-mail and SNMP Trap
  - ➢ Event Type
- □ 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.)

nternet Options	<u>? ×</u>	
General Security Content Connections Programs Advanced		
Select a Web content zone to specify its security settings.		
Internet Local intranet Trusted sites Restricted sites		
Internet This zone contains all Web sites you This zone contains all Web sites you Sites		
Security level for this zone		
Move the silder to set the security level for this zone  -  Medium -  -  Safe browsing and still functional -  -  -  -  -  -  -  -  -  -  -  -  -		
Custom Level Default Level		
OK Cancel App	V	

Cookie	s 🔺
🗌 🧿 Allı	ow cookies that are stored on your computer
o	Disable
•	Enable
0	Prompt
🤌 🤔	ow per-session cookies (not stored)
	Disable
	Enable
	Prompt
🐴 Downle	
	e download
-	Disable
•	Pt doubload
Deathan	1
-Reset cus	stom settings
Reset to:	Medium 🔻 Reset
	OK Cancel

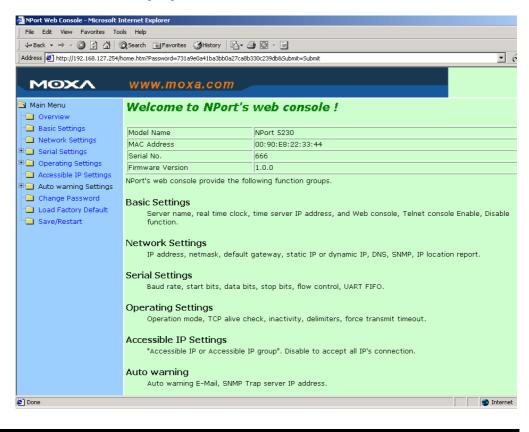
- 2. Type 192.168.127.254 in the Address input box (use the correct IP address if different from the default), and then press Enter.
- 3. Input the password if prompted. The password will be transmitted with MD5 encryption over the Ethernet.

Note that you will not be prompted to enter the password if the NPort is not currently password protected.

🚰 Input Password - Microsoft Internet Explorer	
File Edit View Favorites Tools Help	
📙 🖙 Back 🔹 🤿 🖌 🔯 🖓 🖓 Search 🛛 👔 Favorite:	s 🎯 History 🛛 🖏 🗸
Address 🛃 http://192.168.127.254/	
Input password	
Password :	
Submit	

#### NPort 5600 Series User's Manual

4. The NPort 5600 homepage will open. On this page, you can see a brief description of the Web Console's nine function groups.



ATTENTION

If you can't remember the password, the ONLY way to start configuring NPort is to load factory defaults by using the Reset button located next to the LCM Display.



Remember to use Windows Administrator 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 NPort by using the Windows Administrator Import function. Refer to Chapter 6 for more details about using the Export and Import functions.

### ATTENTION



If your NPort 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.

# **Basic Settings**

🎒 NPort Web Console - Microsoft II	nternet Explorer		
File Edit View Favorites Tools Help			
] ← Back • → • 🙆 🙆 🖓 🚳	See Back ▼ ⇒ ∽ 🙆 🖉 💁 🖏 Search 🝙 Favorites 🎯 History 📴 ▼ 🎒 🖬 📄		
Address 🛃 http://192.168.127.254/h	ome.htm?Password=731a9e0a41ba3bb0a27ca8b3	330c239db 💌 🔗 😡	
ΜΟΧΛ	www.moxa.com		
🔄 Main Menu	Basic Setting		
Cverview			
- Basic Settings	Server name	NP5230_666	
- Network Settings		Time	
🖻 🧰 Serial Settings	Time zone	(GMT)Greenwich Mean Time: Dublin, Edinburgh, Lisbon, London 🔻	
🗉 🧰 Operating Settings			
- Accessible IP Settings	Local time	Modify	
🖻 🔁 Auto warning Settings	 	mouny	
E-mail and SNMP Trap	Time server	J	
Event Type		Console	
Change Password	Web console	€ Enable C Disable	
🗀 Load Factory Default	Telnet console	© Enable O Disable	
Save/Restart	1	]	
		Sumbit	

#### Server name

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

This option is useful for specifying the location or application of different NPorts.

#### Time

NPort 5600 has a built-in Real-Time Clock for time calibration functions. Functions such as Auto warning "Email" or "SNMP Trap" can add real-time information to the message.



First time users should select the time zone first. The Console will display the "real time" according to the time zone compared to GMT. If you would like to modify the real time clock, select "Local Time." NPort's firmware will modify the GMT time according to the Time Zone.

#### Time zone

Setting	Factory Default	Necessity
User selectable time zone	GMT (Greenwich Mean Time)	Optional

#### Local time

Setting	Factory Default	Necessity
User adjustable time. (1900/1/1-2037/12/31)	GMT (Greenwich Mean Time)	Optional

Click on the **Modify** button to open the **Modify time settings** window to input the correct local time.

🚰 Time Settings - Microsoft Internet Explorer 📃 📃 🔀	
Modify time settings	
Date Time	_
Submit Close	

#### Time server

Setting	Factory Default	Necessity
IP or Domain address	None	Optional
(E.g., 192.168.1.1 or time.stdtime.gov.tw)		

NPort 5600 uses SNTP (RFC-2030) for auto time calibration.

Input the correct "Time server" IP address or domain address. Once NPort is configured with the correct Time Server address, NPort will request time information from the "Time server" every 10 minutes.

#### 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. The factory default for both Web Console and Telnet Console is **Enable**.

Setting	Factory Default	Necessity
Enable or Disable	Enable	Required

# 

If you disable both the "Web Console" and "Telnet Console," you can still use the LCM Display to configure NPort locally, or Windows Administrator to configure NPort either locally or remotely over the network.

# **Network Settings**

🔊 NPort Web Console - Microsoft Internet Explorer			
File Edit View Favorites Tools Help			
→ Back + → -> ③ ② ③			
Address 🙋 http://192.168.127.254/h	nome.htm?Password=731a9e0a41ba3bb0a27ca8b	330c239db 💌 🔗 Go 🗍 Link	
ΜΟΧΛ	www.moxa.com		
🖻 Main Menu	Network Settings		
🗀 Overview			
Basic Settings	IP address	192.168.127.254	
Network Settings	Netmask	255.255.0.0	
<ul> <li>Gerial Settings</li> <li>Operating Settings</li> </ul>	Gateway	255.255.255.255	
Accessible IP Settings	IP configuration	Static	
atto warning Settings	DNS server 1		
😑 E-mail and SNMP Trap			
- Event Type	DNS server 2		
📄 Change Password		SNMP Setting	
Load Factory Default	SNMP	© Enable C Disable	
- Save/Restart	Community name	public	
	Contact		
	Location		
	IP Address report		
	Auto report to IP		
	Auto report to TCP port	4002	
	Auto report period	10 seconds	
		Submit	

You must assign a valid IP address to NPort 5600 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, NPort 5600 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—located under the web console screen's IP configuration drop-down box.

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 assigned IP address

#### IP Address

Setting	Factory Default	Necessity
E.g., 192.168.1.1	192.168.127.254	Required
(IP addresses of the form <i>x.x.x.</i> 0 and <i>x.x.x.</i> 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 which is unique and valid in your network environment.

ľ	V	e	tn	n	a	S	

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

A subnet mask represents all 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 will use the subnet mask to check if 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, a connection is established directly from the NPort. 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 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	Static	Required
DHCP		
DHCP/BOOTP		
BOOTP		

# 

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	None	Optional
(IP addresses of the form <i>x.x.x.</i> 0 and <i>x.x.x.</i> 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 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 NPort's DNS feature, you need to configure the DNS server. Doing so allows NPort to use a host's domain name to access the host. NPort 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 server 1 is unavailable.

NPort plays the role of DNS client, in the sense that the NPort will actively query the DNS server for the IP address associated with a particular domain name. Functions that support domain name in NPort are **Time sever**, **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 (E.g., Support, 886-89191230 #300)	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. This string is usually set to the street address where the NPort is physically located.

#### **IP Address Report**

When NPort 5600 series products are used in a dynamic IP environment, users must spend more time with IP management tasks. For example, if NPort 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 NPort, the host must have some way of determining NPort's new IP address. NPort 5000 series products help out by periodically reporting 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 NPort's Auto IP report.

- 1. Use NPort Administrator's IP Address Report function.
- 2. "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	None	Optional
(IP addresses of the form <i>x.x.x.</i> 0 and <i>x.x.x.</i> 255 are invalid.)		

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

#### Auto report to TCP port

Setting	Factory Default	Necessity
E.g., 4001	None	Optional

#### Auto report period

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

# **Serial Settings**

Click on **Serial Settings**, located under **Main Menu**, to display serial port settings for ports 1 and 2.

**NOTE:** Since this figure was borrowed from the manual of NPort 5200, which has only 2 RS-232 ports, there are only 2 ports shown in this figure. Once you have completed the hardware installation of NPort 5600, there should be either 16 or 8 ports shown in the figure, depending on the model you installed. The steps for changing the settings of the other ports are the same as those for Port 1 and Port 2.

🚈 NPort Web Console - Microsoft In	ternet Explor	er							_ 8 ×
File Edit View Favorites Tools Help									
← Back • → • 🙆 🙆 🚮 🔇	↓= Back + ⇒ - 🙆 😰 🚮 🕲 Search 📷 Favorites 🎯 History 🔄 - 🍎 📷 🚍								
Address 🛃 http://192.168.127.254/home.htm?Password=731a9e0a41ba3bb0a27ca8b330c239db									
ΜΟΧΛ	www	moxa.com							
		moxuroom							
🔄 Main Menu	Serial Se	ttings							
Overview									
- Basic Settings				Serial :	Settings				
- Network Settings		Alias	Baud rate	Data bits	Stop bits	Parity	FIFO	Flow ctrl	Interface
🗉 🔄 Serial Settings	Port 1	PLC-1	115200	8	1	None	Enable	RTS/CTS	RS-232
Port 1	Port 2	PLC-2	115200	8	1	None	Enable	RTS/CTS	RS-485
Port 2		<u></u>	J	<u> </u>	<u> </u>				2Wire
🖲 Operating Settings									
Accessible IP Settings									
🗉 🔲 Auto warning Settings									
Change Password									
Load Factory Default									
Save/Restart									

To modify serial settings for a particular port, click on either **Port 1** or **Port 2** under **Serial Settings**, located under **Main Menu** on the left side of the browser window

#### NPort 5600 Series User's Manual

#### Web Console Configuration

NPort Web Console - Microsoft I	nternet Explorer			-
File Edit View Favorites Tools Help				
	🗟 Search 📷 Favorites 🎯 History 🛛 🗟 🗸 👙	3 🖬 🗉		
Address 🛃 http://192.168.127.254/	home.htm?Password=731a9e0a41ba3bb0a27ca8b	330c239db		▼ 🖉 Go 🗍
ΜΟΧΛ	www.moxa.com			
🔁 Main Menu	Serial Settings			
- Overview				
🗀 Basic Settings			ort=01	
🗀 Network Settings	Port alias	PLC-1		
🖻 🔁 Serial Settings	Serial Parameters			
Port 1	Baud rate	115200 🔽		
Port 2     Operating Settings	Data bits	8 💌		
Accessible IP Settings	Stop bits	1 -		
🗉 🔲 Auto warning Settings	Parity	None 💌		
Change Password	Flow control	RTS/CTS -		
Load Factory Default Save/Restart	FIFO	C Disable 🖲 Enable		
	Interface	RS-232 Only		
	Apply the above settings to all serial ports			
	Submit			

#### Port alias

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

"Port Alias" is specially designed to allow easy identification of the serial devices which are connected to NPort's serial port.

#### **Serial Parameters**



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

#### **Baud** rate

Setting	Factory Default	Necessity
50 bps to115.2 Kbps	115.2 Kbps	Required

#### Data bits

Setting	Factory Default	Necessity
5, 6, 7, 8	8	Required

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, 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, Space, Mark	None	Required

### Flow control

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

### **FIFO**

Setting	Factory Default	Necessity
Enable, Disable	Enable	Required

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

### Interface

Setting	Factory Default	Necessity
NPort 5610-16/8: RS-232 only	RS-232 only	Required
NPort 5630-16/8: RS-422/485 only	4-wire 485	Required

## **Operating Settings**

🗿 NPort Web Console - Microsoft Ir	PPort Web Console - Microsoft Internet Explorer						
File Edit View Favorites Too	File Edit. View Favorites Tools Help						
-   ← Back → → → 🙆 🔯 🚮 🔇	🕽 Search 🛛 🙀 Fa	avorites 🏼 🚮 History 🛛 🖓 🕶 🖉	) 🖬 🗐				
Address 🙋 http://192.168.127.254/h	iome.htm?Passwo	rd=731a9e0a41ba3bb0a27ca8b3	30c239db			•	] @Go   L
							• · ·
ΜΟΧΛ	WWW	moxa.com 🍃					
		in oxa. oom					
🔄 Main Menu	Main Menu Operating Settings						
Overview							
- Basic Settings	Operating Settings						
🗎 Network Settings		Operating mode	TCP alive check time	Inactivity time	Delimiter 1	Delimiter 2	Force transmit
🖻 🔁 Serial Settings			7	0	0 (Disable)	0 (Disable)	0
Port 1	Port 1	TCP Server Mode	Max connec	; tion: 1	, , ,	, , ,	,
Port 2	FOICE	TCP Server mode	Local TCP p				
Coperating Settings		<u> </u>	Command p		· · · · · ·	· · · · · ·	
Port 1			7	0	0 (Disable)	0 (Disable)	0
Port 2	Port 2	TCP Server Mode	Max connec Local TCP p				
Accessible IP Settings			Command p				
🖲 🗀 Auto warning Settings	,	,	, <u> </u>				
Change Password							
- Load Factory Default	Cal Load Factory Default						
- Save/Restart							

Press **Operating Settings** located under **Main Menu**, to display the operating settings for all of NPort's serial ports.

### Real COM Mode

🙆 NPort Web Console - Microsoft II	nternet Explorer		_ 5	
File Edit View Favorites Too	ls Help			
← Back → → → 🙆 😰 🖓 🚳	🞗 Search 🗟 Favorites 🏼 🖓 History 🛛 🖏 🔹	5 🖬 🗏		
Address 🛃 http://192.168.127.254/h	nome.htm?Password=731a9e0a41ba3bb0a27ca8	b330c239db	💌 🧬 Go 🛛 Link	
ΜΟΧΛ	www.moxa.com			
🔁 Main Menu	Operating Settings			
Overview				
Basic Settings		Port=01		
🔲 Network Settings	Operation mode	Real COM Mode 💌		
🖻 🔄 Serial Settings	TCP alive check time	7 (0 - 99 min)		
Port 1	Max connection	1 (1 - 4)		
Port 2     Port 2     Operating Settings		Data Packing		
Dort 1	Delimiter 1	0 (Hex) 🗆 Enable		
Port 2	Delimiter 2	0 (Hex) 🗆 Enable		
Accessible IP Settings     Auto warning Settings	Force transmit	0 (0 - 65535 ms)		
Change Password	Apply the above settings to all	serial ports		
Load Factory Default				
🛄 Save/Restart		Submit		

### 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: NPort automatically closes TCP connection if there is no TCP activity for the given time. After the connection is closed, NPort starts listening for another Real COM driver connection from another host.

#### Max connection

Setting	Factory Default	Necessity
1, 2, 3, 4	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, 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 serial port.

#### Max connection 2 to 4:

Allows 2 to 4 hosts' Real COM drivers to open the specific NPort 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 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 from the Ethernet interface.

alimitan 1

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 receives both delimiters through its serial port, it immediately packs all data			

currently in its buffer and sends it to the NPort's Ethernet port.

ATTENTION

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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 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.

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'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 fetches the serial data from its internal buffer. If data is incoming through the serial port, NPort stores the data in the internal buffer. NPort 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 baud rate. For example, assume that the serial port is set to 1200 bps, 8 data bits, 1 stop bit, and none for 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 the series of characters in the same packet, the serial device attached to NPort should send that series of characters during a time interval less than the Force Transmit timeout for NPort, and the total length of data must be less than or equal to NPort's internal buffer size. The serial communication buffer size for NPort is 1 KB per port.

### **TCP Server Mode**

NPort Web Console - Microsoft Internet Explorer					
File Edit View Favorites Tools Help					
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Address 🛃 http://192.168.127.254/h	nome.htm?Password=731a9e0a41ba3bb0a27ca8b3	30c239db 💆 🧟 Go			
ΜΟΧΛ	www.moxa.com				
🔄 Main Menu	Operating Settings				
Main Menu     Overview	operating settings				
Basic Settings		Port=01			
Network Settings	Operation mode	TCP Server Mode 💌			
🖻 🔁 Serial Settings	TCP alive check time	7 (0 - 99 min)			
Port 1	Inactivity time	0 (0 - 65535 ms)			
Port 2 Operating Settings	Max connection	1 (1 - 4)			
Port 1		Data Packing			
Port 2	Delimiter 1				
Accessible IP Settings					
🖲 🗋 Auto warning Settings	Delimiter 2	(Hex) T Enable			
🗀 Change Password	Force transmit	0 (0 - 65535 ms)			
🗀 Load Factory Default		TCP Server Mode			
	Local TCP port	4001			
	Command port	966			
	Apply the above settings to all serial ports				
	Submit				
	Sublink				

#### 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: NPort automatically closes the TCP connection if there is no TCP activity for the given time. After the connection is closed, NPort 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: NPort automatically closes the TCP connection if there is no serial data activity for the given time. After the connection is closed, NPort starts listening for another host's TCP connection.

This parameter defines the maintenances status as Closed or Listen on 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 will check the connection status between the NPort and remote host by sending "keep alive" packets periodically. If the remote host does not respond to the packet, NPort assumes that the connection was closed down unintentionally. NPort will then force the existing TCP connection to close.



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.

#### Max connection

Setting	Factory Default	Necessity
1, 2, 3, 4	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:

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

#### Max connection 2 to 4:

Allows 2 to 4 host's TCP connection request to open this NPort serial port, at the same time. When multiple hosts establish a TCP connection to the specific serial port at the same time, NPort 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 NPort from the Ethernet interface.

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



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 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.

#### 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'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 fetches the serial data from its internal buffer. If data is incoming through the serial port, NPort stores the data in the internal buffer. NPort 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 baud rate. For example, assume that the serial port is set to 1200 bps, 8 data bits, 1 stop bit, and none for 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 the series of characters in the same packet, the serial device attached to NPort should send that series of characters during a time interval less than the Force Transmit timeout for NPort, and the total length of data must be less than or equal to NPort's internal buffer size. The serial communication buffer size for NPort 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 that NPort uses to listen to connections, and that other devices must use to contact NPort. 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 NPort so that the user does not need to configure the program.

### TCP Client Mode

🗿 NPort Web Console - Microsoft Internet Explorer				
File Edit View Favorites Tools Help				
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Address 🛃 http://192.168.127.254/h	ome.htm?Password=731a9e0a41ba3bb0a27ca8b3	30c239db 💌 🖉 🚱 📋		
ΜΟΧΛ	www.moxa.com			
🔁 Main Menu	Operating Settings			
Overview	operating settings			
Basic Settings		Port=01		
Network Settings	Operation mode	TCP Client Mode 💌		
🖻 🔄 Serial Settings	TCP alive check time	7 (0 - 99 min)		
Port 1	Inactivity time	0 (0 - 65535 ms)		
Port 2		Data Packing		
Operating Settings Port 1	Delimiter 1	(Hex) Enable		
Port 2				
Accessible IP Settings	Delimiter 2	0 (Hex)   Enable		
🗉 🦲 Auto warning Settings	Force transmit	0 (0 - 65535 ms)		
🗀 Change Password		TCP Client Mode		
🗀 Load Factory Default		Destination IP Address		
"  Save/Restart	Destination IP address 1	: 4001		
	Destination IP address 2	: 4001		
	Destination IP address 3	: 4001		
	Destination IP address 4	: 4001		
	TCP connect on	🖲 Startup C Any Character		
	□ Apply the above settings to all serial ports			
Submit				

### 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: NPort 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: NPort automatically closes TCP connection, if there is no serial data activity for the given time.

This parameter defines the maintenances status as Closed or Listen on 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 value of inactivity time is set to 0, the current TCP connection is maintained unless there's no connection close request. Although the inactivity time is disabled, the NPort will check the connection status between the NPort and remote host by sending "keep alive" packets periodically. If the remote host does not respond to the packets, it treats the connection as being down unintentionally. NPort 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 connection on" is set to "Any Character."

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



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 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.

#### Force transmit

Setting	etting Factory Default	
0 to 65535 ms	0 ms	Optional

0: Disable the force transmit timeout.

1 to 65535: Forces the NPort'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 fetches the serial data from its internal buffer. If data is incoming through the serial port, NPort stores the data in the internal buffer. NPort 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 baud rate. For example, assume that the serial port is set to 1200 bps, 8 data bits, 1 stop bit, and none for 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 the series of characters in the same packet, the serial device attached to

NPort should send that series of characters during a time interval less than the Force Transmit timeout for NPort, and the total length of data must be less than or equal to NPort's internal buffer size. The serial communication buffer size for NPort is 1 KB per port.

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

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

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

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

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

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

### ATTENTION

Up to 4 connections can be established between NPort 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.

### TCP connect on

Setting	Factory Default	Necessity
Startup,	None	Optional
Any Character		

Startup: Attempts to establish a TCP connection as soon as the NPort is powered on.

Any Character: Attempts to establish a TCP connection as soon as the NPort starts receiving serial data.

### UDP Mode

	Operating Settings					
🗀 Overview						
Basic Settings		Port=01				
🗀 Network Settings	Operation mode	UDP Mode				
🖲 🧰 Serial Settings		Data Packing				
🖻 🚖 Operating Settings	Delimiter 1	0 (Hex) 🗆 Enable				
Port 1	n - Kuitan n					
- Port 2	Delimiter 2	(Hex) 🗆 Enable				
Port 3	Force transmit	0 (0 - 65535 ms)				
- 🔁 Port 4		UDP Mode				
- Port 5		Begin End Port				
Port 6	Destination IP address 1	. 4001				
Port 7	Destination IP address 2	4001				
- Port 8	Descination in address 2					
🗀 Accessible IP Settings	Destination IP address 3	; 4001				
🗉 🧰 Auto warning Settings	Destination IP address 4	. 4001				
Change Password	l anal Linkan mant	4001				
🗀 Load Factory default	Local Listen port	4001				
🛄 Save/Restart	Apply the above settings to all s	erial ports (Local listen port will be enumerated automatically).				
		Submit				

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

# 

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 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.

#### Force transmit

Setting	Factory Default	
0 to 65535 ms	0 ms	Optional

0: Disable the force transmit timeout.

1 to 65535: Forces the NPort'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 fetches the serial data from its internal buffer. If data is incoming through the serial port, NPort stores the data in the internal buffer. NPort 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 baud rate. For example, assume that the serial port is set

to 1200 bps, 8 data bits, 1 stop bit, and none for 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 the series of characters in the same packet, the serial device attached to NPort should send that series of characters during a time interval less than the Force Transmit timeout for NPort, and the total length of data must be less than or equal to NPort's internal buffer size. The serial communication buffer size for NPort 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 Default	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	ing Factory Default	
1 to 65535	4001	Required

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

### Accessible IP Settings

		n 🗟 Favorites 🎯 History 🛛 🖏 🕶				
Address 🙋 http://192.168.127.25	4/home.htn	n?Password=731a9e0a41ba3bb0a27ca	8b330c239db			▼ \$\varchim{C}\$
ΜΟΧΛ	w	ww.moxa.com				
🔄 Main Menu	Acce	essible IP Settings				
💼 Overview						
Basic Settings	🗹 Er	nable the accessible IP list (	"Disable" will allow	all IP's connection reques	t.)	
Network Settings Serial Settings	No.	Active the rule	IP Address	_	IP Netmask	
Port 1	1					
Port 2	2					
Operating Settings	З					
Port 1	4					
Accessible IP Settings	5					
🖳 Auto warning Settings	6					
Change Password	7				р. Г	
Load Factory Default Save/Restart	8		/		р Г	 
					J	
	9				<u> </u>	
	10			-	J	
	11				<u></u>	
	12					
	13					
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NPort has 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 NPort 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. You can allow one of the following cases by setting the parameter.

#### • Only one host with a specific IP address can access the NPort

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

Enter "IP address/255.255.255.0" (e.g., "192.168.1.0/255.255.255.0").

### • Any host can access the NPort

Disable this function. Refer to the following table for more details about the configuration example.

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: E-mail and SNMP Trap

NPort Web Console - Microsoft In	ternet Explorer	
File Edit View Favorites Tool	s Help	
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Address 🛃 http://192.168.127.254/h	ome.htm?Password=731a9e0a41ba3bb0a	27ca8b330c239db 💌 🔗 Go 🗍 Links 🌺
ΜΘΧΛ	www.moxa.com	
🔁 Main Menu	Auto warning: Email an	d SNMP trap
🗀 Overview		
🗀 Basic Settings		Mail server
🗀 Network Settings	Mail server	
🖻 🔁 Serial Settings	□ My server requires authen	ication
Dort 1	User name	
Port 2	Password	
Operating Settings Operating Settings		
Port 1	From E-mail address	NP5230_666@moxa.com
Accessible IP Settings	E-mail address 1	
🖻 🔄 Auto warning Settings	E-mail address 2	
E-mail and SNMP Trap	E-mail address 3	
Change Password	E-mail address 4	
🗀 Load Factory Default		SNMP trap server
- Save/Restart	SNMP trap server IP or domain name	
		Submit

### Mail Server

Mail server			
Setting	Factory Default	Necessity	
IP or Domain Name	None	Optional	

### 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

# 

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. NPort SMTP AUTH supports LOGIN, PLAIN, CRAM-MD5 (RFC 2554).

### **SNMP Trap Server**

#### SNMP trap server IP or domain name

Setting	Factory Default	Necessity
IP or Domain Name	None	Optional

### Event Type

🚰 NPort Web Console - Microsoft II	nternet Explorer		
File Edit View Favorites Too	ols Help		
] 🖙 Back 🔹 → 🚽 🙆 🔂 🚳	🞗 Search 🛛 🙀 Favorites 🌙 History 🛛 🖏 🗸 🖉	) 🖬 🖻	
Address 🛃 http://192.168.127.254/h	nome.htm?Password=731a9e0a41ba3bb0a27ca8b3	330c239db	▼ @Go
ΜΟΧΛ	www.moxa.com		
🔁 Main Menu	Event Type		
🗀 Overview			
Basic Settings	Cold start	🗖 Mail	🗖 Trap
🗀 Network Settings	Warm start	🗖 Mail	🗖 Trap
🖻 🔄 Serial Settings	Authentication failure	🗖 Mail	🗖 Trap
Dort 1	IP address changed	🗖 Mail	
Port 2	Password changed	🗆 Mail	
🖻 🔄 Operating Settings		DCD changed	
Port 1	Port	Mail	Trap
Port 2	Port 1	🗆 Mail	Trap
Accessible IP Settings	Port 2	Mail	
Auto warning Settings			
Event Type	DSR changed Port Mail Trap		
Change Password			Trap
Load Factory Default	Port 1	🗖 Mail	🗖 Trap
Save/Restart	Port 2	🗖 Mail	Trap
Save/Restart			
		Submit	

#### Cold start

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

#### Warm start

This refers to restarting the computer without turning the power off. When performing a warm start, NPort 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, NPort will immediately send an e-mail or send an SNMP trap.

#### IP address changed

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

#### **Password changed**

The user has changed NPort's password. When the password changes, NPort will send an e-mail

with the password change notice before NPort reboots. If the NPort is unable to send an e-mail message to the mail server within 15 seconds, NPort will reboot anyway, and abort the e-mail auto warning.

Main Menu	Event Type		
Basic Settings     Detwork Settings	Cold start	Mail	□ Trap
Serial Settings	Warm start	🗆 Mail	🗆 Trap
Operating Settings	Authentication failure	IT Mail	🗆 Trap
Accessible IP Settings	IP address changed	IT Mail	
a Auto Warning Setting	Password changed	T Mail	
E-mail and SNMP T	DCD changed		
Change Password	Port	Mail	Trap
Load Factory Default	Port 1	🗆 Mail	🗆 Trap
Carl Save/Restart	Port 2	IT Mail	🗆 Trap
		DSR changed	
	Port	Mail	Trap
	Port 1	F Mail	🗆 Trap
	Port 2	🗆 Mail	🗆 Trap
		Submit	

### **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, NPort 5610 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, NPort 5610 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 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 on the Event Type Mail checkbox.

#### Trap

Setting	Factory Default	Necessity
Enable, Disable	Disable	Optional

This feature helps the administrator manage how the NPort 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 on the Event Type Trap checkbox.



**DCD changed** and **DSR changed** events are only supported by RS-232 ports (NPort 5610). Since NPort 5630 does not support the RS-232 interface, the **DCD changed** and **DSR changed** options will not appear in the **Event Type** screen for NPort 5630.

### **Change Password**

File Edit View Favorites Tools Help   PBack + > · · · · · · · · · · · · · · · · · ·
Address
MOXA       WWW.moxa.com         Main Menu       Change password         Overview       Old password :         Basic Settings       Old password :         Network Settings       New password :         Port 1       Port 2         Port 1       Port 2         Port 2       Submit
Main Menu       Change password         Overview       Old password :         Basic Settings       Old password :         Network Settings       New password :         Port 1       Port 2         Port 1       Port 2         Port 2       Submit
Main Menu       Change password         Overview       Old password :         Basic Settings       Old password :         Network Settings       New password :         Port 1       Port 2         Port 1       Port 2         Port 2       Submit
Main Menu       Change password         Overview       Old password :         Basic Settings       Old password :         Network Settings       New password :         Port 1       Port 2         Port 1       Port 2         Port 2       Submit
Overview       Old password :         Basic Settings       Old password :         Network Settings       New password :         Serial Settings       Retype password :         Port 1       Submit         Port 2       Submit
Basic Settings     Old password :       Network Settings     New password :       Port 1     Port 2       Port 1     Submit
Network Settings       New password :         Settings       Retype password :         Port 1       Port 2         Operating Settings       Submit         Port 1       Port 2         Port 2       Submit
Image: Serial Settings     Retype password :       Image: Port 1     Image: Submit       Image: Port 2     Submit       Image: Port 1     Image: Port 2       Image: Port 2     Submit
Port 1 Port 2 Port 2 Port 1 Port 2 Port 2 Por
Port 2 Submit Port 1 Port 2 Port 1 Port 2
Operating Settings     Submit     Port 1     Port 2
Port 1 Port 2
Port 2
C Accessible IP Settings
and Auto warning Settings
E-mail and SNMP Trap
Event Type
Change Password
Cal Load Factory Default
Carlos Save/Restart
nput the "Old password" and "New password" to change the password. Leave the password boxes

blank to erase the password. In this case, the NPort will not have password protection.



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

Remember to export the configuration file using Windows Administrator when you finish the configuration. By using the Import function of Windows Administrator, your configuration can be re-loaded into NPort after using "Load Factory Default." Refer to Chapter 6 for more details about the Export and Import function.

### Load Factory Defaults

🏄 NPort Web Console - Microsoft In	sternet Explorer
File Edit View Favorites Tool	ls Help
] ← Back → → → 🙆 🛃 🖾	Search 🗑 Favorites 🎯 History 🔤 🖬 🗐
Address 🙋 http://192.168.127.254/h	ome.htm?Password=731a9e0a41ba3bb0a27ca8b330c239db 💌 🔗 🛛
ΜΟΧΛ	www.moxa.com
🔄 Main Menu	Load Factory Default
	This function will reset all MOXA NPort Server settings to their factory default values. Be aware that previous setting will be lost.
Network Settings	
🖻 🔂 Serial Settings	Submit
Dort 1	
Port 2	
🖻 🔂 Operating Settings	
🗀 Port 1	
Port 2	
Accessible IP Settings	
Auto warning Settings	
E-mail and SNMP Trap	
Change Password	
Load Factory Default	

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

## **Configuring Windows Administrator**

Windows Administrator and Web Console are two powerful tools that can be used to configure the settings of your NPorts. Choose the method that is most convenient for you. Note that this chapter uses NPort 5230 as an example to introduce the installation and configuration of NPort Administration Suite. The functions and definitions are the same as for NPort 5600.

The following topics are covered in this chapter:

- **Overview**
- **D** Installing Windows Administrator
- **Configuration** 
  - Broadcast Search
  - Unlock Password Protection
  - Configuring NPort 5600
  - Upgrading Firmware
  - ➢ Export/Import
- Image: Monitor
- Port Monitor
- **COM** Mapping
  - On-line COM Mapping
  - Off-line COM Mapping
- **IP** Location

### **Overview**

We understand the importance of software as the foundation of your application, and with this in mind, we designed NPort Administrator to let you easily install and configure your NPort 5600 Series product over the network. NPort Administrator provides five function groups that ease the installation process, allows off-line COM mapping, and provides monitoring and IP location server functions.

NPort Administrator is an integrated software suite that bundles NPort Administrator and the IP Serial Library, and provides everything you need to remotely manage, monitor, and modify your NPort—hassle free.

### ATTENTION



NPort Administrator ONLY supports NPort 5000 Series products. For NPort DE-311 or DE-211, use NPort Management Suite, which can be downloaded from <u>www.moxa.com</u>.

### Installing Windows Administrator

1. Once the Setup program starts running, click on **Yes** to proceed.

2. Click on **Next** when the **Welcome** window opens to proceed with the installation.



-

•

Cancel

<u>N</u>ext >

< <u>B</u>ack

Accessories
 Common Files
 ComPlus Applications
 Internet Explorer
 microsoft frontpage

The program requires at least 1.8 MB of disk space

🖂 d: test

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

4. Click on **Next** to install the program using the default program name, or select a different name.

### Configuring Windows Administrator

9	
	Select the Start Menu folder in which you would like Setup to create the program's
	hortcuts, then click Next.
	Accessories Administrative Tools Microsoft Office ?? NPort Administration Suite
	< <u>Back</u> <u>N</u> ext> Cancel
eti	ıp - NPort Administration Suite
Re	ady 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 directory: D:\Program Files\NPortAdminSuite
	Start Menu folder: NPort Administration Suite
	x x
	< Back
	Creating program icons
	Cance
	up - NPort Administration Suite
Inf	Cance
Inf	up - NPort Administration Suite
Inf	up - NPort Administration Suite
Inf	up - NPort Administration Suite Information Before continuing.
Inf	up - NPort Administration Suite Information before continuing.
Inf	Unities 2. Unities 3. Provides Configure. Monitor. and COM macoping administration utilities for
Inf	Up - NPort Administration Suite ormation Please read the following important information before continuing. When you are ready to continue with Setup, click Next. NPort Administration Suite: 1. Unlikes 2. In Secon Mode Support Package 3. In Secon Mode Support Package 2. Utilities Provides Configure, Monitor, and COM mapping administration utilities for NFort. 3. Real Com Mode Support Package

5. Click on **Install** to proceed with the installation.

6. The **Installing** window reports the progress of the installation.

7. Click on **Next** to proceed with the installation.

### Configuring Windows Administrator

8. Click on **Finish** to complete the installation of NPort Administration Suite.



### Configuration

The Administrator-Configuration window is divided into four parts.

- The top part is the function list and online help area.
- The left part lists the five Administrator function groups.
- The right part shows the list of NPorts, each of which can be selected to process user requirements.
- The bottom part is the Log area, which shows useful messages that record the user's processing history.

	Administrator-Configuration    ×       File     Function     Configuration								
<u>File</u> Function <u>C</u> onfiguration	n View <u>H</u> elp								
Exit Function Pa	anel Log Pane	el OnLine	Help						
Function				uration - 0 NF	Port(s)				
NPort     Configuration     Configuration     Original Monitor     Office COM Mapping     Office COM     Office		Model	MAC Address	Address	Status				
Message Log - 0 Monitor Log	1.0								
No Time	De	escription							
Now: 4/28/2003 11:43:32 AM									

### **Broadcast Search**

The **Broadcast Search** function is used to locate all NPorts that are connected to the same LAN as your computer.

Since the Broadcast Search function searches by MAC address and not IP address, all NPorts connected to the LAN will be located, regardless of whether or not they are part of the same subnet as the host.

Exit Function P	anel Log P	and OnLi				- 0.44	Denet ( = )	
NPort Configuration	No /	Model	Ţ	MAC Address	IP Ad		Port(s) Status	
Port Monitor				Broadcast Sear				
COM Mapping			2	Specify by IP /	ddress			
				Locate Unlock Configure				
			10	Upgrade Firmw	are			
			4 1-					
				Assign IP Addr	255			
Message Log - 0 Monitor Lo	0-0]		Ì			-		- Ar
No Time		Description					1	

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

	for NPort		🖌 😒 tor
ound 7	NPort(s), remain	timeout = 3 second( MAC Address	(s)
1	NPort 5610-		192,168,4,128
	NPort 5230	00 90 E8 00 02 29	192 168 3 22
2 3	NPort 5230	00:90:E8:22:33:44	192.168.127.254
	NPort 5210	00:90:E8:00:02:50	192,168,3,119
4 5 6	NPort 5430	00:90:E9:00:01:09	192,168,3,135
6	NPort 5430	00.90.E8.00.01:10	192,168.4.44
7	NPort 5210	00:90:E8:00:00:08	192.168.4.209
	NPort 5430	00.90.E8:00.01:10	192.168.4.44

When the search is complete, the Broadcast Search window closes, and the NPorts that were located are displayed in the right pane of the Administrator window. For the example shown here, NPort Administrator found 7 NPort Serial Device Servers on the LAN. As you can see, 2 of the 7 NPorts have password protection, which is indicated by Lock under Status.

To configure one of the listed NPorts, place the cursor over the row displaying that NPort's information, and then right click.

Ext Function P		nel Los Panel Oriure Help					
Function		Configuration - 7 NPort(s)					
Protect     Protection     Prot	No / 1 2 3 4 5 6 7	Model NPort 5610- NPort 5230 NPort 5210 NPort 5210 NPort 5430 NPort 5430 NPort 5210	MAC Addess 00 9016 800 01 20 00 9016 800 02 29 00 9016 800 02 29 00 9018 82 23 34 40 90 90 82 00 02 90 00 9016 800 01 90 00 9016 800 01 00 00 9016 800 00 08	IP Addess 152 166 4 120 152 166 4 120 152 166 3 22 152 168 127 254 152 168 3 119 152 168 3 119 152 168 3 159 152 168 4 209	Status Look Look		
lessage Log - 1   Monitor Lo	a · 0	Description			-		
	4/28/2003 12:02:01 PM Found NPort(s)		78		1		

### ATTENTION



Before modifying an NPort's configuration, use **Broadcast Search** or **Specify by IP Address** to locate NPorts connected to the LAN.

### **Unlock Password Protection**

If the NPort is password protected, then you will not be able to use the double click method to open the configuration page.

Instead, select an NPort with "Lock" status, right click the locked NPort, and then select the Unlock button.

É.	Function Pa	nel Log	Panel OnLine I	Help				
F	unction			Confi	gur	ation - 7 NPor	t(s)	
NPort     Configuration     Monitor     Port Monitor		No /	Model NPort 5430 NPort 5210 NPort 5210 NPort 5230	00.90.E8.00.01.09 11 00.90.E8.00.02.50 11 00.90.E8.00.00.08 11		IP Addess 192,168,3,135 192,168,3,135 192,168,3,119 192,168,4,209 192,168,3,22	Status Lock	
COM Mapping Tr IP Address Report		5 6 7	NPort 5230 NPort 5430 NPort 5610-16	00 90 E0 22 33 00 90 E 0 00 01 00 90 E 0 00 01			3%	
					-	Unlock		
					17	Configure		
					£	Upgrade Firmwar	0	
					4 1	Export Configura Import Configura		
Message	Log - 4 Monitor Log	-0				Assign IP Addres	s	
No	Time		Description		_			
2 4/28/2003 11:47:21 AM Configuration 1 3 4/28/2003 11:47:36 AM Load Configuration			Found NPort(s): 7 Configuration Char Load Configuration Found NPort(s): 7	nged: NPort 5230   Fait: NPort 5230	00-90	0 E 0 22 33 44) 0 E 0 22 33 44)		

After inputting the correct password, the Administrator will display a message box as shown here.



The previous "Lock" status will switch to "Unlock" status. Administrator will keep this NPort in the Unlock status throughout this Administrator session.

Į.	Function Pa		Panel OnLine					
		snel Log	Panel UnLine					
-	unction		Configuration - 7 NPort(s)					
	Configuration Monitor Port Monitor COM Mapping	No / 1 2 3 4 5 6 7	Model           NPort 5430           NPort 5430           NPort 5210           NPort 5210           NPort 5230           NPort 5230           NPort 5230           NPort 5230	MAC-Address 00 30 E 600 00 100 00 30 E 600 00 50 00 30 E 80 00 20 00 30 E 80 00 20 00 30 E 80 00 20 00 30 E 80 00 120 00 30 E 80 00 128	P.Addensi   92168.3135   92168.3135   92168.3195   92188.322   92188.322   92188.325   92188.325   92168.429   92168.4128	Status Lock		
Message	Log - 6 Monitor Log	0				20		
No	Time		Description					
2 3 4 5 8	4/28/2003 11: 4/29/2003 11: 4/29/2003 11: 4/28/2003 11: 4/28/2003 11:	47:36 AM 40:11 AM 51:08 AM	Configuration Changed NPot 5230 (00:90:E8:22:33:44) Load Configuration Tell NPot 5230 (00:90:E8:22:33:44) Found NPotty 2: 200 (00:90:E8:22:33:44) Unrobot Dis NPott 5230 (00:90:E8:22:33:44) Unrobot Dis NPott 5230 (00:90:E8:22:33:44)					

The meanings of the six states are as follows (note that the term Fixed is borrowed from the standard fixed IP address networking terminology):

#### Lock

The NPort 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 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 will not require re-entering the server password.

#### Blank

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

#### Fixed

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

#### Lock Fixed

The NPort 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.

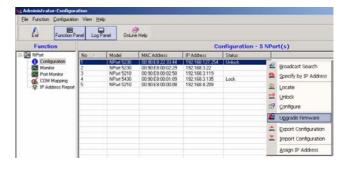
#### Unlock Fixed

The NPort 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 will not require re-entering the server password.

### Configuring NPort 5600

Input the password to Unlock the NPort.

Right click on a specific NPort and select configure to start the configuration.



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

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.











You can simultaneously modify the configurations of multiple NPorts that are of the same model.

To select multiple NPorts, hold down the Ctrl key when selecting additional NPorts, or hold down the Shift key to select a group of NPorts.

### **Upgrading Firmware**

Input the password to Unlock the NPort, and then right click on a specific NPort and select the Upgrade Firmware function to start upgrading the firmware.

1	E	6	anel OnLine						
	Function Pa	nel Logi	Panel OnLine I						
	Inction			Configuration - 7 NPort(s)					
NPort     Configuration     Monitor     Port Monitor     Converting		No / 1 2 3 4	Model NPot 5430 NPot 5210 NPot 5210 NPot 5230	MAC Address 00.90.E0.00.01 00.90.E0.00.02 00.90.E0.00.02 00.90.E0.00.02 00.90.E0.00.02	108	IP Address 132 168.3.135 192 168.3.119 192 168.4.209 192 168.3.22	Status Lock		
O IP Addats Bacot	5 6 7	NPort 5230 NPort 5430 NPort 5610-16	00.90 E0.22.33 00.90 E0.00.01 00.90 E0.00.01	-	Broadcast Search Specify by IP Add	22			
				R 11 15	Freedow				
					2	Upgrade Firmwar	e		
					*	Export Configurat			
Message L	og - 4   Monitor Log	0				Assign IP Address	5		
No	Time		Description						
1 4/28/2003 11:44:21 A 2 4/28/2003 11:47:21 A 3 4/28/2003 11:47:36 A 4 4/28/2003 11:47:36 A		47:21 AM 47:36 AM	Conclusion     Fouris NPort (1): 7     Configuration Changed: NPort 5230 (00:90:E8:22:33:44)     Load Configuration Fait NPort 5230 (00:90:E8:22:33:44)     Fouris NPort(1): 7						

Select the correct ROM file to be downloaded to the NPort. Visit Moxa's website at <u>www.moxa.com</u> for the latest firmware release.

Select File	×
Select File	
File Name:	
	Browse
	V OK X Cancel

Wait patiently while the Upgrade Firmware action is being processed.

atus					
Process	ing, please wait				🗶 Cancel
No	Model	MAC Address	IP Address	Status	
1	NPort 5230	00.90.68 22.33 44	192.168.127.254	Waling	



You can simultaneously upgrade the firmware of multiple NPorts that are of the same model.

To select multiple NPorts, hold down the Ctrl key when selecting an additional NPort, or hold down the Shift key to select a block of NPorts.

### Export/Import

Input the password to Unlock the NPort, and then right click on a specific NPort and select the Export function to start Exporting the configuration file.

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.

The Import Configuration function is used to import an NPort configuration from a file into one or more of the same model NPort.

To import a configuration, first select the target servers (use the left mouse button to select servers; simply hold down the Ctrl key when selecting the second, third, etc., NPort).

Exit Function		Panel OnLin	>			
Exit Function	Panel Log	Panel OnLin	i Help			
Function				C	configuration - 5 M	Port
NPort	No /	Model	MAC Address	IP Address	Status	
Configuration	1 2	NPort 5230 NPort 5430	00.90.E8:00.02.29 00.90.E8:00.01:09	192 168 3.22 192 168 3.135	Lock	
CDM Mapping	3	NPort 5230 NPort 5210	00:90:E0:22:32:44 00:90:E0:00:02:50	192168.3119	Broadcast Se	arch
IP Address Repo	10	NPort 5410	00.90 E 8 00.00 05	192,168,4,105	Specify by IP	Addre
W1-010-02-0444-0444					Locate	0.0000
					- Unlock	
					Configure	
						0.054.57
	-				Le Uggrade Firm	0.2.001
					Export Config	
					Import Config	juration
					Assign IP Add	iress
	-					
administrator-Configu						
Ele Function Contigural	tion View <u>H</u> e	-	e Help			
Ele Function Configural Exit	tion View <u>H</u> e		inep.	c	configuration - 5 %	Port
Ele Function Configural Ext Function Function	tion View <u>H</u> e	-	Help	C IP Address	configuration - S M	(Port)
Ele Function Configural Exit Function Function	ion View He Panel Logi	Model NPort 5230 NPort 5430	MAC Address 00.90 E8 00 02 29 00.90 E9 00 01:09	IP Address 192,168,3,22 192,168,3,135	Status Lock	Port
Ele Function Configuration	Panel Log	Model NPort 5230 NPort 5430 NPort 5230	MAC Address 00 90 E 8 00 02 29 00 90 E 8 00 01 09 00 90 E 8 22 33 44	IP Address 192,168,3,22 192,168,3,135 192,168,127,254	Status Lock	
Ele Function Configurat Exit Function Function Configuration	Fon View He Panel Log	Model NPort 5230 NPort 5430	MAC Address 00.90 E8 00 02 29 00.90 E9 00 01:09	IP Address 192,168,3,22 192,168,3,135	Status Lock	n
Ele Function Configuration Exit Function Function O Configuration Monitor Port Monitor	Fon View He Panel Log	Model NPort 5230 NPort 5230 NPort 5230 NPort 5230	MAC Address 00:90:E0:00:02:29 00:90:E0:00:01:09 00:90:E0:22:33:44 00:90:E0:00:02:50	IP Address 192,168,3,22 192,168,3,135 192,168,127,255 192,168,3,119	Status Lock Proadcast Search	n
Ele Function Configuration Exit Function Function O Configuration Monitor Port Monitor	Fon View He Panel Log	Model NPort 5230 NPort 5230 NPort 5230 NPort 5230	MAC Address 00:90:E0:00:02:29 00:90:E0:00:01:09 00:90:E0:22:33:44 00:90:E0:00:02:50	IP Address 192,168,3,22 192,168,3,135 192,168,127,255 192,168,3,119	Status Lock Proadcast Search Specify by IP Ad	n
Ele Function Configuration Exit Function Function O Configuration Monitor Port Monitor	Fon View He Panel Log	Model NPort 5230 NPort 5230 NPort 5230 NPort 5230	MAC Address 00:90:E0:00:02:29 00:90:E0:00:01:09 00:90:E0:22:33:44 00:90:E0:00:02:50	IP Address 192,168,3,22 192,168,3,135 192,168,127,255 192,168,3,119	Status Lock Broadcast Search Specify by IP Ad Locate	n
Ele Function Configuration Exit Function Function O Configuration Monitor Port Monitor	Fon View He Panel Log	Model NPort 5230 NPort 5230 NPort 5230 NPort 5230	MAC Address 00:90:E0:00:02:29 00:90:E0:00:01:09 00:90:E0:22:33:44 00:90:E0:00:02:50	IP Address 192,168,3,22 192,168,3,135 192,168,127,255 192,168,3,119	Status Lock Proadcast Search Specify by IP Act Locate Succate Specify by IP Act	h kdress
Ele Function Configuration Exit Function Function O Configuration Monitor Port Monitor	Fon View He Panel Log	Model NPort 5230 NPort 5230 NPort 5230 NPort 5230	MAC Address 00:90:E0:00:02:29 00:90:E0:00:01:09 00:90:E0:22:33:44 00:90:E0:00:02:50	IP Address 192,168,3,22 192,168,3,135 192,168,127,255 192,168,3,119	Status Lock Products Search Specify by IP Ad Locate Search Uprode Fill Upgrade Firmwa	n kdress
Ele Function Configurat Exit Function Function Monitor Port Monitor Configuration	Fon View He Panel Log	Model NPort 5230 NPort 5230 NPort 5230 NPort 5230	MAC Address 00:90:E0:00:02:29 00:90:E0:00:01:09 00:90:E0:22:33:44 00:90:E0:00:02:50	IP Address 192,168,3,22 192,168,3,135 192,168,127,255 192,168,3,119	Status Lock Proadcast Search Specify by IP Ad Locate Search Locate Search Locate Search Locate Search Locate Search Searc	n Idress re
Ele Function Configurat Exit Function Function Monitor Port Monitor Configuration	Fon View He Panel Log	Model NPort 5230 NPort 5230 NPort 5230 NPort 5230	MAC Address 00:90:E0:00:02:29 00:90:E0:00:01:09 00:90:E0:22:33:44 00:90:E0:00:02:50	IP Address 192,168,3,22 192,168,3,135 192,168,127,255 192,168,3,119	Status Lock Products Search Specify by IP Ad Locate Search Uprode Fill Upgrade Firmwa	n kdress re ition

ATTENTION You can simultaneously import the same configuration file into multiple NPorts that are of the same model.

To select multiple NPorts, hold down the Ctrl key when selecting an additional NPort, or hold down the Shift key to select a block of NPorts.

### Monitor

There are two methods available to start the Monitor function.

- First use Broadcast Search under the Configuration Function group, and then click on Monitor → Add Target → Select target from the list.
- 2. First click on **Monitor**, and then Add Target  $\rightarrow$  Rescan.

Select **Broadcast** under the **Configuration** menu bar item.

Administrator-Con File Function Config		_	elp	_				
End Fund	ion Panel	Log	Panel	OnLine	telp			
Function					Config	uration - 5 NPo	rt(s)	
B NPort	N	0 /	Mod	el	MAC Address	IP Address	Status	
Configuration			NPo NPo NPo	n 5230 n 5430 n 5210 n 5410 n 5610-8	00.90.E8.22.33.44 00.90.E8.00.01.09 00.90.E8.00.02.50 00.90.E8.00.00.05 00.90.E8.00.00.12	192 168 127 254 192 168 3 135 192 168 3 135 192 168 3 119 192 168 4 105 192 168 4 128	Lock	

### Configuring Windows Administrator

Click on Monitor.

### Select Add Target.

The control	Monitor Vie	. Tak						
Ext	Function Pa	anel Log	Panel	OnLine Hel	p			
Funct	ion				Monitor	- Stopped - 0	NPort(s)	
E NPort	interior	No	Mod	ым	AC Address	IP Address	Aive	
Mor	tor							
Port	Monitor							
CON CON	mapping							

Ele Function	Monitor Vie	w Help						
Ê.st	Function Pe	nd Lo	g Panel	OnLine H	felp			
Funct	ion				Monitor -	Stopped - 0	NPort(s)	
NPort	iguration	No /	Mo	del	MAC Address	IP Address	Alive	
E Mon	itor Monitor		-	Add Targe	rt	1		
Q IP A	Mapping ddress Report			Remove T Load Conf	arget igured COM Port			
			127	Settings				
				Go Stop				

When you select add target, you will see an NPort list that looks the same as when using Configuration  $\rightarrow$  Broadcast Search.

Check the NPort you would like to Monitor, and then click **OK**.

Select Fi	rom List	Rescan	Select All	Clear Al
No	Model	MAC Address	IP Addres	15
1	NPort 5230	00.90.E8.22.33.44	192.168	127.254
2	NPort 5430	00:90:E8:00:01:09	192,168.	3.135
3	NPort 5210	00.90.E8.00.02.50	192.168.	3.119
<b>v</b> 4	NPort 5410	00:90:E8:00:00:05	192,168	4.105
5	NPort 5610-8	00:90:E8:00:00:12	192,168	4.128

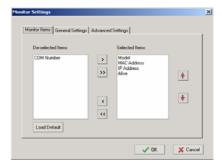
The NPort list will now appear on the Monitor screen.

Ele Function	tor-Monitor Monitor Vie	w H	No.					102
Å	Function Pe	rel	Log Panel	OnLine	Help			
Funct	ion				Monitor -	Stopped - 5 N	Port(s)	
NPort		No	/ Mc	del	MAC Address	IP Address	Alive	13 2
	iguration	1	NF	ort 5230	00 90 E8 22 33 44	192.168 127 254	Alive	
Mon	tor	2	NP	ort 5430	00:90:88:00:01:09	192 168 3 135	Alve	
Pod Pod	Monitor	3	NF	ort 5210	00.90 E8:00.02:50	192,168,3.119	Alive	
OF COM	Mapping	4		ort 5410	00.90 E 8.00.00.05	192,168,4,105	Ažye	
	ddress Report	5	NF	ort 5610-8	00 90 E8 00 00 12	192.168.4.128	Alive	

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

Exit Function Po	anel Log	Panel 0	nLine	Help				
Function				Monitor -	Stopped -	5 NP	ort(s)	
NPort	No /	Model		MAC Address	IP Address		Alive	
Configuration	1 2 3 4 5	NPort 52 NPort 54 NPort 54 NPort 56	30 10 10	00 90 E8 22 33 44 00 90 E8 00 01 09 00 90 E8 00 02 50 00 90 E8 00 00 50 00 90 E8 00 00 12	192,168,12 192,168,3,1 192,168,3,1 192,168,4,1 192,168,4,1	35 19 05	Alive Alive Alive Alive Alive	
			-	Add Target Bernove Target Load Configured C	OM Port			
			1	Settings				
			1	Go.				

Select or de-select **Monitor Items**. 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.



### Configuring Windows Administrator

x

Select a <b>Refresh Rate</b> (the default is 3 sec	conds).	Monitor Settings  Monitor Items General Settings Monitor Items General Settings Releash Rate: Auto save monitored NPot fait.
Select <b>Display warning message</b> for new <b>warning music</b> for new event. In the secon must enter the path to the WAV file that y played. "New event" means that one of th monitor is "Alive" or "Not Alive," or has with the Monitor program.	ond case, you you want to be e 5600s in the	Monitor Settings       X         Monitor thema:       General Settings:       Advanced Settings:         Monitor and Post Monitor Message Box Setting:       Display warring message for new event.       Play warring music for new event.         Play warring music for new event.       Play warring music for new event.       >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
Press Go to start Monitor.	Configuration	Monitor - Stopped - 5 NPort(s)           Model         Multor - Stopped - 5 NPort(s)           Multor - Stopped - 5 NPort(s)         Alwer           Multor - Stopped - 5 NPort(s)         Alwer <t< td=""></t<>
For this example, the 5 NPorts shown in the list will be monitored.	Configuration 1 Monitor 2 Monitor 3 COM Mapping 4	Image: State State         Image: State State State         Image: State State State State         Image: State State State State         Image: State State State State         Image: State State State State         Image: State State State         Image: State State State State State         Image: State         Image: State
When one of the NPorts loses connection Monitor program, a warning alert will disp automatically. The warning music will be same time.	play	Alext Alext New Monitor Event : 2 Event(s) Person check Monitor mensage window for more information. 2/30/2003 10:02:00 AM NPut 52:00 (192:168:127:254) is bait connection 4/30/2003 10:02:00 AM NPut 52:00 (192:168:127:254) is bait connection

### **Configuring Windows Administrator**

In the Monitor screen, you can see the "Not Alive" NPort is marked with red Panel ñ, OnLine color. - 5 NPort(s) 23 MACA Alive IP A AL Click the Alive column. The Monitor program will sort the NPort list and put 1 胞 Log Panel OnLine Hal all "Not Alive" NPorts at the top of the rt(s) 阳 IP Ad list. 192.168.1
192.168.4 Alive If the NPort gets reconnected, a warning will be displayed to remind the user the NPort is now "Alive." 1 Event Stop Music 1 Dose - [D] × The NPort that was reconnected, and is now "Alive," will be shown in black color.

anel L	og Panel OnL	🤗 ne Help				
			Monitor -	Running - 5 N	Port(s)	
No	Model	MACA	ddress	IP Address	Alive	12
4	NPort 541	0 00:90	E 8.00.0	192,168.4.105	Not Alive	
1	NPort 5230	00.90	E8:22:33:44	192,168,127,254	Alive	
2	NPort 5430	00.90	E8:00:01:09	192.168.3.135	Alive	
3	NPort 5210	00.90	E8:00:02:50	192.168.3.119	Aäve	
5	NPort 5610	8 00.90	E8:00:00:12	192.168.4.128	Alive	
	No 4 1 2 3 5	No         Model           4         NPort 541           1         NPort 520           2         NPort 5430           3         NPort 5210	No         Model         MAC/A           4         MPort 5410         00.90           1         NPort 5230         00.90           2         NPort 5430         00.90           3         NPort 5420         00.90           3         NPort 5210         00.90	Monitor         Monitor           No         Model         MAC Address           4         NPort 5410         00.906 82.000.0.           1         NPort 5230         00.906 82.23.344           2         NPort 5420         00.906 82.03.04           3         NPort 5210         00.906 80.001.09	Monitor - Running - 5 N           No         Model         IP Addess         IP Addess           4         NPut 5410         00:90:61000         192:188.4.105           1         NFort 5520         00:90:62:0314         192:188.2.105           2         NFort 5520         00:90:60:00:19         192:188.3.105           3         NFort 5520         00:90:60:00:19         192:188.3.115	Monitor - Running - 5 NPort(s)           No         Model         MAC Addess         IP Addess         Alve           4         NPort 5410         00.9014 (0.010, 192, 1584, 410)         Net Alvee           1         NPort 5510         00.9024 203, 344         192, 1584, 410, 152, 754         Alve           2         NPort 5400         00.9024 203, 444         192, 158, 315         Alve           3         NPort 5200         00.9026 00250         192, 168, 315         Alve

### **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.

😵 Administrator-Port Mon	itor						
Eile Function Port Monitor	View <u>H</u> elp						
Exit Function Pa	anel Log Pa	nel OnLine	t Help				
Function				Port Mo	nitor -	Stopped - 3	16 Port(s)
⊡- 🔊 NPort	No 🛆	Model	MAC Address	IP Address	Port	Alive	
Configuration	<b>⊡</b> 1	NPort 5610-8	00:90:E8:00:00:12	192.168.4.128	1	Alive	
Monitor	<b>₽</b> 2	NPort 5610-8	00:90:E8:00:00:12	192.168.4.128	2	Alive	
Port Monitor	☑ 3 ☑ 4 ☑ 5	NPort 5610-8	00:90:E8:00:00:12	192.168.4.128	3	Alive	
- 📶 COM Mapping - 🔆 IP Address Report	☑ 4	NPort 5610-8	00:90:E8:00:00:12	192.168.4.128	4	Alive	
	<b>⊡</b> 5	NPort 5610-8	00:90:E8:00:00:12	192.168.4.128	5	Alive	
	<b>⊡</b> 6	NPort 5610-8	00:90:E8:00:00:12	192.168.4.128	6	Alive	
	<b>₽</b> 7	NPort 5610-8	00:90:E8:00:00:12	192.168.4.128	7	Alive	
	<b>⊡</b> 8	NPort 5610-8	00:90:E8:00:00:12	192.168.4.128	8	Alive	
	<b>9</b>	NPort 5210	00:90:E8:00:02:50	192.168.3.119	1	Alive	
	10	NPort 5210	00:90:E8:00:02:50	192.168.3.119	2	Alive	
	☑ 11	NPort 5230	00:90:E8:22:33:44	192.168.127.254	1	Alive	
	12	NPort 5230	00:90:E8:22:33:44	192.168.127.254	2	Alive	
	<b>1</b> 3	NPort 5430	00:90:E8:00:01:09	192.168.3.135	1	Alive	
	☑ 14	NPort 5430	00:90:E8:00:01:09	192.168.3.135	2	Alive	
	<b>1</b> 5	NPort 5430	00:90:E8:00:01:09	192.168.3.135	3	Alive	
	16	NPort 5430	00:90:E8:00:01:09	192.168.3.135	4	Alive	
1							

### Configuring Windows Administrator

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



### **COM Mapping**

Windows Administration Suite comes with Windows 95/98/ME/NT/2000/XP Real COM drivers. After you install Windows Administration Suite, there are two ways to set up the NPort's 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 the NPort 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 connecting the NPort to the network first. Off-line COM Mapping can decrease the system integrator's effort by solving different field problems. Via off-line installation, the user can process the host software installation and then install the NPort to different fields.

Use the following procedure to map COM ports:

1. On-line COM Mapping:

Connect NPort to the network  $\rightarrow$  Set NPort to the proper IP address  $\rightarrow$  Map COMs to your host  $\rightarrow$  Apply Change.

2. Off-line COM Mapping:

Map COMs to your host  $\rightarrow$  Apply Change  $\rightarrow$  Connect NPort to the network  $\rightarrow$  Configure NPort's IP address.

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

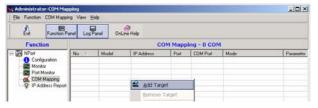
**Broadcast Search** for NPorts on the network.

Select the **COM Mapping** function group.

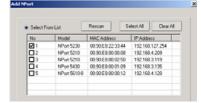
Exit Function Pa	nel Log Panel	OnLine	Help				
Function			Config	uration -	O NPort(	s)	
NPort     Configuration	No / Model		MAC Address	IP Addre	## S	latus	
Monitor Port Monitor			Broadcast Sear	ch			
COM Mapping		2	Specify by IP /	ddress			
		1.040					
		1545	Locata				
C Administrator-COM Mag			li Locata				
	ing View <u>H</u> elp	OnLer					
Ele Function COM Mapp	ang View <u>H</u> elp		P Help	M Mappir	ng - 0 CO?	4	

### **Configuring Windows Administrator**

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



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

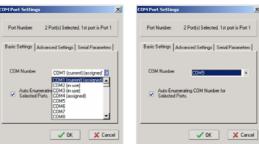


Select **COM Setting** to modify COM No., default setting, etc.



Select the COM No.

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 NPorts, remember to check the "Auto Enumerating" function to use the COM No. you select as the first COM No.



**Hi-performance** mode is the default for Tx mode. If the driver completes sending data out to the NPort, 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; 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, NPort 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.

Port Number:	1 Port(s) Selected 1st p	ort is Port 1
lasic Setting	Advanced Settings Setial I	Parameters
Tx Mode	Hi-Performance	
FIFO	Enable	•
Fast Flue	h (Only Flush Local Buller)	>
	Selected Parts	

### Fast Flush (only flush local buffer)

- 1. We have added one optional "Fast Flush" function in our new NPort Real COM driver. NPort Administrator Suite for 2G NPort adds it after version 1.2.
- 2. 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 PurgeComm() function, the NPort driver will keep querying 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 (about 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 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.
- 3. 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.
- 4. By default, the optional "Fast Flush" function is disabled. If you would like to enable this function, from the "NPort Administrator," double click on the COM ports that are mapped to the NPort, and then select the "Fast Flush" checkbox. You should fnd that when "Fast Flush" is enabled, the NPort driver will work faster with "PurgeComm()."

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



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.

Exit Function Pa	nel Log P	anel OnLin	Help	
Function				C
NPort	No A	Model	IP Address	Port
Configuration	2	NPort 5230 NPort 5230	192.168.127.254 192.168.127.254	1 2
<b>:9</b> : IP Address Report				

### Configuring Windows Administrator

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

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

# I Log Panel OnLine Hel ŗ,

😪 Administrator-COM Map	ping			
Ele Function COM Mappi	ng View <u>H</u> e	þ		
Exit Function P	anel Log Pa	nel OnLine	Help	
Function				COM
D D NPort	No /	Model	IP Address	Port
Configuration	1	NPot 5230 NPot 5230	192.168.127.254 192.168.127.254	1 2
Message Log - 1 Monitor Log	0-0			
No Time		Description		

# **Off-line COM Mapping**

in the other host.

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

Select F	rom List	Rescan	Select All	Den Al	
No	Model	MAC Address	IP Addres	• [	
Input ma	nually	IP Address	192 168 3 100	_	
		Model	NPort 5230		
		Ports	2 Port(s)		

Elle Function COM Mapp	pping ing View <u>H</u>	elp				
Ext Function F	anel Logi	anel OnLin		м Марр	ing - 2 COM	4
- 🕅 NPort	No 🛆	Model	IP Address	Port	COM Port	Mode
Configuration	1	NPort 5230	192,168,3,100	1	COM1	HiPerformance, FIF0 Er
Monitor	2	NPort 5230	192.168.3.100	2	COM4	Hi-Performance, FIFO Er
COM Mapping						



### Configuring Windows Administrator

Apply change.

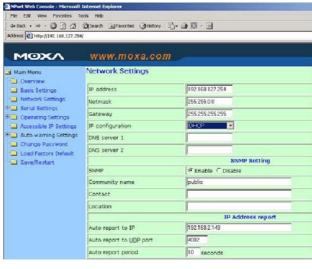
Ext Function	Panel Log P	anel OnLin	e Help			
Function					ng - 2 COM	
NPort     Configuration     Monitor     Port Monitor	No // 2	Model NPort 5230 NPort 5230	IP Address 192,168,3,100 192,168,3,100	Port 1 2	COM Port COM1 COM4	Mode Hi-Performance, FIF0 Er Hi-Performance, FIF0 Er
COM Mapping P IP Address Report			2	Add Target Remove Ta		
					Enable Disable	
				657	<u>C</u> OM Settin	gs
					Apply Chan	2e
					Discard Cha	

### **IP** Location

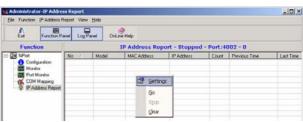
When NPort 5600 series products are used in a dynamic IP environment, users must spend more time with IP management tasks. NPort 5600 series products help out by periodically reporting their IP address to the IP location server, in case the dynamic IP has changed.

- Receive NPort's IP location report
- Centralize NPort's IP management in a dynamic IP environment.

Configure NPort with Dynamic IP settings. For example, DHCP, BOOTP and DHCP/BOOTP. Assign the remote Auto IP report server's IP address and UDP port.



Select the **IP Location Report**, and click the right mouse button to select Settings.



Then configure the Local Listen Port to be the same as the NPort's "Auto report to UDP port" setting.

Location Settings		
Local UDP Listen Port	4002	
	🖌 ОК	🗶 Cancel

### Configuring Windows Administrator

Click **GO** to start receiving the Auto IP address report from the NPort.

	nction vt Configuration Monitor	No /		IP Addr	D				
2	Configuration	No /			ress kepo	rt - Stopped	- Port:4	002 - 0	
			Model	MAC.A	ddress	IP Address	Count	Previous Time	Last Tim
	Port Monitor COM Mapping IP Address Report				9 Settings Go Stop Gear				

Exit Function	Panel Log	anel OnLin	Нер				
Function			IP Address Ro	port - Runnin	ig - Port	:4002 - 1	
E NPort	No /	Model	MAC Address	IP Address	Court	Previous Time	Last Time
Configuration Monitor Port Monitor COM Mapping O IP Address Repo	1	NPort 5230	00 90 68 22 33 44	192 168 2 153	3	10.25.06 AM	10.26.16 AN

# 7 IP Serial LIB

The following topics are covered in this chapter:

- **Overview**
- **IP Serial LIB Function Groups**
- **D** Example 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 who are 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.

NPort Serial Device Servers use 2 TCP ports for communication between the NPort and host computer's Real COM driver. NPort 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 NPort in 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 details about the function definitions.

🔯 NPortAdminSuite						
File Edit View Favorites Tools	Help					
🛛 💠 Back 🔹 🔿 👻 🔂 🔯 Search 🧣	🔓 Folders 🛛 🎯 History 🛛 🎥 🧏 🔅	K 🗤 🖩 •				
Address 🗀 NPortAdminSuite						
Folders ×		Name 🛆	Size	Туре	Modified	
😭 Desktop		🚞 bin		File Folder	4/30/2003 10:27 AM	
🖻 😋 My Documents		IPSerial		File Folder	4/28/2003 4:01 PM	
My Pictures	NPortAdminSuite	RealCom		File Folder	4/28/2003 4:01 PM	
🖻 🖳 My Computer		🗏 readme	1 KB	Text Document	4/1/2003 11:26 AM	
E- Local Disk (C:)	VERSION Text Document	🛤 unins000	11 KB	DAT File	4/28/2003 4:01 PM	
TEST (D:)     Documents and Settings	Text Document	🥑 unins000	85 KB	Application	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	
	Size: 110 bytes					
🖃 🧰 Program Files	· ·					
Accessories	Attributes: (normal)					
ComPlus Applications						
NetMeeting						
🕀 🕣 NPortAdminSuite						
Outlook Express						
- Windows Media Player						
😟 💼 Windows NT						
È · 🛄 WINNT	1					

## **IP Serial LIB Function Groups**

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

## **Example Program**

char nportip="192.168.1.10"; char buffer[255]; int port = 1; int portid; nsio\_init(); portid = nsio\_open(nportip, port); nsio\_ioctl(portid, B9600, (BIT\_8 | STOP\_1 | P\_NONE) ); sleep(1000); nsio\_read(port, buffer, 200); nsio\_close(portid); nsio\_end();

/\* data buffer, 255 chars \*/ /\* 1st port \*/ /\* port handle \*/ /\* initial IP Serial Library \*/ /\* 1st port, nport IP=192.168.1.10 \*/ /\* set 9600, N81 \*/ /\* wait for 1000 ms for data \*/ /\* read 200 bytes from port 1 \*/ /\* close this serial port \*/ /\* close IP Serial Library \*/

# A

## **Pinouts and Cable Wiring**

In this appendix, we cover the following topics.

#### **D** Port Pinout Diagrams

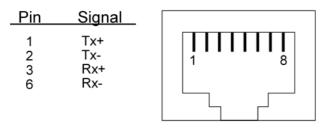
- Ethernet Port Pinouts
- Serial Port Pinouts
- ➢ Async Port 4-wire RS-422 Pinouts (RJ45)
- ➢ Async Port 2-wire RS-485 Pinouts (RJ45)

#### **Cable Wiring Diagrams**

- ➢ Ethernet Cables
- Serial Cables
- Pin Assignments for DB9 and DB25 Connectors

## **Port Pinout Diagrams**

### **Ethernet Port Pinouts**



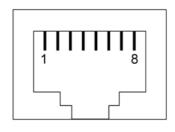
### **Serial Port Pinouts**

#### **RS-232 Pinouts**

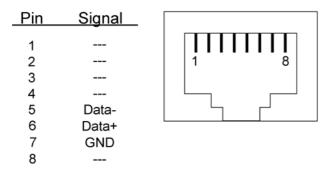
Pin	RS-232	
1 2 3 4 5 6 7 8	DSR (in) RTS (out) GND TxD (out) RxD (in) DCD (in) CTS (in) DTR (out)	

#### 4-wire RS-422 Pinouts

Pin	Signal
4	-
1	
2	
3	TxD+
4	TxD-
5	RxD-
6	RxD+
7	GND
8	

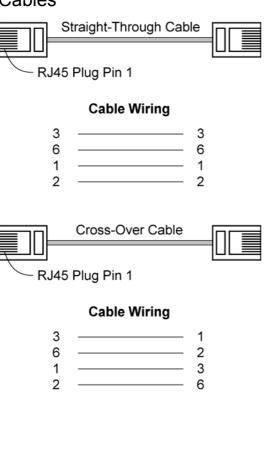


#### 2-wire RS-485 Pinouts



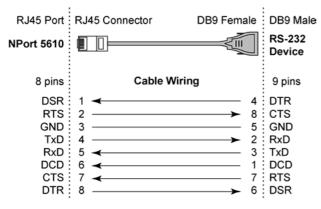
## **Cable Wiring Diagrams**

### **Ethernet Cables**



#### Serial Cables

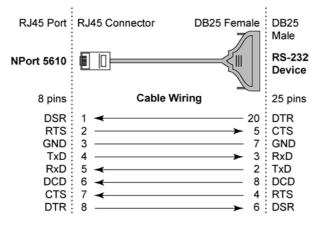
#### RJ45 (8 pins) to DB9 Female for NPort 5610

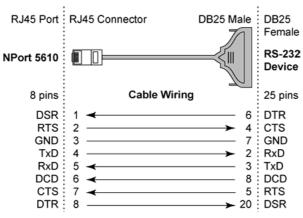


#### RJ45 (8 pins) to DB9 Male for NPort 5610

RJ45 Port NPort 5610	RJ45 Connector	DB9 Male	DB9 Female RS-232 Device
8 pins	Cable Wiring		9 pins
DSR	1 ৰ	6	DTR
RTS GND	2	→ 7 5	CTS GND
TxD	4	→ 3	RxD
RxD	5 \prec	2	TxD
DCD	6 \prec	1	DCD
CTS	7 \prec	8	RTS
DTR	8	→ 4	DSR

#### RJ45 (8 pins) to DB25 Female for NPort 5610

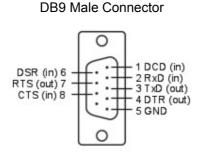




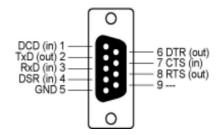
#### RJ45 (8 pins) to DB25 Male for NPort 5610

#### Pin Assignments for DB9 and DB25 Connectors

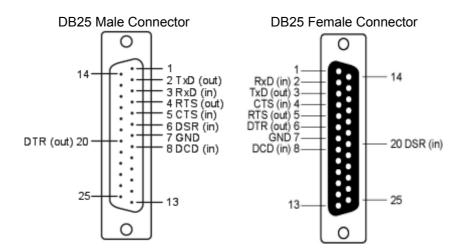
#### **Pin Assignments for DB9 Male and Female Connectors**



DB9 Female Connector



#### Pin Assignments for DB25 Male and Female Connectors



A-5

## **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 NPort 5600 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 Multiplexor	
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)	

### NPort 5600 Series User's Manual

### Well Known Port Numbers

43	Whois (nickname)		
49	(Login Host Protocol) (Login)		
53	Domain Name Server (domain)		
79	Finger protocol (Finger)		
TCP Socket	Application Service		
80	World Wibe Web HTTP		
119	Netword 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	Gopler Protocol	
79	Finger Protocol	
80	World Wide Web HTTP	
107	Remote Telnet Service	
111	Sun Remote Procedure Call (Sunrpc)	
119	Network news Tcanster Protocol (NNTP)	
123	Network Time protocol (nnp)	
161	SNMP (Simple Network Mail Protocol)	
162	SNMP Traps	
213	IPX (Used for IP Tunneling)	

# С

## SNMP Agent with MIB II & RS-232 Like Group

NPort 5600 has built-in SNMP (Simple Network Management Protocol) agent software. It supports SNMP Trap, RFC1317 RS-232 like group and RFC1213 MIB-II. The following table lists the standard MIB-II group, as well as the variable implementation for NPort 5600.

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

RFC1213 MIB-II supported SNMP variables:

## NPort 5600 Series User's Manual SNMP Agent with MIB II & RS-232 Like Group

System MIB	Interfaces MIB	IP MIB	ICMP MIB
SysServices	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	TCP MIB	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
AtIfIndex	tcpCurrEstab	snmpInReadOnlys
AtPhysAddress	tcpInSegs	snmpInGenErrs
AtNetAddress	tcpOutSegs	snmpInTotalReqVars
Address Translation MIB	TCP MIB	SNMP MIB
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

## **Auto IP Report Protocol**

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 other 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 Web browser. The figure below is NPort Web console configuration window. Enter the IP address and the Port number of the PC that you want to send this information to.

File Edit View Favorites To	ols Help ÖjSearch 🔐 Favorites (ÖjHistory 🗄	A. A. R. J. H.	
lódress 0 Http://192.168.127.254/		9. w m · 3	_
MOXA	www.moxa.com		
Main Menu	Network Settings		
<ul> <li>Overview</li> <li>Basic Settings</li> </ul>	IP address	192 168 127 254	
Network Settings	Netmask	255.255.0.0	
<ul> <li>Serial Settings</li> <li>Operating Settings</li> </ul>	Gateway	255.255.255.255	
Accessible IP Settings	JP configuration	DHCP +	
Auto warning Settings Change Password	DNS server 1		
Load Factory Default	DNS server 2		
Save/Restart		SMMP Setting	
	SNMP	Enable C Disable	
	Community name	public	
	Contact		
	Location		
		IP Address report	
	Auto report to IP	192.168.2.149	
	Auto report to UDP port	4002	
	auto report period	10 seconds	

Variable, Length is "Length Field"

And then you can develop your own programs to receive this information from the NPort. Here is NPort's Auto IP Report Protocol. We provide an example for you to easily develop your own programs. You can find this example on Moxa's website.

#### http://web2.moxa.com.tw/services/download/download.asp

1

#### Auto IP Report Format

1

"MOXA", 4 bytes Info[0] Info		o[1]		Info[n]		
Info [n]						
Field	ID	L	ength	Da	ata	

## Length

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

AP ID	Hardware ID	Product
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

## **Service Information**

This appendix shows you how to contact Moxa for information about this and other products, and how to report problems.

In this appendix, we cover the following topics.

- **D** MOXA Internet Services
- **D** Problem Report Form
- **D** Product Return Procedure

### **MOXA Internet Services**

Customer satisfaction is our number one concern, and to ensure that customers receive the full benefit of our products, Moxa Internet Services has been set up to provide technical support, driver updates, product information, and user's manual updates.

#### The following services are provided

E-mail for technical support.....support@moxa.com.tw

World Wide Web (WWW) Site for product information:

.....<u>http://www.moxa.com</u>

### **Problem Report Form**

## MOXA NPort 5600 Series

Customer name:				
Company:				
Tel:	Fax:			
Email:	Date:			

- 1. Moxa Product:
   □ NPort 5610-16-48V (DC Power)
   □ NPort 5610-8-48V (DC Power)
   □ NPort 5610-8 (AC Power)

   5610-16 (AC Power)
   □ NPort 5610-8 (AC Power)
   □ NPort 5630-16-48V (DC Power)
   □ NPort 5630-8 (AC Power)

   5630-8-48V (DC Power)
   □ NPort 5630-16 (AC Power)
   □ NPort 5630-8 (AC Power)
- 2. Serial Number: \_\_\_\_\_

**Problem Description:** Please describe the symptoms of the problem as clearly as possible, including any error messages you see. A clearly written description of the problem will allow us to reproduce the symptoms, and expedite the repair of your product.

### **Product Return Procedure**

For product repair, exchange, or refund, the customer must:

- Provide evidence of original purchase.
- Obtain a Product Return Agreement (PRA) from the sales representative or dealer.
- Fill out the Problem Report Form (PRF). Include as much detail as possible for a shorter product repair time.
- Carefully pack the product in an anti-static package, and send it, pre-paid, to the dealer. The PRA should be visible on the outside of the package, and include a description of the problem, along with the return address and telephone number of a technical contact.

## **Revision History**

Document Edition	Revision Date	Revision Details
2 <sup>nd</sup>	November 27, 2003	<ol> <li>Update the edition of this manual on the title page.</li> <li>Include product information for NPort 5630 into related chapters of this User's Manual.</li> </ol>
3 <sup>rd</sup>	January 7, 2004	<ol> <li>Update the edition of this manual on the title page.</li> <li>p. 2-5         Add Real Time Clock section and the warning message regarding dealing with the lithium battery.     </li> </ol>
4 <sup>th</sup>	May 13, 2004	<ol> <li>Updated the edition of this manual on the title page.</li> <li>Changed the new Moxa logo on the title page.</li> <li>p. 6-16 Added descriptions on newly-added function "Fast Flush".</li> <li>p. 4-3 Added more descriptions on Real COM Mode.</li> <li>p. 5-11 Added more descriptions under <i>Max connection 2 to 4</i>.</li> <li>p. 6-18 Changed "TCP" to "UDP".</li> <li>Added Appendix E.</li> </ol>
5 <sup>th</sup>	August 30, 2004	1. Updated DC terminal block figures.