# NPort 5000 Series User's Manual

NPort 5000/5000A/IA5000/IA5000A Series

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# NPort 5000 Series User's Manual

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# **About This Manual**

NPort Family	Model Series	Introduction
NPort 5000	NPort 5110/5130/5150 Series	NPort 5000 series device servers are
	NPort 5210/5230/5232 Series	designed to make serial devices
	NPort 5410/5430/5450 Series	network-ready in an instant. The different
	NPort 5610/5630/5650 Series	form factors of the servers provide flexible
	NPort 5610-8-DT/5650-8-DT Series	options for users to connect legacy
	NPort 5610-8-DTL/5650-8-DTL Series	devices to an IP-based Ethernet LAN.
NPort 5000A	NPort 5110A/5130A/5150A Series	The NPort 5000A device servers are
	NPort 5210A/ 5230A/5250A Series	designed to make serial devices
	NPort 5150AI-M12/5250AI-M12/5450AI-M12	network-ready in an instant and give your
	Series	PC software direct access to serial devices
	NPort P5150A Series	from anywhere on the network. The NPort
		5000A device servers are ultra-lean,
		rugged, and user-friendly, making simple
		and reliable serial-to-Ethernet solutions
		possible.
NPort	NPort IA5150/IA5250 Series	NPort IA device servers are an ideal
IA5000/IA5000A	NPort IA5150A/IA5250A/IA5450A Series	choice for establishing network access to
		RS-232/422/485 serial devices, including
		PLCs, sensors, meters, motors, drives,
		barcode readers, and operator displays.
		All models are housed in a compact,
		rugged, DIN-rail mountable housing, and
		come with redundant power inputs,
		cascading Ethernet ports, and
		industrial-grade certifications.

Read this user's manual to learn how to configure and use your Moxa NPort device server. The following products are covered by this manual:

# **Getting Started**

In this chapter, we explain how to install a Moxa NPort device server for the first time. There are four ways to access the Moxa NPort's configuration settings: Windows utility, web console, serial console, or Telnet console. The following table lists which NPort products support which configuration options.

NPort Family	NPort 5000/IA5000	NPort 5000A/IA5000A
Configuration	Series	Series
Options	Series	Series
Windows Utilities		
NPort Administrator	$\checkmark$	$\checkmark$
NPort Search Utility and Windows Driver Manager		
Web Console	1	✓
Quick Setup Wizard	-	✓
Serial Console*	1	✓
Telnet Console	1	✓

 \* Only applies to NPorts that have a serial console port. The following NPorts do not have a serial console port: NPort 5130/5232/5400 Series, NPort 5600 RM Series, NPort 5150AI-M12/5250AI-M12/5450AI-M12 Series, NPort 5130A/ 5230A Series.

The following topics are covered in this chapter:

- Installing Your NPort Device Server
- Configuration by Windows Utility
- Configuration by Web Console
- Configuration by Telnet Console
- Configuration by Serial Console
- Testing Your NPort

# **Installing Your NPort Device Server**

This section describes how to connect an NPort device server to your serial devices for the first time. We cover Wiring Requirements, Connecting the Power, Grounding the NPort Device Server, 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 Device Server.

#### Wiring Caution!

Calculate the maximum possible current allowed in each power wire and common wire. Observe all electrical codes dictating the maximum current allowed for each wire size. If the current goes above the allowed maximum, the wiring could overheat, causing serious damage to your equipment.

#### Temperature Caution!

Please be cautious when handling the NPort device server. When plugged in, the NPort's internal components generate heat, and consequently the casing may feel hot to the touch. When installed with other components, make sure that there is at least a 2-cm clearance on all sides of the NPort device server in order to allow proper heat dissipation.

You should observe the following:

• Use separate paths to route wiring for power and devices. If the 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 wires 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 wires to all devices in the system.

# **Connecting the Power**

Connect the power line with the NPort's power input. 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.

# **Grounding the NPort Device Server**

Note: This section only applies if your NPort's power input is on a terminal block.

Grounding and wire routing help limit the effects of noise caused by electromagnetic interference (EMI). Run the ground connection from the ground screw to the grounding surface before connecting the devices.



#### WARNING

NPorts with a power terminal block are intended to be mounted to a well-grounded mounting surface such as a metal panel.

Type of Power Terminal Block	Shielded Ground (SG)	Applicable Products
	The Shielded Ground (sometimes called	NPort IA5000 Series
± ± τ∧ ± ± ±	Protected Ground) contact is the left most	
	contact of the 7-pin power terminal block	
0 0 0 0 0 0 0	connector when viewed from the angle	
	shown here. Connect the SG wire to an	
	appropriate grounded metal surface.	
PWR2 Relay	The Shielded Ground (sometimes called	NPort IA5000A Series
	Protected Ground) contact is the left most	
	contact of the 8-contact power terminal	
	block connector when viewed from the angle	
	shown here. Connect the SG wire to an	
<u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u>	appropriate grounded metal surface.	
SG	The Shielded Ground (sometimes called	NPort 5200/5400 Series
	Protected Ground) contact is the left most	NPort 5200A Series
222	contact of the 3-pin power terminal block	
	connector when viewed from the angle	
NPon	shown here. Connect the SG wire to an	
	appropriate grounded metal surface.	
C Ethernat N1		
	The Shielded Ground (sometimes called	NPort 5600 Series
ABBBA	Protected Ground) contact is the second	
V+ V- 🖨	contact from the right of the 5-pin power	
Ĭ	terminal block connector located on the rear	
$\sim \gamma$	panel of NPort 5600 VDC models. Connect	
36	the SG wire to the earth ground.	

# **Connecting to the Network**

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

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



#### ATTENTION

NPort IA5000/IA5000A/5600-8-DT series NPorts have two Ethernet ports that can be used to create an open chain of NPort IA5000/IA5000A/5600-8-DT device servers. Be careful not to connect the Ethernet ports of the two device servers at the ends of the chain.

In other words, NPort IA5000/IA5000A/5600-8-DT series NPorts do NOT support closed chains.

# **Connecting to a Serial Device**

Connect a serial data cable between the NPort and the serial device. Serial data cables must be purchased separately. They are not provided with the NPort.

# **LED Indicators**

#### LED Name LED Color **LED Function** Ready Red Steady on: Power is on, and the NPort is booting up. Blinking: Indicates an IP conflict, or the DHCP or BOOTP server did not respond properly. Green Steady on: Power is on, and the NPort is functioning normally. Blinking: The device server has been located by NPort Administrator's Location function. Off Power is off, or a power error condition exists. Link Orange The device is connected to a 10 Mbps Ethernet connection. The device is connected to a 100 Mbps Ethernet connection. Green Off The Ethernet cable is disconnected, or has a short. Tx/Rx Orange The serial port is receiving data. Green The serial port is transmitting data. Off Data is NOT being transmitted or received through the serial port.

#### NPort 5100/5100A/P5150A Series

#### NPort 5200/5200A/5400 Series

LED Name	LED Color	LED Function	
Ready Red Steady on: Pow		Steady on: Power is on, and the NPort is booting up.	
		Blinking: Indicates an IP conflict, or the DHCP or BOOTP server did not	
		respond properly.	
	Green	Steady on: Power is on, and the NPort is functioning normally.	
		Blinking: The device server has been located by NPort Administrator's	
		Location function.	
	Off	Power is off, or a power error condition exists.	
Link	Orange	The device is connected to a 10 Mbps Ethernet connection.	
(Ethernet)	Green	The device is connected to a 100 Mbps Ethernet connection.	
	Off	The Ethernet cable is disconnected, or has a short.	
P1, P2,	Orange	The serial port is receiving data.	
(P3, P4) Green The serial port is transmitting data.		The serial port is transmitting data.	
	Off	Data is NOT being transmitted or received through the serial port.	

## NPort 5600 Series (Rackmount)

LED Name	LED Color	LED Function	
Ready	Red	Steady on: Power is on and the NPort is booting up.	
		Blinking: Indicates an IP conflict, or the DHCP or BOOTP server did not	
		respond properly.	
	Green	Steady on: Power is on, and the NPort is functioning normally	
		Blinking: The device server has been located by NPort Administrator's	
		Location function.	
	Off	Power is off, or a power error condition exists.	
Tx/Rx,	Orange	The serial port is receiving data.	
P1 to P16	Green	The serial port is transmitting data.	
	Off	Data is NOT being transmitted or received through the serial port.	
Link*	Off	The fiber port is disconnected.	
	Green	The fiber port is connected, but data is NOT being transmitted.	
	Blinking	The fiber port is connected, and data is being transmitted.	

\*The NPort 5650 fiber model is the only model with a Link indicator on the rear panel.

## NPort 5600-8-DT/DTL Series

LED Name	LED Color	LED Function	
PWR	Red	Power is on.	
	Off	Power is off.	
Ready	Green	Steady on: The NPort is operational.	
		Blinking: The NPort is responding to NPort Administrator's Location	
		function, or the NPort is being reset to factory defaults.	
	Off	Power is off, or power error condition exists.	
Fault	Red	Indicates an IP conflict, or the DHCP or BOOTP server did not respond properNo fault condition detected.	
	Off		
Link*	Green	Steady on: Network is connected, no data is being transmitted.	
	Off	Blinking: Network is connected, data is being transmitted.	
In Use	Green	Serial port has been opened by server side software.	
(P1 to P8)	Off	Serial port is not currently opened by host side software.	
Tx/Rx	Green (Tx)	Serial device is transmitting data.	
(P1 to P8)	Orange(Rx)	Serial device is receiving data.	
	Off	No data is flowing to or from the serial port.	

#### NPort 5000AI-M12 Series

LED Name	LED Color	LED Function	
PWR	Green	Power is being supplied to the power input.	
Ready Red Steady on: Power is on, and the NPort is		Steady on: Power is on, and the NPort is booting up.	
		Blinking: Indicates an IP conflict, or the DHCP or BOOTP server did not	
	Green	respond properly. Steady on: Power is on, and the NPort is functioning normally	
		Blinking: The device server has been located by NPort Administrator's	
		Location function.	
	Off	Power is off, or a power error condition exists.	
10M, 100M	Orange	The device is connected to a 10 Mbps Ethernet connection.	
	Green	The device is connected to a 100 Mbps Ethernet connection.	
	Off	The Ethernet cable is disconnected, or has a short.	
P1, P2, P3, P4	Orange	The serial port is receiving data.	
	Green	The serial port is transmitting data.	
	Off	Data is NOT being transmitted or received through the serial port.	

## NPort IA5000/IA5000A Series

LED Name	LED Color	LED Function	
PWR1, PWR2	Red	Power is being supplied to power input PWR1, PWR2.	
Ready	Red	Steady on:	Power is on, and the NPort IA is booting up.
		Blinking:	Indicates an IP conflict, the DHCP or BOOTP server did not
			respond properly, or a relay output was triggered. When the
			above two conditions occur at the same time, check the relay
			output first. If after resolving the relay output and the Ready LED
			is still blinking, then there is an IP conflict, or the DHCP or $\operatorname{BOOTP}$
			server did not respond properly.
	Green	Steady on:	Power is on and the NPort IA is functioning normally.
		Blinking:	The device server has been located by NPort Administrator's
			Location function.
	Off	Power is off,	or a power error condition exists.
E1, E2	Orange	The device is connected to a 10 Mbps Ethernet connection.	
	Green	The device is connected to a 100 Mbps Ethernet connection.	
	Off	The Ethernet cable is disconnected, or has a short.	
P1, P2,	Orange	The serial port is receiving data.	
(P3, P4) Green The serial port is transmitting data.		rt is transmitting data.	
	Off	Data is NOT I	peing transmitted or received through the serial port.
FX*	Orange	Steady on:	The fiber port is connected, but data is NOT being transmitted.
		Blinking:	The fiber port is connected, and data is being transmitted.

\*Only applies to NPort IA5000 fiber models.

# **RS-485 Port's Adjustable Pull High/Low Resistor**

For some applications, you may need to use termination resistors to prevent the reflection of serial signals. When using termination resistors, it is important to set the pull high/low resistors correctly so that the electrical signal is not corrupted. Refer to **Appendix B** for detailed instructions on how to set the pull high/low resistor values for different models.

# **Configuration by Windows Utility**



#### ATTENTION

Before installing and the configuring the NPort Administration suite, make sure your user privilege is set as system administrator.

NPort Administration Suite is an integrated software suite that bundles NPort Administrator and the IP Serial Library, providing everything you need to manage, monitor, and modify your NPort from a remote location.

With NPort Administrator, you can easily install and configure your NPort device server over the network. Five different sets of functions are provided to ease the installation process: Configuration, Monitor, Porting Monitor, COM Mapping, and IP Address Report.

In this section, we will cover only the "configuration of general settings" using NPort Administrator. For more detailed information on how to use this suite of useful utilities, refer to **Chapter 5**.

You may also use the web console, serial console, or Telnet to configure the device server. Refer to the section **Configuration by Web Console**, **Configuration by Serial Console**, and **Configuration by Telnet Console** for additional information on using these consoles.

## **Installing NPort Administrator**

Locate and run the setup program on the NPort Document & Software CD. Look for a file named Npadm\_Setup\_[Version]\_Build\_[DateTime].exe (e.g., "Npadm\_Setup\_Ver1.8\_ Build\_07041316.exe"). You may also download the latest version of NPort Administrator from Moxa's website at: <a href="http://www.moxa.com/support/download.aspx?did=1317">http://www.moxa.com/support/download.aspx?did=1317</a>

Run NPort Administrator when the installation is complete.

## Searching for Device Servers over a LAN

The **Broadcast Search** function is used to locate all NPort 5400 device servers 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.

NPort Administrator-Co						x
<u>File Eunction Configuration</u>	<u>⊻</u> iew <u>H</u> elp					
Exit Search Search	IP Locate	Configure Web	0fiti	0.00		
Fundtion	No 🛆	Model	Configuration - MAC Address	IP Address	Server Name	Status
Configuration						
	•		III			Þ

In NPort Administrator, click **Search** to search your LAN for NPort device servers. When your unit appears in the search results, you may click **Stop** to end the search. You may also wait a few more moments for the search to complete.

	1										
No	Model MAC Address	IP Address									
1	NPort 5410 00:90:E8:54:00:09	192.168.127.25	4								
	🙀 Administrator-Configuration										
	<u>File Eunction Configuration View Help</u>										
	Exit Search Search	曲IP Locate	Configure We								
	Function			Configuration - 1	L NPort(s)						
	Function	No 🛆	Model	Configuration - 1 MAC Address	IP Address	Status					

The **Configuration** screen will list the NPort device servers that were found on the LAN. If your unit cannot be found, you may have a network problem. Check all cables and verify that your PC and device server are on the same LAN. If you still have problems, try connecting the device server directly to your PC.

## Adjusting General Settings

Right-click your unit in the Configuration screen and select **Configure** in the pop-up menu. If your device server is password protected (the default password is **moxa**), first select **Unlock** in the pop-up menu, and then click the **Network** tab in the configuration window. Select the **Modify** checkbox for items you would like to modify. The device server must be assigned a unique IP address that is valid for your network. Both fixed and dynamic IP addresses are supported. Consult with your network administrator if you are not sure how to set these parameters.

Information	Accessible IPs	Auto Warning	IP Address	Report	Password
Model Name NPort 5610-8-DT	Basic	Network	Serial	Oper	ating Mode
MAC Address 00:90:E8:05:61:03 Serial Number	IP Address	192.168.127		· ]	
56103	Netmask	255.255.255	5.0		
	Gateway				
Firmware Version Ver 1.0	IP Configuration	Static		•	
Ver 1.0	DNS Server 1				
System Uptime	DNS Server 2				
0 days, 00h:03m:09s	Modify	🔽 Enable SNM	IP		
	Community Name	public			
	Location				
	Contact				
	Click the "Modify" check I	box to modify configu	Iration	🗸 ОК	🗶 Cancel

When you are ready to restart the device server with the new settings, click **OK**.

#### **Static IP Addresses**

For most applications, you will assign a fixed IP address to the device server. To assign a static (fixed) IP address, the **IP Configuration** parameter must be set to **Static**, which is the default setting. You may then modify the **IP Address** and **Netmask** parameters.

#### **Dynamic IP Addresses**

For certain network environments, your device server's IP address will be assigned by a DHCP or BOOTP server. In this case, instead of assigning the device server's IP address, you will need to configure the device server to receive its IP address from the appropriate server. Set the **IP Configuration** parameter to **DHCP**, **BOOTP**, or **DHCP/BOOTP**, depending on your network environment. The **IP Address** and **Netmask** parameters will be unavailable for editing since these parameters will be assigned automatically.

If you are not sure whether you need to configure your device server for a dynamic or static IP address, consult the administrator who set up the LAN.

#### Verifying Network Settings

If your device server has been configured correctly, you should be able to ping its IP address from your PC. First, make sure that your PC and device server are on the same subnet, and then ping the device server's address. If no response is received, check your cables and network settings.

## **Configuring Device Port Operation Mode**

This section covers configuration of a device port's operation mode. The operation mode determines how the device port will interact with the network. Which operation mode you select will depend on your specific application. Refer to the chart at the end of this section for guidance on selecting the most appropriate operation mode. For additional information on each operation mode, refer to **Chapter 3** and **Chapter 4**.

#### **Adjusting Operation Mode Settings**

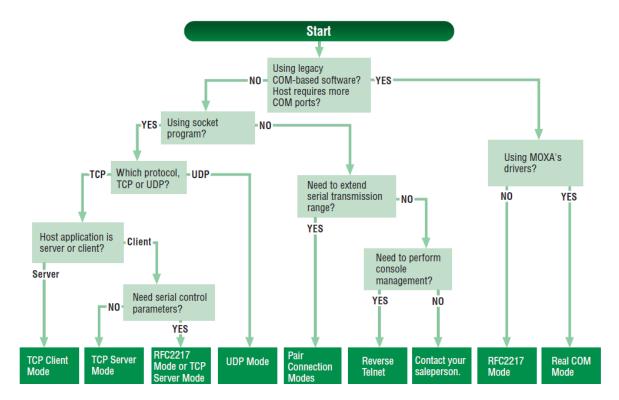
The operation mode parameters for each device port can be configured through NPort Administrator. Open your device server's configuration window using the same method you used to adjust the network parameters. On the **Operating Mode** screen, select the **Modify** check box and then select the device port that you wish to configure. Click **Settings** to configure the selected device port.

Port	Alias	OP M			
1			COM Mode		
2			COM Mode		
3			COM Mode		
4			COM Mode		
5			COM Mode		
6			COM Mode		
8			COM Mode COM Mode		
0		near			
			View	v Settings	Settings

Set the operating mode and associated parameters as needed. Refer to **Chapter 3** and **Chapter 4** for additional information on operating modes and advanced settings. When you are ready to restart the device server with the new settings, click **OK**.

Operating Mode	Real COM Mode	-	
Max. Connection Misc (Optional) TCP Alive Check 7 Allow Driver ( 1 gnore Jamm	(0-99 min) Control	•	
Data Packing (Opl Delimiter 1 Delimiter 2 Delimiter Process	00 (0-ff, Hex) 00 (0-ff, Hex)	Force Tx Timeout Packing Length	535 ms) 24 bytes)

## **Operation Mode Selection Chart**



# **Configuring Serial Communication Parameters**

This section covers the configuration of each device port's serial communication parameters: baudrate, stop bit, etc.

#### **Serial Parameter Review**

The following parameters need to be set correctly on the device port to ensure proper communication with your device. Refer to your device's documentation for the appropriate settings.

Parameter	Setting	Factory Default	Description	Necessity
Baudrate	110 bps to	115200 bps	The data transmission rate to and from the	Required
	230400 bps		attached serial device.	
Data bits	5, 6, 7, 8	8	The size of each data character.	Required
Stop bits	1, 1.5, 2	1	The size of the stop character.	Required
Parity	None, Even,	None	The parity that will be used. Even and Odd	Required
	Odd, Space,		parity provide rudimentary error-checking;	
	Mark		Space and Mark parity are rarely used.	
Flow control	None, RTS/CTS,	RTS/CTS	The method used to suspend and resume	Required
	DTR/DSR,		data transmission to ensure that data is not	
	Xon/Xoff		lost. RTS/CTS (hardware) flow control is	
			recommended.	
FIFO	Enable, Disable	Enable	Controls whether the device port's built-in	Required
			128-byte FIFO buffer is used. When	
			enabled, the FIFO helps reduce data loss	
			regardless of direction.	
Interface*	RS-232	RS-232	The serial interface that will be used. The	Required
	RS-422		options that are available depend on the	
	2-wire RS-485		specific model of device server.	
	4-wire RS-485			

\*Supported interfaces vary by model; refer to your NPort's datasheet for a list of supported serial interfaces.

# **Adjusting Serial Parameters**

nformation Model Name	Accessible IPs Basic	s Auto Warn Network	ing IP Address Serial	1 .	Password
NPort 5650-8-DT			Jena	l Ob	erating Mode
MAC Address	Modi	ġ.			
00:90:E8:05:65:04		Alias	Settings		
Serial Number	1 2		115200,N,8,1,RTS/C 115200,N,8,1,RTS/C		
56504	3		115200,N,8,1,RTS/C	TS	
	4		115200,N,8,1,RTS/C 115200,N,8,1,RTS/C		
Firmware Version Ver 1.0	6		115200,N,8,1,RTS/C 115200,N,8,1,RTS/C		
	8		115200,N,8,1,RTS/C		
System Uptime					
0 days, 00h:19m:55s					
			View S	ottings	Settings
			VIEW 5		settings
	Click the "Modify"			🗸 ок	🗶 Cano

The serial communication parameters for each device port can be configured through NPort Administrator. Open your device server's configuration window, using the same method you used to configure network parameters. On the **Serial** screen, select the **Modify** check box and then select the device port that you wish to configure. Click **Settings** to configure the selected device port.

Modify the parameters as needed. When you are ready to restart the device server with the new settings, click **OK**.

Port Alias					
Baud Rate	115200	•	Flow Control	RTS/CTS	•
Parity	None	•	FIFO	Enable	-
Data Bits	8	-	Interface	RS-232	-
Stop Bits	1	-			

# Mapping COM Port to Device (only required when operation mode is set to Real COM or RFC2217)

This section covers how to map the COM ports on a Windows PC to NPort device ports. The mapping will allow Windows software to access serial devices over the network as if they were local COM devices, providing instant device networking without software migration. COM mapping is supported in Real COM and RFC2217 modes only.

The following instructions are for device ports operating in Real COM mode. For device ports operating in RFC2217 mode, follow the instructions for your particular driver. Real COM mode also supports TTY port mapping on Linux and UNIX systems.

#### Specifying the Target Device Server

In NPort Administrator, click **COM Mapping** in the **Function** panel to open the COM Mapping window. Right-click on an empty line in the COM Mapping window. Select **Add Target** in the pop-up menu to assign your device server as the mapping target.

<u>File</u> Eunction COM Mappir	ng <u>V</u> iew <u>⊦</u>	<u>H</u> elp				
Exit Add Remo	ve Apply	Configure				
Function				COM	I Mappi	ng - 0 CC
⊡≫ NPort	No 🛆	Model	IP Ad	dress	Port	COM Port
Configuration						
Monitor			2	Add Target		
Port Monitor				Remove Targ		
COM Mapping					501	_
				<u>E</u> nable		

A list of NPort device servers that have been found by NPort Administrator will appear. Select your device server and click **Finish**.

Eile Eunction COM Mappir	ng <u>V</u> iew <u>H</u> el	p			
Exit Add Remo		Configure			
Function			COM Mappir	ng - 8 C	юм
	No 🛆	Model	IP Address	Port	COM Port
🗌 🚺 Configuration	1	NPort 5610-8-DT	192.168.127.254	1	COM5
Monitor	2	NPort 5610-8-DT	192.168.127.254	2	COM6
Port Monitor	3	NPort 5610-8-DT	192.168.127.254	3	COM7
🔣 COM Mapping	4	NPort 5610-8-DT	192.168.127.254	4	COM8
P Address Report	5	NPort 5610-8-DT	192.168.127.254	5	COM9
W IF Address Report	6	NPort 5610-8-DT	192.168.127.254	6	COM10

#### **Assigning COM Port Number to Device Port**

The **COM Mapping** screen shows a list of available device ports on the network. Right-click the target device port and select **COM Settings** in the pop-up menu.

<u>File</u> Function COM Mappir	ng <u>V</u> iew <u>H</u> elj	p							
Exit Add Remove Apply Configure									
Function		COM Mapping - 16 COM							
⊡ 🔊 NPort	No 🛆	Model	IP Address	Po	ort	COM Port	Mode	Parameter	
Configuration	1	NPort 5650-16	192.168.16.130	14		Герма	I 😐 Performance, FIFO Ena	9600, None, 8, 1	
Monitor	2	NPort 5650-16	192.168.16.130	2	Add (	Farget	Performance, FIFO Ena	9600, None, 8, 1	
- R Port Monitor	3	NPort 5650-16	192.168.16.130	-			Performance, FIFO Ena	9600, None, 8, 1	
	4	NPort 5650-16	192.168.16.130	<b>Ä</b>	<u>K</u> emc	ive Target	Performance, FIFO Ena	9600, None, 8, 1	
COM Mapping	5	NPort 5650-16	192.168.16.130		Enable		Performance, FIFO Ena	9600, None, 8, 1	
W II Address heport	6	NPort 5650-16	192.168.16.130		Fugn		Performance, FIFO Ena	9600, None, 8, 1	
	7	NPort 5650-16	192.168.16.130		Disab	le	Performance, FIFO Ena	9600, None, 8, 1	
	8	NPort 5650-16	192.168.16.130	-5			Performance, FIFO Ena	9600, None, 8, 1	
	9	NPort 5650-16	192.168.16.130	6	COM	Settings	Performance, FIFO Ena	9600, None, 8, 1	
	10	NID-A ECEO 10	100 100 10 100		-			0000 Nata 0 1	

On the **Basic Settings** screen, select the COM port number that will be mapped to the device port. You can map multiple COM ports at the same time by selecting the **Auto Enumerating** check box to number the COM ports automatically.

COM Port Settings	×
Port Number: 2 Port(s) Selected. 1st port is Port 1	
Basic Settings Advanced Settings Serial Parameters COM Grouping	1
COM Number COM7 -	
Auto enumerating COM number for selected ports.	
Grouping selected port(s) together.	
V OK X Cancel	J

On the **Serial Parameters** screen, adjust the settings to match your device. These settings, which are only used for serial printers, must also match the settings on the device port. Click **OK** when you are satisfied with your changes.

Basic Settings   Adv	vanced Settings	Serial Parameters COM (	ârouping
Baud Rate	9600	•	
Parity	None	•	
Data Bits	8	•	
Stop Bits	1	•	
Flow Control	None	•	
🗌 Apply All Se	lected Ports		

#### **Advanced Settings**

(See Chapter 5 for detailed information about NPort Administrator's Advanced Settings.)

**Tx Mode:** In Hi-Performance mode, the driver immediately issues a "Tx Empty" response to the program after sending data to the NPort. In Classical mode, the driver sends the "Tx Empty" response after confirmation is received from the NPort. Classical mode is recommended if you want to ensure that all data is sent out before further processing.

FIFO: Tells the driver whether or not to use FIFO transmission.

Network Timeout: Specifies when an open, close, or serial parameter change operation will time out.

**Fast Flush:** When enabled, the driver flushes only the local buffer on the host for a Win32 PurgeComm() function call. When disabled, both the local and remote buffers are flushed. If your application uses PurgeComm() and it performance seems sluggish, try enabling Fast Flush.

**Always Accept Open Requests:** Even if the driver cannot establish a connection with the NPort, the user's software will still be able to open the mapped COM port, the same as with an onboard COM port.

**Ignore TX Purge:** The application can use Win32 API PurgeComm to clear the output buffer and terminate outstanding overlapped write operations. Select **Ignore TX Purge** if you do not want the output buffer to be purged.

## **Apply Change**

Right-click **COM Mapping** in the **Function** panel. Select **Apply Change** in the pop-up menu to save the current COM mapping settings. Your application will now be able to access the target serial device using the COM port.

<u>File Eunction COM Mappir</u>		D Configure				
Function			COM Mappi	ng - 8 (	сом	
⊡- 🔊 NPort	No 🛆	Model	IP Address	Port	COM Port	Mode
🗌 🚺 Configuration	1	NPort 5610-8-DT	192.168.127.254	1	COM5	Hi-Performance, FIFO Ena
Monitor	2	NPort 5610-8-DT	192.168.127.254	2	COM6	Hi-Performance, FIFO End
Port Monitor	3	NPort 5610-8-DT	192.168.127.254	3	COM7	Hi-Performance, FIFO Ena
🔣 COM Mapping	4	NPort 5610-8-DT	192.168.127.254	4	COM8	Hi-Performance, FIFO Ena
P Address Report	5	NPort 5610-8-DT	192.168.127.254	5	COM9	Hi-Performance, FIFO Ena
With Address freport	6	NPort 5610-8-DT	192.168.127.254	6	COM10	Hi-Performance, FIFO Ena
	7	NPort 5610-8-DT	192.168.127.254	7	COM11	Hi-Performance, FIFO Ena
	8	NPort 5610-8-DT	192.168.127.254	8	COM12	Hi-Performance, FIFO Ena
	-					
	<					>
Message Log - 28 Monitor Lo						

# **Configuration by Web Console**

The Web Console is the most user-friendly way to configure NPort products. In this section, we cover a device server's general settings.

# **Opening Your Browser**

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

Internet Options	<u>? ×</u>	Security Settings	? ×
General Security Content Connections Programs Advanced		Settings:	
Select a Web content zone to specify its security settings.	_	<ul> <li>Cookies</li> <li>Allow cookies that are stored on your computer</li> <li>Disable</li> <li>Enable</li> <li>Prompt</li> </ul>	•
Internet This zone contains all Web sites you haven't placed in other zones		<ul> <li>Allow per-session cookies (not stored)</li> <li>Disable</li> <li>Enable</li> <li>Prompt</li> </ul>	
Security level for this zone Move the slider to set the security level for this zone. - <b>Medium</b> - Safe browsing and still functional - Unigned ActiveX controls will not be downloaded - Appropriate for most Internet sites	:	Downloads  File download  Disable  Enable  Control Co	•
Custom Level Default Level		Reset custom settings Reset to: Medium Reset	t
OK Cancel Ap	ply	OK Car	icel

- 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**.
- You will be prompted to enter the password to access the NPort web console. (The default password for NPort is moxa.)

Web Interface for the NPort 5000, NPort IA5000 Series	
🚰 Input Password - Microsoft Internet Explorer	
File Edit View Favorites Tools Help	
] ← Back + → - 🙆 😰 🚮   📿 Search 💿 Favorites 🎯 History   🛃 - :	
Address 🛃 http://192.168.127.254/	
Input password	
Password : *****	
Submit	
Web Interface for the NPort 5000A, NPort IA5000A Series	
Total Solution for Industrial Device Networking WWW.moxa.com	
Model         - NPort 5250A         IP         - 192.168.127.254         MAC Address         - 00:90 E8.68:32.52           Name         - NP5250A_52         Serial NO.         - 52         Firmware         - 1.0 Build 10050709	
Password:	
Login	



#### ATTENTION

If you use other web browsers, remember to enable the functions to "allow cookies that are stored on your computer" or "allow per-session cookies." NPort device servers use cookies only for "password" transmissions.

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

ort Web Console - Microsoft I Edit <u>Vi</u> ew F <u>a</u> vorites <u>T</u> ools					
Edit View Favorites Tools	s Help				
ack 🔹 💮 🗸 🔀 🔮	🏠 🔎 Search   📩 Fav	rorites 😢 Media 🔗 🔗 -	🖕 🖻		
s 顲 http://192.168.127.254/h	nome.htm?Password=731a9e0	a41ba3bb0a27ca8b330c239db85ubm	it=Submit		•
мохл	www	.moxa.com			
ain Menu Overview	Welcome to	o NPort's web co	onsole !		
Basic Settings	Model Name	NPort IA-5	250		
Network Settings	MAC Address	00:90:E8:5			
Serial Settings	Serial No.	525016			
Operating Settings	Firmware Version	1.0			
Accessible IP Settings	System Uptime	0 days, 00	h:00m:35s		
Auto Warning Settings Monitor	NPort's web console	provide the following funct	ion groups.		
Change Password Load Factory Default Save/Restart	Basic Settings Server name, function.	real time clock, time server	IP address, and Web con	sole, Telnet con	sole Enable, Disable
	Network Settin IP address, ne Serial Settings	<b>gs</b> etmask, default gateway, st	atic IP or dynamic IP, DN	6, SNMP, IP loca	tion report.
	Baud rate, sta	art bits, data bits, stop bits,	flow control, UART FIFO.		
	Operating Catti				
	Operating Setti	ings de, TCP alive check, inactivi	ity delimiters force trans	mit timpout	
	Operation mot	ie, TCP alive check, inactivi	ity, ueminiters, iurce trans	mit timeout.	
		ettings			
	Accessible IP S	ettings or Accessible IP group". Dis		nnection.	
	Accessible IP S			nnection.	
	Accessible IP S "Accessible IP Auto Warning S	or Accessible IP group". Dis	sable to accept all IP's co	nnection.	
	Accessible IP S "Accessible IP Auto Warning S	or Accessible IP group". Dis	sable to accept all IP's co	nnection.	
	Accessible IP S "Accessible IP Auto Warning S Auto warning	or Accessible IP group". Dis Settings E-Mail, SNMP Trap server IF	sable to accept all IP's co 9 address, Relay Output.	nnection.	
Interface for t	Accessible IP S "Accessible IP Auto Warning S Auto warning	or Accessible IP group". Dis	sable to accept all IP's co 9 address, Relay Output.	nnection.	
Interface for t	Accessible IP S "Accessible IP Auto Warning S Auto warning he NPort 5000	or Accessible IP group". Dis Settings E-Mail, SNMP Trap server IF	sable to accept all IP's co <sup>o</sup> address, Relay Output. 0000A Series		www.moxa.col
νοχν	Accessible IP S "Accessible IP Auto Warning S Auto warning he NPort 5000	or Accessible IP group". Dis Settings E-Mail, SNMP Trap server IF DA and NPort IA50 on for Industrial Device N	sable to accept all IP's co <sup>o</sup> address, Relay Output. 0000A Series		• 00:90:E8:66:32:62
Model - NP	Accessible IP S "Accessible IP Auto Warning S Auto warning he NPort 5000	or Accessible IP group". Dis Settings E-Mail, SNMP Trap server IF DA and NPort IA50 on for Industrial Device N	sable to accept all IP's co <sup>9</sup> address, Relay Output. 0000A Series letworking		
1000°	Accessible IP S "Accessible IP Auto Warning S Auto warning he NPort 5000 Total Solution Port 5250A 25250A_52	or Accessible IP group". Dis Settings E-Mail, SNMP Trap server IF DA and NPort IA56 on for Industrial Device N IP - 192 Serial NO 52	sable to accept all IP's co P address, Relay Output. OOOOA Series Ietworking	MAC Address Firmware	- 00:90:E8:66:32:52
10000° • Model - NP	Accessible IP S "Accessible IP Auto Warning S Auto warning he NPort 5000 Total Solution Port 5250A 25250A_52	or Accessible IP group". Dis Settings E-Mail, SNMP Trap server IF DA and NPort IAS on for Industrial Device N I IP - 192	sable to accept all IP's co P address, Relay Output. OOOOA Series Ietworking	MAC Address Firmware	- 00:90:E8:66:32:52
Model - NP Name - NP	Accessible IP S "Accessible IP Auto Warning S Auto warning he NPort 5000 Total Solution Port 5250A 25250A_52	or Accessible IP group". Dis Settings E-Mail, SNMP Trap server IF DA and NPort IA56 on for Industrial Device N IP - 192 Serial NO 52	sable to accept all IP's co P address, Relay Output. OOOOA Series Ietworking	MAC Address Firmware	- 00:90:E8:66:32:52
Model - NP Name - NP	Accessible IP S "Accessible IP Auto Warning S Auto warning he NPort 5000 Total Solution Port 5250A 25250A_52	or Accessible IP group". Dis Settings E-Mail, SNMP Trap server IF DA and NPort IA56 on for Industrial Device N IP - 192 Serial NO 52	sable to accept all IP's co P address, Relay Output. OOOOA Series Ietworking	MAC Address Firmware	- 00:90:E8:66:32:52
Model - NP Name - NP	Accessible IP S "Accessible IP Auto Warning S Auto warning he NPort 5000 Total Solution Port 5250A 25250A_52	or Accessible IP group". Dis Settings E-Mail, SNMP Trap server IF DA and NPort IA56 on for Industrial Device N IP - 192 Serial NO 52 Come to NPort	able to accept all IP's co address, Relay Output. 0000A Series letworking 1168.127.254 Web console up'to	MAC Address Firmware	- 00:90:E8:66:32:52
Model - NP Name - NP Menu erview ick Setup	Accessible IP S "Accessible IP Auto Warning S Auto warning he NPort 5000 Total Solution Port 5250A 25250A_52	or Accessible IP group". Dis Settings E-Mail, SNMP Trap server IP DA and NPort IA50 on for Industrial Device N IP - 192 Serial NO 52 Come to NPort Click 'Quick Sett go through three	sable to accept all IP's co address, Relay Output. 0000A Series letworking 108.127.254 Web console IP' to	MAC Address Firmware	- 00:90:E8:66:32:52
Model - NP Name - NP Name - NP Menu erview ick Setup port/Import	Accessible IP S "Accessible IP S Auto Warning S Auto warning he NPort 5000 Total Solutio *0rf 5250A *5250A_52	or Accessible IP group". Dis Settings E-Mail, SNMP Trap server IP DA and NPort IA50 on for Industrial Device N IP - 192 Serial NO 52 COME to NPort Click 'Ouick Sett po through three simple steps ma your NPort ready	sable to accept all IP's co P address, Relay Output. 0000A Series letworking 168.127.254 Web console up'to king	MAC Address Firmware	- 00:90:E8:66:32:52
Model - NP Name - NP Name - NP I Menu erview lick Setup bort/Import sic Settings	Accessible IP S "Accessible IP S Auto Warning S Auto warning he NPort 5000 Total Solutio *0rf 5250A *5250A_52	or Accessible IP group". Dis Settings E-Mail, SNMP Trap server IP DA and NPort IA50 on for Industrial Device N IP - 192 Serial NO 52 Come to NPort Cick 'Ouick Sett or through three simple steps ma	sable to accept all IP's co P address, Relay Output. 0000A Series letworking 168.127.254 Web console up'to king	MAC Address Firmware	- 00:90:E8:66:32:52
Model - NP Name - NP Name - NP I Menu erview lick Setup bort/Import sic Settings twork Settings	Accessible IP S "Accessible IP S Auto Warning S Auto warning he NPort 5000 Total Solutio *0rf 5250A *5250A_52	or Accessible IP group". Dis Settings E-Mail, SNMP Trap server IP DA and NPort IA50 on for Industrial Device N IP - 192 Serial NO 52 COME to NPort Click 'Ouick Sett po through three simple steps ma your NPort ready	sable to accept all IP's co P address, Relay Output. 0000A Series letworking 168.127.254 Web console up'to king	MAC Address Firmware	- 00:90:E8:66:32:52
Model - NP Name - NP Name - NP Name - NP I Menu I Menu I Menu Secont Sec	Accessible IP S "Accessible IP S Auto Warning S Auto warning he NPort 5000 Total Solutio *0rf 5250A *5250A_52	or Accessible IP group". Dis Settings E-Mail, SNMP Trap server IP DA and NPort IA50 on for Industrial Device N IP - 192 Serial NO 52 COME to NPort Click 'Ouick Sett po through three simple steps ma your NPort ready	sable to accept all IP's co P address, Relay Output. 0000A Series letworking 1168.127.254 Web console Ip'to king fo	MAC Address Firmware	- 00:90:E8:66:32:52
Model - NP Name - NP Name - NP Name - NP Nortextore No	Accessible IP S "Accessible IP S Auto Warning S Auto warning he NPort 5000 Total Solutio *0rt 5250A *5250A_52 *Welc	or Accessible IP group". Dis Settings E-Mail, SNMP Trap server IF DA and NPort IAS( DA and NPort IAS( Click 'Ouick Sett your NPort read) work. Click 'Export Imp	sable to accept all IP's co address, Relay Output. 0000A Series letworking 1088127.254 Web console p'to king rto address	MAC Address Firmware	- 00:90:E8:66:32:52
Model - NP Name - NP Name - NP Name - NP Name - NP Norther - NP Northe	Accessible IP S "Accessible IP S Auto Warning S Auto warning he NPort 5000 Total Solutio *0rt 5250A *5250A_52 *Welc	or Accessible IP group". Dis Settings E-Mail, SNMP Trap server IP DA and NPort IA5( on for Industrial Device N IP - 192 Serial NO 52 Come to NPort Click 'Ouick Sett potimologith three simple steps ma your NPort ready work.	sable to accept all IP's co address, Relay Output. 0000A Series letworking 1088127.254 Web console p'to king rto address	MAC Address Firmware	- 00:90:E8:66:32:52
Model - NP Name - NP Name - NP Name - NP Name - NP Nork Settings erial Settings erial Settings erial Settings erial Settings sessible IP Settings sessible IP Settings sessible IP Settings	Accessible IP S "Accessible IP S Auto Warning S Auto warning he NPort 5000 Total Solutio *0rt 5250A *5250A_52 *Welc	or Accessible IP group". Dis Settings E-Mail, SNMP Trap server IF DA and NPort IAS( DA and NPort IAS( Click 'Ouick Sett your NPort read) work. Click 'Export Imp	sable to accept all IP's co address, Relay Output. 0000A Series letworking 1088127.254 Web console p'to king rto address	MAC Address Firmware	- 00:90:E8:66:32:52
Model - NP Name - NP Name - NP Name - NP Name - NP Nort Setup Set Settings North Settings erial Settings erial Settings erial Settings sessible IP Settings sessible IP Settings sto Warning Settings grade Firmware	Accessible IP S "Accessible IP S Auto Warning S Auto warning he NPort 5000 Total Solutio *0rt 5250A *5250A_52 *Welc	or Accessible IP group". Dis Settings E-Mail, SNMP Trap server IF DA and NPort IAS( DA and NPort IAS( Click 'Ouick Sett your NPort read) work. Click 'Export Imp	sable to accept all IP's co address, Relay Output. 0000A Series letworking 1088127.254 Web console p'to king rto address	MAC Address Firmware	- 00:90:E8:66:32:52
Model - NP Name - NP Name - NP Menu enview lick Setup boort/import sic Settings hwork Settings ereal Settings perating Settings ereal Settings seesible IP Settings uto Warning Settings grade Firmware onitor	Accessible IP S "Accessible IP S Auto Warning S Auto warning he NPort 5000 Total Solutio *0rt 5250A *5250A_52 *Welc	or Accessible IP group". Dis Settings E-Mail, SNMP Trap server IF DA and NPort IAS( DA and NPort IAS( Click 'Ouick Sett your NPort read) work. Click 'Export Imp	sable to accept all IP's co address, Relay Output. 0000A Series letworking 1088127.254 Web console p'to king rto address	MAC Address Firmware	- 00:90:E8:66:32:52
Model - NP Name - NP Name - NP Name - NP Nork Setup sort/import sic Settings twork Settings erial Settings perating Settings cessible IP Settings uto Warning Settings grade Firmware onitor ange Password	Accessible IP S "Accessible IP S Auto Warning S Auto warning he NPort 5000 Total Solutio *0rt 5250A *5250A_52 *Welc	or Accessible IP group". Dis Settings E-Mail, SNMP Trap server IF DA and NPort IAS( DA and NPort IAS( Click 'Ouick Sett your NPort read) work. Click 'Export Imp	sable to accept all IP's co address, Relay Output. 0000A Series letworking 1088127.254 Web console p'to king rto address	MAC Address Firmware	- 00:90:E8:66:32:52
Model - NP Name - NP Name - NP Menu enview lick Setup boort/import sic Settings hwork Settings ereal Settings perating Settings ereal Settings seesible IP Settings uto Warning Settings grade Firmware onitor	Accessible IP S "Accessible IP S Auto Warning S Auto warning he NPort 5000 Total Solutio *0rt 5250A *5250A_52 *Welc	or Accessible IP group". Dis Settings E-Mail, SNMP Trap server IF DA and NPort IAS( DA and NPort IAS( Click 'Ouick Sett your NPort read) work. Click 'Export Imp	sable to accept all IP's co address, Relay Output. 0000A Series letworking 1088127.254 Web console p'to king rto address	MAC Address Firmware	- 00:90:E8:66:32:52



#### ATTENTION

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

Remember to use NPort Administrator (for NPort 5000 and NPort IA5000 Series) 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 NPort Administrator Import function. Refer to **Chapter 5** for details about using the Export and Import functions

# Quick Setup (only for the NPort 5000A & NPort IA5000A

# Series web console)

• Step 1/3

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

#### Step 1/3

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

Server Settings		
erver name	NPIA5450AI_6671	
Network Settings		
P settings	Static •	
Paddress	192.168.127.135	
	255.255.255.0	
Netmask		

## Step 2/3

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

• Step 2/3			
Operation Mode Settings			
Real COM			
PC communicate with serial device through COM port.			
Remember to install Real COM/TTY driver on PC. F	For detail informat	ion please refer to	o User's Manual.
◎ тср			
PC communicate with serial device through TCP port.			
Device is TCP client			
Destination IP address		Port 4001	1
UDP			
PC communicate with serial device through UDP port.			
Destination IP address Port 4	001		
CONTRACT RECEIPTION OF A CONTRACT			
	Back	Next	Cancel

## Step 3/3

In Step 3/3, modify the **Serial Settings**.

#### • Step 3/3

Serial Settings	
Baud rate	115200 🔻
Data bits	8 🔻
Stop bits	1 •
Parity	None 🔻
nterface	RS-232 V

Export

#### **Finish Settings**

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

#### Finish Settings

Server name	NPIA5450AI_6671
Network Settings	
IP settings	Static
IP	192.168.127.135
Netmask	255.255.255.0
Gateway	
Operation Mode Setting	IS
Mode	RealCOM
Parameters	
Serial Settings	
Baudrate	115200
Param <mark>e</mark> ters	Data bits: 8, Stop bits: 1, Parity: None
Interface	RS-232

**NOTE** If you change the IP address, you will not be able to use the **Home** button to return to the Home Page.

# Export/Import (only for the NPort 5000A & NPort IA5000A Series web console)

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

# • Export / Import Configuration Configuration file Export Password 4 to 16 characters

Upload configuration file	Browse	]
Import Password		Import

For the new firmware version, the exported configuration file will be encrypted for security purposes with a user-specified Export Password. Assign an Export Password for your configuration file and click **Export** to write all configuration data to a default file named as follows: <Servername>.txt.

To import the configuration file, you will need to enter the Import Password that is unique to the configuration file (which is assigned when exporting the configuration file) in order to successfully import the configuration file.

Refer to the table below for the firmware versions that support the encrypted configuration files in the Web Console.

Model Name	Firmware version supporting encrypted configuration files.
NPort 5100A Series	Firmware v1.3 and up
NPort 5200A Series	Firmware v1.3 and up
NPort 5x50AI-M12 Series	Firmware v1.2 and up
NPort IA5150A, NPort IA5250A	Firmware v1.3 and up
NPort IA5450A	Firmware v1.4 and up

# **Basic Settings**

NPort Web Console - Microsoft	Internet Explorer	
ile <u>E</u> dit <u>Y</u> iew F <u>a</u> vorites <u>T</u> oo	ls <u>H</u> elp	
🕽 Back 🔹 🕥 🖌 😰 🔮	🏠 🔎 Search 🤸 Favorites  😵 Media	🛛 🚱 🍰 🔜
dress 🕘 http://192.168.127.254/	home.htm?Password=731a9e0a41ba3bb0a27ca8b	330c239db8Submit=Submit
MOX/	🔪 www.moxa	a.com
Main Manu	Basic Setting	
Main Menu 🗀 Overview	Dusie Setting	
Basic Settings	Server name	NPIA-5250_525016
Network Settings		Time
🔲 Serial Settings	Time zone	(GMT)Greenwich Mean Time: Dublin, Edinburgh, Lisbon, London 🗸
🔲 Operating Settings		
Accessible IP Settings	Local time	2005 / 8 / 31 5 : 56 : 36
Auto Warning Settings	Time conver	Modify
Monitor Change Password	Time server	
Load Factory Default	intel accests	Settings
Save/Restart	Web console	© Enable © Disable
	Telnet console	© Enable © Disable
	Reset button protect	
b Interface for th	e NPort 5000A and NPor	Submit t IA5000A Series
b Interface for th	e NPort 5000A and NPor Basic So	t IA5000A Series
		t IA5000A Series
eb Interface for th Main Menu Overview		t IA5000A Series
Main Menu	Basic Se	t IA5000A Series
Main Menu Overview	Server Settings	t IA5000A Series
<b>Main Menu</b> Overview Quick Setup	Server Settings	t IA5000A Series
Main Menu Overview Quick Setup Export/Import	Server Settings	t IA5000A Series
Main Menu Overview Quick Setup Export/Import Basic Settings	Server Settings	t IA5000A Series
Main Menu Overview Quick Setup Export/Import Basic Settings Network Settings	Server Settings Server name	t IA5000A Series ettings
Main Menu Overview Quick Setup Export/Import Basic Settings Network Settings - Serial Settings	Server Settings Server name Time Settings Time zone Time	t IA5000A Series ettings NP5250A_52 (GMT)Greenwich Mean Time: Dublin, Edinburgh, Lisbon, London v
Main Menu Overview Quick Setup Export/Import Basic Settings Network Settings - Serial Settings - Operating Settings	Server Settings Server name Time Settings Time zone	t IA5000A Series ettings NP5250A_52 (GMT)Greenwich Mean Time: Dublin, Edinburgh, Lisbon, London v
Main Menu Overview Quick Setup Export/Import Basic Settings Network Settings - Serial Settings - Operating Settings Accessible IP Settings	Server Settings Server name Time Settings Time zone Time Time server	t IA5000A Series ettings NP5250A_52 (GMT)Greenwich Mean Time: Dublin, Edinburgh, Lisbon, London v
Main Menu Overview Quick Setup Export/Import Basic Settings Network Settings - Serial Settings - Operating Settings Accessible IP Settings - Auto Warning Settings	Server Settings Server name Time Settings Time zone Time	t IA5000A Series ettings NP5250A_52 (GMT)Greenwich Mean Time: Dublin, Edinburgh, Lisbon, London v
Main Menu Overview Quick Setup Export/Import Basic Settings Network Settings - Serial Settings - Operating Settings Accessible IP Settings - Auto Warning Settings Upgrade Firmware	Server Settings Server name Time Settings Time zone Time Time server	t IA5000A Series ettings NP5250A_52 (GMT)Greenwich Mean Time: Dublin, Edinburgh, Lisbon, London v
Main Menu Overview Quick Setup Export/Import Basic Settings - Serial Settings - Operating Settings Accessible IP Settings - Auto Warning Settings Upgrade Firmware - Monitor Change Password Load Factory Default	Server Settings Server name Time Settings Time zone Time Time server Console Settings	t IA5000A Series     ettings     (GMT)Greenwich Mean Time: Dublin, Edinburgh, Lisbon, London V   2010   7   9   6   Enable   Disable
Main Menu Overview Quick Setup Export/Import Basic Settings - Serial Settings - Operating Settings Accessible IP Settings - Auto Warning Settings Upgrade Firmware - Monitor Change Password	Server Settings Server name Time Settings Time Zone Time Time Server Console Settings Web console Telnet console	t IA5000A Series ettings NP5250A_52 (GMT)Greenwich Mean Time: Dublin, Edinburgh, Lisbon, London ♥ 2010 / 7 / 11 9 : 57 : 44 Modify ● Enable ● Disable ● Enable ● Disable
Main Menu Overview Quick Setup Export/Import Basic Settings - Serial Settings - Operating Settings Accessible IP Settings - Auto Warning Settings Upgrade Firmware - Monitor Change Password Load Factory Default	Server Settings Server name Time Settings Time zone Time Time server Console Settings Web console	t IA5000A Series     ettings     (GMT)Greenwich Mean Time: Dublin, Edinburgh, Lisbon, London V   2010   7   9   6   Enable   Disable

#### **NOTE** The NPort 5150A does not support **Time Settings**.

Parameter	Setting	Factory Default	Description	Necessity
Server name	1 to 39 characters	NP[model	This option is useful for specifying	Optional
		name]_[Serial	the location or application of	
		No.]	different NPorts.	
Time zone	User selectable time	GMT (Greenwich	N/A	Required
	zone	Mean Time)		
Local time	User adjustable time	GMT (Greenwich	Click the <b>Modify</b> button to open the	Required
	(1900/1/1-2037/12/3	Mean Time)	Modify time settings window to	
	1)		input the correct local time.	
Time server	IP or Domain address	None	NPorts use SNTP (RFC-1769) for	Optional
	(E.g., 192.168.1.1 or		auto time calibration. Input the	
	time.stdtime.gov.tw		correct <b>Time server</b> IP address or	
	or time.nist.gov )		domain name. Once the NPort is	
			configured with the correct Time	
			server address, the NPort will	
			request time information from the	
			Time server every 10 minutes.	
Web console	Enable or Disable	Enable	The <b>Disable</b> option for "Web	Required
			Console" and "Telnet Console" is	
			included for security reasons. In	
Telnet console	Enable or Disable	Enable	some cases, you may want to	Required
			disable one or both of these console	
			utilities as an extra precaution to	
			prevent unauthorized users from	
			accessing your NPort.	
Reset button	No or Yes	No	Select the <b>Yes</b> option to allow	Required
protect			limited use of the Reset Button. In	
			this case, the Reset Button can be	
			used for only 60 seconds; 60 s.	
			after booting up, the Reset Button	
			will be disabled automatically.	



#### ATTENTION

If you disable both the **Web console** and **Telnet console**, you can still use NPort Administrator to configure NPort device servers either locally or remotely over the network. Refer to Chapter 5 for details.

# **Network Settings**

	e NPort 5000 and NP	ort IA50	00 Series			
MOX/	www.n	nova	com			
		noxa.	COM			
Main Menu ] Overview	Network Settings					
Basic Settings	IP address		192.168.127.254			
Network Settings	Netmask		255.255.255.0			
Serial Settings Operating Settings	Gateway					
Accessible IP Settings	IP configuration		Static 💌			
Auto Warning Settings Monitor	DNS server 1					
Change Password	DNS server 2					
Load Factory Default Save/Restart				NMP Setting		
- Gave/Restart	SNMP		• Enable • Disat	ole		
	Community name		public			
	Contact					
	Location					
			IP A	ddress repor	t	
	Auto report to IP		4000			
	Auto report to TCP port		4002			
	Auto report period		10 seconds			
	Auto report period		10 seconds	Submit		
	Auto report period		10 seconds	Submit		
b Interface for the	Auto report period	IPort IA5	I Beconus	Submit		
b Interface for the	NPort 5000A and N		I Beconus	Submit		
	• NPort 5000A and N • Network S		I Beconus	Submit		
ain Menu Overview	NPort 5000A and N Network Settings	Settings	000A Series	Submit		
ain Menu Overvlew Quick Setup	NPort 5000A and N Network Settings P address	192.168.127.	000A Series	Submit		
la <b>in Menu</b> Overvlew Quick Setup Export/Import Basic Settings	NPort 5000A and N Network Settings	Settings	000A Series	Submit		
a <b>in Menu</b> Overvlew Quick Setup Export/Import Basic Settings Network Settings	e NPort 5000A and N • Network Settings IP address Netmask	192.168.127.	000A Series	Submit		
a <b>in Menu</b> Overview Quick Setup Export/Import Basic Settings <u>Network Settings</u> Serial Settings Operating Settings	e NPort 5000A and N Network Settings IP address Netmask Gateway	192.168.127. 255.255.255.	254	Submit		
ain Menu Overview Quick Setup Export/Import Basic Settings Serial Settings Serial Settings Operating Settings Accessible IP Settings	NPort 5000A and N Network Settings P address Netmask Gateway P configuration	192.168.127. 255.255.255.	254	Submit		
ain Menu Overvlew Juick Setup ExportImport Jasic Settings Serial Settings Operating Settings Accessible IP Settings Auto Warning Settings Jpgrade Firmware	NPort 5000A and N Network Settings IP address Netmask Gateway IP configuration DNS server 1	192.168.127. 255.255.255.	254	Submit		
ain Menu Dvervlew Quick Setup ExportImport Basic Settings Vetwork Settings Serial Settings Operating Settings Occessible IP Settings Auto Warning Settings Jugrade Firmware Monitor	e NPort 5000A and N • Network Settings IP address Netmask Gateway IP configuration DNS server 1 DNS server 2	192.168.127. 255.255.255.	254	Submit		
ain Menu Overview Quick Setup Export/Import Basic Settings Network Settings - Serial Settings - Operating Settings Accessible IP Settings - Auto Warning Settings - Jograde Firmware - Monitor Change Password Load Factory Defautt	NPort 5000A and N     Network Settings     P address     Netmask     Gateway     IP configuration     DNS server 1     DNS server 2     SNMP Settings	192.168.127. 255.255.255.255. Static	254	Submit		
ain Menu Dverview Quick Setup Export/Import Basic Settings Vetwork Settings Serial Settings Operating Settings Accessible IP Settings Auto Warning Settings Jograde Firmware Monitor Change Password Load Factory Default	e NPort 5000A and N • Network Settings IP address Netmask Gateway IP configuration DNS server 1 DNS server 2 SNMP Settings SNMP	192.168.127.           255.255.255.255.           Static	254	Submit		
ain Menu Dverview Quick Setup Export/Import Jasic Settings Serial Settings Serial Settings Operating Settings Accessible IP Settings Auto Warning Settings Jpgrade Firmware Monitor Change Password Load Factory Default	e NPort 5000A and N  • Network Settings  P address Netmask Gateway P configuration DNS server 1 DNS server 1 DNS server 2  SNMP Settings SNMP Community name	192.168.127.           255.255.255.255.           Static	254	Submit		
ain Menu Dverview Quick Setup Export/Import Jasic Settings Serial Settings Serial Settings Operating Settings Accessible IP Settings Auto Warning Settings Jpgrade Firmware Monitor Change Password Load Factory Default	e NPort 5000A and N  • Network Settings  IP address Netmask Gateway IP configuration DNS server 1 DNS server 1 DNS server 2  SNMP Community name Contact	192.168.127.           255.255.255.255.           Static	254	Submit		
ain Menu Overview Quick Setup Export/Import Basic Settings Network Settings - Serial Settings - Operating Settings Accessible IP Settings - Auto Warning Settings - Jograde Firmware - Monitor Change Password Load Factory Defautt	e NPort 5000A and N • Network Settings IP address Netmask Gateway IP configuration DNS server 1 DNS server 2 SNMP Community name Contact Location	192.168.127.           255.255.255.255.           Static	254	Submit		
b Interface for the b Interface for the Overview Quick Setup Export/Import Basic Settings - Operating Settings - Operating Settings - Auto Warning Settings - Auto Warning Settings - Dugrade Firmware - Monitor Change Password Load Factory Default Save/Restart	NPort 5000A and N     Network Settings     Network Settings     P address     Netmask     Gateway     P configuration     DNS server 1     DNS server 2     SNMP     Community name     Contact     Location     IP Address Report	192.168.127.           255.255.255.255.           Static	254	Submit		
lain Menu Overview Quick Setup Export/Import Basic Settings Network Settings - Serial Settings - Operating Settings Accessible IP Settings Accessible IP Settings - Auto Warning Settings Upgrade Firmware - Monitor Change Password Load Factory Default	NPort 5000A and N     Network Settings     IP address     Netmask     Gateway     IP configuration     DNS server 1     DNS server 2     SNMP     Community name     Contact     Location     IP Address Report     Auto report to IP	192.168.127.           255.255.255.255.           Static	254	Submit		

You must assign a valid IP address to the NPort before it will work in your network environment. Your network system administrator should provide you with an IP address and related settings for your network. The IP address must be unique within the network (otherwise, the NPort 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 dropdown box.

Method	Function Definition
Static	The user must define the IP address, Netmask, and Gateway.
DHCP	The DHCP Server assigns the IP address, Netmask, Gateway, DNS, and Time Server
DHCP/BOOTP	The DHCP Server assigns the IP address, Netmask, Gateway, DNS, and Time Server, or the
	BOOTP Server assigns the IP address (if the DHCP Server does not respond).
BOOTP	The BOOTP Server assigns the IP address.

#### **Network Settings**

Parameter	Setting	Factory Default	Description	Necessity
IP Address	E.g., 192.168.1.1	192.168.127.254	An IP address is a number assigned	Required
			to a network device (such as a	
			computer) as a permanent address	
			on the network. Computers use the	
			IP address to identify and talk to	
			each other over the network.	
			Choose a proper IP address that is	
			unique and valid in your network	
			environment.	
Netmask	E.g., 255.255.255.0	255.255.255.0	A subnet mask represents all of the	Required
reemaan	2191, 2001200120010	2001200120010	network hosts at one geographic	Required
			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 whether the	
			desired TCP/IP host specified in the	
			packet is on the local network	
			segment. If the address is on the	
			same network segment as the	
			NPort, a connection is established	
			directly from the NPort. Otherwise,	
			the connection is established	
			through the given default gateway.	
Gateway	E.g., 192.168.1.1	None	A gateway is a network gateway	Optional
			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. The 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	
			with your network administrator.	
IP Configuration	Static	Static	N/A	Required
	DHCP			
	DHCP/BOOTP			
	BOOTP			
DNS server 1/	E.g., 192.168.1.1	None	In order to use the NPort's DNS	Optional
DNS server 2			feature, you need to configure the	
			DNS server. Doing so allows the	
			NPort to use a host's domain name	

Parameter	Setting	Factory Default	Description	Necessity
			to access the host. The 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.	
			The 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.	



#### ATTENTION

In Dynamic IP environments, the firmware will retry three 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.

Parameter	Setting	Factory	Description	Necessity
		Default		
Community	1 to 39 characters	public	A community name is a plain-text	Optional
Name	(E.g., Support,		password mechanism that is used to	
	886-89191230 #300)		weakly authenticate queries to agents	
			of managed network devices.	
Contact	1 to 39 characters	None	The SNMP contact information usually	Optional
	(E.g., Support,		includes an emergency contact name	
	886-89191230 #300)		and telephone or pager number.	
Location	1 to 39 characters	None	Specify the location string for SNMP	Optional
	(E.g., Floor 1, office 2)		agents, such as the NPort. This string is	
			usually set to the street address where	
			the NPort is physically located.	

#### **SNMP Settings**

#### **IP Address Report**

When NPort products are used in a dynamic IP environment, users must spend more time with IP management tasks. For example, if the 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 the NPort, the host must have some way of determining the NPort's new IP address.

NPort products help out by reporting their IP address periodically 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 Device Server Administrator's **IP Address Report** function.
- 2. Auto IP report protocol, which can receive the Auto IP report automatically on a regular basis, is also available to help you develop your own software. Refer to Appendix E for details about the Auto IP report protocol.

Parameter	Setting	Factory	Description	Necessity
		Default		
Auto report to	E.g., 192.168.1.1 or	None	Reports generated by the Auto report	Optional
IP	URL		function will be automatically sent to	
			this IP address.	
Auto report to	E.g., 4001	4002	NA	Optional
UDP port				
Auto report	Time interval (in	10	NA	Optional
period	seconds)			

# **Serial Settings**

Г

The **Serial Settings** page is where you set the serial communication parameters for each device port. Settings include baudrate, parity, and flow control. Each device port can be configured independently.

Main Menu	Serial Se	ttings								
Overview										
Basic Settings						Settings				
Network Settings	Port 1		Alias	115200	Bata bits	Stop bits	Parity None	FIFO	RTS/C	ctrl Interfa
Serial Settings	Port 1 Port 2	-		115200	8	1	None	Enable	RTS/C	
Port 1 Port 2	Port 3			115200	8	1	None	Enable	RTS/C	
Port 3	Port 4			115200	8	1	None	Enable	RTS/C	
Port 4	Port 5			115200	8	1	None	Enable	RTS/C	TS RS-232
Port 5	Port 6			115200	8	1	None	Enable	RTS/C	TS RS-232
Dort 6	Port 7			115200	8	1	None	Enable	RTS/C	TS RS-232
Port 7	Port 8			115200	8	1	None	Enable	RTS/C	TS RS-232
Main Monu			Ser	ial Sett	ings					
	4	Port		ial Sett Baud		Stan hite	Parity	FIEO	Flow ctrl	Interface
Overview	+	Port	Ser		<b>ings</b> Data bits	Stop bits	Parity	FIFO	Flow ctrl	Interface
Overview Quick Setup	+	Port 1		Baud rate	Data bits					Interface R8-232
Overview Quick Setup Export/Import	1			Baud rate 115200	Data bits 8	1	None I	Enable		RS-232
Overview Quick Setup Export/Import Basic Settings	1	1		Baud rate 115200	Data bits 8	1	None I	Enable	RTS/CTS	RS-232
Overview Quick Setup Export/Import Basic Settings Network Settings	1	1		Baud rate 115200	Data bits 8	1	None I	Enable	RTS/CTS	RS-232
Overview Quick Setup Export/Import Basic Settings Network Settings Serial Settings	1	1		Baud rate 115200	Data bits 8	1	None I	Enable	RTS/CTS	RS-232
Overview Quick Setup Export/Import Basic Settings Network Settings Serial Settings Port 1	1	1		Baud rate 115200	Data bits 8	1	None I	Enable	RTS/CTS	RS-232
Overview Quick Setup Export/Import Basic Settings Network Settings Serial Settings Port 1 Port 2		1		Baud rate 115200	Data bits 8	1	None I	Enable	RTS/CTS	RS-232
Overview Quick Setup Export/Import Basic Settings Network Settings Serial Settings Port 1 Port 2 - Operating Settings		1		Baud rate 115200	Data bits 8	1	None I	Enable	RTS/CTS	RS-232
Overview Quick Setup Export/Import Basic Settings Network Settings Serial Settings Port 1 Port 2 - Operating Settings Accessible IP Settings		1		Baud rate 115200	Data bits 8	1	None I	Enable	RTS/CTS	RS-232
Overview Quick Setup Export/Import Basic Settings Network Settings Serial Settings Port 1 Port 2 - Operating Settings Accessible IP Settings - Auto Warning Settings		1		Baud rate 115200	Data bits 8	1	None I	Enable	RTS/CTS	RS-232
Overview Quick Setup Export/Import Basic Settings Network Settings Serial Settings Port 1 Port 2 - Operating Settings Accessible IP Settings - Auto Warning Settings Upgrade Firmware		1		Baud rate 115200	Data bits 8	1	None I	Enable	RTS/CTS	RS-232
Overview Quick Setup Export/Import Basic Settings Network Settings Serial Settings Port 1 Port 2 - Operating Settings Accessible IP Settings - Auto Warning Settings Upgrade Firmware - Monitor		1		Baud rate 115200	Data bits 8	1	None I	Enable	RTS/CTS	RS-232
Quick Setup Export/Import Basic Settings Network Settings Serial Settings Port 1 Port 2 - Operating Settings Accessible IP Settings - Auto Warning Settings Upgrade Firmware		1		Baud rate 115200	Data bits 8	1	None I	Enable	RTS/CTS	RS-232
Overview Quick Setup Export/Import Basic Settings Network Settings Serial Settings Port 1 Port 2 - Operating Settings Accessible IP Settings - Auto Warning Settings Upgrade Firmware - Monitor		1		Baud rate 115200	Data bits 8	1	None I	Enable	RTS/CTS	RS-232

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

NOXV	www.moxa	.com	
n Menu Serial S			
Overview		Port 1	
asic Settings Port alias			
erial Settings		Serial Parameters	
Port 1 Baud rate	3	115200 💌	
Port 2 Data bits		8 💌	
Port 3 Port 4 Stop bits		1. •	
Port 5 Parity		None 🗸	
Port 6 Flow cont	trol	RTSACTS	
Port 7 FIFO		Enable O Disable	
Port 8 perating Settings Interface		RS-232 🖌	
	the above settings to all s	serial ports	
uto Warning Settings onitor		Submit	_
Interface for the NF		NPort IA5000A Series	
	Seria		
n Menu rerview jick Setup			
n Menu erview iick Setup port/Import isic Settings	Port 1	al Settings	
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Interface for the NF n Menu verview uick Setup port/Import asic Settings serial Settings Serial Settings Port 1 Port 2 Operating Settings cessible IP Settings accessible IP Settings suto Warning Settings ograde Firmware Aonitor hange Password	Port 1 Port alias Serial Setting Baud rate Data bits Stop bits Parity Flow control FIFO Interface	al Settings	



#### ATTENTION

It is critical that the device port's serial communication settings match the attached device. Refer to the user's manual for your serial device for the correct serial communication settings.

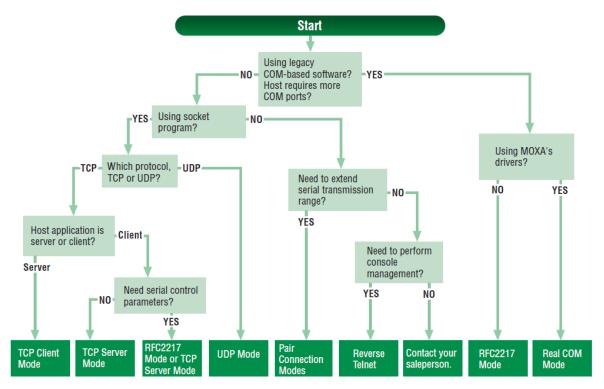
Parameter	Setting	Factory	Description	Necessity
		Default		
Port Alias	1 to 15 characters	None	Port Alias is specially designed to allow easy	Optional
	(E.g., PLC-No.1)		identification of the serial devices that are	
			connected to the NPort's serial port.	
Baud rate	110 bps to 230400	115200 bps	The rate of data transmission to and from the	Required
	bps		attached serial device.	
Data bits	5, 6, 7, 8	8	When Data bits is set to 5 bits, the stop bits	Required
			setting will automatically change to 1.5 bits.	
Stop bits	1, 1.5, 2	1	The size of the stop character.	Required

Parameter	Setting	Factory Default	Description	Necessity
Parity	None, Even, Odd, Space, Mark	None	Even and Odd parity provide rudimentary error-checking; Space and Mark parity are rarely used.	Required
Flow control	None, RTS/CTS, DTR/DSR, Xon/Xoff	RTS/CTS	The method used to suspend and resume data transmission to ensure that data is not lost. If you can use it, <b>RTS/CTS</b> (hardware) flow control is recommended.	Required
FIFO	Enable, Disable	Enable	Controls whether or not the device port's built-in 128-byte FIFO buffer is used. When enabled, the FIFO helps reduce data loss regardless of direction.	Required
Interface*	RS-232 RS-422 2-wire RS-485 4-wire RS-485	RS-232	The serial interface that will be used. The options that are available depend on the specific model of device server.	Required

\*Supported interfaces vary by model. Refer to the datasheet of your NPort device to see which serial interface it supports.

# **Operating Settings**

Operating Settings is where each device port's operation mode and associated parameters are configured. Use the chart provided below to select the operation mode that is most suitable for your application and refer to **Chapters 3 and 4** for a detailed explanation of different operating modes and parameters.



Click on **Operating Settings** under **Main Menu** to display the operating settings for the NPort's serial ports. To modify operating settings for a particular port, click on the **Port Number** under **Operating Settings**, located under **Main Menu** on the left side of the browser window.

Operating Settings       Int     Operating mode     Packing length     Delimiter 1     Delimiter 2     Delimiter process     Force tr       Image: Process of the set of t	ansmit
Image: Community and the second sec	ansmit
Real COM Mode         TCP alive check time: 7 Max connection:         1           0         0 (Disable)         0 (Disable)         0 Nothing         0           Real COM Mode         TCP alive check time: 7         0         0         0         0	
Max connection:         1           0         0 (Disable)         Do Nothing         0           Real COM Mode         TCP alive check time: 7         0         0         0	
Real COM Mode TCP alive check time: 7	
Soperation Modes	
Overview Port Operating Mode Packing Delimiter 1 Delimiter 2 Delimiter Pro-	Force
Quick Setup	Transmit
Export/Import 1 RealCOM TCP alive check time: 7	0
Basic Settings 1 RealCOM TCP alive check time: 7 Max connection: 1	
Network Settings 0 00 (Disable) 00 (Disable) Do Nothing	0
- Serial Settings 2 RealCOM TCP alive check time: 7	
Port 1 Max connection: 1	
Port 2	
Port1	
Port 2	
Accessible IP Settings	
- Auto Warning Settings	
Upgrade Firmware	
Upgrade Firmware - Monitor	

For each mode, the default settings should work for most applications. Modify these settings only if absolutely necessary for your application. The operation mode and related parameters can be configured through the web console. The same parameters can also be configured using NPort Administrator, the Telnet console, or serial console. Refer to **Chapters 3 and 4** for details.

10X7	www.moxa	.com
lenu (	Operating Settings	
view		Port=1
Settings ork Settings	Operation mode	TCP Server Mode
Cattings	TCP alive check time	7 (0 - 99 min)
t1	Inactivity time	
8	Max connection	
	Ignore jammed IP Allow driver control	© No © Yes
IP Settings	Allow unver control	Data Packing
ing Settings	Packing length	0 (0 - 1024)
assword	Delimiter 1	
ry Default		
rt	Delimiter 2	(Hex) Enable
	Delimiter process	Do Nothing (Processed only when Packing length is 0)
	Force transmit	0 (0 - 65535 ms)
ļ		TCP Server Mode
	Local TCP port	4001
	Command port	966
]	Apply the above settings to all	serial ports (Local listen port will be enumerated automatically).
1	Apply the above settings to all	senal ports (cocar isteri port will be enumerated automatically).
<u>-</u>	Apply the above settings to an	
erface for the	NPort 5000A and NPort	Submit IA5000A Series
erface for the		Submit IA5000A Series
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p	NPort 5000A and NPort	Submit IA5000A Series
p ort ngs	NPort 5000A and NPort CPort 1 Operation mode TCP alive check time	Submit IA5000A Series Dn Modes TCP Server
) Int Igs ttings	NPort 5000A and NPort  Operatio  Port 1  Operation mode  TCP alive check time Inactivity time	Submit           IA5000A Series           Dn Modes           TCP Server           7           (0 - 99 min)           0           (0 - 65535 ms)
o ort ngs ttings	NPort 5000A and NPort  Comparison  Port 1  Operation mode  TCP aive check time Inactivity time Max connection	Submit           IA5000A Series           On Modes           TCP Server           7           (0 - 99 min)           0           (0 - 65535 ms)           1
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t IS Ings Igs	NPort 5000A and NPort •Operation Port 1 Operation mode TCP aive check time Inactivity time Max connection Ignore jammed IP Allow driver control Local TCP port	Submit           IA5000A Series           Dn Modes           TCP Server           7           0           0           0           0           0           0           0           1           • No           • No           • No           • No
s ngs gs	NPort 5000A and NPort  Comparison  Port 1  Operation mode  TCP alive check time Inactivity time Max connection Ignore jammed IP Allow driver control	Submit           IA5000A Series           On Modes           TCP Server           7         (0 - 99 min)           0         (0 - 65535 ms)           1         •           • No         Yes           • No         Yes
t gs ngs Settings P Settings	NPort 5000A and NPort	Submit           IA5000A Series           On Modes           TCP Server           7         0         99 min)           0         (0 - 65535 ms)           1         •           • No         Yes           • No         Yes           4001         •
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p ort ngs ttings tings Settings IP Settings ing Settings	NPort 5000A and NPort	Submit           IA5000A Series           On Modes           TCP Server           7         0         99 min)           0         (0 - 65535 ms)           1         •           • No         Yes           • No         Yes           4001         •
rt gs ttings ings Settlings IP Settings ing Settings mware	NPort 5000A and NPort Competence Port 1 Operation mode TCP aive check time Inactivity time Max connection Ignore jammed IP Allow driver control Local TCP port Command port Data Packing	Submit           IA5000A Series           Dn Modes           TCP Server           7         0 - 99 min)           0         (0 - 65535 ms)           1         •           • No         Yes           • No         Yes           966         •
o nt ngs ttings Settings IP Settings ing Settings rmware ssword	NPort 5000A and NPort	Submit         IA5000A Series         Dn Modes         TCP Server         7       0 - 99 min)         0       (0 - 65535 ms)         1       •         • No       Yes         • No       Yes         • 4001       966         0       (0 - 1024)
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p ort ngs ettings ttings g Settings i IP Settings ning Settings irmware assword ory Default	NPort 5000A and NPort Competence of the second sec	Submit         IA5000A Series         Dn Modes         TCP Server         7       0 - 99 min)         0       (0 - 65535 ms)         1         • No       Yes         • No       Yes         • 00       (0 - 1024)         00       (Hex)         • Do Notthing ♥ (Processed only when packing length is 0)
	NPort 5000A and NPort  Comparison Port 1  Operation mode  TCP alive check time  Inactivity time  Max connection  Ignore jammed IP  Allow driver control  Local TCP port  Command port  Data Packing  Packing length Delimiter 1 Delimiter 2 Delimiter process Force transmit	Submit         IA5000A Series         Dn Modes         TCP Server         7         0

# **Accessible IP Settings**

		WW	w.mo	ixa	com						
1ain Menu Overview	Acces	ssible	IP Set	tings							
Basic Settings											
Network Settings	🗆 Ena	ble the	accessib	le IP l	ist (Not d	hecking	"Enable" v	vill allow al	I IPs to	conn	ect.)
Serial Settings	No. A	ctivate	the rule		IP Addres	SS		Netma	sk		
Operating Settings Port 1	1										
Port 2	2	-		i						_	
Accessible IP Settings		49								_	
Auto Warning Setting:										_	
Monitor Change Password	4										
Load Factory Default	5 F	1									
Save/Restart	6			1							
	7			-í						_	
	8	]		i						-	
	9 [			-i						-	
	10	-								_	
	10 1										
		:-	Acces	sibl	e IP L	ist					
	ł						allow all IPs to	connect.)			
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verview uick Setup		Enable	e the accessit tivate the rule	ble IP list	(Not checking	"Enable" will	allow all IPs to nask	connect)			
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verview uick Setup xport/Import asic Settings letwork Settings Serial Settings Port 1		Enable	e the accessit tivate the rule	ble IP list	(Not checking	"Enable" will		connect.)			
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verview uick Setup xport/Import asic Settings etwork Settings Serial Settings Port 1 Port 2 Coperating Settin 1s Port 1 Port 2 cossible IP Settin 1s Auto Warning Settin 3s pgrade Firmware Monitor hange Password		Enable No. Act 1 2 3 4 5 6 7 8 9 10 11	e the accessit tivate the rule	ble IP list	(Not checking	"Enable" will		connect)			
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verview uick Setup xport/Import asic Settings etwork Settings Serial Settings Port 1 Port 2 Operating Setti 1s Port 1 Port 2 ccessible IP Setti, 1s Auto Warning Setti 3s pgrade Firmware Monitor hange Password boad Factory Default		Enable No. Act  1  2  3  4  5  6  7  8  9  10  11  12  13	e the accessit tivate the rule	ble IP list	(Not checking	"Enable" will		connect)			
verview uick Setup xport/Import asic Settings etwork Settings Serial Settings Port 1 Port 2 Coperating Settin 1s Port 1 Port 2 coessible IP Settin 1s Auto Warning Settin 3s pgrade Firmware Monitor hange Password bad Factory Default		Enable No. Act  1  2  3  4  5  6  7  8  9  10  11  12  13  14	e the accessit tivate the rule	ble IP list	(Not checking	"Enable" will		connect)			

**Accessible IP Settings** allow you to add or block remote host IP addresses to prevent unauthorized access. Access to the NPort is controlled by an 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. Three setting types are described below:

- 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.

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**

The NPort device server can automatically warn administrators of certain system, network, and configuration events. Depending on the event, different options for automatic notification are available. These options are configured in the Auto Warning Settings.

### Auto warning: E-mail and SNMP trap

The Email and SNMP trap parameters are used to configure how e-mail and SNMP traps are sent when an automatic warning is issued by the NPort device server.

MOXA	www.mo	xa.com
Main Menu	Auto warning: Email ar	nd SNMP trap
🗀 Overview		Mail server
Basic Settings		
Network Settings	Mail server	
🔁 Serial Settings	My server requires auther	tication
Port 1	User name	
Port 2	User name	
Operating Settings	Password	
Port 1	From E-mail address	NPIA-5250_525016@moxa.com
Port 2	From E-mail address	
Accessible IP Settings	E-mail address 1	
Auto Warning Settings	E-mail address 2	
E-mail and SNMP Trap		/
Event Type	E-mail address 3	J
Monitor	E-mail address 4	
Change Password		SNMP trap server
Load Factory Default	SNMP trap server IP or	
Save/Restart	domain name	

	E-mail and	SNMP Trap Settings
Main Menu	Mail Server	
Overview	Mail Server	
Quick Setup	Mail server	
Export/Import	My server requires authen	itication
Basic Settings		
Network Settings	User name	
- Serial Settings	Password	
Port 1	From E-mail address	NP5250A_52@NP5250A
Port 2	E-mail address 1	
- Operating Settings		
Port 1	E-mail address 2	
Port 2	E-mail address 3	
Accessible IP Settings	E-mail address 4	
- Auto Warning Settings		
E-mail and SNMP Trap	SNMP Trap Server	
Event Type	Simily Itap Server	
Upgrade Firmware	SNMP trap server IP or domai	in la
- Monitor	name	
Line		Submit
Async		Starin

### **Mail Server**

Parameter	Setting	Factory	Description	Necessity
		Default		
Mail server	IP or Domain	None	This optional field is for the IP address or	Optional
	Name		domain name of your network mail server, if	
			applicable. A mail server is required for the	
			NPort to send e-mail warnings of	
			administrative events.	
User name	1 to 15	None	This optional field is used if your mail server	Optional
	characters		requires it.	
Password	1 to 15	None	This optional field is used if your mail server	Optional
	characters		requires it.	
From E-mail	1 to 63	None	This optional field sets the "from" e-mail	Optional
address	characters		address that will show up in an automatic	
			warning e-mail.	
E-mail address	1 to 63	None	These optional fields set the "destination"	Optional
1/2/3/4	characters		e-mail address for automatic e-mail warnings.	

### **SNMP Trap Server**

Parameter	Setting	Factory	Description	Necessity
		Default		
SNMP trap server	IP address or	None	N/A	Optional
<i>IP or domain</i>	Domain			
name	Name			



### ATTENTION

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

### **Event Type**

d start	🗖 Mail	🗖 Trap		
rm start	- Mail	Trap		
hentication failure	Mail	Trap		
address changed	E Mail			
sword changed	E Mail	_		
ver failure		_		Relay Output
ernet1 link down		Trap		Relay Output
ernet2 link down	Mail			
ernetz link down	DCD cha	Trap		Relay Output
t 1	Mail	Trap		Relay Output
t 2	Mail			
. 2	DSR cha	1 .		Relay Output
t 1	□ Mail	Trap		Relay Output
t 2	Mail	Trap		Relay Output
lain Menu Overview Quick Setup	System Event	🗖 Mail	🗌 Trap	
adien oetap			L Hap	
Export/Import				
Export/Import Basic Settings	Warm start	🗌 Mail	🗌 Trap	
Basic Settings Network Settings	Warm start Config Event	🗌 Mail	🔲 Trap	
Basic Settings		🗌 Mail	Trap	
Basic Settings Network Settings - Serial Settings Port 1 Port 2	Config Event			
Basic Settings Network Settings - Serial Settings Port 1 - Operating Settings	Config Event Authentication failure	🗌 Mail		
Basic Settings Network Settings - Serial Settings Port 1 - Operating Settings Port 1	Config Event Authentication failure IP changed	🗌 Mail		
Basic Settings Network Settings - Serial Settings Port 1 - Operating Settings	Config Event Authentication failure IP changed	🗌 Mail		
Basic Settings Network Settings - Serial Settings Port 1 - Operating Settings Port 1 Port 2	Config Event Authentication failure IP changed Password changed DCD Changed	Mail   Mail   Mail	Trap	
Basic Settings Network Settings - Serial Settings Port 1 Port 2 - Operating Settings Port 1 Port 2 Accessible IP Settings	Config Event Authentication failure IP changed Password changed DCD Changed Port 1	_ Mail _ Mail _ Mail _ Mail	Trap	
Basic Settings Network Settings - Serial Settings Port 1 Port 2 - Operating Settings Port 1 Port 2 Accessible IP Settings - Auto Warning Settings	Config Event Authentication failure IP changed Password changed DCD Changed	Mail   Mail   Mail	Trap	
Basic Settings Network Settings - Serial Settings Port 1 Port 2 - Operating Settings Port 1 Port 2 Accessible IP Settings - Auto Warning Settings E-mail and SNMP Trap Event Type Upgrade Firmware	Config Event Authentication failure IP changed Password changed DCD Changed Port 1 Port 2	_ Mail _ Mail _ Mail _ Mail	Trap	
Basic Settings Network Settings - Serial Settings Port 1 Port 2 - Operating Settings Port 1 Port 2 Accessible IP Settings - Auto Warning Settings E-mail and SNMP Trap Event Type Upgrade Firmware - Monitor	Config Event Authentication failure IP changed Password changed DCD Changed Port 1	_ Mail _ Mail _ Mail _ Mail	Trap	
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Basic Settings Network Settings Serial Settings Port 1 Port 2 Operating Settings Port 1 Port 2 Port 2 Auto Warning Settings E-mail and SNMP Trap Event Type Juggrade Firmware Monitor	Config Event Authentication failure IP changed Password changed DCD Changed Port 1 Port 2 DSR Changed	Mail   Mail   Mail   Mail   Mail	□ Trap □ Trap □ Trap	

The Event Type parameters are used to configure which events will generate an automatic warning from the NPort device server, and how that warning will be issued. For each listed event, certain automatic warning options are available. If Mail is selected, an e-mail will be sent. If Trap is selected, an SNMP trap will be sent. The **Relay Output** option is available for NPort IA5000/IA5000A series.

#### Cold start

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

#### Warm start

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

#### Authentication failure

An authentication failure event is triggered when the user inputs an incorrect password from the Console or Administrator. When an authentication failure occurs, the NPort will immediately send an e-mail or SNMP trap.

#### IP address changed

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

#### Password changed

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

#### Power failure (this event type is only applicable to NPort IA5000/IA5000A series)

NPort IA5000/IA5000A series NPorts have two DC power inputs for redundancy. Different approaches are used to warn engineers automatically, including by email and by relay output. Users can connect to **Monitor**  $\rightarrow$  **Relay Output** from the web console to check which event caused the warning. The relay output will be canceled after the power recovers, or by selecting "acknowledge event" using the web console or Telnet. When the Relay Output is sending a warning, the Ready LED will flash red until the warning event ceases.

MOXA	www.moxa.co	m		
Main Menu	Monitor Relay Output			
Overview				
Basic Settings		Relay Output Status		1
Network Settings	Power failure		Acknowledg	e Event
Serial Settings Operating Settings	Ethernet1 link down		Acknowledg	ie Evient
Accessible IP Settings	Ethernet2 link down		Acknowledg	e Event
Auto Warning Settings	DCD changed (Port 1)		Acknowledg	e Event
Monitor	DCD changed (Port 2)		Acknowledg	e Event
- Line - Diagonal Async	DSR changed (Port 1)		Acknowledg	e Event
Async-Setting	DSR changed (Port 2)		Acknowledia	e Event
	Dout State			
nin Manus	· · · · · · · · · · · · · · · · · · ·			
in Menu Verview	Dout Status			
verview		-	Adknowledge Event	
verview uick Setup	Dout Status	-	Adknowledge Event Adknowledge Event	
verview uick Setup xport/Import asic Settings	Dout Status Power failure	-		
verview uick Setup xportiImport asic Settings etwork Settings	Dout Status Power failure Ethernet1 link down		Acknowledge Event	
verview uick Setup xportilmport asic Settings etwork Settings Serial Settings	Dout Status Power failure Ethernet1 link down Ethernet2 link down		Acknowledge Event Acknowledge Event	
verview uick Setup xportfimport asic Settings etwork Settings Serial Settings Operating Settings	Dout Status Power failure Ethernet1 link down Ethernet2 link down DCD changed (Port 1)		Acknowledge Event Acknowledge Event Acknowledge Event	
verview uick Setup xportfimport asic Settings etwork Settings Serial Settings Operating Settings ccessible IP Settings	Dout Status Power failure Ethernet1 link down Ethernet2 link down DCD changed (Port 1) DSR changed (Port 1)		Acknowledge Event Acknowledge Event Acknowledge Event Acknowledge Event	
verview uick Setup xportImport asic Settings etwork Settings Serial Settings Operating Settings ccessible IP Settings Auto Warning Settings pgrade Firmware	Dout Status         Power failure         Ethernet1 link down         Ethernet2 link down         DCD changed (Port 1)         DSR changed (Port 1)         DCD changed (Port 2)		Adknowledge Event Adknowledge Event Adknowledge Event Adknowledge Event Adknowledge Event	
iin Menu verview uick Setup xport/Import asic Settings Serial Settings Operating Settings occessible IP Settings Auto Warning Settings lpgrade Firmware Monitor Line	Dout Status         Power failure         Ethernet1 link down         Ethernet2 link down         DCD changed (Port 1)         DSR changed (Port 2)         DSR changed (Port 2)		Acknowledge Event Acknowledge Event Acknowledge Event Acknowledge Event Acknowledge Event Acknowledge Event	

#### Ethernet link down

The NPort device server provides system maintainers with real-time alarm messages for Ethernet link down. Even when control engineers are out of the control room for an extended period of time, they can still be informed of the status of devices almost instantaneously when exceptions occur. The NPort device server supports different methods for warning engineers automatically, such as by email, SNMP trap, and relay output\*.

#### DCD changed

A DCD (Data Carrier Detect) signal change indicates that the modem connection status has changed. For example, a DCD change to high indicates that the local modem and remote modem are connected. A DCD signal change to low indicates that the connection line is down. When the DCD changes, the NPort will immediately send an e-mail, send an SNMP trap, or trigger the relay output\*.

#### DSR changed

A DSR (Data Set Ready) signal change indicates that the data communication equipment's power is off. For example, a DSR change to high indicates that the DCE is powered ON. A DSR signal changes to low indicates that the DCE is powered off. When the DSR changes, the NPort will immediately send an e-mail, send an SNMP trap, or trigger the relay output\*.

\*Relay output is only supported by the NPort IA5000/IA5000A series.

NOTE Relay Output is only available for the NPort IA5000/IA5000A series. Users can connect to Monitor → Relay Output from the web console to check which event is causing the warning. The relay output will be canceled if the abnormal state is restored, or if Acknowledge Event is selected from the web or Telnet console. When the Relay Output is issuing a warning, the Ready LED will flash red until the warning event ceases.

Parameter	Setting	Factory	Description	Necessity
		Default		
Mail	Enable, Disable	Disable	This feature helps the administrator manage	Optional
			how the NPort sends e-mail to pre-defined	
			e-mail boxes when the enabled events (Cold	
			start, Warm start, Authentication failure, etc.)	
			occur. To configure this feature, click the	
			Event Type Mail checkbox.	
Trap	Enable, Disable	Disable	This feature helps the administrator manage	Optional
			how the NPort IA5000A sends an SNMP Trap to	
			a pre-defined SNMP Trap server when the	
			enabled events (Cold start, Warm start,	
			Authentication failure, etc.) occur. To configure	
			this feature, click the Event Type Trap	
			checkbox.	



#### ATTENTION

DCD and DSR signal changes are only applicable for the RS-232 interface.

## Monitor

### **Monitor Line**

Click **Line** under **Monitor** to show the operation mode and status of each connection (IPx), for each of the four serial ports.

ΜΟΧΛ		ww	w.mox	xa.com							
Main Menu	Monit	or Line									
Overview	· · · · ·				Line					 	
Basic Settings Network Settings	Port	OP Mo	de	IP1	IP2	2		IF	3		IP4
Serial Settings	1	Real C	OM Mode	Listen			Í				
Operating Settings	2	Real C	OM Mode	Listen							
Accessible IP Settings	3	Real C	OM Mode	Listen							
Auto Warning Settings	4	Real C	OM Mode	Listen							
b Interface for t	he N	Port 5		d NPort IA50	00A Series	5			_	 	
	the N		* Moni	itor Line		5				 	
	the Ni			de Connect	ions						
Aain Menu	the Ni		* Moni	de Connect	ions ten]	[			]	 	]
<b>Jain Menu</b> Overview Quick Setup	he N	Port	• Moni	de Connect	ions ten] ]	]	1	[	1	 [	1
<b>Jain Menu</b> Overview Quick Setup Export/Import	the NI	Port	• Moni	de Connect	ions ten] ] ten]	]	1	נ	]	 [	1
<b>Jain Menu</b> Overview Quick Setup Export/Import Basic Settings	the Ni	Port 1	Operation Mod RealCOM	de Connect	ions ten] ]	]	1	נ	1	 [	1
<b>Jain Menu</b> Overview Quick Setup Export/Import Basic Settings Network Settings	the N	Port 1	Operation Mod RealCOM	de Connect	ions ten] ] ten]	]	1	נ	]	 [	1
Aain Menu Overview Quick Setup Export/Import Basic Settings Network Settings - Serial Settings	the N	Port 1	Operation Mod RealCOM	de Connect	ions ten] ] ten]	]	1	נ	]	[	1
Aain Menu Overview Quick Setup Export/Import Basic Settings Network Settings - Serial Settings - Operating Settings	the N	Port 1	Operation Mod RealCOM	de Connect	ions ten] ] ten]	]	1	נ	]	 [	1
Quick Setup Export/Import	he Ni	Port 1	Operation Mod RealCOM	de Connect	ions ten] ] ten]	]	1	נ	]	 [	1

## **Monitor Async**

Click **Async** under **Monitor** to show the current status of each of the four serial ports.

MOXA		www.n	noxa.co	m				
Main Menu Overview	Monito	r Async						
Basic Settings				Asyno	2			
Network Settings	Port	TxCnt	RxCnt	TxTotalCnt	RxTotalCnt	DSR	CTS	DCD
Serial Settings	1	0	0	0	0	OFF	OFF	OFF
Operating Settings	2	0	0	0	0	OFF	OFF	OFF
Accessible IP Settings	3	0	0	0	0	OFF	OFF	OFF
Auto Warning Settings	4	0	0	0	0	OFF	OFF	OFF

		:•Mon	itor Asy	nc						
- Main Menu	Dert	TuCut	RxCnt	TxTotalCnt	RxTotalCnt	DED	DTD	RTS	CTS	DCD
Overview	Роп	TxCnt				DSR	DTR	· · · · · · · · · · · · · · · · · · ·		
Quick Setup	1	0	0	0	0			0		
Export/Import	2	0	0	0	0			۲		
Basic Settings										
Network Settings										
- Serial Settings										
- Operating Settings										
Accessible IP Settings										
- Auto Warning Settings										
Upgrade Firmware										
- Monitor										
Line										
Asynd										

### **Monitor Async-Settings**

Click **Async Setting** under **Monitor** to show the run-time settings for each of the four serial ports.

Async-Settings         Async-Settings         Network Settings         Port       Baud rate       Data bits       Stop bits       Parity       FIFO       RTS/CTS       XON/XOFF       DTF         Serial Settings       1       115200       8       1       None       Enable       OFF       OFF </th <th></th>													
Async-Settings         Network Settings         Serial Settings         Operating Settings         2       115200       8       1       None       Enable       OFF	ain Menu	Monito	r Asy	nc-Sett	ings								
Network Settings     Port     Baud rate     Data bits     Stop bits     Parity     FIFO     RTS/CTS     XON/XOFF     DTF       Serial Settings     1     115200     8     1     None     Enable     OFF     OFF     OFF     OFF       2     115200     8     1     None     Enable     OFF     OFF     OFF     OFF       3     115200     8     1     None     Enable     OFF     OFF     OFF       3     115200     8     1     None     Enable     OFF     OFF     OFF       Auto Warning Settings     1     115200     8     1     None     Enable     OFF     OFF     OFF       Monitor     1     115200     8     1     None     Enable     OFF     OFF     OFF       Interface for the NPort SOOOA and NPort IA5000A Series    Interface  Interface  Interface Inte							Async	-Setting	ļs				
Serial Settings       1       115200       8       1       None       Enable       OFF       OFF <td>Network Settings</td> <td>Port</td> <td>Ba</td> <td>ud rate</td> <td></td> <td>Data bits</td> <td>Stop bits</td> <td>Parity</td> <td>FIFO</td> <td>R</td> <td>TS/CTS</td> <td>XON/XOFF</td> <td>DTR/DSR</td>	Network Settings	Port	Ba	ud rate		Data bits	Stop bits	Parity	FIFO	R	TS/CTS	XON/XOFF	DTR/DSR
Accessible IP Settings Accessible IP Settings Accessible IP Settings Monitor	Serial Settings	1	11	5200		8	1	None	Enab	le O	FF	OFF	OFF
Auto Warning Settings Auto Warning Settings	Operating Settings	1	11	5200		8	1	None	Enab	le O	FF	OFF	OFF
Monitor  Interface for the NPort 5000A and NPort IA5000A Series  Monitor  Series  Monitor Async-Settings  Port Baud Data Bits Stop Bits Parity Flow Control Reference Data Bits Stop Bits Parity RESIGNED TRDSR FIFO Interface  1 19200 8 1 None OFF OFF OFF Enable RS-232 2 115200 8 1 None ON OFF OFF Enable RS-232 betwork Settings Berial Settings Deperating Settings	Accessible IP Settings	And the second s	11	5200				None	Enab				OFF
Interface for the NPort 5000A and NPort IA5000A Series         Interface for the NPort 5000A and NPort IA5000A Series         Interface for the NPort 5000A and NPort IA5000A Series         Interface for the NPort 5000A and NPort IA5000A Series         Image: Interface for the NPort 5000A and NPort IA5000A Series         Interface for the NPort 5000A and NPort IA5000A Series         Interface for the NPort Source of the NPOR Series         Interface Data Bits       Stop Bits       Parity       Flow Control       Interface         Interface       Data Bits       Stop Bits       Parity       Flow Control       Interface         I       19200       8       1       None       OFF       OFF       Enable       RS-232         2       115200       8       1       None       ON       OFF       OFF       Enable       RS-232         2       115200       8       1       None       ON       OFF       OFF       Enable       RS-232         2       115200       8       1       None       ON       OFF       OFF       Enable       RS-232         2       11520	Auto Warning Settings	4	11	5200		8	1	None	Enab	le O	FF	OFF	OFF
Point Rate     Data bits     Stop bits     Painty     RTS/CTS     XON/XOFF     DTRDSR     Prio     Interface       uick Setup     1     19200     8     1     None     OFF     OFF     DFF     Enable     RS-232       asic Settings     2     115200     8     1     None     ON     OFF     OFF     Enable     RS-232       etwork Settings     Serial Settings     Serial Settings     Serial Settings     Serial Settings     Serial Settings     Serial Settings	in Manu			ъМо	nitor	Asyn	c-Set	ting	S				
asic Settings 2 115200 8 1 None ON OFF OFF Enable RS-232 etwork Settings Serial Settings Operating Settings	ain Menu Dverview	4								I	550	hutantaa	
etwork Settings Serial Settings Operating Settings	ain Menu Overview Quick Setup	ł	Port	Baud			Parity	F	low Contro			Interface	e
Serial Settings	Dverview	1	Port	Baud Rate	Data Bits	Stop Bits	Parity F	F RTS/CTS	low Contro XON/XOFF	DTR/DSR			
Dperating Settings	Overvlew Quick Setup	t	Port 1	Baud Rate 19200	Data Bits 8	Stop Bits	Parity F	F TS/CTS OFF	low Contro XON/XOFF OFF	DTR/DSR OFF	Enable	RS-2	232
	Dvervlew Quick Setup Export/Import	1	Port 1	Baud Rate 19200	Data Bits 8	Stop Bits	Parity F	F TS/CTS OFF	low Contro XON/XOFF OFF	DTR/DSR OFF	Enable	RS-2	232
ccessible IP Settings	Overvlew Quick Setup Export/Import Basic Settings	1	Port 1	Baud Rate 19200	Data Bits 8	Stop Bits	Parity F	F TS/CTS OFF	low Contro XON/XOFF OFF	DTR/DSR OFF	Enable	RS-2	232
	Overvlew Quick Setup Export/Import Basic Settings Jetwork Settings	1	Port 1	Baud Rate 19200	Data Bits 8	Stop Bits	Parity F	F TS/CTS OFF	low Contro XON/XOFF OFF	DTR/DSR OFF	Enable	RS-2	232
Luto Warning Settings	overvlew Quick Setup Export/Import Basic Settings Vetwork Settings Serial Settings	1	Port 1	Baud Rate 19200	Data Bits 8	Stop Bits	Parity F	F TS/CTS OFF	low Contro XON/XOFF OFF	DTR/DSR OFF	Enable	RS-2	232
pgrade Firmware	overvlew Quick Setup Export/Import Basic Settings Jetwork Settings Serial Settings Operating Settings	1	Port 1	Baud Rate 19200	Data Bits 8	Stop Bits	Parity F	F TS/CTS OFF	low Contro XON/XOFF OFF	DTR/DSR OFF	Enable	RS-2	232
Aonitor	overview Quick Setup Export/Import Basic Settings Jetwork Settings Serial Settings Operating Settings Accessible IP Settings	1	Port 1	Baud Rate 19200	Data Bits 8	Stop Bits	Parity F	F TS/CTS OFF	low Contro XON/XOFF OFF	DTR/DSR OFF	Enable	RS-2	232
Line	overview Quick Setup Export/Import Basic Settings Serial Settings Operating Settings Auto Warning Settings Auto Warning Settings	1	Port 1	Baud Rate 19200	Data Bits 8	Stop Bits	Parity F	F TS/CTS OFF	low Contro XON/XOFF OFF	DTR/DSR OFF	Enable	RS-2	232
	Overview Quick Setup Export/Import Basic Settings Serial Settings Operating Settings Auto Warning Settings Auto Warning Settings Jggrade Firmware Monitor	1	Port 1	Baud Rate 19200	Data Bits 8	Stop Bits	Parity F	F TS/CTS OFF	low Contro XON/XOFF OFF	DTR/DSR OFF	Enable	RS-2	232

### **Change Password**

You can set a password to restrict access to the NPort's configuration parameters. (The default password for NPort is **moxa**.) If a user does not enter the correct password when accessing the NPort through one of the consoles (e.g., web console), access to the NPort configuration settings will be denied.

ΜΟΧΛ	www.moxa.com
Overview Basic Settings Old Network Settings New Serial Settings	ange password password : ype password : Submit
h Interface for the	
	e NPort 5000A and NPort IA5000A Series
	• Change Password
	Change Password
ain Menu Vyerview	Change Password
a <b>in Menu</b> Overview Quick Setup	Change Password
a <b>in Menu</b> Dverview Duick Setup Export/Import	Change Password
<b>ain Menu</b> Dvervlew Quick Setup Export/Import Basic Settings	Password Old password
ain Menu Overview Quick Setup Export/Import Basic Settings Network Settings	Change Password  Password  Old password  New password
<b>ain Menu</b> Overview Julick Setup Export/Import Jasic Settings Jetwork Settings Serial Settings	Change Password  Password  Old password  New password
ain Menu Overview Juick Setup Export/Import Basic Settings Jetwork Settings Serial Settings Operating Settings	Change Password  Password  Old password  New password  Retype password
ain Menu Overview Buick Setup Sauck Setup Sasic Settings Jetwork Settings Serial Settings Operating Settings cocessible IP Settings	Change Password  Password  Old password  New password  Retype password
nin Menu Dvervlew Bulck Setup Sauck Setup Sayort/Import Jasic Settings Jetwork Settings Serial Settings Operating Settings Auto Warning Settings	Change Password  Password  Old password  New password  Retype password
ain Menu Dvervlew Juick Setup Export/Import Basic Settings Vetwork Settings Serial Settings Operating Settings Auto Warning Settings Auto Warning Settings Jpgrade Firmware Monitor	Change Password  Password  Old password  New password  Retype password



### ATTENTION

If you forget the NPort's password, the ONLY way to configure the NPort is by using the hardware reset button to load the factory defaults. Before you set a password for the first time, it is a good idea to export the NPort's complete configuration to a file. Your configuration can then be easily restored if necessary.

### Load Factory Default

Web Interface for the NPort 5000 and NPort IA5000 Series						
www.moxa.com						
Load Factory Default						
This function will reset all MOXA NPort Server settings to their factory default values. Be aware that previous settings will be lost.						
Submit						

### Web Interface for the NPort 5000A and NPort IA5000A Series

	Load Factory Default						
- Main Menu	This function will reset all MOXA NPort Server settings to their factory default values.						
Overview	Be aware that previous settings will be lost.						
Quick Setup							
Export/Import	0.42						
Basic Settings	Submit						
Network Settings							
- Serial Settings							
- Operating Settings							
Accessible IP Settings							
- Auto Warning Settings							
Upgrade Firmware							
- Monitor							
Change Password							
Load Factory Default							
Save/Restart							

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

# **Configuration by Telnet Console**

You can update your NPort's IP address by using Telnet to connect to your NPort IA5000A over the network. (Figures in this section were generated using the NPort IA5450AI).

- 1. From the Windows desktop, click on  ${\bf Start}$  and then select  ${\bf Run}.$
- 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	? 🛛
-	Type the name of a program, folder, document, or Internet resource, and Windows will open it for you.
Open:	telnet 192. 168. 127. 254
	OK Cancel Browse

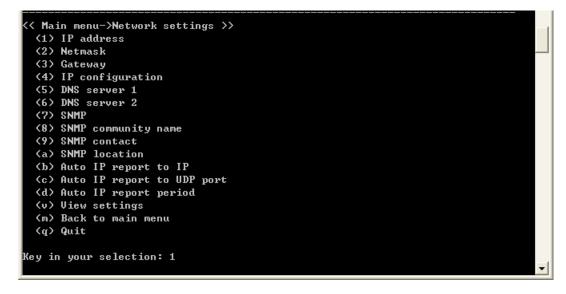
3. When the Telnet window opens, you will be prompted to input the Console password (the default password is **moxa**), input the password and then press **Enter**.

lodel name	: NPort IA5450AI	
IAC address	: 00:90:E8:12:34:57	
erial No.	: 2	
irmware version	: 1.0 Build 10032318	
ustem untime	: 0 days, 00h:00m:07s	

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

work settings ial settings rating settings	
rating settings	
essible IP settings	
o warning settings	
itor	
a	
nge password	
d factory default	
w settings	
e/Restart	
t	
	o warning settings itor g nge password d factory default w settings e/Restart

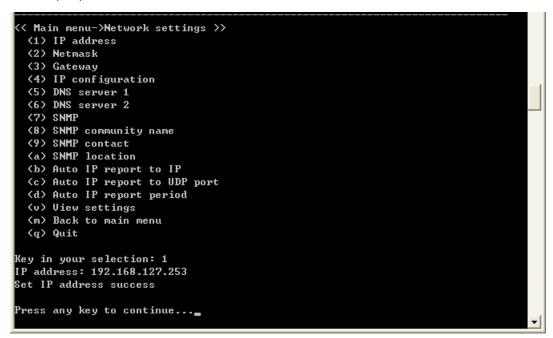
5. Type 1 to select IP address and then press Enter.



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

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

7. Press any key to continue...



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

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

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

Model name	: NPort IA5450AI
MAC address	: 00:90:E8:12:34:57
Serial No.	: 2
Firmware versio	on : 1.0 Build 10032318
System uptime	: 0 days, 00h:06m:48s
<pre></pre>	>
<li>(1) Basic set</li>	tings
(2) Network s	settings
(3) Serial se	ettings
(4) Operating	y settings
(5) Accessib]	le IP settings
(6) Auto warn	ning settings
(7) Monitor	
<pre>(8) Ping</pre>	
(9) Change pa	assword
(a) Load fact	tory default
(v) View sett	ings
(s) Save/Rest	tart
(g) Quit	

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



# **Configuration by Serial Console**

## Serial Console (19200, n, 8, 1)

You may use the RS-232 console port to configure your NPort's IP address. We suggest using PComm Terminal Emulator, which is available free of charge as part of the PComm Lite program suite, to carry out the installation procedure, although other similar utilities may also be used. The following table list models that have a serial console.

NPort Family	NPort 5000/IA5000 Series	NPort 5000A/IA5000A Series
Configuration		
Options		
Serial Console*	1	✓

 \* Only applies to NPorts that have a serial console port. The following NPorts do not have a serial console port: NPort 5130/5232/5400 Series, NPort 5600 RM Series, NPort 5150AI-M12/5250AI-M12/5450AI-M12 Series, NPort 5130A/ 5230A Series.

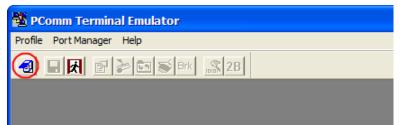


### ATTENTION

The serial console port is an RS-232 port.

Before you configure the NPort device server over the serial console, turn off the power and connect the serial cable from the NPort to your computer's serial port.

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



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

Property	×
Communication Parameter Terminal File Transfe	er Capturing
COM Options	_
Ports : COM1	
Baud Rate : 19200 -	
Data Bits : 8	
Parity : None 💌	
Stop Bits : 1	
Row Control ☐ RTS/CTS ☐ XON/XOFF ☐ XON/XOFF RTS ● ON C OF	
OK	Cancel

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

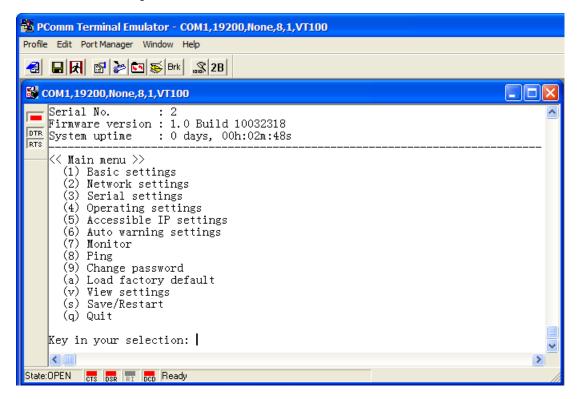


7. The NPort will automatically switch from data mode to console mode as it receives a continuous string of "`" characters.

8. Input the password when prompted. The default password is **moxa**.

PComm Terminal Emulator - COM1,19200,None,8,1,VT100	
Profile Edit Port Manager Window Help	
省 🖬 🕅 🌌 🖾 🐺 Brk 🔤 28	
👪 COM1,19200,None,8,1,VT100	
Model name: NPort IA5450AIMAC address: 00:90:E8:12:34:57Serial No.: 2Firmware version: 1.0 Build 10032318System uptime: 0 days, 00h:00m:02sPlease keyin your password:*******	
<	×
State:OPEN CTS DSR RI DCD Ready	

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



# **Testing Your NPort**

After completing installation and configuration, you can do a simple test to ensure that your NPort will communicate successfully. Click on the appropriate link below to view a technical note that explains how to test your NPort one of four common operation modes: Real COM, TCP client, TCP server, and UDP.

- <u>Real COM Mode for NPort</u>
- TCP Client Mode for NPort
- TCP Server Mode for NPort
- UDP Mode for NPort

# **Choosing the Proper Operation Mode**

In this chapter, we describe the NPort device server's various 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 operation mode in this chapter, refer to **Chapter 4** for detailed configuration parameter definitions.

The following topics are covered in this chapter:

- Overview
- Real COM Mode
- RFC2217 Mode
- TCP Server Mode
- TCP Client Mode
- UDP Mode
- Pair Connection Mode
- Ethernet Modem Mode
- Reverse Telnet Mode
- Disabled Mode

## **Overview**

NPort serial device servers network-enable traditional RS-232/422/485 devices. A serial device server is a small computer equipped with a CPU, real-time OS, and TCP/IP protocols that can bi-directionally translate data between the serial and Ethernet formats. NPort device servers that are connected to a network that with access to the Internet can be accessed from a computer located 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.

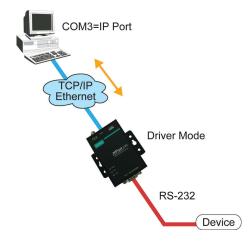
An NPort serial device server is an external IP-based network device that allows you to expand the number of serial ports for a host computer on demand. As long as your host computer supports the TCP/IP protocol, you won't be limited by the host computer's bus limitation (such as ISA or PCI), or lack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

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

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

# **Real COM Mode**

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





### ATTENTION

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

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



### ATTENTION

Real COM Mode allows several hosts to access the same NPort. The driver that comes with your NPort controls host access to attached serial devices by checking the host's IP address. Refer to the **Accessible IP Settings** section in **Chapter 2** for details.

# RFC2217 Mode

RFC2217 Mode is only supported by the NPort 5000A, NPort 5000AI-M12, NPort IA5000A, NPort 5600, and NPort 5600-8-DT/DTL Series.

RFC 2217 mode is similar to Real COM mode in that a driver is used to establish a transparent connection between a host computer and a serial device by mapping the serial port on the NPort to a local COM port on the host computer. RFC2217 defines general COM port control options based on the Telnet protocol. Third party drivers supporting RFC2217 are widely available on the Internet and can be used to implement Virtual COM mapping to your NPort serial port(s).

# **TCP Server Mode**

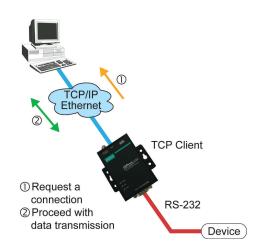
In **TCP Server Mode**, the NPort is configured with a unique IP:Port combination on a TCP/IP network. In this case, the NPort waits passively to be contacted by the host computer. After the host computer establishes a connection with the serial device, it can then proceed with data transmission. TCP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

- 1. The host requests a connection from the NPort configured for TCP Server Mode.
- 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**

In TCP Client Mode, the NPort can actively establish a TCP connection with a pre-determined host computer when serial data arrives. After the data has been transferred, the NPort can disconnect automatically from the host computer by using the **TCP alive check time** or **Inactivity time** settings. Refer to **Chapter 4** for detailed configuration instructions. As illustrated in the figure, data transmission proceeds as follows:

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



TCP/IP Ethernet

Request a

connection

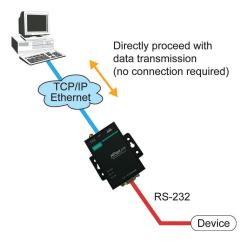
②Proceed with data transmission TCP Server

RS-232

Device

## **UDP Mode**

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



## **Pair Connection Mode**

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

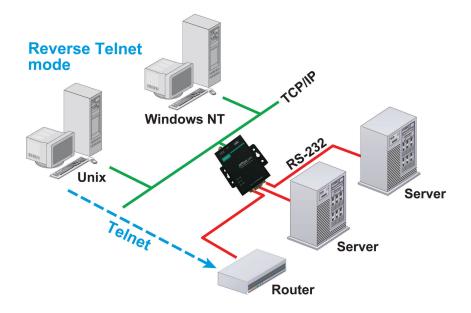
## **Ethernet Modem Mode**

Ethernet Modem Mode is only supported by the NPort IA5000/IA5000A, NPort 5000A, NPort 5000AI-M12, and NPort 5100 series.

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

# **Reverse Telnet Mode**

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



# **Disabled Mode**

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

# **Advanced Operation Mode Settings**

Your NPort's serial ports can be configured to use one of several operation modes, such as Real COM mode or Reverse Telnet mode. In this chapter, we explain the settings for every parameter of every operation mode.

The following topics are covered in this chapter:

- Overview
  - List of Parameters
  - > When to Make Adjustments
- Using Pair Connection Modes
- Parameter Summary
  - Connection Management Parameters
  - Data Packing Parameters
  - Other Parameters
- Web Console

## **Overview**

A device port's operation mode determines how the port interacts with the network. Depending on your application and device, you may have the option of choosing between two or more operating modes. For each mode, the default settings should work for most applications. Modify these settings only if absolutely necessary for your application. The operation mode and related parameters can be configured through NPort Administrator. The same parameters may also be configured using the web console, Telnet console, or serial console.

## **List of Parameters**

Real COM Mode	TCP Server Mode	TCP Client Mode	UDP Mode	Reverse Telnet Mode	Pair Connection Mode	RFC2217 Mode	
							Connection Management Parameters
✓	<b>v</b>	✓		✓	✓	√	TCP alive check time
<u> </u>	✓	✓		✓			Inactivity time
✓	✓	✓					Max connection
✓	✓	✓					Ignore jammed IP
✓	✓						Allow driver control
							Data Packing Parameters
✓	✓	✓	✓			✓	Packing length
✓	~	✓	~			✓	Delimiter 1 and 2
✓	~	✓	~			✓	Delimiter process
✓	~	✓	~			✓	Force transmit
							Other Parameters
	~			✓	✓		Local TCP port
	~						Command port
					✓		Destination IP address
		~	~				Destination IP address 1 through 4
		~					Designated local port 1 through 4
			~				Local listen port
		~					Connection Control
				~			Map <cr-lf></cr-lf>

### When to Make Adjustments

The default settings for each operation mode are designed to work for most applications and usually do not need to be modified. However, adjustments may be required for the following situations:

• You need to control network data packing using specific delimiter characters.

Adjust Delimiters 1 and 2 and Delimiter process.

• Multiple hosts will simultaneously access the attached device.

Adjust Max Connection, Ignore Jammed IP, and Allow driver control.

Data will be broadcast from the serial device to multiple network destinations.

Adjust Destination IP 1 through 4.

• You are using Pair Connection modes to connect two serial devices over Ethernet.

Adjust Local TCP port and Destination IP Address

# **Using Pair Connection Modes**

For some applications, you may want to configure two serial devices to communicate directly with each other over the network. This can be done with a pair of NPort device servers configured for Pair Connection Master/Slave modes. Configure one device port on one of the NPorts to Pair Connection Master mode, and one device port on the other NPort to Pair Connection Slave mode. It doesn't matter which NPort is the master and which NPort is the slave.

For the device port configured for Pair Connection Slave mode, designate a Local TCP port to be used for communication. For the device port configured for Pair Connection Master mode, enter the slave's IP address and Local TCP port as the **Destination IP**.

Once both device ports have been configured, the attached serial devices will communicate over Ethernet as if they were connected by a serial cable. The two NPorts can be connected by an Ethernet cable, or they can be connected to the same network.

# **Parameter Summary**

### **Connection Management Parameters**

1	✓	✓		>	~	>	TCP alive check time
Real COM Mode	TCP Server Mode	TCP Client Mode	UDP Mode	Reverse Telnet Mode	Pair Connection Mode	RFC2217 Mode	Setting Options: 0 to 99 minutes Default: 7 minutes Description: The time limit for keeping the connection open if a host does not respond to "TCP alive check" packets. If the host does not respond within the specified time, the connection will be closed. A setting of 0 means that the connection will remain open even if the host never responds.

	√	√		✓			Inactivity time
de	de	de	de	de	de	de	Setting Options: 0 to 65535 ms
Mode	Mode	Mode	Mode	Mode	Mode	Mode	Default: 0
COM	Server	Client	UDP	Telnet	Connection	217	Description: Specifies the time limit for keeping the connection open if no
	Se		_	Te	Jec	C22	data flows to or from the serial device. If there is no activity for the
Real	8	тср		rse	n r	RF	specified time, the connection will be closed. A setting of 0 means that
-	тср	F		Rever			the connection will remain open even if data is never received.
				Re	Pair		For many applications, the serial device may be idle for long periods of
							time, so 0 is an appropriate setting. If you wish to use Inactivity time with
							TCP Client mode, you must set Connection Control to Any
							Character/Inactivity Time (see Connection Control).
							When adjusting Inactivity time, make sure that it is greater than the
							Force transmit time. Otherwise, the TCP connection may be closed before
							data in the buffer can be transmitted.

✓	✓	✓					Max connection
Real COM Mode	TCP Server Mode	<b>TCP Client Mode</b>	ADP Mode	Reverse Telnet Mode	Pair Connection Mode	RFC2217 Mode	Setting Options: 1 to 4 Default: 1 Description: Specifies the maximum number of simultaneous connections that the port will accept. When adjusting Max connection, make sure that Ignore jammed IP and Allow driver control are also configured correctly.

✓	✓	✓					Ignore jammed IP
Real COM Mode	TCP Server Mode	TCP Client Mode	UDP Mode	Reverse Telnet Mode	Pair Connection Mode	RFC2217 Mode	Setting Options: Yes or No Default: No Description: This field specifies how an unresponsive IP address is handled when there are simultaneous connections to the device port (see Max connection). <b>Yes</b> means that transmission to the other hosts will not be suspended if one IP address becomes unresponsive. <b>No</b> means that all transmission will be suspended if one IP address becomes unresponsive, and will resume when all hosts have responded. <b>Yes</b> is the recommended setting when Max connection is 2 or more.

✓	✓						Allow driver control
Real COM Mode	TCP Server Mode	TCP Client Mode	UDP Mode	Reverse Telnet Mode	Pair Connection Mode	RFC2217 Mode	Setting Options: Yes or No Default: No Description: Specifies whether or not the device port will respond to driver control commands when multiple simultaneous connections are enabled (see Max connection).

# **Data Packing Parameters**

✓	✓	~	✓			✓	Packing length
Real COM Mode	TCP Server Mode	TCP Client Mode	UDP Mode	Reverse Telnet Mode	Pair Connection Mode	RFC2217 Mode	Setting Options: 0 to 1024 Default: 0 Description: Controls data packing by the amount of data received. Serial data accumulates in the device port's buffer until it reaches the specified length. When the specified amount of data has accumulated in the buffer, the data is packed for network transmission. A setting of 0 means that data will not be packed until the buffer is full. 0 is the recommended setting, unless your application has a specific need to limit packet sizes or improve response times.

✓	✓	✓	✓			✓	Delimiter 1 and 2
de	de	de	de	de	de	de	Setting Options: Enable, 0 to FF
Mode	Mode	Mode	Mode	Mode	Mode	Mode	Default: Disable
СОМ	Server	Client	UDP	Telnet	Connection	2217	Description: Controls data packing using special delimiter character(s).
Real				-	nec	RFC2	Serial data accumulates in the device port's buffer until the delimiter
Re	тср	тср		Reverse	lon	~	character(s) are received, after which the data is packed for network
	Г	-		eve	-		transmission. If only one delimiter character is needed, be sure to enable
				Å	Pair		Delimiter 1 only. If both Delimiter 1 and 2 are enabled, both characters
							must be received in sequence for data packing to occur. For example, the
							carriage return character could be used as a delimiter in order to transmit
							each sentence or paragraph in a separate packet. Data is packed
							according to the Delimiter process parameter.
							Delimiters must be incorporated into the data stream at the software or
							device level.



### ATTENTION

When the device port buffer is full, the data will be packed for network transmission, regardless of the settings for Delimiter 1, Delimiter 2, and Force transmit.

					-		
✓	✓	✓	✓			✓	Delimiter process
Mode	Mode	Mode	Mode	Mode	Mode	Mode	Setting Options: Do Nothing, Delimiter + 1, Delimiter + 2, Strip Delimiter
δ	ω		Μo		ω	ω	Default: Do Nothing
MO	Server	Client	UDP	Telnet	Connection	217	Description: Controls how data is packed when delimiter characters are
Ŭ	Ser	Cli	<b>&gt;</b>	Telr	ecti	C22	received. Note that this field has no effect if delimiters are not enabled
Real COM	TCP §	TCP			uu	RFC2:	(see Delimiters 1 and 2).
	Ĕ	F		Reverse			"Do nothing" will pack the accumulated data including delimiters.
				Å	Pair		"Delimiter + 1" will wait for an additional character before packing the
							accumulated data.
							"Delimiter + 2" will wait for two additional characters before packing the
							accumulated data.
							"Ctrip Delimiter" will pack the accumulated data but will not include the
							"Strip Delimiter" will pack the accumulated data but will not include the delimiter characters in the packet.
✓	✓	✓	✓			✓	Force transmit
e	Ð	Ð	Ð	Ð	e	Ð	Setting Options: 0 to 65535 ms
Mode	Mode	Mode	Mode	Mode	Mode	Mode	Default: 0 ms
Σ	er			et			Description: Controls data packing by the amount of time that elapses
COM	Server	Client	UDP	Telnet	ctic	221	between bits of data. As serial data is received, it accumulates in the
Real				Reverse Te	Connection	RFC2:	device port's buffer. If serial data is not received for the specified amount
Å	TCP	тср			Cor		of time, the data that is currently in the buffer is packed for network
				Sevi	air		transmission. A setting of 0 means that data in the buffer will not be
							-

transmission. A setting of 0 means that data in the buffer will not be automatically packed when additional data is not received from the device. When using this field, make sure Inactivity time is disabled or set to a larger value. Otherwise, the connection may be closed before the data in the buffer can be transmitted.

## **Other Parameters**

	✓			✓	✓		Local TCP port
Real COM Mode	TCP Server Mode	TCP Client Mode	UDP Mode	Reverse Telnet Mode	Pair Connection Mode	RFC2217 Mode	Setting Options: 1 to 65535 Default: 4001 for port 1, 4002 for port 2, etc. Description: Specifies the TCP port number for communicating with the attached device. Socket applications will need to use this port number to refer to the device. For Pair Connection modes, this field specifies the slave's port number, and the same value must be used for the master's Destination IP parameter.

	✓						Command port
Real COM Mode	TCP Server Mode	TCP Client Mode	UDP Mode	Reverse Telnet Mode	Pair Connection Mode	RFC2217 Mode	Setting Options: 1 to 65535 Default: 966 Description: Specifies the TCP port number for Moxa IP-Serial Library commands. You do not need to reference this port number in your application when using the Moxa IP-Serial Library, since the library automatically obtains the number from the device server. Only change this setting if there is a port number conflict with another application or device.

					✓		Destination IP address
Real COM Mode	TCP Server Mode	TCP Client Mode	UDP Mode	Reverse Telnet Mode	Pair Connection Mode	RFC2217 Mode	Setting Options: N/A Default: none Description: Specifies the IP address for the slave end of a pair connection.

		√	✓				Destination IP address 1 through 4
Real COM Mode	TCP Server Mode	TCP Client Mode	UDP Mode	Reverse Telnet Mode	Pair Connection Mode	RFC2217 Mode	Setting Options: N/A Default: none Description: Specifies the network host(s) that will access the device. Serial data will be transmitted to every address listed, and network data will be sent to the device on a first-in-first-out basis.

		✓					Designated local port 1 through 4
Real COM Mode	TCP Server Mode	TCP Client Mode	UDP Mode	Reverse Telnet Mode	Pair Connection Mode	RFC2217 Mode	Setting Options: 1 to 65535 Default: none Description: Specifies the TCP port number that will be used for data transmission with the device port.
			✓				Local listen port
Real COM Mode	TCP Server Mode	TCP Client Mode	UDP Mode	Reverse Telnet Mode	Pair Connection Mode	RFC2217 Mode	Setting Options: 1 to 65535 Default: 4001 for port 1, 4002 for port 2, etc. Description: Specifies the UDP port number for network communication to the serial device. Socket applications will need to use this port number to refer to the device.

		✓					Connection Control
Real COM Mode	TCP Server Mode	TCP Client Mode	UDP Mode	Reverse Telnet Mode	Pair Connection Mode	RFC2217 Mode	Setting Options: Startup/None, Any Character/None, Any Character/Inactivity Time, DSR On/DSR Off, DSR On/None, DCD On/DCD Off, DCD On/None Default: Startup/None Description: Specifies how connections to the device are established and closed. For example, "Startup/None" means that as soon as the device server starts up, the TCP connection is opened, and the connection can only be closed manually. "DCD On/DCD Off" means that the TCP connection is opened when the DCD signal is on, and closed when the DCD signal is off. If you want to use the Inactivity Time parameter to close the connection when the serial device is inactive, you must set Connection Control to "Any Character/Inactivity time".

				✓			Map <cr-lf></cr-lf>
Real COM Mode	TCP Server Mode	TCP Client Mode	UDP Mode	Reverse Telnet Mode	Pair Connection Mode	RFC2217 Mode	Setting Options: CR, LF, or CR-LF Default: CR-LF Description: Specifies how the ENTER key is mapped from the Ethernet port through the serial port. For certain terminal applications, the Enter key needs to be translated specifically as a CR character rather than CR-LF.

# Web Console

Click **Operating Settings** to display the operating settings for each of the NPort's serial ports.

Operating Settings       rt     Operating mode     Packing length     Delimiter 1     Delimiter 2     Delimiter process     Force 1       Real COM Mode     0     0 (Disable)     0 (Disable)     Do Nothing     0       Real COM Mode     TCP alive check time: 7 Max connection:     1	orce transmit
Operating mode         length         Delimiter 1         Delimiter 2         Delimiter process         Force 1           Real COM Mode         0         0 (Disable)         0 (Disable)         Do Nothing         0	
Image: Interget	
Real COM Mode TCP alive check time: 7	
0 (Disable) 0 (Disable) Do Nothing 0	
Real COM Mode TCP alive check time: 7	
Max connection: 1	
b Interface for the NPort 5000A and NPort IA5000A Series	
Model         - NPort IA5450AI         IP         - 192.168.127.254         MAC Address         - 00:90:1           Name         - NPIA5450AI_2         Serial NO.         - 2         Firmware         - 1.0 But	W.MOXa.C 00:90:E8:12:34:5 1.0 Build 100323
Name - NPIA5450AI_2      Serial NO2     Firmware - 1.0 Bul     Operation Modes	00:90:E8:12:34:5
Name - NPIA5450AI_2      Serial NO2     Firmware - 1.0 But     Coperation Modes	00:90:E8:12:34:5 1.0 Build 100323 Force
Name - NPIA5450AJ_2      Serial NO2     Firmware - 1.0 Bu      Operation Modes      Port Operating Mode     Packing     Length     Ouck Setup     O	00:90:E8:12:34:5 1.0 Build 100323
Name - NPIA5450AI_2      Serial NO2     Firmware - 1.0 But     Serial NO2     Serial	00:90:E8:12:34:5 1.0 Build 100323 Ceess Force Transmit
Name - NPIA5450AI_2     Serial NO2     Firmware - 1.0 But     Serial NO2     Serial N	00:90:E8:12:34:5 1.0 Build 100323 Ceess Force Transmit
Name -NPIA5450AL_2      Serial NO2     Firmware -1.0 Bu      Coperation Modes      Port Operating Mode     Packing     Length     Delimiter 1     Delimiter 2     Delimiter Process     O     O (Disable)     O (Disable)     Do Nothing     TCP alive check time: 7     Max connection: 1     O     O (Disable)     Do Nothing     Z     RealCOM     TCP alive check time: 7     Max connection: 1	00:90:E8:12:34:5 1.0 Build 100323 cess Force Transmit 0
Name       - NPIA5450AL_2       Serial NO.       -2       Emmware       -1.0 But         ain Menu       Port       Operating Mode       Packing Length       Delimiter 1       Delimiter 2       Delimiter Process         Duick Setup       Serial Settings       0       00 (Disable)       00 (Disable)       Do Nothing         1       RealCOM       TCP alive check time:       7         2       RealCOM       TCP alive check time:       7         0       00 (Disable)       00 (Disable)       Do Nothing         2       RealCOM       TCP alive check time:       7         0       00 (Disable)       00 (Disable)       Do Nothing	00:90:E8:12:34:5 1.0 Build 100323 cess Force Transmit 0
Name       • NPIA5450AL_2       • Serial NO.       -2       • Firmware       -1.0 But         ain Menu       • Operating Mode       •	00:90:E8:12:34:5 1.0 Build 100323 cess Force Transmit 0
<ul> <li>Name - NPIA5450AL_2</li> <li>Serial NO2</li> <li>Firmware - 1.0 But</li> <li>Coperation Modes</li> <li>Port Operating Mode</li> <li>Packing Length</li> <li>Delimiter 1</li> <li>Delimiter 2</li> <li>Delimiter Process</li> <li>Do Nothing</li> <li>RealCOM</li> <li>TCP alive check time: 7 Max connection: 1</li> <li>RealCOM</li> <li>Port Operating Mode</li> <li>Port Operation Modes</li> <li>Port Operating Mode</li> <li>Packing Delimiter 1</li> <li>Delimiter 2</li> <li>Delimiter Process</li> <li>Do Nothing</li> <li>Do Nothing</li> <li>Port Operating Mode</li> <li>Packing Delimiter 1</li> <li>Delimiter 2</li> <li>Delimiter Process</li> <li>Do Nothing</li> <li>Do Nothing</li> <li>Port Operating Settings</li> <li>Port 1</li> <li>Port 2</li> <li>Port 3</li> </ul>	00:90:E8:12:34:5 1.0 Build 100323 cess Force Transmit 0 0
Name       - NPIA5450AL_2       Serial NO.       -2       Emmware       -1.0 But         ain Menu       Dereview       -10 But       -10 But       -10 But       -10 But         Dereview       Duck Setup       0       Operating Mode       Packing Length       Delimiter 1       Delimiter 2       Delimiter Process         2 monotoxic Settings       0       00 (Disable)       00 (Disable)       00 (Disable)       Do Nothing         2 monotoxic Settings       1       RealCOM       TCP alive check time:       7       Max connection:       1         2 monotoxic       0       00 (Disable)       00 (Disable)       Do Nothing       1         2 monotoxic       1       2       RealCOM       TCP alive check time:       7         3 monotoxic       1       0       00 (Disable)       00 (Disable)       Do Nothing         3 monotoxic       1       1       1       1       1       1         3 monotoxic       1       1       1       1       1       1         4 monotoxic       1       1       1       1       1       1         4 monotoxic       1       1       1       1       1       1         4 monotoxic	00:90:E8:12:34:5 1.0 Build 100323 cess Force Transmit 0 0 0 0 0
Name       - NPIA5450AL_2       Serial NO.       -2       Emmware       -1.0 But         ain Menu       Dereview       -10 But       -10 But       -10 But       -10 But         Dereview       Duck Setup       0       Operating Mode       Packing Length       Delimiter 1       Delimiter 2       Delimiter Process         2 monotoxic Settings       0       00 (Disable)       00 (Disable)       00 (Disable)       Do Nothing         2 monotoxic Settings       1       RealCOM       TCP alive check time:       7       Max connection:       1         2 monotoxic       0       00 (Disable)       00 (Disable)       Do Nothing       1         2 monotoxic       1       2       RealCOM       TCP alive check time:       7         3 monotoxic       1       0       00 (Disable)       00 (Disable)       Do Nothing         3 monotoxic       1       1       1       1       1       1         3 monotoxic       1       1       1       1       1       1         4 monotoxic       1       1       1       1       1       1         4 monotoxic       1       1       1       1       1       1         4 monotoxic	00:90:E8:12:34:5 1.0 Build 100323 cess Force Transmit 0 0

### **Real COM Mode**

10XA	** **		om		
Menu	Operating Set	ttings			
erview sic Settings			Port=01		
twork Settings	Operation mode	Re	eal COM Mode		
ial Settings	TCP alive check t	time 7	(0 - 99 min)		
erating Settings	Max connection	1	~		
Port 1 Port 2	Ignore jammed IP		No Ves		
Port 3	Allow driver contr	rol	No 😳 Yes		
Port 4			Data Packing		
essible IP Settings to Warning Settings	Packing length	0	(0 - 1024)		
nitor	Delimiter 1	0	(Hex) Enable		
ange Password	Delimiter 2	0	(Hex) Enable		
d Factory Default	Delimiter process	Do	Nothing 🛛 🕑 (Processed only when Packi	ng length is 0)	
/e/Restart	Force transmit	0	(0 - 65535 ms)		
	Apply the abo	ve settings to all seria	l ports		
			Submit		
10X/	Tota	al Solution for In	dustrial Device Networking	w	ww.moxa.con
10X/	<b>N</b> Tota	al Solution for In	dustrial Device Networking	W	ww.moxa.con
	NPort IA5450AI	al Solution for In	dustrial Device Networking		WW.ПОХА.СОП s - 00:90:E8:12:34:57
			- 192.168.127.254		
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Model -	NPort IA5450AI	■ IP ■ Seria	- 192.168.127.254	MAC Addres	s - 00:90:E8:12:34:57
Model - Name -	NPort IA5450AI	■ IP ■ Seria	- 192.168.127.254 I NO 2	MAC Addres	s - 00:90:E8:12:34:57
Model - Name - Menu	NPort IA5450AI	■ IP ■ Seria	- 192.168.127.254 I NO 2	MAC Addres	s - 00:90:E8:12:34:57
Model - Name - Menu rview	NPort IA5450AI	P     Seria     Seria Port 1	- 192.168.127.254	MAC Addres	s - 00:90:E8:12:34:57
Model - Name - Menu tview ck Setup	NPort IA5450AI	Port 1	- 192.168.127.254	MAC Addres	s - 00:90:E8:12:34:57
Model - Name - Menu Menu Mew ck Setup ort/Import	NPort IA5450AI	Port 1     Operation mode     TCP alive check tim	- 192.168.127.254	MAC Addres	s - 00:90:E8:12:34:57
Model - Name - Menu tview ck Setup ort/Import ic Settings	NPort IA5450AI	Port 1	- 192.168.127.254	MAC Addres	s - 00:90:E8:12:34:57
Model - Name - Menu view k Setup ort/Import lc Settings vork Settings	NPort IA5450AI	Port 1     Operation mode     TCP alive check tim	- 192.168.127.254	MAC Addres	s - 00:90:E8:12:34:57
Model - Name - Menu view k Setup ort/Import ic Settings vork Settings rial Settings	NPort IA5450AI	Port 1 Operation mode TCP alive check tim Max connection	- 192.168.127.254 INO 2 tion Modes RealCOM 7 (0 - 99 min) 1 v © No ⊖ Yes	MAC Addres	s - 00:90:E8:12:34:57
Model - Name - Menu view k Setup ort/Import c Settings vork Settings rial Settings erating Settings	NPort IA5450AI	Port 1  Operation mode  TCP alive check tin  Max connection  Ignore jammed IP	- 192.168.127.254 INO 2 tion Modes RealCOM 7 (0 - 99 min) 1 v © No ⊖ Yes	MAC Addres	s - 00:90:E8:12:34:57
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Model - Name - Menu view k Setup ort/Import c Settings vork Settings rial Settings erating Settings ort 1 ort 2	NPort IA5450AI	Port 1      Operation mode      TCP alive check tim      Max connection      Ignore jammed IP      Allow driver contro      Data Packing	- 192.168.127.254 INO 2 tion Modes RealCOM 7 (0 - 99 min) 1 0 No Yes No Yes	MAC Addres	s - 00:90:E8:12:34:57
Model - Name - Menu view & Setup ort/Import lic Settings vork Settings rial Settings erating Settings ort 1 ort 2 ort 3	NPort IA5450AI	Port 1  Operation mode TCP alive check tim Max connection Ignore jammed IP Allow driver control	- 192.168.127.254 INO 2 tion Modes RealCOM 7 (0 - 99 min) 1 v © No ⊖ Yes	MAC Addres	s - 00:90:E8:12:34:57
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Model - Name - Name - Menu View & Setup ort/Import ic Settings vork Settings rial Settings erating Settings ort 1 ort 2 ort 3 ort 4 essible IP Settings to Warning Settings	NPort IA5450AI	<ul> <li>IP</li> <li>Serial</li> <li>Operation</li> <li>Operation mode</li> <li>TCP alive check tim</li> <li>Max connection</li> <li>Ignore jammed IP</li> <li>Allow driver contro</li> <li>Data Packing</li> <li>Packing length</li> </ul>	- 192.168.127.254 INO 2 tion Modes RealCOM P 7 (0 - 99 min) 1 0 No Yes 0 (0 - 1024)	MAC Addres	s - 00:90:E8:12:34:57
Model - Name - Name - Menu View & Setup ort/Import ic Settings vork Settings vork Settings erating Settings ort 1 ort 2 ort 3 ort 4 essible IP Settings to Warning Settings ort 4	NPort IA5450AI	<ul> <li>IP</li> <li>Serial</li> <li>Operation</li> <li>Operation mode</li> <li>TCP alive check tin</li> <li>Max connection</li> <li>Ignore jammed IP</li> <li>Allow driver control</li> <li>Data Packing</li> <li>Packing length</li> <li>Delimiter 1</li> </ul>	- 192.168.127.254 INO 2 tion Modes RealCOM 7 (0 - 99 min) 1 No Yes No Yes No Yes 0 (0 - 1024) 00 (Hex) Enable 00 (Hex) Enable	MAC Address Firmware	s - 00:90:E8:12:34:57 - 1.0 Build 10032318
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Model - Name - Name - Menu View & Setup ort/Import ic Settings work Settings rial Settings erating Settings ort 1 ort 2 ort 3 ort 4 essible IP Settings ort 4 essible IP Settings ort 4 essible IP Settings to Warning Settings to Warning Settings	NPort IA5450AI	<ul> <li>IP</li> <li>Serial</li> <li>Operation</li> <li>Operation mode</li> <li>TCP alive check tim</li> <li>Max connection</li> <li>Ignore jammed IP</li> <li>Allow driver control</li> <li>Data Packing</li> <li>Packing length</li> <li>Delimiter 1</li> <li>Delimiter 2</li> <li>Delimiter process</li> <li>Force transmit</li> </ul>	- 192.168.127.254 INO 2 tion Modes RealCOM Pe 7 (0 - 99 min) 1 No Yes No Yes 0 (0 - 1024) 00 (Hex) Enable 00 (Hex) Enable Do Nothing (Processed only 0 (0 - 65535 ms)	MAC Address Firmware	s - 00:90:E8:12:34:57 - 1.0 Build 10032318
Model - Name - Menu Iview	NPort IA5450AI	Port 1     Operation mode     TCP alive check tim     Max connection     Ignore jammed IP     Allow driver contro      Data Packing     Packing length     Delimiter 1     Delimiter 2     Delimiter process	- 192.168.127.254 INO 2 tion Modes RealCOM Pe 7 (0 - 99 min) 1 No Yes No Yes 0 (0 - 1024) 00 (Hex) Enable 00 (Hex) Enable Do Nothing (Processed only 0 (0 - 65535 ms)	MAC Address Firmware	s - 00:90:E8:12:34:57 - 1.0 Build 10032318

Parameter	Setting	Factory Default	Description	Necessity
TCP Alive	0 to 99 min	7 min	<b>0 min:</b> TCP connection is not closed due to an	Optional
Check Time			idle TCP connection.	
			<b>1 to 99 min:</b> The NPort automatically closes the	
			TCP connection if there is no TCP activity for the	
			given time. After the connection is closed, the	
			NPort starts listening for another Real COM	
			driver connection.	
Мах	1, 2, 3, 4	1	<b>Max connection</b> is set to 2, 3, or 4 when the	Required
Connection	1, 2, 3, 1	-	user needs to receive data from different hosts	requireu
connection			simultaneously. The factory default only allows 1	
			connection at a same. When Max Connection is	
			set to 1, the Real COM driver on the specific host	
			has full control.	
			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 host's	
			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 the firmware's	
			settings, not the settings of 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.	
Ignore	No or Yes	No	No: When Max connections $> 1$ , and the serial	Optional
jammed IP			device is transmitting data, if any one of the	
<i>Jannie</i> a 21			connected hosts is not responding, it will wait	
			until the data has been transmitted successfully	
			before transmitting the second group of data to	
			all hosts.	
			Yes: If you select Yes for "Ignore jammed IP,"	
			the host that is not responding will be ignored,	
			but the data will still be transmitted to the other	
De alviere de sid	0.1024	0	hosts.	Outin
Packing length	U to 1024	0	0: The Delimiter Process will be followed,	Optional
			regardless of the length of the data packet.	
			Greater than 0: If the data length (in bytes)	
			matches the configured value, the data will be	
			forced out.	
Delimiter 1	00 to FF	None	Once the NPort receives both delimiters through	Optional
			its serial port, it immediately packs all data	
Delimiter 2	00 to FF	None	currently in its buffer and sends it to the NPort's	Optional
			Ethernet port.	

Parameter	Setting	Factory Default	Description	Necessity
Delimiter	Do nothing,	Do	[Delimiter + 1] or [Delimiter + 2]: The data	Optional
process	Delimiter + 1,	nothing	will be transmitted when an additional byte (for	
	Delimiter + 2,		Delimiter +1), or an additional 2 bytes (for	
	Strip Delimiter		Delimiter +2) of data is received after receiving	
			the Delimiter.	
			[Strip Delimiter]: When the Delimiter is	
			received, the Delimiter is deleted (i.e., stripped),	
			and the remaining data is transmitted.	
			[Do nothing]: The data will be transmitted	
			when the Delimiter is received.	
Force	0 to 65535 ms	0 ms	<b>0:</b> Disable the force transmit timeout.	Optional
Transmit			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 the NPort fetches the serial data from its	
			internal buffer. If data is incoming through the	
			serial port, the NPort stores the data in the	
			internal buffer. The 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.	



### ATTENTION

When Max connection is set to 2, 3, or 4, the NPort will use a "multi connection application" (i.e., 2, 3, or 4 hosts are allowed access to the port at the same time). When using a multi connection application, the NPort will use the serial communication parameters set in the console. All of the hosts connected to that port must use the same serial settings. If one of the hosts opens the COM port with parameters that are different from the NPort's console setting, data communication may not work properly.

NOTE Optim

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

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

Therefore, you should set Force Transmit timeout greater than 8.3 ms. Force Transmit timeout is specified in milliseconds and must be greater than 10 ms.

If you want to send the series of characters in a packet, the serial device attached to the NPort should send characters with time delay less than Force Transmit timeout between characters and the total length of data must be smaller than or equal to the NPort's internal buffer size. The serial communication buffer size of the NPort is 1 Kbyte per port.

### RFC2217 Mode

b Interface for the N			
MOXA	www.r	moxa.com	
Main Menu	Operating Settings	•)	
🗀 Overview			
Basic Settings		Port 1	
🗀 Network Settings	Operation mode	RFC 2217 Mode	
🗀 Serial Settings	TCP alive check time	7 (0 - 99 min)	
Operating Settings		Data Packing	
Port 1	Packing length	0 (0 - 1024)	
Port 2			
Dort 3	Delimiter 1	0 (Hex) Enable	
Port 4	Delimiter 2	0 (Hex) Enable	
Port 5	Delimiter process	Do Nothing V (Processed only when Packing length is 0)	
Port 6			
Port 7	Force transmit	0 (0 - 65535 ms)	
Port 8	Apply the above set	tings to all serial ports	
Accessible IP Settings			
PPP User Table Settings		Submit	
auto Warning Settings			
Conitor			
Change Password			
🗀 Load Factory Default			
<ul> <li>Load Factory Default</li> <li>Save/Restart</li> </ul>			
🔁 Save/Restart	IPort 5000A and N	Port IA5000A Series	
Save/Restart	IPort 5000A and N		
Save/Restart eb Interface for the N	otal Solution for Industria		
Save/Restart      B Interface for the N      OOOOO      Model      OPort IA5450AI	otal Solution for Industria	I Device Networking         WWW.MOXB.COII           - 192.168.127.254         MAC Address         - 00:90:E8:12:34:57           - 2         Firmware         - 1.0 Build 10032318	
Save/Restart  Save/Restart  Save/Restart  T  Model  NPort IA5450AI	otal Solution for Industria	I Device Networking         WWW.MOXB.COII           - 192.168.127.254         MAC Address         - 00:90:E8:12:34:57           - 2         Firmware         - 1.0 Build 10032318	
Save/Restart  S	otal Solution for Industria IP Serial NO.	I Device Networking         WWW.MOXB.COII           - 192.168.127.254         MAC Address         - 00:90:E8:12:34:57           - 2         Firmware         - 1.0 Build 10032318	
Save/Restart      Save/Restart      Eb Interface for the N      Model         - NPort IA5450AI      Name         - NPIA5450AI_2      Main Menu	otal Solution for Industrial P Serial NO. Operation Port 1	I Device Networking         WWW.MOXB.COII           - 192.168.127.254         MAC Address         - 00:90:E8:12:34:57           - 2         Firmware         - 1.0 Build 10032318	
Save/Restart      Eb Interface for the N      Model     -NPort IA5450AI      Name     -NPIA5450AI_2      Main Menu      Overview     Quick Setup     Export/Import	otal Solution for Industrial IP Serial NO. Operation Port 1	I Device Networking         WWW.MOX8.COM           - 192.168.127.254         • MAC Address         - 00:90:E8:12:34:57           - 2         • Firmware         - 1.0 Build 10032318           Modes	
Save/Restart      Eb Interface for the N      Model     -NPort IA5450AI     Name     -NPIA5450AI_2      Main Menu      Overview      Quick Setup ExportImport Basic Settings	IP         Serial NO.         Operation         Port 1         Operation mode	I Device Networking         WWW.ПОХВ.СОП           - 192.168.127.254         • MAC Address         - 00:90:E8:12:34:57           - 2         • Firmware         - 1.0 Build 10032318           Modes         Free State         Firmware           FC2217         •         •           (0 - 99 min)         •         •	
Save/Restart      Eb Interface for the N      Model     -NPort U5450AI      Name     -NPIA5450AI_2      Main Menu      Overview      Quick Setup      Export/Import      Basic Settings      Network Settings	IP         Serial NO.         Operation         Port 1         Operation mode         TCP alive check time	I Device Networking         WWW.ПОХВ.СОП           - 192.168.127.254         • MAC Address         - 00:90:E8:12:34:57           - 2         • Firmware         - 1.0 Build 10032318           Modes         Free State         Firmware           FC2217         •         •           (0 - 99 min)         •         •	
Save/Restart      Eb Interface for the N      Model     • NPort IA5450AI      Name     • NPIA5450AI_2      Main Menu      Overview      Quick Setup      Export/Import      Basic Settings      Network Settings      - Serial Settings	IP         Serial NO.         Operation         Port 1         Operation mode         TCP alive check time	I Device Networking         WWW.ПОХВ.СОП           - 192.168.127.254         • MAC Address         - 00:90:E8:12:34:57           - 2         • Firmware         - 1.0 Build 10032318           Modes         Free State         Firmware           FC2217         •         •           (0 - 99 min)         •         •	
Save/Restart      Eb Interface for the N      Model     -NPort U5450AI      Name     -NPIA5450AI_2      Main Menu      Overview      Quick Setup      Export/Import      Basic Settings      Network Settings	IP         Serial NO.         Operation         Port 1         Operation mode         TCP alive check time         TCP alive check time         Local TCP port         Data Packing	I Device Networking         WWW.MOX8.CON           - 192.168.127.254              MAC Address - 00:90:E8:12:34:57           - 2              Firmware - 1.0 Build 10032318           Modes              Free - 1.0 Build 10032318           Fc2217              (0 - 99 min)             01	
Save/Restart      Save/Restart      Eb Interface for the N      Model     • NPort IA5450AI      Name     • NPort IA5450AI      Save/Restart      T	IP         Serial NO.         Operation         Port 1         Operation mode         TCP alive check time         Local TCP port         Data Packing         Packing length         0	I Device Networking       WWW.MOX8.CON         - 192.168.127.254       • MAC Address       - 00:90:E8:12:34:57         - 2       • Firmware       - 1.0 Build 10032318         Modes       • 1.0 Build 10032318         FC2217       • (0 - 99 min)         01       • (0 - 1024)	
Save/Restart      Save/Re	IP         Serial NO.         Operation         Port 1         Operation mode         TCP alive check time         Local TCP port         Data Packing         Packing length         0         Delimiter 1         00	I Device Networking       WWW.MOX8.COM         - 192.168.127.254       • MAC Address       - 00:90:E8:12:34:57         - 2       • Firmware       - 1.0 Build 10032318         Modes       • 1.0 Build 10032318         FC2217       •         0 - 99 min)       •         01       •         (0 - 1024)       •         (Hex)       Enable	
Save/Restart      Eb Interface for the N      Model     • NPort IA5450AI      Name     • NPIA5450AI      Name      NPIA5450AI 2      Main Menu      Overview      Quick Setup      ExportImport      Basic Settings      · Serial Settings      · Serial Settings      · Operating Setting      · Operating      · Operating Setting      · Operating Seting      · Operating Setting      · Operating      · Operating S	IP         Serial NO.         Operation         Port 1         Operation mode         TCP alive check time         Local TCP port         Data Packing         Packing length         0	I Device Networking       WWW.MOX8.COM         - 192.168.127.254       • MAC Address       - 00:90:E8:12:34:57         - 2       • Firmware       - 1.0 Build 10032318         Modes       • 1.0 Build 10032318         FC2217       •         0 - 99 min)       •         01       •         (0 - 1024)       •         (Hex)       Enable	
Save/Restart      Eb Interface for the N      Model     • NPort IA5450AI     • NPort IA5450AI     • NPort IA5450AI     • NHore     • NPA5450AI 2      Main Menu      Overview      Quick Setup      Export/Import      Basic Settings      • Serial Settings      • Operating Setting      • Operating      • Operating Setting      • Operating      • Oper	IP         Serial NO.         Operation         Port 1         Operation mode         TCP alive check time         Local TCP port         Data Packing         Packing length         0         Delimiter 1         00         Delimiter 2	I Device Networking       WWW.MOX8.COM         - 192.168.127.254       • MAC Address       - 00:90:E8:12:34:57         - 2       • Firmware       - 1.0 Build 10032318         Modes       • 1.0 Build 10032318         FC2217       •         0 - 99 min)       •         01       •         (0 - 1024)       •         (Hex)       Enable	
Save/Restart      Eb Interface for the N      Model     • NPort U54504      Name     • NPort U54504      Name     • NPort U54504      Name     • NPort U54504      Name     • NPort U54504      Serial Settings     · Serial Settings     · Operating Settings     · Opera	IP         Serial NO.         Port 1         Operation mode         TCP alive check time         Local TCP port         Data Packing         Packing length         0         Delimiter 1       00         Delimiter 2       00	I Device Networking       WWW.MOXB.COM         - 192.168.127.254 <ul> <li>MAC Address</li> <li>- 00:90/E8/12:34:57</li> <li>- 2</li> <li>Firmware</li> <li>- 1.0 Build 10032318</li> </ul> Modes	
Save/Restart      Eb Interface for the N      Model     -NPort U-54504      Name     -NPort U-54504      Name     Nuber -NPort U-54504       Nuber -NPort U-54504      Nuber -NPort U-54504      Nuber -NPort U-54504      Nuber -NPort U-54504      Nuber -NPort U-54504      Nuber -NPort U-54504      Nuber -NPort U-54504      Nuber -NPort U-54504      Nuber -NPort U-54504      Nuber -NPort U-54504      Nuber -NPort U-54504      Nuber -NPort U-54504      Nuber -NPort U-54504      Nuber -NPort U-54504      Nuber -NPort U-54504      Nuber -NPort U-54504      Nuber -NPort U-54504      Nuber -NPort U-54504      Nuber -NPort U-54504      Nuber -NPort U-5	IP         Serial NO.         Operation         Port 1         Operation mode         TCP alive check time         Local TCP port         Data Packing         Packing length         Delimiter 1         Operation process         Force transmit	I Device Networking       WWW.MOXB.COM         - 192.168.127.254       IMAC Address       - 00:90:E8:12:34:57         - 2       Image: Firmware       - 1.0 Build 10032318         Modes       Image: Firmware       - 1.0 Build 10032318         FC2217       Image: Firmware       - 1.0 Build 10032318         FC2217       Image: Firmware       - 1.0 Build 10032318         Image: Firmware       - 1.0 Build 10032318         FC2217       Image: Firmware       - 1.0 Build 10032318         Image: Firmware       - 1.0 Build 10032318         FC2217       Image: Firmware       - 1.0 Build 10032318         Image: Firmware       - 1.0 Build 10032318         FC2217       Image: Firmware       - 1.0 Build 10032318         Image: Firmware       - 1.0 Build 10032318         FC2217       Image: Firmware       - 1.0 Build 10032318         Image: Firmw	
Save/Restart      Eb Interface for the N      Model     • NPort IA5450AI     • NPort IA5450AI     • NPort IA5450AI     • NHane     • NPIA5450AI 2      Main Menu      Overview     Quick Setup     Export/Import     Basic Settings     • Serial Settings     • Serial Settings     • Operating Settings     • Other Settings	IP         Serial NO.         Operation         Port 1         Operation mode         TCP alive check time         Local TCP port         Data Packing         Packing length         Delimiter 1         Delimiter 2         Delimiter process         Force transmit         Apply the above settings	I Device Networking       WWW.MOXB.COM         - 192.168.127.254       • MAC Address       - 00.90/E8:12:34:57         - 2       • Firmware       - 1.0 Build 10032318         Modes       * Firmware       - 1.0 Build 10032318         FC2217       •       •         (0 - 99 min)       •       •         01       •       •         (0 - 1024)       •       •         (Hex)       Enable       •         •       Nothing       •         (0 - 65535 ms)       •       •         P1       •       •       •	
Save/Restart      Eb Interface for the N      Model     • NPort US450AI      Name     • NPort US450AI 2      Main Menu      Overview      Quick Setup      Export/Import      Basic Settings     • Operating Settings	IP         Serial NO.         Operation         Port 1         Operation mode         TCP alive check time         Local TCP port         Data Packing         Packing length         Delimiter 1         Delimiter 2         Delimiter process         Force transmit         Apply the above settings	I Device Networking       WWW.MOXB.COM         - 192.168.127.254       IMAC Address       - 00:90:E8:12:34:57         - 2       Image: Firmware       - 1.0 Build 10032318         Modes       Image: Firmware       - 1.0 Build 10032318         FC2217       Image: Firmware       - 1.0 Build 10032318         FC2217       Image: Firmware       - 1.0 Build 10032318         Image: Firmware       - 1.0 Build 10032318         FC2217       Image: Firmware       - 1.0 Build 10032318         Image: Firmware       - 1.0 Build 10032318         FC2217       Image: Firmware       - 1.0 Build 10032318         Image: Firmware       - 1.0 Build 10032318         FC2217       Image: Firmware       - 1.0 Build 10032318         Image: Firmware       - 1.0 Build 10032318         FC2217       Image: Firmware       - 1.0 Build 10032318         Image: Firmw	
Save/Restart      Eb Interface for the N      Model     • NPort US4504      Name     • NPort US4504      Port 1     Port 2     Port 1     Port 2     Port 3     Port 4  Accessible IP Settings      - Munitor      Upgrade Firmware     - Monitor	IP         Serial NO.         Operation         Port 1         Operation mode         TCP alive check time         Local TCP port         Data Packing         Packing length         Delimiter 1         Delimiter 2         Delimiter process         Force transmit         Apply the above settings	I Device Networking       WWW.MOXB.COM         - 192.168.127.254       • MAC Address       - 00.90/E8:12:34:57         - 2       • Firmware       - 1.0 Build 10032318         Modes       * Firmware       - 1.0 Build 10032318         FC2217       •       •         (0 - 99 min)       •       •         01       •       •         (0 - 1024)       •       •         (Hex)       Enable       •         •       Nothing       •         (0 - 65535 ms)       •       •         P1       •       •       •	

Parameter	Setting	Factory	Description	Necessity
		Default		
TCP Alive	0 to 99 min	7 min	<b>0 min:</b> TCP connection is not closed due to an	Optional
Check Time			idle TCP connection.	
			1 to 99 min: The NPort automatically closes the	
			TCP connection if there is no TCP activity for the	
			given time. After the connection is closed, the	
			starts listening for another TCP connection.	
Local TCP Port	1 to 65535	4001	The TCP port that the NPort uses to listen to	Required
			connections, and that other devices must use to	
			contact the NPort. To avoid conflicts with well-	
			known TCP ports, the default is set to 4001.	
Packing length	0 to 1024	0	0: The Delimiter Process will be followed,	Optional
			regardless of the length of the data packet.	
			Greater than 0: If the data length (in bytes)	
			matches the configured value, the data will be	
			forced out.	
Delimiter 1	00 to FF	None	Once the NPort receives both delimiters through	Optional
			its serial port, it immediately packs all data	
Delimiter 2	00 to FF	None	currently in its buffer and sends it to the NPort's	Optional
			Ethernet port.	
Delimiter	Do nothing,	Do	[Delimiter + 1] or [Delimiter + 2]: The data	Optional
process	Delimiter + 1,	nothing	will be transmitted when an additional byte (for	
	Delimiter + 2,		Delimiter +1), or an additional 2 bytes (for	
	Strip Delimiter		Delimiter +2) of data is received after receiving	
			the Delimiter.	
			[Strip Delimiter]: When the Delimiter is	
			received, the Delimiter is deleted (i.e., stripped),	
			and the remaining data is transmitted.	
			[Do nothing]: The data will be transmitted	
			when the Delimiter is received.	
Force	0 to 65535 ms	0 ms	<b>0:</b> Disable the force transmit timeout.	Optional
Transmit			<b>1 to 65535:</b> 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 the NPort fetches the serial data from its	
			internal buffer. If data is incoming through the	
			serial port, the NPort stores the data in the	
			internal buffer. The 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.	

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

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

Therefore, you should set Force Transmit timeout to be larger than 8.3 ms. Force Transmit timeout is specified in milliseconds and must be larger than 10 ms.

If you want to send the series of characters in a packet, the serial device attached to the NPort should send characters with time delay less than Force Transmit timeout between characters and the total length of data must be smaller than or equal to the NPort's internal buffer size. The serial communication buffer size of the NPort is 1 Kbyte per port.

### **TCP Server Mode**

b Interface for	the NPort 5000 and	d NPort IA5000 Series
ΜΟΧΛ	www.mox	a.com
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)
Operating Settings Port 1	Inactivity time	0 (0 - 65535 ms)
Port 2	Max connection	1 💌
Port 3	Ignore jammed IP	€ No © Yes
Lo Port 4	Allow driver control	€ No 🤇 Yes
Accessible IP Settings		Data Packing
Auto Warning Settings Monitor	Packing length	0 (0 - 1024)
Change Password	Delimiter 1	0 (Hex) Enable
Load Factory Default Save/Restart	Delimiter 2	0 (Hex) Enable
Save/Restart	Delimiter process	Do Nothing V (Processed only when Packing length is 0)
	Force transmit	0 (0 - 65535 ms)
		TCP Server Mode
	Local TCP port	4001
	Command port	966
	Apply the above settings to a	all serial ports (Local listen port will be enumerated automatically).
		Submit

/eb Interface fo	or the NPort	5000A and N	ort IA50	00A Serie	es		
мох	∧° Tot	al Solution for Indu	strial Devic	e Networkir	ng	ww	w.moxa.co
	NPort IA5450AI NPIA5450AI_10	<ul> <li>IP</li> <li>Serial NO.</li> </ul>	- 192.168.127 - 10			AC Address mware	s - 00:90:E8:19:28:8 - 1.0 Build 100506
Main Menu		:• Operatio	on Mod	les			
Overview		Port 1					
Quick Setup		Port					
Export/Import		Operation mode	TCP Server	*			
Basic Settings		TCP alive check time	7 (0 - 99	min)			
Network Settings		Inactivity time	0 (0 -	65535 ms)			
<ul> <li>Serial Settings</li> <li>Operating Settings</li> </ul>		Max connection	1 🗸				
Port 1		Ignore jammed IP	No OYes				
Port 2	=	Allow driver control	● No ○ Yes				
Port 3		Local TCP port	4001				
Port 4		Command port	966				
Accessible IP Settings		Communa port	000				
- Auto Warning Settings Upgrade Firmware	5	Data Packing					
- Monitor		Packing length	0 (0-	1024)			
Change Password		Delimiter 1		Enable			
Load Factory Default							
Save/Restart		Delimiter 2		Enable			
	~	Delimiter process	Do Nothing	Y (Processed	d only w	hen packin	ig length is 0)
		Force transmit	0 (0 -	65535 ms)			
		Apply the above	✓ P1	P2		P3	P4
		settings to	All ports				
	~		Submit				

Parameter	Setting	Factory	Description	Necessity
		Default		
TCP Alive	0 to 99 min	7 min	<b>0 min:</b> TCP connection is not closed due to an	Optional
Check Time			idle TCP connection.	
			1 to 99 min: The NPort automatically closes the	
			TCP connection if there is no TCP activity for the	
			given time. After the connection is closed, the	
			NPort starts listening for another Real COM	
			driver connection.	
Inactivity	0 to 65535 ms	0 ms	<b>0 ms:</b> TCP connection is not closed due to an idle	Optional
Time			serial line.	
			0-65535 ms: The NPort automatically closes	
			the TCP connection if there is no serial data	
			activity for the given time. After the connection is	
			closed, the NPort starts listening for another TCP	
			connection.	
			This parameter determines when the TCP	
			connection is in Closed or Listen status. 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 maintained until there is a	
			connection close request. Although inactivity	
			time is disabled, the NPort will check the	
			connection status between the NPort and remote	

Parameter	Setting	Factory Default	Description	Necessity
			host by sending "keep alive" packets	
			periodically. If the remote host does not respond	
			to the packet, it assumes that the connection	
			was closed down unintentionally. The NPort will	
			then force the existing TCP connection to close.	
Max	1, 2, 3, 4	1	Max connection is set to 2, 3, or 4 when the	Required
Connection			user needs to receive data from different hosts	
			simultaneously. The factory default only allows 1	
			connection at a same. When Max Connection is	
			set to 1, the Real COM driver on the specific host	
			has full control.	
			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 host's	
			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 the settings of 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.	
gnore	No or Yes	No	No: When Max connections $> 1$ , and the serial	Optional
ammed IP			device is transmitting data, if any one of the	
			connected hosts is not responding, it will wait	
			until the data has been transmitted successfully	
			before transmitting the second group of data to	
			all hosts.	
			Yes: If you select Yes for "Ignore jammed IP,"	
			the host that is not responding will be ignored,	
			but the data will still be transmitted to the other	
			hosts.	
Allow Driver	No or Yes	No	If "max connection" is greater than 1, the NPort	Optional
Control			will ignore driver control commands from all	
			connected hosts. However, if you set "Allow	
			driver control" to Yes, control commands will be	
			accepted. Note that since the NPort may get	
			configuration changes from multiple hosts, the	
			most recent command received will take	
			precedence.	
Packing length	0 to 1024	0	0: The Delimiter Process will be followed,	Optional
5			regardless of the length of the data packet.	
			Greater than 0: If the data length (in bytes)	
			matches the configured value, the data will be	

Parameter	Setting	Factory Default	Description	Necessity
Delimiter 1	00 to FF	None	Once the NPort receives both delimiters through	Optional
Delimiter 2	00 to FF	None	its serial port, it immediately packs all data	Optional
			currently in its buffer and sends it to the NPort's	
			Ethernet port.	
Delimiter	Do nothing,	Do	[Delimiter + 1] or [Delimiter + 2]: The data	Optional
process	Delimiter + 1,	nothing	will be transmitted when an additional byte (for	
	Delimiter + 2,		Delimiter +1), or an additional 2 bytes (for	
	Strip Delimiter		Delimiter +2) of data is received after receiving	
			the Delimiter.	
			[Strip Delimiter]: When the Delimiter is	
			received, the Delimiter is deleted (i.e., stripped),	
			and the remaining data is transmitted.	
			[Do nothing]: The data will be transmitted	
			when the Delimiter is received.	
Force	0 to 65535 ms	0 ms	<b>0:</b> Disable the force transmit timeout.	Optional
Transmit			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 the NPort fetches the serial data from its	
			internal buffer. If data is incoming through the	
			serial port, the NPort stores the data in the	
			internal buffer. The 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.	
Local TCP port	1 to 65535	4001	The TCP port that the NPort uses to listen to	Required
			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	1 to 65535	966	The command port is a listen TCP port for	Optional
port			IP-Serial Lib commands from the host. In order	
			to prevent a TCP port conflict with other	
			applications, the user can adjust the command	
			port to another port if needed.	



### 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

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.

## **TCP Client Mode**

MOXA	www.mo.	xa.com				
ain Menu	Operating Settings					
Overview Basic Settings		Port=01				
Network Settings	Operation mode	TCP Client Mode				
Serial Settings	TCP alive check time	7 (0 - 99 min)				
Operating Settings Port 1	Inactivity time	0 (0 - 65535 ms)				
Port 2	Ignore jammed IP	⊙ No O Yes				
Dort 3		Data Packing				
Port 4	Packing length	0 (0 - 1024)				
Accessible IP Settings Auto Warning Settings	Delimiter 1	0 (Hex) Enable				
Monitor	Delimiter 2	0 (Hex) Enable				
Change Password	Delimiter process	Do Nothing 💙 (Processed only when Packing length is 0)				
Load Factory Default Save/Restart	Force transmit	0 (0 - 65535 ms)				
SareyNestart	TCP Client Mode					
		Destination IP Address				
	Destination IP address 1	: 4001				
	Destination IP address 2	: 4001				
	Destination IP address 3	; 4001				
	Destination IP address 4	: 4001				
	Designated Local Port 1	5011 (0 - 65535, 0 represents assigned automatically.)				
	Designated Local Port 2	5012 (0 - 65535)				
	Designated Local Port 3	5013 (0 - 65535)				
	Designated Local Port 4	5014 (0 - 65535)				
	Connection control	Startup/None (Connect on/Disconnect by)				
	Apply the above settings to all serial ports					

NOXV	Total Solution for Indu	strial Device Networki	ing W\	ww.moxa.
Model - NPort IA5450/	l IP	- 192.168.127.253	MAC Addre	ss-00.90.E8:19.2
Name - NPIA5450AI_1	0 = Serial NO.	- 10	Firmware	- 1.0 Build 100
<u></u>	- Operatio	on Modes		
in Menu	operation			
verview	Port 1			
luick Setup				
xport/import	Operation mode	TCP Client 👻		
asic Settings	TCP alive check time	7 (0 - 99 min)		
letwork Settings	Inactivity time	0 (0 - 65535 ms)		
Serial Settings	Ignore jammed IP	No ○Yes		
Operating Settings	Destination IP	Cino Cires		
Port 1	address 1			Port 4001
Port 2	Destination IP			Port 4001
Port 3	address 2 Destination IP			
Port 4	address 3			Port 4001
ccessible IP Settings	Destination IP			Port 4001
Auto Warning Settings	address 4 Designated local port			
pgrade Firmware	1	5011		
Monitor	Designated local port	5012		
hange Password	2 Designated local port			
oad Factory Default	3	5013		
ave/Restart	Designated local port	5014		
×	4		10001	
	Connection control	Startup/None	~	
	Data Packing			
	Packing length	0 (0 - 1024)		
		io topay		
	Delimiter 1	00 (Hex) Enable		
	Delimiter 2	00 (Hex) Enable		
	Delimiter process	Do Nothing 🛛 🖌 (Processe	ed only when pack	ting length is 0)
	Force transmit	0 (0 - 65535 ms)		
	I well the about	P1 P2	P3	P4
~	Apply the above settings to	All ports		

Parameter	Setting	Factory	Description	Necessity
		Default		
TCP Alive	0 to 99 min	7 min	<b>0 min:</b> TCP connection is not closed due to an idle	Optional
Check Time			TCP connection.	
			1 to 99 min: The NPort automatically closes TCP	
			connection if there is no TCP activity for the given	
			time. After the connection is closed, the NPort	
			starts listening for another Real COM driver	
			connection.	
Inactivity	0 to 65535 ms	0 ms	<b>0 ms:</b> TCP connection is not closed due to an idle	Optional
Time			serial line.	
			0-65535 ms: The NPort automatically closes the	
			TCP connection if there is no serial data activity	
			for the given time. After the connection is closed,	
			the NPort starts listening for another TCP	
			connection.	
			This parameter determines when the TCP	
			connection is in Closed or Listen status. The	
			connection is closed if there is no incoming or	

Parameter Setting		Factory Default	Description	Necessity
			outgoing data through the serial port during the	
			specific Inactivity time.	
			If the inactivity time is set to 0, the current TCP	
			connection is maintained until there is connection	
			close request. 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, it	
			assumes that the connection was closed down	
			unintentionally. The NPort will then force the	
			existing TCP connection to close.	
Ignore	No or Yes	No	No: When Max connections > 1, and the serial	Optional
jammed IP			device is transmitting data, if any one of the	•
			connected hosts is not responding, it will wait	
			until the data has been transmitted successfully	
			before transmitting the second group of data to all	
			hosts.	
			Yes: If you select Yes for "Ignore jammed IP," the	
			host that is not responding will be ignored, but the	
			data will still be transmitted to the other hosts.	
Allow Driver	No or Yes	No	If "max connection" is greater than 1, the NPort	Optional
Control		110	will ignore driver control commands from all	optional
control			connected hosts. However, if you set "Allow driver	
			control" to Yes, control commands will be	
			accepted. Note that since the NPort may get	
			configuration changes from multiple hosts, the	
			most recent command received will take	
			precedence.	
Packing length	0 to 1024	0	0: The Delimiter Process will be followed,	Optional
r acking length	0 10 1024	0	regardless of the length of the data packet.	optional
			Greater than 0: If the data length (in bytes)	
			matches the configured value, the data will be	
			forced out.	
Delimiter 1	00 to FF	Neze		Ontional
Delimiter 1	00 to FF	None	Once the NPort receives both delimiters through	Optional
Delimiter 2	00 to FF	None	its serial port, it immediately packs all data	Optional
			currently in its buffer and sends it to the NPort's	
D. ////	D		Ethernet port.	
Delimiter	Do nothing,	Do nothing	[Delimiter + 1] or [Delimiter + 2]: The data	Optional
process	Delimiter + 1,		will be transmitted when an additional byte (for	
	Delimiter + 2,		Delimiter +1), or an additional 2 bytes (for	
	Strip Delimiter		Delimiter +2) of data is received after receiving	
			the Delimiter.	
			[Strip Delimiter]: When the Delimiter is	
			received, the Delimiter is deleted (i.e., stripped),	
			and the remaining data is transmitted.	
			[Do nothing]: The data will be transmitted when	
			the Delimiter is received.	
Force	0 to 65535 ms	0 ms	<b>0</b> : Disable the force transmit timeout.	Optional
Transmit			<b>1 to 65535</b> : Forces the NPort's TCP/IP protocol	
			software to try to pack serial data received during	
			the specified time into the same data frame.	

Parameter	Setting	Factory Default	Description	Necessity
			This parameter defines the time interval during	
			which the NPort fetches the serial data from its	
			internal buffer. If data is incoming through the	
			serial port, the NPort stores the data in the	
			internal buffer. The 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.	
Destination IP	IP address or	None	Allows the NPort to connect actively to the remote	Required
address 1	Domain Name		host (up to 4 hosts) whose IP address is set by	
	(E.g.,		this parameter.	
Destination IP	192.168.1.1)		The "Destination IP address" parameter can use	
address 2/3/4			either IP address or Domain Name. For some	
auuress 2/3/4			applications, the user may need to send the data	
			actively to the remote destination domain name.	
Designated	TCP Port No.	5011 (Port	N/A	Required
Local Port		1)		
1/2/3/4		5012 (Port		
		2)		
		5013 (Port		
		3)		
		5014 (Port		
		4)		
Connection	Startup/None,	Startup/Non	The meaning of each of the above settings is	Required
control	Any Character/	e	given in the table below. In general, both the	
	None,		Connect condition and Disconnect condition are	
	Any Character/		given.	
	Inactivity			
	Time,			
	DSR ON/			
	DSR OFF,			
	DSR ON/None,			
	DCD ON/			
	DCD OFF,			
	DCD ON/None			

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



### 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.

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

**NOTE** 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.



### ATTENTION

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

## **UDP Mode**

MOXA www.moxa	.com
Alain Menu Operating Settings Overview Basic Settings Network Settings Network Settings Serial Settings Operation mode Serial Settings Operation mode Delimiter 1 Delimiter 1 Delimiter 1 Delimiter 2 Delimiter 2 Delimiter 2 Delimiter process Auto Warning Settings Auto Warning Settings Local Factory Default Save/Restart Destination IP address 4 Local Listen port	Port=01 UDP Mode ♥ Data Packing 0 (0 - 1024) 0 (Hex) Enable 0 (Hex) Enable 0 (Hex) Enable Do Nothing ♥ (Processed only when Packing length is 0) 0 (0 - 65535 ms) UDP Mode Begin End Port i (4001 ; 4001 ; 4001 4001 serial ports (Local listen port will be enumerated automatically).

eb Interface for the NPc	ort 5000A and NF	ort IA500	0A Series	s	
ΜΟΧΛ	tal Solution for Indust	rial Device N	tworking		www.moxa.cor
Model - NPort IA5450AI Name - NPIA5450AI_2	<ul><li>IP</li><li>Serial NO.</li></ul>	- 192.168.127 - 2	254	<ul> <li>MAC Addre</li> <li>Firmware</li> </ul>	ess - 00.90.E8.12.34.57 - 1.0 Build 10032318
1	- Operation	n Modes			
lain Menu	Port 1				
Overview Quick Setup	Operation mode	UDP	¥		
Export/Import		Begin	End		Port
Basic Settings	Destination IP address 1		LING		4001
Network Settings		-			
Serial Settings	Destination IP address 2			:	4001
Operating Settings	Destination IP address 3			:	4001
Port 1	Destination IP address 4			:	4001
Port 2	Local listen port	4001			
Port 3	Local Instant port	4001			
Port 4	1				
ccessible IP Settings	Data Packing				
Auto Warning Settings	Packing length	0 (0 - 10)	(4)		
Port 4	Delimiter 1	00 (Hex)	Enable		
ccessible IP Settings	Delimiter 2	- presy -			
Auto Warning Settings		in the second			
ccessible IP Settings	Delimiter process	Do Nothing	(Processed or	nly when packing	length is 0)
Auto Warning Settings	Force transmit	0 (0 - 65	535 ms)		
lpgrade Firmware	Apply the above settings	P1	P2	EP3	P4
Vonitor	to	All ports			
hange Password		Con porta			
ad Factory Default		0.1			
Save/Restart		Submit			

Parameter	Setting	Factory	Description	Necessity
		Default		
Packing length	0 to 1024	0	0: The Delimiter Process will be followed,	Optional
			regardless of the length of the data packet.	
			Greater than 0: If the data length (in bytes)	
			matches the configured value, the data will be	
			forced out.	
Delimiter 1	00 to FF	None	Once the NPort receives both delimiters	Optional
			through its serial port, it immediately packs all	
Delimiter 2	00 to FF	None	data currently in its buffer and sends it to the	Optional
			NPort's Ethernet port.	
Delimiter	Do nothing,	Do nothing	[Delimiter + 1] or [Delimiter + 2]: The	Optional
process	Delimiter + 1,		data will be transmitted when an additional	
	Delimiter + 2,		byte (for Delimiter +1), or an additional 2	
	Strip Delimiter		bytes (for Delimiter +2) of data is received	
			after receiving the Delimiter.	
			[Strip Delimiter]: When the Delimiter is	
			received, the Delimiter is deleted (i.e.,	
			stripped), and the remaining data is	
			transmitted.	
			[Do nothing]: The data will be transmitted	
			when the Delimiter is received.	
Force	0 to 65535 ms	0 ms	<b>0:</b> Disable the force transmit timeout.	Optional
Transmit			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.	

Parameter	Setting Factory		Description	Necessity	
		Default			
			This parameter defines the time interval during		
			which the NPort fetches the serial data from its		
			internal buffer. If data is incoming through the		
			serial port, the NPort stores the data in the		
			internal buffer. The 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.		
Destination IP	IP address	Begin: Empty	N/A	Required	
address 1	range	End: Empty			
Destination IP	E.g., Begin:	Port: 4001	N/A	Optional	
address 2/3/4	192.168.1.1				
	End:				
	192.168.1.10				
Local listen	1 to 65535	4001	The UDP port that the NPort listens to, and that	Required	
port			other devices must use to contact the NPort. To		
			avoid conflicts with well-known UDP ports, the		
			default is set to 4001.		

**NOTE** 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.

### UDP Multicast (for the NPort 5000A/IA5000A only)

A multicast is a packet sent by one host to multiple hosts. In multicast mode, each host that belongs to a specific multicast group will receive multicast packets for that group. For a host to be configured as a multicast receiver over the Internet, the must inform the routers on its LAN. The Internet Group Management Protocol (IGMP) is used to communicate group membership information between hosts and routers on a LAN. The NPort 5000A/IA5000A supports IGMP version 2.

мох	<b>N</b>	Total Solution for Indu	strial Device N	etworking	,	www.moxa.com
Model     Name	- NPort IA5450 - NPIA5450AL		- 192.168.127 ) 2	7.254	MAC Addre     Firmware	ess - 00:90:E8:12:34:57 - 1.0 Build 10032318
- Main Menu Overview	^	• Operatio	n Modes	5		
Quick Setup Export/Import		Operation mode	UDP Begin	✓ End		Port
Basic Settings Network Settings - Serial Settings		Destination IP address Destination IP address				4001
- Operating Settings Port 1	1	Destination IP address Destination IP address				4001
Port 2 Port 3		Local listen port	4001		]•(	

Type the IP address (e.g., 239.1.1.1) assigned to the multicast group in the **Begin** column. The NPort will automatically add the Group, and receive all packets from this group as required by the multicast function.

## Pair Connection Mode

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

### **Pair Connection Master Mode**

When using Pair Connection Mode, you must select **Pair Connection Master Mode** for the Operation mode of one of the NPort device servers. In effect, this NPort will be acting as a TCP client.

Web Interface for the NPort 5000 and NPort IA5000 Series				
Main Menu	Operating Settings			
Basic Settings		Port=1		
Network Settings Serial Settings	Operation mode	Pair Connection Master Mode 💌		
Coperating Settings	TCP alive check time	7 (0 - 99 min)		
Port 1 Port 2	Destination IP address	192.168.1.1	: 4001	
🗀 Accessible IP Settings	□ Apply the above setting	s to all serial ports		
Auto Warning Setting	P			
Monitor	Submit			
<ul> <li>Change Password</li> <li>Load Factory Default</li> </ul>				

Veb Interface for the NPort 5000A and NPort IA5000A Series						
мох	<b>V</b> .	Total Solution for Indu	strial Device Net	working	ww	w.moxa.com
	NPort IA5450AI NPIA5450AI_2	<ul><li>IP</li><li>Serial NO.</li></ul>	- 192 168 127 254 - 2	1	MAC Addres	s - 00.90.E8.12.34.57 - 1.0 Build 10032318
	1	• Operatio	on Modes			
Main Menu		Port 1				
Overview		Port				
Quick Setup		Operation mode	Pair Connection Mas	ter 🐱		
Export/Import		TCP alive check time	7 (0 - 99 min)			
Basic Settings		Destination IP address				ut 4001
Network Settings		Desunduorrie duaress				
- Serial Settings		Apply the above		P2	P3	P4
- Operating Settings		settings to	All ports			
Port 1						
Port 2			Submit			

Parameter	Setting	Factory Default	Description	Necessity
TCP Alive	0 to 99 min	7 min	<b>0 min:</b> TCP connection is not closed due to an	Required
Check Time			idle TCP connection.	
			1 to 99 min: The NPort closes the TCP	
			connection automatically if there is no TCP	
			activity for the given time.	
Destination IP	IP address or	blank	The Pair Connection "Master" will contact the	Optional
address	Domain		network host that has this IP address. Data will	
	Name		be transmitted through the port No. (4001 by	

Parameter	Setting	Factory Default	Description	Necessity
	(E.g.,		default). Note that you must configure the	
	192.168.1.1)		same TCP port No. for the device server acting	
	TCP Port	4001	as the Pair Connection "Slave."	Required

### **Pair Connection Slave Mode**

When using Pair Connection Mode, you must select **Pair Connection Slave Mode** for the Operation mode of one of the NPort device servers. In effect, this NPort will be acting as a TCP server.

Web Interface for the NPort 5000 and NPort IA5000 Series				
MOXA	www.moxa	a.com		
Overview	Operating Settings			
Basic Settings		Port=1		
<ul> <li>Network Settings</li> <li>Serial Settings</li> </ul>	Operation mode	Pair Connection Slave Mode 🔹		
🖻 🔄 Operating Settings	TCP alive check time	7 (0 - 99 min)		
Port 1 Port 2	Local TCP port	4001		
	□ Apply the above setting	s to all serial ports		
Auto Warning Setting				
Image: Monitor Image: Change Password		Submit		

eb Interface for the NPort 5000A and NPort IA5000A Series					
MOX	 	Total Solution for Indus	trial Device Networking	1	www.moxa.com
<ul><li>Model</li><li>Name</li></ul>	- NPort 5150A - NP5150A_71	<ul> <li>IP</li> <li>Serial NO.</li> </ul>	- 192.168.127.253 - 71	<ul> <li>MAC Addres</li> <li>Firmware</li> </ul>	ss - 00:90:E8:99:31:25 - 1.0 Build 10022314
		:• Operatio	n Modes		
Main Menu Overview	-	Port 1			
Quick Setup Export/Import Basic Settings Network Settings		Operation mode TCP alive check time Local TCP port	Pair Connection Slave V 7 (0 - 99 min) 4001		
- Serial Settings Port 1			Submit		

Parameter	Setting	Factory Default	Description	Necessity
TCP Alive	0 to 99 min	7 min	<b>0 min:</b> TCP connection is not closed due to an	Required
Check Time			idle TCP connection.	
			1 to 99 min: The NPort closes the TCP	
			connection automatically if there is no TCP	
			activity for the given time.	
Local TCP port	TCP port No.	4001	This Port No. must be the same port No. that	Required
	(e.g.,		you set up for the Pair Connection "Master"	
	4001)		device server.	

## Ethernet Modem Mode (for the NPort IA5000/IA5000A, NPort 5000A,

## NPort 5000AI-M12, NPort 5100 series only)

Web Interface for the NPort 5000 and NPort IA5000 Series				
ΜΟΧΛ	www.moxa	a.com		
Main Menu	Operating Settings			
Basic Settings		Port=01		
Detwork Settings	Operation mode	Ethernet Moder		
🖲 🧰 Serial Settings	TCP alive check time	7 (0 - 99 min)		
Operating Settings Port 1	Local TCP Port	4001		
Accessible IP Settings		Submit		
Auto Warning Settings				
Web Interface for t	the NPort 5000A and	d NPort IA5000A Series		
ΜΟΧΛ	Total Solution for In	ndustrial Device Networking WWW.MOXB.COM		
	ort 5150A P 5150A_71 Seria	- 192.168.127.253  MAC Address - 00:90:E8:99:31:25 al NO 71  Firmware - 1.0 Build 10022314		
	:•Operat	tion Modes		
- Main Menu	1 A A			
Overview	Port 1			
Quick Setup	Operation mode	Ethernet Modern		
Export/Import	TCP alive check tim	me 7 (0 - 99 min)		
Basic Settings	Local TCP port	4001		
Network Settings				
- Serial Settings Port 1		Submit		
Porti				

### Dial-in

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

### ATS0=0 (default):

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

### ATS0≥0:

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

### **Dial-out**

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

### **Disconnection Request from the Local Site**

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

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

### **Disconnection Request from the Remote Site**

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

### **AT Commands**

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

No.	AT command	Description	Remarks
1	ATA	Answer manually	
2	ATD <ip>:<port></port></ip>	Dial up the IP address: Port No.	
3	ATE	ATE0=Echo OFF	
		ATE1=Echo ON (default)	
4	ATH	ATH0=On-hook (default)	
		ATH1=Off-hook	
5	ATI, ATIO, ATI1, ATI2	Modem version	reply "OK" only
6	ATL	Speaker volume option	reply "OK" only
7	ATM	Speaker control option	reply "OK" only
8	ATO	On line command	
9	ATP, ATT	Set Pulse/Tone Dialing mode	reply "OK" only
10	ATQ0, ATQ1	Quiet command (default=ATQ0)	
11	ATSr=n	Change the contents of S register	See "S registers"
12	ATSr?	Read the contents of S register	See "S registers"
13	ATV	Result code type	
		ATV0 for digit code	
		ATV1 for text code	
		0=0K	
		1=connect (default)	
		2=ring	
		3=No carrier	
		4=error	
14	ATZ	Reset (disconnect, enter command mode and restore	
		the flash settings)	
15	AT&C	Serial port DCD control AT&C0=DCD always on	
		AT&C1=DTE detects connection by DCD on/off	
		(default)	
16	AT&D	Serial port DTR control AT&D0=recognize DTE always	
		ready AT&D1, AT&D2=reply DTE when DTR On	
		(default)	
17	AT&F	Restore manufacturer's settings	
18	AT&G	Select guard time	reply "OK" only
19	AT&R	Serial port RTS option command	reply "OK" only
20	AT&S	Serial port DSR control	reply "OK" only
21	AT&V	View settings	
22	AT&W	Write current settings to flash for next boot up	

### **S** Registers

No.	S Register	Description & default value	Remarks
1	S0	Ring to auto-answer (default=0)	
2	S1	Ring counter (always=0)	no action applied
3	S2	Escape code character (default=43 ASCII "+")	
4	S3	Return character (default=13 ASCII)	

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

Parameter	Setting	Factory Default	Description	Necessity
TCP Alive	0 to 99 min	7 min	<b>0 min:</b> TCP connection is not closed due to an	Required
Check Time			idle TCP connection.	
			1 to 99 min: The NPort closes the TCP	
			connection automatically if there is no TCP	
			activity for the given time.	
Local TCP port	1 to 65535	4001	The TCP port that other devices must use to	Required
			contact this device. To avoid conflicts with	
			standard TCP ports, the default is set to 4001.	

## **Reverse Telnet Mode**

Web Interface for the NPort 5000 and NPort IA5000 Series						
ΜΟΧΛ	www.moxa	com				
Main Menu	Operating Settings					
Basic Settings		Port=01				
Network Settings	Operation mode	Reverse Telnet Mode				
🖲 🧰 Serial Settings	TCP alive check time	7 (0 - 99 min)				
Operating Settings     Port 1	Inactivity time	0 (0 - 65535 ms)				
Port 2	Local TCP port	4001				
- Port 3	Map <cr-lf></cr-lf>	CR-LF				
Port 4     Accessible IP Settings	Apply the above settings to all serial ports					
<ul> <li>Auto Warning Settings</li> <li>Monitor</li> </ul>		Submit				

Internu Intern	0 E8:12:34:57 uild 10032318
Menu  Aview  ck Setup  Operation mode  Reverse Telnet	
rview Port 1 ck Setup Operation mode Reverse Telnet 🛩	
ck Setup Operation mode Reverse Teinet 💌	
ort/import	
TCP aive check time 7 (0 - 99 min)	
sic Settings Inactivity time 0 (0 - 65535 ms)	
arial Settings Local TCP port 4001	
perating Settings Map <cr-lf> CR-LF V</cr-lf>	
Port 1	
and 2	
Port 3	
Port 4 Submit	

Parameter	Setting	Factory	Description	Necessity	
		Default			
TCP Alive	0 to 99 min	0 min	Specifies the time slice for checking if the TCP	Optional	
Check Time			connection is alive. If no response is received,		
			the NPort will disconnect the original		
			connection.		
Inactivity time	0 to 65535 ms	0	Idle time setting for auto-disconnection. 0 min.	Optional	
			means it will never disconnect.		
Local TCP port	1 to 65535	4001	Each of the NPort's serial ports is mapped to a	Optional	
			TCP port. To avoid conflicts with TCP ports, set		
			port numbers to 4001 for port1, 4002 for port		
			2, etc. (like the default values).		
Map <cr-lf></cr-lf>	CR, LF, or	CR-LF	If data received through the NPort's Ethernet	Optional	
	CR-LF		port is sent using the "enter" command, the		
			data will be transmitted out the serial port with		
			an added:		
			1. "carriage return + line feed" if you select		
			the <cr-lf> option (i.e., the cursor will</cr-lf>		
			jump to the next line, and return to the first		
			character of the line)		
			2. "carriage return" if you select the <cr></cr>		
			option (i.e., the cursor will return to the		
			first character of the line)		
			3. "line feed" if you select the <lf> option.</lf>		
			(i.e., the cursor will jump to the next line,		
			but not move horizontally)		

## **Disabled Mode**

MOX/	N W	ww.moxa.c	om			
Main Menu	Operating	Settings				
Overview						
Basic Settings	Onenation	4	isabled	Port=01		
Network Settings Serial Settings	Operation mo			×		
Operating Settings	Apply the	above settings to all seria	al ports			
Port 1				Submit		
Port 2						
мох		tal Solution for Indu	strial Device	Networking	W	ww.moxa.com
	- NPort IA5450AJ - NPIA5450AJ_2	tal Solution for Indu IP Serial NO.	- 192.168.127 - 2		MAC Addres	WW.MOX3.COM 55 - 00:90:E8:12:34:57 - 1.0 Build 10032318
Model	- NPort IA5450AI	= IP	- 192.168.127 - 2	254	MAC Addres	ss - 00:90.E8:12:34:57
Model	- NPort IA5450AI	• IP • Serial NO.	- 192.168.127 - 2	254	MAC Addres	ss - 00:90.E8:12:34:57
Model     Name	- NPort IA5450AI	<ul><li>IP</li><li>Serial NO.</li></ul>	- 192.168.127 - 2	254	MAC Addres	ss - 00:90.E8:12:34:57
Model     Name Main Menu	- NPort IA5450AI	• IP • Serial NO.	- 192.168.127 - 2	254	MAC Addres	ss - 00:90.E8:12:34:57
Model Name Main Menu Overview	- NPort IA5450AI	<ul> <li>IP</li> <li>Serial NO.</li> <li>Operation</li> <li>Operation mode</li> </ul>	- 192.158.127 - 2 on Mode Disable	254 255 255	MAC Addre	ss - 00:90 E8:12:34 57 - 1.0 Build 10032318
Model Name Main Menu Overview Quick Setup	- NPort IA5450AI	<ul> <li>IP</li> <li>Serial NO.</li> <li>Operation</li> <li>Port 1</li> </ul>	- 192.168.127 - 2 on Mode Disable V P1	254	MAC Addres	ss - 00:90.E8:12:34:57
Main Menu Overview Quick Setup Export/Import	- NPort IA5450AI	IP     Serial NO.     Serial NO.     Operatio     Port 1     Operation mode     Apply the above	- 192.158.127 - 2 on Mode Disable	254 255 255	MAC Addre	ss - 00:90 E8:12:34 57 - 1.0 Build 10032318
Main Menu Overview Quick Setup Export/Import Basic Settings	- NPort IA5450AI	IP     Serial NO.     Serial NO.     Operatio     Port 1     Operation mode     Apply the above	- 192.168.127 - 2 on Mode Disable V P1	254 255 255	MAC Addre	ss - 00:90 E8:12:34 57 - 1.0 Build 10032318

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

# **Configuring NPort Administrator**

The following topics are covered in this chapter:

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

### COM Mapping

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

### COM Grouping

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

# **Overview**

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



### ATTENTION

Before installing and the configuring the NPort Administration suite, make sure your user privilege is set as system administrator.

# **Installing NPort Administrator**

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



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

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

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

15 Setup - NPort Administration Suite
Select Start Menu Folder Where should Setup place the program's shortcuts?
Setup will create the program's shortcuts in the following Start Menu folder. To continue, click Next. If you would like to select a different folder, click Browse.
NPort Administration Suite         Browse
< <u>B</u> ack <u>N</u> ext> Cancel

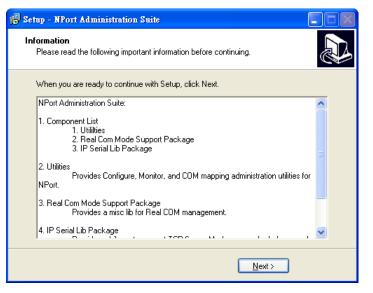
4. Click **Install** to proceed with the installation.

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

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

1 <sup>57</sup> Setup - NPort Administration Suite	
Installing Please wait while Setup installs NPort Administration Suite on your computer.	
Extracting files C:\WINDOWS\system32\nport.dll	
(	Cancel

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



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

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

# Configuration

The Administrator-Configuration window is divided into four parts.

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

🐝 NPort Administrator-Co	nfiguration								
<u>File Function Configuration</u>	n <u>V</u> iew <u>H</u> elp								
👖 🔮 🔮 Exit Search Search		Configure Web							
Function		Configuration - 0 NPort(s)							
NPort	No 🛆	Model	MAC Address	IP Address	Server Name	Status			
Configuration									
🔤 Port Monitor									
∰ COM Mapping 									
	<		Ш			>			
Message Log - 0 Monitor Log	g-0								
No Time		Description							
】 N20102022 上在 10:10:10									
Now: 2010/2/23 上午 10:19:19									

## **Broadcast Search**

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

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

🐝 NPort Administrator-Co	nfiguration							
Eile <u>F</u> unction <u>C</u> onfiguration <u>V</u> iew <u>H</u> elp								
🕺 🔮 🤮 Exit Search Search	 IP Locate	<b>S</b> Configure	🛄 Web					
Function				Configuration -	0 NPort(s)			
⊡ 🔊 NPort	No 🛆	Model		MAC Address	IP Address	Server Name	Status	
Configuration								
Monitor Reg Port Monitor			2	<u>B</u> roadcast Search				
∰ COM Mapping 	L		2	Specify by IP Address				
······· : Address Heport			漜	Locate				

 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 NPort(s), remain tim	neout = 3 second(s)	✓ Stop
No	Model	MAC Address	IP Address
1	NPort 5250A	00:90:E8:66:32:52	192.168.127.254

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

🐝 NPort Administrator-Co	nfiguration					
<u>File Function Configuration</u>	n <u>V</u> iew <u>H</u> elp					
👖 🔮 🧟 Exit Search Search	iIP Locate	Configure Web				
Function			Configuration -	1 NPort(s)		
⊡-≫ NPort	No 🛆	Model	MAC Address	IP Address	Server Name	Status
Configuration     Monitor     Port Monitor     COM Mapping     ·································	1	NPort 5250A	00:90:E8:66:32:52	192.168.127.254	NP5250A_52	Lock



### ATTENTION

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

# **Unlock Password Protection**

The NPort device server is password protected (the default password is **moxa**). The status of the NPort device will be indicated by "Lock." You will receive the following error, and you will not be able to use the right click method to open the configuration page.

Error	
8	Target is password protected. Please [Unlock] first.
	OK

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

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

🔹 NPort Administrator-Configuration									
File Function Configuration View Help									
🖡 🤗 🧏 🎬 🗐 Exit Search IP Locate Configure Web									
Function			Configuration -	1 NP	ort(s)				
🖃 🔊 NPort	No 🛆	Model	MAC Address	IP Ad	dress	Server Name	Status		
Configuration	1	NPort 5250A	00:90:E8:66:32:52	1921	68 127 254	NP5250A 52	Lock		
- 🔤 Monitor				2	<u>B</u> roadcast Se	arch			
Port Monitor	L			2	Specify by I	22erbbA 9			
COM Mapping	-			_	<u>o</u> pccii, b, i.				
IP Address Report				*	<u>L</u> ocate				
				=	<u>U</u> nlock				

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

Password 🔀	
Enter Password	Information 🔀
	Unlock ok.
V OK X Cancel	OK

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

🐝 NPort Administrator-Co	onfiguration					
<u>  File Function Configuratio</u>	n <u>V</u> iew <u>H</u> elp					
Exit Search Search	hIP Locate	Configure Web				
Function			Configuration -	1 NPort(s)		
🖃 🔊 NPort	No 🛆	Model	MAC Address	IP Address	Server Name	Status
Configuration	1	NPort 5250A	00:90:E8:66:32:52	192.168.127.254	NP5250A_52	Unlock
- 🔤 Monitor						
Port Monitor	L					
COM Mapping	L					
🚽 🦾 🔆 IP Address Report						

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

#### Lock

The NPort 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**

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

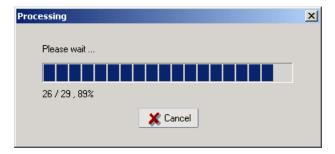
1. To start NPort Administrator, click Start → NPort Administration Suite → NPort Administrator.

🔚 Programs 🔸	6	Accessories	¥		
	6	Startup	►		
	6	UC Finder	►		
	<b>i</b>	NPort Administration Suite	÷	8	IP Serial Lib Reference
	6	NPort Windows Driver Manager	►	ý:	NPort Administrator
		×			Version info

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

🐝 NPort Administrator-Co	nfiguration					(	
] <u>File</u> <u>Function</u> <u>Configuration</u>	n <u>V</u> iew <u>H</u> elp						
n							
Function			С	onfiguration -	1 NPort(s)		
E 🔊 NPort	No 🛆	Model	ł	MAC Address	IP Address	Server Name	Status
Configuration	1	NPort 5250A	- 1 (	00:90:E8:66:32:52	192.168.127.254	NP5250A_52	Unlock
Monitor	L		2	<u>B</u> roadcast Search			
COM Mapping			2	Specify by IP Addr	ess		
🛶 🌾 IP Address Report			*	<u>L</u> ocate			
			<b></b>	<u>U</u> nlock			
			<b>B</b>	<u>C</u> onfigure			

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



4. Refer to **Chapter 2** for each parameter's function definition. To modify the configuration, you must first click in the modify box to activate the parameter setting box.

Configuration	
Configuration Information Model Name NPort 5250A MAC Address 00:90:E8:66:32:52 Serial Number 52 Firmware Version Ver 1.0 System Uptime 0 days, 00h:55m:50s	Accessible IPs Auto Warning IP Address Report Password Basic Network Serial Operating Mode Modify Server Name NP5250A_52 Modify Time Zone (GMT) Greenwich Mean Time: Dublin, Edinbul • Local Date 2010/ 7/11 • Local Time 上午 11:16:16 • Time Server
	Click the "Modify" check box to modify configuration



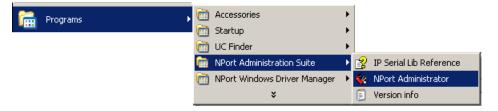
### ATTENTION

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

## **Upgrading the Firmware**

Follow these steps to upgrade the firmware of an NPort.

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



2. Unlock the NPort you wish to configure. Right click a specific NPort and select the **Upgrade Firmware** function to start upgrading the firmware.

🐝 NPort Administrator-Co	onfiguration						
<u>File Function</u>	n <u>V</u> iew <u>H</u> elp						
👖 🔮 🤮 Exit Search Search	n IP Locate	Configure W	/eb				
Function				Configuration -	1 NPort(s)		
⊡- 🔊 NPort	No 🛆	Model		MAC Address	IP Address	Server Name	Status
Configuration	1	NPort 5250A		00:90:E8:66:32:52	192 168.127.254	NP5250A_52	Unlock
Monitor			2	<u>B</u> roadcast Search			
Port Monitor			2	Specify by IP Addres	3		
COM Mapping	L		*	<u>L</u> ocate			
			<b></b>	<u>U</u> nlock			
			P	<u>C</u> onfigure			
				<u>W</u> eb			
			4	U <u>p</u> grade Firmware			

3. Select the correct ROM file to download.

Select File		×
Select File File Name:	D:\NP5200A_Ver1.0_Build_10050709.rom	
	Browse	
	V OK X Cancel	]

4. Wait while the Upgrade Firmware action is processed.

St	atus				
	Processing, p	blease wait			🗙 Cancel
	No	Model	MAC Address	IP Address	Status
	1	NPort 5250A	00:90:E8:66:32:52	192.168.127.254	Transmit - 80%



### ATTENTION

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

# **Export Configuration**

The Export Configuration function is a handy tool that can be used to produce a text file that contains the current configuration of a particular NPort.

To export the configuration of an NPort, right click **NPort**, select **Export Configuration**, and then an **Export Password** window will pop up for an user to assign a password for the exported configuration file (for the NPort Administration Suite v1.22 or above). The exported configuration file will be encrypted for security purpose. You will need the same password you use for the exported file to import the same file back into the NPort.

👖 🙎 🤮 Exit Search Search	iP Locate	Configure Wet	)			
Function			<b>Configuration</b> -	1 NPort(s)		
NPort	No /	Model	MAC Address	IP Address	Server Name	Statu
Configuration     Monitor	1	NPort 5630-8	00:90:E8:09:9D:86	192.168.34.68	NP5630-8_40	
(新 COM Mapping ううううううううううううううううううううう IP Address Report		Enter Export	Password	<b>X</b> Cancel		

After assigning the export password, click the **Browse** button to set the file name and path, and then click **OK**.

Select File	
Select File	
File Name:	
	Browse
	OK Cancel

# **Import Configuration**

The Import Configuration function is used to import an NPort configuration from a file into one or more of the same NPort model. To import a configuration, first select the target servers, click the right mouse button, and then select **Import Configuration**. Click on the **Browse** button to locate the configuration file and press **OK**.

Select File	×
Select File File Name:	
	Cancel

An **Import Password** window will pop up, and you will need to enter the password that is unique to the configuration file (which is assigned when exporting the configuration file) in order to successfully import the configuration file (for the NPort Administration Suite v1.22 or above).

NPort Administrator-Co File Eunction Configuration Exit Search Search	n ⊻iew <u>H</u> elp <b>≚</b>	) Configure Web				
Function			Configuration -	1 NPort(s)		
□ → NPort	No Z	Model	MAC Address	IP Address	Server Name	Status
Configuration     Monitor     Port Monitor     COM Mapping     Signal IP Address Report		NPort 5630-8 t Password Inter Import Password		192.168.34.68	NP5630-8_40	

You will be able to confirm the import content before downloading the file.

Information Model Name	Accessible IPs	Auto Warning	IP Address Report	Password			
NPort 5630-8	Basic	Network	Serial	Operating Mode			
MAC Address	Modify						
00:90:E8:09:9D:86	Server Name	NP5630-8_40					
Serial Number	Modify	e					
40	Time Zone	(GMT) Greenwich Mean T	ime: Dublin, Edinburgh, L	.isbon, London 💌			
Firmware Version	Local Date	1999/12/31					
Ver 3.6	Local Time	上午 12:00:00		-			
	Time Server						
System Uptime 0 days, 00h:36m:11s	Modify						
	Enable We	eb Console					
	🔽 Enable Te	Inet Console					

Press OK to start downloading the configuration file. A window will pop up to indicate that import was successful.

🚉 🚅 🙎 Exit Search Searc	h IP Locate	Configure Wet				
Function			Configuration -	1 NPort(s)		
∃- 🦻 NPort	No /	Model	MAC Address	IP Address	Server Name	Statu
Configuration	1	NPort 5630-8	00:90:E8:09:9D:86	192.168.34.68	NP5630-8_40	
Port Monitor     GM Mapping     GM IP Address Report			t Configuration OK.			

For firmware versions supporting encrypted configuration files, please refer to the table below.

Model Name	Firmware version supporting encrypted configuration files.					
	NPort 5000 Series					
NPort 5110	Firmware v2.6 and up with NPort Administration Suite v1.22 and up					
NPort 5130, NPort 5150	Firmware v3.6 and up with NPort Administration Suite v1.22 and up					
NPort 5200 Series	Firmware v2.8 and up with NPort Administration Suite v1.22 and up					
NPort 5400 Series	Firmware v3.11 and up with NPort Administration Suite v1.22 and up					
NPort 5600-8-DT Series	Firmware v2.4 and up with NPort Administration Suite v1.22 and up					
NPort 5600-8-DTL Series	Firmware v1.3 and up with NPort Administration Suite v1.22 and up					
NPort 5600 Series	Firmware v3.7 and up with NPort Administration Suite v1.22 and up					

Model Name	Firmware version supporting encrypted configuration files.
	NPort 5000A/IA5000A Series
NPort 5100A Series	Firmware v1.3 and up (Support with both web console and NPort
NPOIL STOUA Series	Administration Suite v1.22 or above)
NPort 5200A Series	Firmware v1.3 and up (Support with both web console and NPort
	Administration Suite v1.22 or above)
NPort 5x50AI-M12 Series	Firmware v1.2 and up (Support with both web console and NPort
NPOIL 5X50AI-M12 Series	Administration Suite v1.22 or above)
NPort IA5150A, NPort	Firmware v1.3 and up (Support with both web console and NPort
IA5250A	Administration Suite v1.22 or above)
NPort IA5450A	Firmware v1.4 and up (Support with both web console and NPort
NFULL IA3430A	Administration Suite v1.22 or above)



### ATTENTION

- You can simultaneously import the same configuration file into multiple NPort units of the same model. To select multiple NPort units, hold down the **Ctrl** key when selecting an additional NPort, or hold down the **Shift** key to select a block of NPort units.
- 2. If you have an encrypted configuration file, you will need to use the NPort Administration Suite V1.22 or above to import an encrypted configuration file. On the other hand, if your configuration file is non-encrypted, it will also be accepted by the NPort Administration Suite V1.22 or above. (i.e. the NPort Administration Suite will not ask you to key in the **Import Password**.

# Monitor

Use the following method to start the Monitor function.

### Broadcast Search $\rightarrow$ Monitor $\rightarrow$ Add Target

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

*	🔹 NPort Administrator-Configuration									
]	<u>File Function</u> Configuration View Help									
Ī	j	0	<u>C</u> onfiguration	. 🛎						
1	E:		<u>M</u> onitor	Locate	Configure Web					
			Port Monitor			Configuration -	1 NPort(s)			
E		<b>6</b>	C <u>O</u> M Mapping	Δ	Model	MAC Address	IP Address	Server Name	Status	
		÷.	IP Address Report		NPort 5250A	00:90:E8:66:32:52	192.168.127.254	NP5250A_52	Unlock	

2. Next, click Monitor -> Add Target and select your targets from the list, and then click OK.

Exit A Add Target				Add NPort			
Function Load Configured COM Port	Monitor - Stopp	oed - 0 NPort(		Inter Alton			
NPort	MAC Address	IP Address	Alive	Select Fro	m Listj F	Rescan Sele	ct All Clear All
Comp Com Go Go Com Stop Com				No	Model	MAC Address	IP Address
				<b>⊡</b> 1	NPort 5250A	00:90:E8:66:32:52	192.168.127.254
P Address Report							
				1			
				Input Man	uallu IF		
				0.4			5110

### **Once the Monitor function is running:**

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

🐝 NPort Administrator-Me	onitor									
<u>File F</u> unction Monitor <u>V</u> iew <u>H</u> elp										
📄 🔮 🎽 Exit Add Remo	ve	Go	Stop							
Function			M	onitor - Stopped	l - 1 NPort(s)					
⊡- 🔊 NPort	No	Δ	Model	MAC Address	IP Address	Alive				
1 Configuration	1		NPort 5250A	00:90:E8:66:32:52	192.168.127.254	Not Alive				
- Monitor										
Port Monitor	-									
COM Mapping	-									
PAddress Report										

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

🐝 NPort Administrator-Mo	onitor									
j <u>F</u> ile <u>F</u> unction Monitor <u>V</u> iew <u>H</u> elp										
Exit Add Remo	ive Go	Stop								
Function Monitor - Stopped - 1 NPort(s)										
⊡ 🔊 NPort	No 🛆	Model		MAC Address	IP Address	Alive				
Configuration	1	NPort 5250A		00-90-E8-66-32-52	192 168 127.254	Not Alive				
- Monitor			2	<u>A</u> dd Target						
Port Monitor			~	<u>R</u> emove Target						
COM Mapping				Load Configured C	OM Port					
			ß	Settings						

3. 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.

Monitor Settings	
Monitor Items       General Settings         De-selected Items       Selected Items         Server Name       >         COM Number       >         Model       MAC Address         IP Address       Alive         Image: Comparison of the second section of the second section of the second	
Load Default	
🗸 OK 🕺 🗡 Ca	ncel

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

Mo	nitor	Settings	
	Mor	nitor Items [General Settings] Advanced Settings	1
		Refresh Rate: 3	Second(s)
		Auto save monitored NPort list.	
			V OK X Cancel

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

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

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

🐝 NPort Administrator-Ma	nitor								
∫ <u>F</u> ile <u>F</u> unction Monitor <u>V</u> ie	<u>File Eunction Monitor View H</u> elp								
Exit Add Remov	ve Go	Stop							
Function			Moni	itor - Stopped	I - 1 NPort(s)	)			
⊡- 🔊 NPort	No	Model MAC Address IP Address			IP Address	Alive			
1 Configuration	1	NPort 5250A	0	0:90:E8:66:32:52	192.168.127.254	Not Alive			
Monitor			2	<u>A</u> dd Target					
Port Monitor			<b></b>	<u>R</u> emove Target					
COM Mapping				Load Configured C	OM Port				
			P	Settings					
				<u>G</u> o					

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

🔹 NPort Administrator-Monitor								
Eile <u>F</u> unction Monitor <u>V</u> iew <u>H</u> elp								
Exit Add Remo	ve Go	Stop						
Function			Monitor - Running	g - 1 NPort(s)				
⊡-	No 🛆	Model	MAC Address	IP Address	Alive			
Configuration	1	NPort 5250A	00:90:E8:66:32:52	192.168.127.254	Alive			
Monitor								
Port Monitor	-							
COM Mapping								
🚽 🖓 IP Address Report								

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

Alert	$\mathbf{\times}$
Alert New Monitor Event : 1 Event(s) Please check Monitor message window for more information.	
2010/7/11 下午 07:37:32 NPort 5250A (192.168.127.254) is lost connection.	
<u>Î</u> <u>C</u> lose	

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

🐝 NPort Administrator-Mo	onitor							
<u>File F</u> unction Monitor <u>V</u> ie	_Eile Eunction Monitor ⊻iew Help							
Exit Add Remove Go Stop								
Function		M	onitor - Running	g - 1 NPort(s)				
🖃 🌆 NPort	No 🛆	Model	MAC Address	IP Address	Alive			
Configuration	1	NPort 5250A	00:90:E8:66:3	192.168.127	Not Alive			
Monitor								
- 🖾 Port Monitor	L							
🛛 🔣 COM Mapping	L							
COM Mapping	L							

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

Alert	$\times$
Alert New Monitor Event : 1 Event(s) Please check Monitor message window for more information.	
2010/7/11 下午 07:38:15 NPort 5250A (192.168.127.254) is alive again.	

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

🐝 NPort Administrator-Me	onitor							
<u>File Function Monitor Vie</u>	Eile Eunction Monitor View Help							
Exit Add Remove Go Stop								
Function		M	Ionitor - Running	g - 1 NPort(s)				
⊡- 🔊 NPort	No 🛆	Model	MAC Address	IP Address	Alive			
Configuration	1	NPort 5250A	00:90:E8:66:32:52	192.168.127.254	Alive			
Monitor								
🔤 Port Monitor								
🔣 🦝 COM Mapping	L							
COM Mapping	L							

# **Port Monitor**

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

🔹 NPort Administrator-Port Monitor										
Eile Eunction Port Monitor View Help										
Exit Add Remove Go Stop										
Function		Port	t Monitor - Stop	ped - 2 Port(s	)					
- 🔊 NPort	No 🛆	Model	MAC Address	IP Address	Port	OP Mode				
Configuration	<b>1</b>	NPort 5250A	00:90:E8:66:32:52	192.168.127.254	1	Real COM Mode				
Monitor	<b>₽</b> 2	NPort 5250A	00:90:E8:66:32:52	192.168.127.254	2	Real COM Mode				
Port Monitor COM Mapping										

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.

Monitor Settings			
Monitor Items General Settings De-selected Items Conn Status Remote IP Serial Line Status Tx/Rx after Conn. Tx/Rx after Mon Tx/Rx after Mon Tx/Rx Throu. Tx/Rx Intv Throu. COM Number Server Name Alias	Advanced S	Selected Items Model MAC Address IP Address Port OP Mode Alive	<ul> <li>▲</li> <li>↓</li> </ul>
Load Default			
		🗸 ОК	🗙 Cancel

# **COM Mapping**

NPort Administration Suite comes with Windows Real COM drivers. After you install NPort 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 that 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 first connecting the NPort to the network. Off-line COM Mapping can decrease the system integrator's effort by solving different field problems. Via off-line installation, users can first process software installation for the host, and then install the NPort to different fields.

Use the following procedure to map COM ports:

#### 1. On-line COM Mapping:

Connect the NPort to the network  $\rightarrow$  Set the NPort's 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 the NPort to the network  $\rightarrow$  Configure the NPort's IP address.

## **On-line COM Mapping**

1. Broadcast Search for NPort units on the network.

🔆 NPort Administrator-Configuration									
Eile Eunction Configuration View Help									
武									
Function			Configuration -	0 NPort(s)					
- → NPort	No 🛆	Model	MAC Address	IP Address	Server Name	Status			
Configuration									
- Monitor			Broadcast Search						
COM Mapping			Specify by IP Address						

2. Select the **COM Mapping** function group.

🐝 NPort Administrator-CC	M Mapping						
<u>File</u> <u>F</u> unction COM Mappin	File Function COM Mapping View Help						
Exit Add Remove Appy Configure							
Function	COM Mapping - 0 COM						
□ NPort	No 🛆	Model	IP Address	Port	COM Port	Mode	
Configuration	L						
Monitor	L						
COM Mapping							

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

🐝 NPort Administrator-CC	)M Mapping						
Eile Eunction COM Mapping View Help							
Exit Add Remove Apply Conligure							
Function	COM Mapping - 0 COM						
E-D NPort	No 🛆	Model	IP Address	Port	COM Port	Mode	
Configuration							
- 🖾 Monitor		<b>a</b> 411	T .				
Port Monitor		🛎 <u>A</u> aa	Target				
COM Mapping		Rem	nove Target				
IP Address Report	-			-			

4. 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.

Add NPort			X
🛞 Select Fr	om List	Rescan Selec	t All Clear All
No	Model	MAC Address	IP Address
<b>⊡</b> 1	NPort 5250A	00:90:E8:66:32:52	192.168.127.254

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

🔹 NPort Administrator-COM Mapping							
<u>File Eunction</u> COM Mapping <u>V</u> iew <u>H</u> elp							
Exit Add Remove Apply Configure							
Function	COM Mapping - 2 COM						
⊡- 🔊 NPort	No 🛆	Model	1	IP Address	Port	COM Port	Mode
<ol> <li>Configuration</li> </ol>	1	NPort 5250A		192.168.127.254	1	COM8 +	Hi-Performance, FIFO Ena
Monitor	2	NPort 5250A	2	<u>A</u> dd Target		COM9 +	Hi-Performance, FIFO Ena
COM Mapping			<b>~</b>	<u>R</u> emove Target			
IP Address Report				<u>E</u> nable			
				<u>D</u> isable			
			<b>F</b>	<u>C</u> OM Settings			

#### 6. Select the **COM Number**.

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

COM Port Settings	COM Port Settings
Port Number: 2 Port(s) Selected. 1st port is Port 1 Basic Settings   Advanced Settings   Serial Parameters   COM Grouping	Port Number: 1 Port(s) Selected. 1st port is Port 1 Basic Settings Advanced Settings Serial Parameters COM Grouping
COM Number COM7   Auto enumerating COM number for selected ports.  Grouping selected port(s) together.	COM Number COM4 (current) (assigned) • COM6 (cOM7 (com7 (current)) (assigned) • COM9 (com9 (current)) • COM1 • COM
DK X Cancel	OK X Cancel

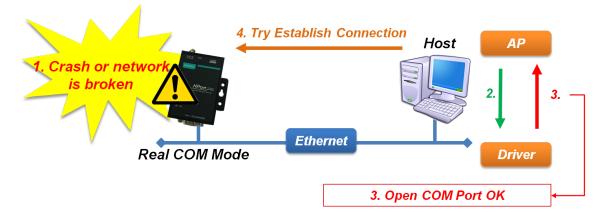
**Hi-performance mode** is the default for Tx mode. If the driver completes sending data out to the NPort 5200A, the driver will respond "Tx Empty" to the program.

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 5200A; this mode will cause lower throughput. If you want to ensure that all data is sent out before further processing, classical mode is recommended.

**Enable/Disable Tx/Rx FIFO**. If disabled, the NPort 5200A will send one byte each time the Tx FIFO becomes empty; and an Rx interrupt will be generated for each incoming byte. This will result in a faster response and lower throughput. If you want to use XON/XOFF flow control, we recommend setting FIFO to Disable.

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

- We have added one optional Fast Flush function to Moxa's new NPort Real COM driver. NPort Administrator Suite for NPort adds it after version 1.2.
- 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 Purge Comm() function, the NPort driver will keep querying the NPort's firmware several times to make sure there is really no data queued in the NPort firmware buffer, rather than just flushing the local buffer. This kind of design is used because of some special considerations. However, it might take more time (on the order of several hundred milliseconds) than a native COM1, because it needs to work via Ethernet. That's why the native COM ports on the motherboard can work fast with this function call, but the NPort requires much more time. In order to accommodate other applications that require a faster response time, the new NPort driver implements a new "Fast Flush" option. Note that by default, this function is disabled.
- To begin with, make sure there are some "PurgeComm()" functions being used in your application program. In this kind of situation, you might find that your NPort exhibits a much poorer operation performance than when using the native COM1 port. Once you have enabled the "Fast Flush" function, you can check to see if there has been an improvement in performance.
- By default, the optional "Fast Flush" function is disabled. If you would like to enable this function, from the "NPort Administrator," double click the COM ports that are mapped to the NPort, and then select the "Fast Flush" checkbox. You should find that when "Fast Flush" is enabled, the NPort driver will work faster with "PurgeComm()."



**Always Accept Open Requests:** Even the driver cannot establish the connection to NPort, user's software still can open the mapped COM port just like a onboard COM port.

**Ignore TX Purge:** The application can use Win32 API PurgeComm to clear the output buffer and terminate outstanding overlapped write operations. Select **Ignore TX Purge** if you do not want the output buffer to be purged.

COM Port Settings
Port Number: 1 Port(s) Selected. 1st port is Port 1
Basic Settings Advanced Settings Serial Parameters COM Grouping
Tx Mode Hi-Performance 💌
FIFO Enable 💌
Network Timeout 5000 (500-20000 ms)
Fast flush (only flush local buffer)     Alway Accept Open Requests     Janore Tx Purge     Apply all selected ports
V DK X Cancel

 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.

Basic Settings Adv	anced Settings	Serial Parameters	COM Grouping
Baud Rate	9600	-	
Parity	None	•	
Data Bits	8	•	
Stop Bits	1	-	
Flow Control	None	-	
🗌 Apply All Sel	ected Ports		

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

🐝 NPort Administrator-CO	Port Administrator-COM Mapping					
<u> </u>	ng <u>V</u> iew <u>H</u> e	¢lp				
📄 🚄 🚢 Exit Add Remov	e Apply	©¶ Configure				
Function			COM Mappir	ng - 2 (	сом	
□-  NPort	No 🛆	Model	IP Address	Port	COM Port	Mode
🗌 🚹 Configuration	1	NPort 5250A	192 168 127 254	1	COM11 +	Hi-Performance, FIFO Ena
Monitor	2	NPort 5250A	<u> A</u> dd Target		COM12 +	Hi-Performance, FIFO Ena
Port Monitor			<u> </u>			
COM Mapping	L		<u>E</u> nable		L	
			Disable			
			COM Settings			
			📙 Apply Change			

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

🐝 NPort Administrator-C	OM Mapping						
<u> </u>	ng <u>V</u> iew <u>H</u> el	P					
Exit Add Remov	/e Apply	Configure					
Function				COM Mappir	ng - 2 C	сом	
⊡ 🔊 NPort	No 🛆	Model		IP Address	Port	COM Port	Mode
Configuration	1	NPort 5250A		192.168.127.254	1	COM11 +	Hi-Performance, FIFO Ena
- Monitor	2	NPort 5250A	2	<u>A</u> dd Target		COM12 +	Hi-Performance, FIFO Ena
Port Monitor			<b>~</b>	<u>R</u> emove Target			
🐺 IP Address Report	L			<u>E</u> nable			
				<u>D</u> isable			
			P	<u>C</u> OM Settings			
				Apply Change			
	-			Discard Change			

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

🐝 NPort Administrator-CO	)M Mapping					
] <u>F</u> ile <u>F</u> unction COM Mappir	ng <u>V</u> iew <u>H</u> elp	)				
🚊 🚄 🎽 Exit Add Remov	e Apply (	Configure				
Function			COM Mappir	ng - 2 (	сом	
🖃 🔊 NPort	No 🛆	Model	IP Address	Port	COM Port	Mode
Configuration     Monitor     Port Monitor     GOM Mapping     You IP Address Report	2	NPort 5250A NPort 5250A	192.168.127.254 <u>A</u> dd Target <u>Remove Target</u> <u>Enable</u> <u>Disable</u> <u>COM Settings</u> <u>Apply Change</u> <u>Discard Change</u> <u>Export COM Map</u>	ping	COM11 COM12	Hi-Performance, FIFO Ens Hi-Performance, FIFO Ens

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

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

NPort					
Select Fr	om List	Rescan	Selec	st All Clear	All
No	Model	MAC Ac	ldress	IP Address	
-					
💿 Input Ma	nually	IP Address	192.16	68.127.254	
		Model	NPort	5250A	•
		Ports	2 Port(	s)	
				e	_
				ОК 🗙	Canc

2. Modify the port settings as needed.

🐝 NPort Administrator-CO	)M Mapping	l Mapping							
File Eunction COM Mapping View Help									
Exit Add Remove Apply Configure									
Function		COM Mapping - 2 COM							
⊡ 🔊 NPort	No 🛆	Model		IP Address	Port	COM Port	Mode		
<ol> <li>Configuration</li> </ol>	1	NPort 5250A		192 168 127 254	1	COM4 +	Hi-Performance, FIFO Ena		
- Monitor	2	NPort 5250A	2	<u>A</u> dd Target		COM6 +	Hi-Performance, FIFO Ena		
Port Monitor     COM Mapping     Frequence     Frequence			~	<u>R</u> emove Target					
🛶 🔆 IP Address Report				<u>E</u> nable					
				<u>D</u> isable					
			<b>B</b>	<u>C</u> OM Settings					

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

🐝 NPort Administrator-CO	)M Mapping						
<u> </u>	ng <u>V</u> iew <u>H</u> el	p					
Exit Add Remov	ve Apply	Configure					
Function				СОМ Маррії	ng - 2 C	юм	
⊡-  → NPort	No 🛆	Model	IP	Address	Port	COM Port	Mode
Configuration	1	NPort 5250A	19	12 168 127 254	1	COM4 +	Hi-Performance, FIFO Ena
- 🖾 Monitor	2	NPort 5250A	2	<u>A</u> dd Target		COM6 +	Hi-Performance, FIFO Ena
Port Monitor			~	<u>R</u> emove Target			
COM Mapping			_	<u>E</u> nable			
				<u>D</u> isable			
			P	<u>C</u> OM Settings			
				Apply Change			

# **COM Grouping**

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

### **Creating a COM Group**

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

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

🐝 NPort Administrator-CO	OM Mapping		
<u> </u>	ing <u>V</u> iew <u>H</u> elp		
📄 🧟 🎽 Exit Add Remov	ve Apply Configure		
Function		COM Mapping - 3 C	OM
	No 🛆 Model	IP Address Port	COM Port Mode
Configuration	1 NPort 5150A	192.168.127.254 1	COM4 Hi-Performance, FIFO Ena
Monitor	2 NPort 5110A 3 NPort 5110A	192.168.127.253 1	COM6 + Hi-Performance, FIFO Ena
Port Monitor	3 NPort 5110A	192.168.127.252 1	COM7 + Hi-Performance, FIFO Ena
🛛 📸 COM Mapping		🚣 Add Target	
🔤 🔆 IP Address Report		👗 <u>R</u> emove Target	
		Enable	
		Disable	
		🚰 COM Settings	
		Apply Change	
		Discard Change	
		🚖 Export COM Mapping	
	<	Import COM Mapping	

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

COM Port Settings
Port Number: 2 Port(s) Selected. 1st port is Port 2
Basic Settings Advanced Settings Serial Parameters COM Grouping
COM Number COM6 (current) (assigned) COM6 (current) (assigned) COM7 (assigned) COM7 (assigned) COM7 (assigned) COM8 COM8 COM8 COM10 COM10 COM11 COM11 COM11 COM12 COM12 COM13 V
OK X Cancel



#### ATTENTION

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

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

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

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

COM Port Settings				×					
Port Number: 2	2 Port(s) Selected	d. 1st port is	Port 2						
Basic Settings Adva Serial ports:	nced Settings	Serial Parar	neters CC	IM Grouping					
IP Address	Port Read		Signal Stat	us					
192.168.127.253 192.168.127.252		<u>د</u> د							
OK X Cancel									

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

🛠 NPort Administrator-COM Mapping									
<u>File</u> <u>F</u> unction COM Mappir	File Eunction COM Mapping View Help								
Exit Add Remove Apply Configure									
Function			COM Mappir	ng - 3 C	юм				
⊡- 🔊 NPort	No 🛆	Model	IP Address	Port	COM Port	Mode			
🗌 🚺 Configuration	1	NPort 5150A	192.168.127.254	1	COM4	Hi-Performance, FIFO E			
Monitor	2	NPort 5110A	192.168.127.253	1	COM8 (Group)	Hi-Performance, FIFO E			
- R Port Monitor	3	NPort 5110A	192.168.127.252	1	COM8 (Group)	Hi-Performance, FIFO E			
COM Mapping									



### **Deleting a COM Group**

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

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

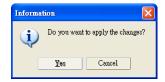
🛠 NPort Administrator-COM Mapping										
Eile Eunction COM Mapping View Help										
Exit Add Remove Apply Configure										
Function COM Mapping - 3 COM										
⊡ 🔀 NPort	No 🛆	Model	IP	Address	Port	COM Port	Mode			
<ol> <li>Configuration</li> </ol>	1	NPort 5150A	19	2.168.127.254	1	COM4	Hi-Performance, FIFO E			
Monitor	2	NPort 5110A		2.168.127.253	1	COM8 (Group)	Hi-Performance, FIFO E			
Port Monitor	3	NPort 5110A	19	2.168.127.252	1	COM8 (Group)	Hi-Performance, FIFO E			
🔣 🔣 📷 COM Mapping	L		2	<u>A</u> dd Target		-				
👾 🌾 IP Address Report			<b>~</b>	<u>R</u> emove Target						
				<u>E</u> nable						
	-			<u>D</u> isable						
			<b>S</b>	<u>C</u> OM Settings						
			H	Apply Change						
	L		-	Discard Change						

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

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

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

🗱 NPort Administrator-COM Mapping										
<u>File</u> Function COM Mappir	Eile Function COM Mapping View Help									
Exit Add Remove Appy Configure										
Function			COM Mappir	ig - 3 (	сом					
	No 🛆	Model	IP Address	Port	COM Port	Mode				
Configuration	1	NPort 5150A	192.168.127.254	1	COM4	Hi-Performance, FIFO E				
- 🖾 Monitor	2	NPort 5110A	192.168.127.253	1	COM9	Hi-Performance, FIFO E				
- 🖾 Port Monitor	3	NPort 5110A	192.168.127.252	1	COM10	Hi-Performance, FIFO E				
COM Mapping										
COM Mapping										



### Adding a Port to a COM Group

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

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

	ng <u>V</u> iew <u>H</u> el	p					
🚊 🚄 🎽 Exit Add Remo	ve Apply	Configure					
Function			СОМ Маррі	ng	- 5 C	ом	
NPort	No 🛆	Model	IP Address	Po	ort	COM Port	Mode
Configuration	1	NPort 5150A	192,168,127,254	1		COM4	Hi-Performance, FIFO E
Monitor	2	NPort 5110A	192,168,127,253	1		COM8 (Group)	
Port Monitor	3	NPort 5110A	192.168.127.252	1		COM8 (Group)	Hi-Performance, FIFO E
🔣 COM Mapping	4	NPort 5210A	192.168.127.250	1		COM6	Hi-Performance, FIFO E
P Address Report	5	NPort 5210A	192.168.127.250	12		COM7	Hi-Performance, FIFO E
Ar in Address hepore				2	<u>A</u> dd T	arget	
				<u>~</u>	<u>R</u> emo	ve Target	
					<u>E</u> nabl	e	
					<u>D</u> isabl	e	
				5	COM	Settings	
	<u> </u>			H	Apply	Change	
					Discar	d Change	

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

COM Port Settings
Port Number: 1 Port(s) Selected. 1st port is Port 5
Basic Settings   Advanced Settings   Serial Parameters   COM Grouping
COM Number COM8 (Group) -
Auto enumerating COM number for selected ports.
Grouping selected port(s) together.
V QK X Cancel

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

🔹 NPort Administrator-CC	M Mapping							
_ <u>File Eunction COM Mapping View H</u> elp								
	Exit Add Remove Apply Configure							
⊡-	No 🛆	Model	IP Address	Port	COM Port	Mode		
Configuration	1	NPort 5150A	192.168.127.254	1	COM4	Hi-Performance, FIFO E		
Monitor	2	NPort 5110A	192.168.127.253	1	COM8 (Group)	Hi-Performance, FIFO E		
Port Monitor	3	NPort 5110A	192.168.127.252	1	COM8 (Group)	Hi-Performance, FIFO E		
	4	NPort 5210A	192.168.127.250	1	COM6	Hi-Performance, FIFO E		
COM Mapping	5	NPort 5210A	192.168.127.250	2	COM8 (Group)	Hi-Performance, FIFO E		



#### **Removing a Port from a COM Group**

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

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

🐝 NPort Administrator-CC	)M Mapping								
<u> </u>	Eile Eunction COM Mapping View Help								
Exit Add Remove Apply Configure									
Function			COM Mappi	ng	- 5 COM				
	No 🛆	Model	IP Address	Pe	rt COM Port	Mode			
Configuration	1	NPort 5150A	192,168,127,254	1	COM4	Hi-Performance, FIFO E			
Monitor	2	NPort 5110A	192.168.127.253	1	COM8 (Group)	Hi-Performance, FIFO E			
- R Port Monitor	3	NPort 5110A	192.168.127.252	1	COM8 (Group)	Hi-Performance, FIFO E			
	4	NPort 5210A	192.168.127.250	1	COM6	Hi-Performance, FIFO E			
COM Mapping	5	NPort 5210A	192.168.127.250	2	COM8 (Group)	Hi-Performance, FIFO E			
The state of the s				2	<u>A</u> dd Target				
				<b>~</b>	<u>R</u> emove Target				
	<u> </u>				<u>E</u> nable				
					Disable				
				<b>P</b>	<u>C</u> OM Settings				
				H	Apply Change				
					Discard Change				

2. Select a COM number that is not in use or assigned to a Group and click  $\ensuremath{\textbf{OK}}$  .

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

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

& NPort Administrator-COM Mapping								
Eile Eunction COM Mapping View Help								
Exit Add Remove Apply Configure								
Function			COM Mappi	ng - 5 C	ом			
⊡- 🔊 NPort	No 🛆	Model	IP Address	Port	COM Port	Mode		
🗌 🚺 Configuration	1	NPort 5150A	192.168.127.254	1	COM4	Hi-Performance, FIFO En		
- Monitor	2	NPort 5110A	192.168.127.253	1	COM8 (Group)	Hi-Performance, FIFO En		
Port Monitor	3	NPort 5110A	192.168.127.252	1	COM8 (Group)	Hi-Performance, FIFO En		
COM Mapping	4	NPort 5210A	192.168.127.250	1	COM6	Hi-Performance, FIFO En		
COM Mapping	5	NPort 5210A	192.168.127.250	2	COM7	Hi-Performance, FIFO En		



### **Modify Ports in a COM Group**

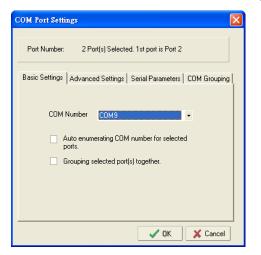
In the following subsections we examine three ways in which the serial ports in a COM Group can be modified:

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

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

🐞 NPort Administrator-CC	🗞 NPort Administrator-COM Mapping									
<u>File Function</u> COM Mapping <u>View</u> <u>H</u> elp										
Exit Add Remove Apply Configure										
Function				COM Mappin	ng - 3 C	юм				
	No 🛆	Model	1	P Address	Port	COM Port	Mode			
Configuration	1	NPort 5150A	1	92.168.127.254	1	COM4	Hi-Performance, FIFO En			
Monitor	2	NPort 5110A	1	92.168.127.253	1	COM8 (Group)	Hi-Performance, FIFO En			
Port Monitor	3	NPort 5110A	- 1	92 168 127 252	1	COM8 (Group)	Hi-Performance, FIFO Er			
K COM Mapping			2	<u>A</u> dd Target						
COM Mapping			~	<u>R</u> emove Target						
				<u>E</u> nable						
				Disable						
			đ	<u>C</u> OM Settings						
			H	Apply Change						
				Discard Change						

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



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

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

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

🐝 NPort Administrator-COM Mapping									
<u> </u>	<u>File Function COM Mapping View H</u> elp								
Exit Add Remove Apply Configure									
Function				COM Mappir	ng - 3 C	ом			
	No	Δ	Model	IP Address	Port	COM Port	Mode		
Configuration	1		NPort 5150A	192.168.127.254	1	COM4	Hi-Performance, FIFO Ena		
Monitor	2		NPort 5110A	192.168.127.253	1	COM9 (Group)	Hi-Performance, FIFO Ena		
🔤 Port Monitor	3	NPort 5110A 192.168.127.252 1 COM9 (Group) Hi-Performance, FIFO Ena							
COM Mapping									
COM Mapping									

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



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

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

COM Port Settings						×				
Port Number: 2 Port(s) Selected. 1st port is Port 2										
Basic Settings Adva Serial ports:	nced Settings	Serial Par	ameters	COM C	ârouping					
IP Address	Port Read	Write	Signal	Status						
IP Address         Port         Read         Write         Signal Status           192.168.127.253         1         Image: Comparison of the status         Image: Comparison of the status           192.168.127.252         1         Image: Comparison of the status         Image: Comparison of the status										
			ОК	×	Cancel	J				

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

🔹 NPort Administrator-COM Mapping											
<u>File</u> Function COM Mappir	<u>File Function COM Mapping View Help</u>										
Exit Add Remove Apply Configure											
Function COM Mapping - 3 COM											
⊡- 🔊 NPort	No 🛆	Model		IP Address	Port	COM Port	Mode				
Configuration	1	NPort 5150A		192.168.127.254	1	COM4	Hi-Performance, FIFO Ena				
- Monitor	2	NPort 5110A		192.168.127.253	1	COM8 (Group)	Hi-Performance, FIFO Ena				
Port Monitor	3	NPort 5110A	2	Add Target		COM8 (Group)	Hi-Performance, FIFO Ena				
COM Mapping			~	<u>R</u> emove Target							
				Enable							
			-	<u>D</u> isable							
			ð	<u>C</u> OM Settings							
				Apply Change							
				D <u>i</u> scard Change							

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

COM Port Settings		)M Port Settings			
·	s) Selected. 1st port is Port 2	Port Number: 1 Port(s) S Basic Settings Advanced Set	elected. 1st po tings Serial P.		Grouping
Tx Mode	Hi-Performance 🔹	Baud Rate	9600	•	
FIFO	Enable 🔹	Parity	None	-	
Network Timeset	(500 20000 mm)	Data Bits	8	-	
Network Timeout	5000 (500-20000 ms)	Stop Bits	1	•	
East flush (only	flush local buffer)	Flow Control	None	-	
Apply all select	ed ports	Apply all selected	ports		
	🗸 OK 🔀 Cancel			🖊 ок 🛛 🗙	Cancel

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

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

🔹 NPort Administrator-COM Mapping										
Eile <u>F</u> unction COM Mapping <u>V</u> iew <u>H</u> elp										
Exit Add Remove Apply Configure										
Function	Function COM Mapping - 3 COM									
	No 🛆	Model	IP	Address	Port	COM Port	Mode			
1 Configuration	1	NPort 5150A	19	2.168.127.254	1	COM4	Hi-Performance, FIFO Ena			
Monitor	2	NPort 5110A	19	2.168.127.253	1	COM8 (Group)	Hi-Performance, FIFO Ena			
- 🖾 Port Monitor	3	NPort 5110A	2	Add Target		COM8 (Group)	Hi-Performance, FIFO Ena			
COM Mapping				<u>R</u> emove Target						
· · ·				Enable						
				<u>D</u> isable						
			8	<u>C</u> OM Settings						
			H	Apply Change						
				Discard Change						

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

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

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

COM Port Settings					×				
Port Number: 1	Port(s) Select	ed. 1st port i	is Port 2						
Basic Settings Adva	inced Settings	Serial Para	ameters	COM Group	bing				
IP Address	Port Read	Write	Signal	Status	1				
192.168.127.253	1 🔽		r ₹						
OK X Cancel									

# **IP Address Report**

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

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

Configuration				×
Information Model Name NPort 5250A MAC Address	Basic N	Auto Warning etwork	IP Address Re Serial	eport Password Operating Mode
00:90:E8:66:32:52	IP Address	192.168.12	27.254	
Serial Number 52	Netmask Gateway	255.255.25	5.0	
Firmware Version Ver 1.0	IP Configuration DNS Server 1	DHCP	•	
System Uptime 0 days, 00h:34m:02s	DNS Server 2			
	Community Name	Enable SNI	MP	
	Contact			
Clie	ck the "Modify" check box	to modify config	uration	OK X Cancel

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

🗞 NPort Administrator-IP Address Report									
<u>File</u> <u>F</u> unction <u>I</u> PAddress Report <u>V</u> iew <u>H</u> elp									
Exit Settings Go	Stop								
Function		IP	Add	ress Repor	t - Stop	oped - Port:40	02 - 0		
□ NPort	No 🛆	Model		MAC Addre	ss	IP Address	Count	Previous Time	
Configuration			S	Settings					
Port Monitor			•	<u>G</u> o					
COM Mapping				Stop					
				<u>C</u> lear					

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

IP I	ocation Settings		
	Local UDP Listen Port	4002	
		🗸 ОК	🗙 Cancel

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

🐝 NPort Administrator-IP Address Report									
Eile Eunction IP Address Report View Help									
Exit Settings Go Stop									
Function		IP Addre	ess Report - Sto	pped - Port:40	02 - 0				
⊡ 🔊 NPort	No 🛆	Model	MAC Address	IP Address	Count	Previous Time			
Configuration									
Monitor		P	Settings						
COM Mapping			<u>G</u> o						
W IF Address Report			Stop						
			Clear						

# **NPort CE Driver Manager for Windows CE**

NPort CE Driver Manager for Windows CE applies to the **NPort 5000 and NPort IA5000 Series** only.

The following topics are covered in this chapter:

- Overview
- Installing NPort CE Driver Manager
- **Using NPort CE Driver Manager**

### Overview



#### ATTENTION

Before installing and the configuring the NPort Administration suite, make sure your user privilege is set as system administrator.

## **Installing NPort CE Driver Manager**

- 1. Copy "NPortCab.cab" to Windows CE and start to install driver by double clicking on it.
- 2. Click on "OK" to complete the installation when the following screen appears.

Install Default Company Name NP	🗈 💣 🧱 🗰 ? ОК 🗵
🔍 \Program Files	
Command Prompt	
Name: NPortCab Type:	V

3. Driver installation is now complete and the "NPortCab.cab" icon disappears from the screen. This is normal when installing drivers in Windows CE.

### **Using NPort CE Driver Manager**

After you install NPort CE Driver Manager, you can set up the NPort's serial ports as remote COM ports for your Windows CE. Make sure that the serial port(s) on your NPort are set to Real COM mode when mapping COM ports with NPort CE Driver Manager.

1. Go to Start → Programs → NPort CE Driver Manager.

NPort CE D	OK ×							
COM Setting COM Mapping About								
СОМ	IP Addr	Data/Cmd	Delete All					
Settings — Tx Mode	,	] Save	]					
0 COM port	(s) was found.	]						

2. Click on the **COM Mapping** page and then the "Search" button to scan for NPort servers

NPort CE Drive	ок 🗙		
COM Setting C			
Model	IP Addr	Ports	Search
NPort 5110	192.168.127.254	1	Stop
			Modify IP
			Search
ΓPort Index		· · · · ·	Completed.
	Add		

- 3. All NPort servers that were located will appear in the NPort CE Driver Manager window. Click on the server whose COM ports you would like to map to and then select the port index. Note that multiple selections are allowed.
- 4. Select the port(s) at the Port Index and then click on the "Add" button to map to the COM Port(s).

NPort CE Drive	ок 🗙		
COM Setting	OM Mapping Abo	out	
Model NPort 5110	IP Addr 192.168.127.254	Ports 1	Search Stop
Port Index —			Modify IP Search Completed.
Port1 (950/9			
NPort 5110 (192	.168.127.254) is sele	ected.	

5. Return to the COM Setting page. You should be able to see the newly mapped COM Port(s).

NPort CE D		ок 🗙							
COM Setting COM Mapping About									
СОМ	IP Addr	Data/Cmd		Delete All					
COM2	192.168.127.254	950/966		Delete					
[Settings —									
T× Mod	e 📃 💌	Save							
FIFO		]							
1 COM port	(s) was found.								

6. To configure the settings for a particular COM Port, select the row of the desired port, and then modify the setting in the "Settings" panel, as shown below.

NPort CE [	ок 🗙		
COM Settin	G COM Mapping	About	
COM COM2	IP Addr 192.168.127.254	Data/Cmd 950/966	Delete All Delete
Settings —			-
Tx Mod FIFO	Enable	• Save	
COM2 is sel	ected.		

#### Tx Mode

"Hi-Performance" is the default for Tx mode. After the driver sends data to the NPort server, the driver immediately issues a "Tx Empty" response to the program. Under "Classical mode," the driver will not send the "Tx Empty" response until after confirmation is received from the NPort server's serial port. This causes lower throughput. Classical mode is recommended if you want to ensure that all data is sent out before further processing.

#### FIFO

If FIFO is disabled, the NPort server will transmit 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.

# 7 IP Serial LIB

The following topics are covered in this chapter:

#### Overview

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

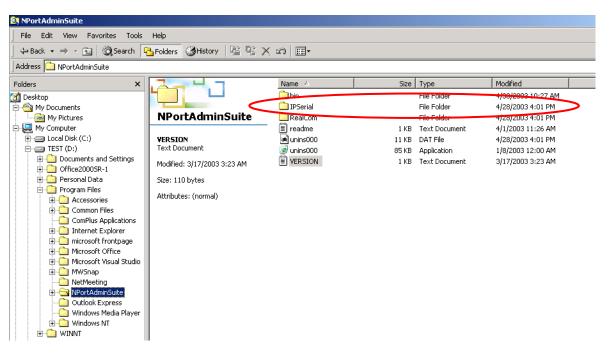
For programmers familiar with serial communication, IP Serial Library provides well-designed function calls that have the same style as Moxa's PComm Library.

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

The NPort serial device server uses 2 TCP ports for communication between the NPort and host computer's Real COM driver. The 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 the NPort from the user's program. IP Serial Library not only runs with excellent efficiency but also runs without any decode or encode problems.

### How to Install IP Serial Library

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



# **IP Serial LIB Function Groups**

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

### **Example Program**

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

# **Introduction to LCM Display**

Typically, you will use either NPort Administrator or the web console to configure the **NPort 5600-8-DT series**, **NPort 5600 series (standard temperature models) and NPort 5410/5430 series (standard temperature models)**. These are not the only options for configuration. For basic onsite configuration, you can use the LCM console built into the device server, without requiring a connection to the network or a laptop.

In this chapter, we will introduce the basic operation and menu options of LCM display.

The following topics are covered in this chapter:

- Basic Operation
- Detailed Menu Options

# **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 to green, you will see a display similar to:

N	P	5	4	1	0	_	6	1	4	0	5				
1	9	2		1	6	8		1	2	7		2	5	4	

This is where

- NP5410 is the NPort's name
- 61405 is the NPort's serial number
- 192.168.127.254 is the NPort's IP address

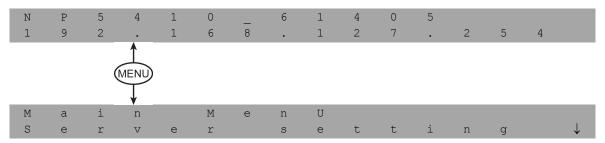
There are four push buttons on the NPort's nameplate. Going from left to right, the buttons are:

Button	Name	Action
menu	menu	activates the main menu, or returns to a lower 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

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 which is activated by pressing the SEL button.

# **Detailed Menu Options**

The best way to explain all of the NPort's LCM functions is to refer to the tree graph shown in 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, △ and ▽, 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 does not change; only that you cannot change it)

Main Menu									
	Server setting	Serial number				D			
		Server name				С			
		Firmware ver				D			
		Model name				D			
	Network	Ethernet status							
	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				С			
		Baudrate				С			
		Data bit				С			
		Stop bit				С			
		Parity				С			
		Flow control				С			
		Tx/Rx fifo				С			
		Interface				С			
		Tx/Rx bytes				D			
		Line status				D			
	Op Mode set	Select port				С			
		Select mode				С			
		[mode]		1	1				
		Real COM	TCP server	TCP client	UDP svr/cli				
		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	С			
			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	С			
					Local port	С			
	Console	Web console				С			
		Telnet console				С			
	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 ( $\bigtriangledown$ ) 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 the NPort's 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 PORT SETTING 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.

P	а	r	i	t	Y
N	0	n	е		

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

P	а	r	i	t	Y
$\cap$	d	d			

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

P	а	r	i	t	Y	$\uparrow$	
E	v	е	n			$\downarrow$ .	

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

Y

P	а	r	i	t	
М	а	r	k		

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

P	а	r	i	t	Y	1
S	р	а	С	Ε		

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

A

# **Pinouts and Cable Wiring**

The following topics are covered in this appendix:

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

- > Ethernet Port Pinouts
- Serial Port Pinouts

#### Cable Wiring Diagrams

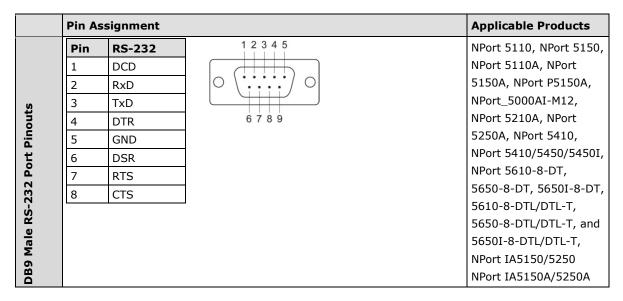
- > Ethernet Cables
- Serial Cables

# **Port Pinout Diagrams**

### **Ethernet Port Pinouts**

Ethern	Ethernet RJ45						Ethernet M12 (For NPort 5000AI-M12 only)				
Pin	Signal			]	Ethern	net M12:					
1	Tx+				PIN	ТХ					
2	Tx-										
3	Rx+				1	TD+	2	3			
6	Rx-			1	2	RD+	- (10				
					3	TD-	10	• 4			
					4	RD-					
					Housin	g: shield					
					Power	r M12:					
					3	2	PIN	Description			
					(-	•))	1	Input V+			
					((.	1.5/	2	Not assigned			
					4	1	3	Input V-			
						1 .	4	Not assigned			
						5	5	Function ground			

### **Serial Port Pinouts**



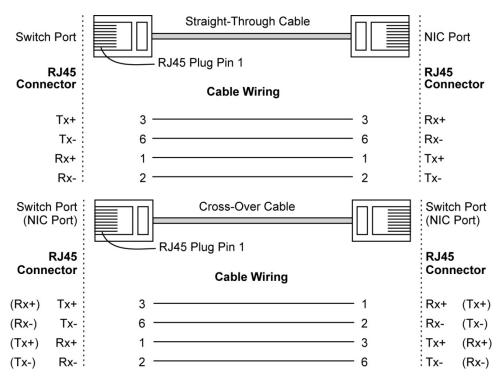
	Pin	RS-422 / 4-w	ire 🛛	2-wire RS-4	85	12345	NPort 5130, NPort 5150,
Ś		RS-485					NPort 5130A, NPort
out	1	TxD-(A)	-	_		$(\cdots)$	5150A, NPort P5150A,
Pin	2	TxD+(B)		_			NPort_5000AI-M12,
ť	3	RxD+(B)		Data+(B)		6789	NPort 5250A, NPort
Po	4	RxD-(A)		Data-(A)			5450/5450I, 5650-8-DT,
485	5	GND		GND			5650I-8-DT,
5/1	6	-		_			5650-8-DTL/DTL-T, and
-42	7	_	-	_			5650I-8-DTL/DTL-T,
RS	8	_	-	_			NPort IA5150/5250,
DB9 Male RS-422/485 Port Pinouts	Note: signa		5150A	Series's DB	9 ports only	r support RS-232	NPort IA5250A
	Pin	RS-232					NPort 5210/5210I, NPort
ť	1	DSR			8		5610-8-DT-J, NPort
Po	2	RTS					5610, NPort 5650-8-DT-J
8-pin RJ45 RS-232 Port Pinouts	3	GND					
-S	4	TxD					
ŝ	5	RxD					
R 3	6	DCD					
8-pin R. Pinouts	7	CTS					
8-p Pin	8	DTR					
ų	Pin	RS-422		2-wire			NPort 5630
Pot	Pin	4-wire RS-4	485	RS-485			
85	1						
4/4	2						
422	3	TxD+					
ŝ	4	TxD-					
S.	5	RxD-		Data-			
RJ4	6	RxD+		Data+			
-pin RJ45 RS-422/485 Port 'inouts	7	GND		GND			
8-p Pin	8						
8-pin RJ45 RS-232/422/ 485 Port Pinouts	Pin	RS-232	RS-4 4-wi	122 ire RS-485	2-wire RS-485		NPort 5650, NPort 5650-8-DT-J
22	1	DSR					
2/4	2	RTS	TxD+	F			
23.	3	GND	GND		GND		
-SR-	4	TxD	TxD-				
8-pin RJ45 R Port Pinouts	5	RxD	RxD+	ł	Data+		
RJ4 ino	6	DCD	RxD-		Data-		
r P	7	CTS					
<u>+</u> 5	8	DTR					

Terminal Block RS-232 & RS-422/485 Pinouts	Serial Device Signals     NPo       RxD     I       TxD     I       TxD     I       CTS     I       GND     I       Rx+     I       Rx-     I       Tx+ / Data+     I       GND     I       GND     I	Tx Rx P1 Rx P1 RTS 85-233 GND T+ T- R*S-48554 R+/D+ 422 GND GND T+ T- RS 48554 222 GND T+ T- RS 48554 222 GND T+ T- RS 48554 222 GND T+ T- RS 48554 222 GND T+ T- RS 48554 222 CTS 22 CTS 22	NPort 5230
Terminal Block RS-422/ 485 Port Pinouts	Pin       2-wire       RS-485         1       -         2       -         3       Data+(B)         4       Data-(A)         5       GND	<b>RS-422, 4-wire RS-485</b> TxD+(B)         TxD-(A)         RxD+(B)         RxD-(A)         GND	NPort 5230A, NPort IA5150, NPort IA5150A
Terminal Block RS-422/485 Pinouts	Serial Device NPort 5430/ Signals Terminal E Rx+ I S Rx- I S Tx+ / Data+ I Z GND I D		NPort 5430/5430I
Console Port Pinouts	<b>RJ45 Connector</b>	Pin         RS-232           1         DSR           2         RTS           3         GND           4         TxD           5         RxD           6         DCD           7         CTS           8         DTR	Applies only to DT models.

Power Input and Relay	ts	0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	۲۲٫ ۲٫ ۲ ۲ ۵ 0 0	o -1/1-					NPort IA5150/5250
put	Output Pinouts	<i>i</i> hi	V2+	V2-	Г	t 🗋	V1+	V1-	
r In	it Pi	Shielded	DC	DC	Relay	Relay	DC	DC	
Ne	tpu	Ground	Power	Power	output	output	Power	Power	
Po	on		input 1	input 1			input 2	input 2	
Power Input and Relay Output									NPort IA5000A
nduI .	S	Ŧ	PWR	1	PWR2	RELA	AY .		
ver	Pinouts	Shielded	DC P	ower	DC Power	Norm	nal Open/C	lose, Relay	
Ρο	Pin	Ground	Input		Input	outpu	ut		

# **Cable Wiring Diagrams**

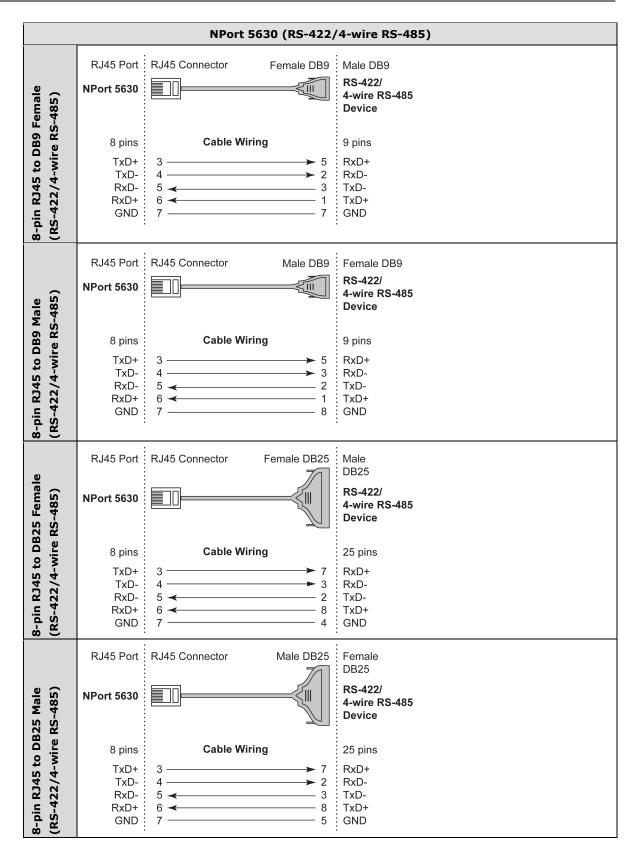
### **Ethernet Cables**



### **Serial Cables**

	Serial Cat	ole Wiring Diagrams		
	Male DB9	Female DB9	/lale DB9	Female DB9
(RS-232)	NPort			RS-232 Device
DB9	9 pins	Cable Wiring		9 pins
Female DB9 to Male	DCD RxD TxD DTR GND DSR RTS CTS	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{c} 2 \\ \hline 3 \\ \hline 4 \\ \hline 5 \\ \hline 6 \\ \hline 7 \end{array}$	DCD TxD RxD DSR GND DTR CTS RTS
2	Male DB9	Female DB9 M	ale DB25	Female DB25
25 (RS-232)	NPort			RS-232 Device
DB	9 pins	Cable Wiring		25 pins
Female DB9 to Male DB25	DCD RxD TxD DTR GND DSR RTS CTS	1	$\begin{array}{c} 3 \\ \hline 2 \\ \hline 20 \\ \hline 7 \\ \hline 6 \\ \hline 4 \end{array}$	DCD TxD RxD DSR GND DTR CTS RTS

		NPort 5210, NPort 5610/56	50 (RS-232)
32)	RJ45 Port	RJ45 Connector Female DB9	Male DB9
8-pin RJ45 to DB9 Female (RS-232)	NPort		RS-232
e (R			Device
nalo	8 pins	Cable Wiring	9 pins
Fei	DSR	1 🗲 4	DTR
089	RTS	2	CTS
to 🗆	GND TxD	$3 \xrightarrow{5} 4 \xrightarrow{5} 2$	GND RxD
45	RxD	5 \prec 3	TxD
R	DCD	6 ৰ 1	DCD
-pir	CTS DTR	$\begin{array}{c} 7 \\ 8 \end{array} \xrightarrow{} 7 \\ 6 \end{array}$	RTS DSR
	RJ45 Port		Female DB9
32)	NJ45 FUIL		RS-232
S-2	NPort		Device
8-pin RJ45 to DB9 Male (RS-232)	8 pins	Cable Wiring	9 pins
Mal	DSR	1 - 6	DTR
<b>B</b> B9	RTS	2 ── 7	CTS
요	GND	3  5 4  3	GND
45 +	TxD RxD	$\begin{array}{c} 4 \\ \hline & & \\ 5 \\ \hline & \\ \end{array} \begin{array}{c} \end{array} $	RxD TxD
ß	DCD	6 - 1	DCD
-pin	CTS	$7 \stackrel{1}{\checkmark} 8$ $8 \stackrel{1}{\longrightarrow} 4$	RTS
ö	DTR	8 4	DSR
	RJ45 Port	RJ45 Connector Female DB25	Male
32		7	DB25
C-S	NPort		RS-232
le (F			Device
Female (RS-232)	8 pins	Cable Wiring	25 pins
ы	DSR		DTR
082	RTS GND	2	CTS GND
to 🗆	TxD	4 ─── > 3	RxD
45 +	RxD	5 - 2	TxD
2	DCD CTS	$\begin{array}{c} 6 \checkmark \\ 7 \checkmark \\ 4 \end{array}$	DCD RTS
8-pin RJ45 to DB2	DTR		DSR
¢.			
	RJ45 Port	RJ45 Connector Male DB25	Female
(7		7	DB25
-23	NPort		RS-232
(RS			Device
8-pin RJ45 to DB25 Male (RS-232)	8 pins	Cable Wiring	25 pins
22	DSR	$1 \longleftarrow 6$	DTR
DB2	RTS GND	3 7	CTS GND
to	TxD	4 ─── 2	RxD
145	RxD	5 - 3	TxD
R	DCD CTS	6 <b>←</b> 8 7 <b>←</b> 5	DCD RTS
s-pii	DTR	8 → 20	DSR
8			



#### A-8

		NPort 5630 (2-w	ire RS-485)
8-pin RJ45 to DB9 Female (2-wire RS-485)	RJ45 Port NPort 5630	RJ45 Connector Female DB9	Male DB9 2-wire RS-485 Device
8-pin RJ45 to DF (2-wire RS-485)	8 pins Data- Data+ GND	Cable Wiring $5 \leftarrow$	9 pins Data- Data+ GND
b DB9 Male 85)	RJ45 Port <b>NPort 5630</b>	RJ45 Connector Female DB9	Male DB9 2-wire RS-485 Device
8-pin RJ45 to DB9 Male (2-wire RS-485)	8 pins Data- Data+ GND	Cable Wiring       5     → 3       6     → 1       7     7	9 pins Data- Data+ GND
8-pin RJ45 to DB25 Female (2-wire RS-485)	RJ45 Port NPort 5630	RJ45 Connector Female DB25	Male DB25 2-wire RS-485 Device
8-pin RJ45 to DF (2-wire RS-485)	8 pins Data- Data+ GND	Cable Wiring $5 \leftarrow 2$ $6 \leftarrow 8$ $7 \leftarrow 4$	25 pins Data- Data+ GND
DB25 Male 35)	RJ45 Port NPort 5630	RJ45 Connector Male DB25	Female DB25 2-wire RS-485 Device
8-pin RJ45 to DB25 (2-wire RS-485)	8 pins Data- Data+ GND	Cable Wiring $5 \iff 3$ $6 \iff 8$ $7 = 5$	25 pins Data- Data+ GND

		NPort 5650 (RS-422/	/4-wire RS-485)
Female S-485)	RJ45 Port NPort 5650	RJ45 Connector Female DB9	Male DB9 RS-422/ 4-wire RS-485 Device
8-pin RJ45 to DB9 Female (RS-422/4-wire RS-485)	8 pins TxD+ GND TxD- RxD+ RxD-	5 \prec 3	9 pins RxD+ GND RxD- TxD+ TxD-
9 Male RS-485)	RJ45 Port NPort 5650	RJ45 Connector Male DB9	Female DB9 RS-422/ 4-wire RS-485 Device
8-pin RJ45 to DB9 Male (RS-422/4-wire RS-485)	8 pins TxD+ GND TxD- RxD+ RxD-	$2 \longrightarrow 7$ $3 \longrightarrow 5$ $4 \longrightarrow 3$ $5 \longleftarrow 2$	9 pins RxD+ GND RxD- TxD+ TxD-
25 Female RS-485)	RJ45 Port NPort 5650	RJ45 Connector Female DB25	Male DB25 RS-422/ 4-wire RS-485 Device
8-pin RJ45 to DB25 Female (RS-422/4-wire RS-485)	8 pins TxD+ GND TxD- RxD+ RxD-	Cable Wiring2 $5$ 37435268	25 pins RxD+ GND RxD- TxD+ TxD-
25 Male RS-485)	RJ45 Port NPort 5650	RJ45 Connector Male DB25	Female DB25 RS-422/ 4-wire RS-485 Device
8-pin RJ45 to DB25 Male (RS-422/4-wire RS-485)	8 pins TxD+ GND TxD- RxD+ RxD-	Cable Wiring2 $\rightarrow$ 4374 $\rightarrow$ 25 $\rightarrow$ 368	25 pins RxD+ GND RxD- TxD+ TxD-

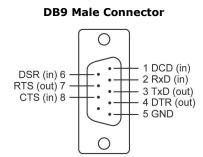
		NPort 5650 (2-w	ire RS-485)
8-pin RJ45 to DB9 Female (2-wire RS-485)		Cable Wiring $3 \xrightarrow{5} 5 \xrightarrow{5} 3$	Male DB9 2-wire RS-485 Device 9 pins GND Data+ Data-
8-pin RJ45 to DB9 Male 8 (2-wire RS-485) ((		RJ45 Connector Male DB9 Cable Wiring	Female DB9 2-wire RS-485 Device 9 pins GND Data+ Data-
8-pin RJ45 to DB25 Female (2-wire RS-485)	RJ45 Port NPort 5650 8 pins GND Data+ Data-	RJ45 Connector Female DB25 Cable Wiring	Male DB25 <b>2-wire RS-485</b> <b>Device</b> 25 pins GND Data+ Data-
8-pin RJ45 to DB25 Male 8 (2-wire RS-485) (	RJ45 Port NPort 5650 8 pins GND Data+ Data-	RJ45 Connector Male DB25 Cable Wiring 3 5 6 7 3 6 8	Female DB25 <b>2-wire RS-485</b> <b>Device</b> 25 pins GND Data+ Data-

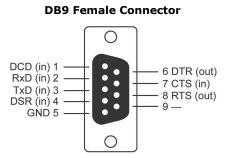
	Serial C	able W	iring Diag	rams				
	NPort							Serial Device
		RJ45	DB9(F)		DB9(M)	DB25(M)	DB25(F)	
	DSR	1	6	◄	4	6	20	DTR
	RTS	2	7	$\longrightarrow$	8	4	5	CTS
	GND	3	5		5	7	7	GND
les	TxD	4	3		2	2	3	RxD
Cab	RxD	5	2	◄	3	3	2	TxD
RS-232 Cables	DCD	6	1	◄	1	8	8	DCD
-23	CTS	7	8	◄	7	5	4	RTS
RS	DTR	8	4	$\longrightarrow$	6	20	6	DSR
RS-422, 4-wire RS-485 Cables	NPort							Serial Device
8		RJ45	DB9(F)		DB9(M)	DB25(M)	DB25(F)	
/ire	TxD+	2	2	$\longrightarrow$	3	3	2	RxD+
4	GND	3	5		5	7	7	GND
s S	TxD-	4	1		1	8	8	RxD-
RS-422 Cables	RxD+	5	3	•	2	2	3	TxD+
	RxD-	6	4	←	6	20	6	TxD-
2-wire RS-485 Cables	NPort							Serial Device
4-0		RJ45	DB9(F)		DB9(M)	DB25(M)	DB25(F)	
S R S	GND	3	5		5	7	7	GND
vire	Data+	5	3	$\longleftrightarrow$	2	2	3	Data+
2-4	Data-	6	4	$\longleftrightarrow$	6	20	6	Data-

# Cable Wiring for NPort 5600-8-DT/DTL Series

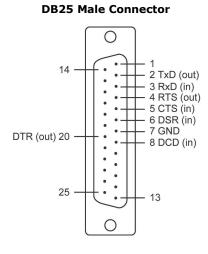
# **Pin Assignments for DB9 and DB25 Connectors**

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

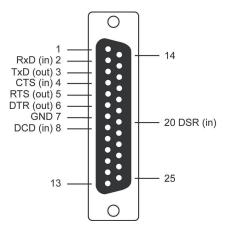




### Pin Assignments for DB25 Male and Female Connectors



**DB25 Female Connector** 



# Adjustable Pull High/low Resistors for the RS-485 Port

In some critical environments, you may need to add termination resistors to prevent the reflection of serial signals. When using termination resistors, it is important to set the pull high/low resistors correctly so that the electrical signal is not corrupted. Since there is no resistor value that works for every environment, DIP switches or Jumpers are used to set the pull high/low resistor values for each RS-485 port.



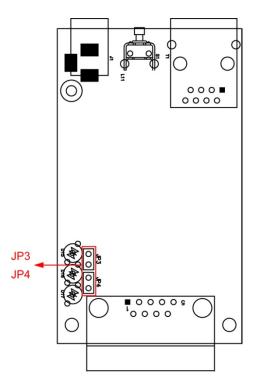
### ATTENTION

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

### NPort 5130/5150 Series (Jumpers)

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

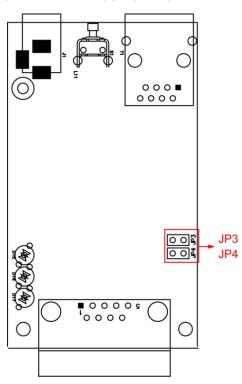
To set a termination resistor to 1 k $\Omega$ , make sure that the two jumpers (JP3 and JP4) assigned to the serial port are shorted by jumper caps.



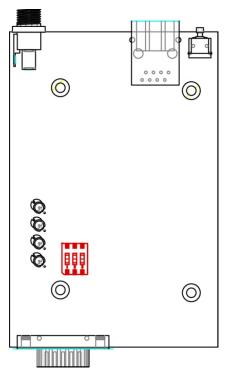
### NPort 5130A/5150A (Jumpers)

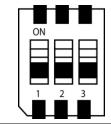
To set a pull high/low resistor to 150 k $\Omega$ , make sure that the two jumpers (JP3 and JP4) assigned to the serial port are not shorted by jumper caps. This is the default setting.

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



NPort P5150A (DIP Switches)





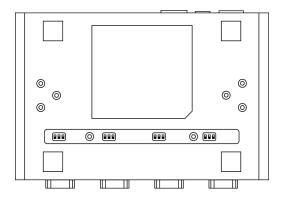
SW	1	2	3
	Pull-high	Pull-low	Terminator
	resistor	resistor	
ON	1 kΩ	1 kΩ	120 Ω
OFF	150 kΩ*	150 kΩ*	_*

\* Default

### NPort 5400 Series (DIP Switches)

To set the pull high/low resistors to 150 K $\Omega$ , make sure both of the assigned DIP switches are in the OFF position. This is the default setting.

To set the pull high/low resistors to 1 K $\Omega$ , make sure both of the assigned DIP switches are in the ON position.



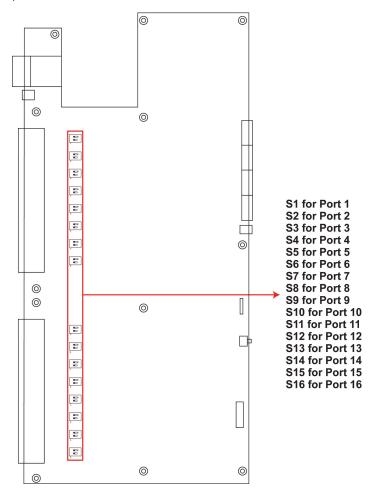
#### Pull high/low resistors for the RS-485 Port

	SW	1	2	3
	500	Pull High	Pull Low	Terminator
	ON	1 KΩ	1 ΚΩ	120 Ω
Default	OFF	150 KΩ	150 KΩ	

### NPort 5650 Series (DIP Switches)

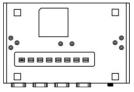
To set the pull high/low resistors to 150 K $\Omega$ , make sure both of the assigned DIP switches are in the OFF position. This is the default setting.

To set the pull high/low resistors to 1 K $\Omega$ , make sure both of the assigned DIP switches are in the ON position.

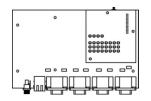


### NPort 5600-8-DT/DTL Series (DIP Switches)

**NPort 5600-8-DT:** Use the DIP switches on the bottom panel to configure each device port's pull high/low resistors. You will need to unscrew the DIP switch cover to access the DIP switches.



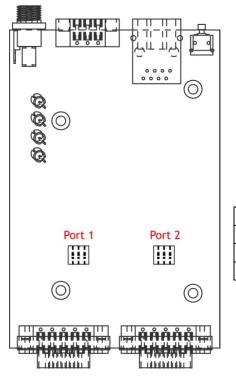
• **NPort 5600-8-DTL:** Remove the top cover to access the DIP switches used to configure each device port's pull high/low resistors (note that SW4 is reserved for future use).



The pull high/low resistor values for each device port are set as follows:

	SW	1	2	3
		Pull High	Pull Low	Terminator
	ON	1 ΚΩ	1 ΚΩ	120 Ω
Default	OFF	150 ΚΩ	150 ΚΩ	-

### NPort 5230A/5250A (DIP Switches)



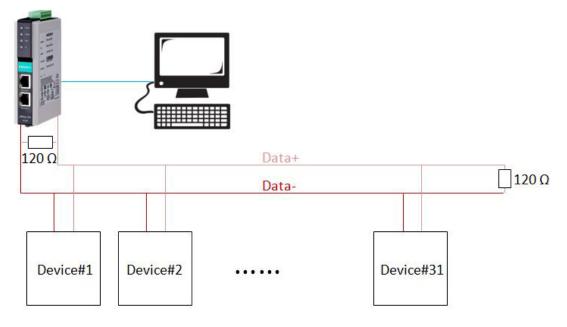
Γ	ON			
		$\square$	$\square$	
	1	2	3	
1				

SW	1	2	3		
	Pull-high resistor	Pull-low resistor	Terminator		
ON	1 ΚΩ	1 ΚΩ	120 Ω		
OFF	OFF 150 KΩ* 150 KΩ* -*				
* Default					

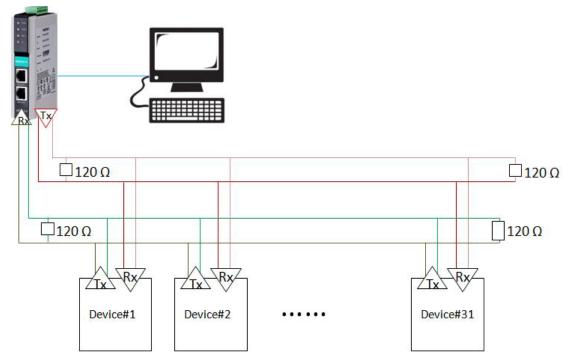
### NPort IA5000 Series

When setting up your RS-485 and RS-422 networks, you should use termination resistors to prevent signal reflections. The NPort IA5000 Series does not come with pull high/low resistors and terminators, so you will need to obtain and configure the termination yourself. The following figures illustrate how to properly configure termination for a 2-wire RS-422/RS485 network, and a 4-wire RS485 network. You will usually only need to install termination resistors (typically 120  $\Omega$ ) on the first and last devices on your network.

#### Setting up terminators for a 2-wire RS422/RS485 network

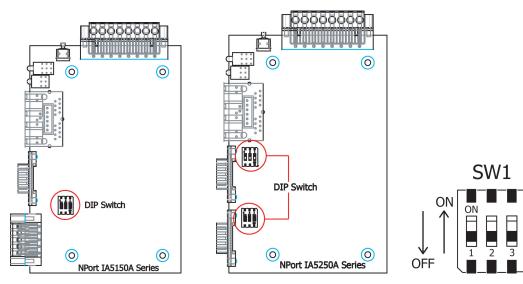


#### Setting up terminators for a 4-wire RS485 network



### NPort IA5000A Series (DIP Switches)

The DIP switches are located on the PCB board; you will need to take off the covers to access them. To set the pull-high resistor to 150 K $\Omega$ , flip DIP1 to "OFF," and then set the pull-low resistor to 150 K $\Omega$ , and then flip DIP2 to "OFF." To set the pull-high resistor to 1 K $\Omega$ , flip DIP1 to "ON," and then set the pull-low resistor to 1 K $\Omega$ , and then flip DIP2 to "ON." Make sure that DIP3 is "ON" to enable the 120 $\Omega$  terminator. The default settings for the pull-high and pull-low resistors, and the terminators are all at "OFF."



# **Well-Known Port Numbers**

In this appendix, which is included for your reference, we provide a list of well-known port numbers that may cause network problems if you set the NPort 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 <a href="http://www.iana.org/assignments/port-numbers">http://www.iana.org/assignments/port-numbers</a>.

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)
43	Whois (nickname)
49	(Login Host Protocol) (Login)
53	Domain Name Server (domain)
79	Finger protocol (Finger)
80	World Wide Web HTTP
119	Network news Transfer Protocol (NNTP)
123	Network Time Protocol
213	IPX
160 - 223	Reserved for future use

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

D

# SNMP Agents with MIB II & RS-232/422/485 Link Groups

The NPort has built-in SNMP (Simple Network Management Protocol) agent software. It supports SNMP Trap, RFC1317 RS-232 like group and RFC 1213 MIB-II. The following table lists the standard MIB-II group, as well as the variable implementation for the NPort device server.

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

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

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

### RFC1317: RS-232 MIB objects

Generic RS-232-like Group	RS-232-like General Port	RS-232-like Asynchronous Port
Generic KS-252-like Group	Table	Group
rs232Number	rs232PortTable	rs232AsyncPortTable
	rs232PortEntry	rs232AsyncPortEntry
	rs232PortIndex	rs232AsyncPortIndex
	rs232PortType	rs232AsyncPortBits
	rs232PortInSigNumber	rs232AsyncPortStopBits
	rs232PortOutSigNumber	rs232AsyncPortParity
	rs232PortInSpeed	
	rs232PortOutSpeed	

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

# **Auto IP Report Protocol**

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

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

ΜΟΧΛ	www.moxa	.com
Main Menu	Network Settings	
Basic Settings	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	IP configuration	DHCP
🖲 🦲 Auto Warning Settings	DNS server 1	
Monitor     Change Password	DNS server 2	
Load Factory Default		SNMP Setting
Save/Restart	SNMP	⊙Enable ○Disable
	Community name	public
	Contact	
	Location	
		IP Address report
	Auto report to IP	192.168.2.149
(	Auto report to TCP port	4002
	Auto report period	10 seconds
		Submit

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.

### **Auto IP Report Format**

"Moxa", 4 bytesInfo[0]Info[1]Info[n]
--------------------------------------

### Info [n]

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

### ID List

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

# AP ID & Hardware ID Mapping Table

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

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

# AP ID & Hardware ID Mapping Table

# **Compliance Notice**



### **CE Warning**

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

### **Federal Communications Commission Statement**

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



### **FCC Warning**

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