NPort W2150A-W4/W2250A-W4 Series User Manual

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NPort W2150A-W4/W2250A-W4 Series User Manual

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Overview

In this chapter, we introduce the basic features and specifications of the NPort W2150A-W4/W2250A-W4 Series and NPort W2150A-W4/W2250A-W4 Series-T, referred to collectively as the NPort W2150A-W4/W2250A-W4 Series.

The NPort W2150A-W4/W2250A-W4 Series of wireless device servers are used to connect RS-232/422/485 serial devices or Ethernet devices, including PLCs, meters, and sensors, to a wireless LAN. Your communications software will access the serial devices or Ethernet devices from anywhere over a local LAN, WLAN, or the Internet. Moreover, the WLAN environment offers an excellent solution for applications in which the serial devices and Ethernet devices are moved frequently from place to place.

The NPort W2150A-W4/W2250A-W4 Series supports automatic IP configuration protocol (DHCP) and manual configuration using a standard web browser. Both IP configuration methods ensure quick and effective installation. In addition, a utility called "NPort Windows Driver Manager" makes port mapping easy.

The external antenna can be adjusted for maximum signal strength. You can also choose to use your own antenna for additional flexibility and scalability. A signal strength indicator on the front panel makes it easier for you to troubleshoot any connection problems.

The NPort W2150A-W4/W2250A-W4 Series offers different operation modes to ensure compatibility with standard network APIs, including TCP Server Mode, TCP Client Mode, and UDP Mode. Real COM/TTY drivers are provided to allow legacy serial-based software to communicate over an IP network instantly. This preserves your software investment while providing all the advantages of networking your serial devices.

For easier management, the NPort W2150A-W4/W2250A-W4 Series includes features such as password authentication, IP filtering, 64-bit and 128-bit WEP encryption, and SNMP support.

Package Checklist

Standard Accessories

- 1 NPort W2150A-W4 or NPort W2250A-W4 wireless device server
- 1 antenna 2.4/5 GHz: ANT-WDB-ASM-03 BK
- 100 to 240 VAC power adapter (excluding T models)*
- 1 Ethernet cable: CBL-RJ458P-100
- Quick installation guide (printed)
- Warranty card

NOTE

The package includes one power adapter suitable for your region.

NOTE

The operating temperature of the power adapter (included with the NPort W2150A-W4/W2250A-W4) is from 0 to 40°C (32 to 104°F). If your application is not in this range, please use a power adapter supplied according to the requirements below:

- The external power source must comply with UL listed, IEC 60950-1, or IEC/EN 62368-1
- Output complies to SELV/ES1, PS2/LPS; output rating 12 to 48 VDC, 0.455 A minimum
- A minimum ambient temperature of 55°C or 75°C. (55°C for the NPort W2150A-W4 and NPort W2250A-W4; 75°C for the NPort W2150A-W4-T and NPort W2250A-W4-T)

Optional Accessories

- DK35A: DIN-rail mounting kit (35 mm)
- Power-jack-to-terminal-block 12 cable (P/N: 919900000900)

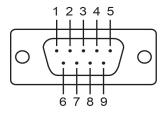
NOTE

Please notify your sales representative if any of the above items is missing or damaged.

Product Features

- Links serial and Ethernet devices to an IEEE 802.11a/b/g/n network
- Web-based configuration using built-in Ethernet or WLAN
- Secure boot for Moxa only authorized firmware allowed to run
- Remote configuration with HTTPS, SSH
- Secure data access with WEP, WPA, WPA2
- Fast roaming for quick automatic switching between access points
- Enhanced surge protection for serial, LAN, and power
- Offline port buffering and serial data log
- Dual power inputs (1 screw-type power jack, 1 terminal block)

Serial Port Pin Assignments

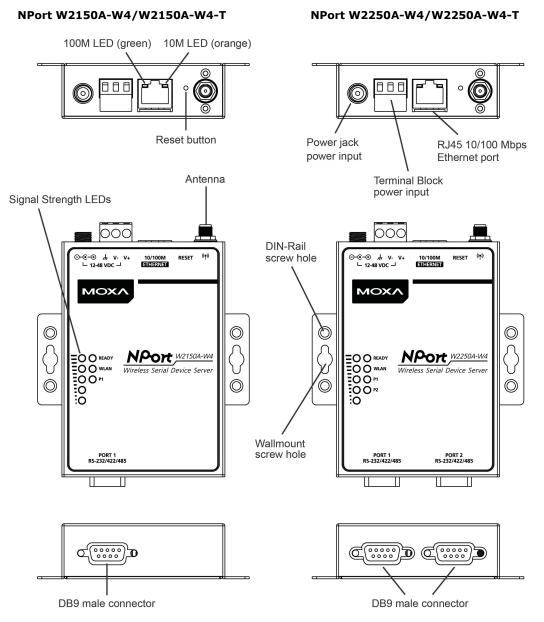


Pin	RS-232	RS-422/ RS-485 (4W)	RS-485 (2W)
1	DCD	TxD-(A)	-
2	RXD	TxD+(B)	-
3	TXD	RxD+(B)	Data+(B)
4	DTR	RxD-(A)	Data-(A)
5	GND	GND	GND
6	DSR	-	-
7	RTS	-	-
8	CTS	-	-
9	-	-	-

Overview

This chapter presents the hardware features of the NPort W2150-W4/W2250A-W4 Series and explains how to connect the hardware.

Panel Layout



LED Indicators

Top Panel LED Indicators

Name	Color	Function		
		Steady on: Power is on, and the NPort is booting up.		
	Red	Blinking: An IP conflict exists, or the DHCP server did not respond		
Deedu		properly.		
Ready	Green	Steady on: The NPort is functioning normally.		
	Green	Blinking: The unit is responding to Locate function.		
	Off	Power is off, or a power error condition exists.		
		Steady on: Wireless enabled		
WLAN	Green	Blinking: The NPort can't establish WLAN connection with AP		
		(Infrastructure)		
	Off	Wireless not enabled.		
Port 1	Orange	Serial port is receiving data.		
Port 2	Green	Serial port is transmitting data.		
10102	Off	No data is flowing to or from the serial port.		
	Red	1 Red - the signal strength (RSSI) is worse than -88 dBm		
Signal Strength	Reu	2 Red - the signal strength (RSSI) is between -87 to -79 dBm		
(5 LEDS)		3 Green - the signal strength (RSSI) is between -78 to -68 dBm		
	Green	4 Green - the signal strength (RSSI) is between -67 to -60 dBm		
		5 Green - the signal strength (RSSI) is between -59 to -45 dBm		

End Panel LED Indicators

Name	Color	Function
	Orange	10 Mbps Ethernet connection
Ethernet	Green	100 Mbps Ethernet connection
	Off	Ethernet cable is disconnected

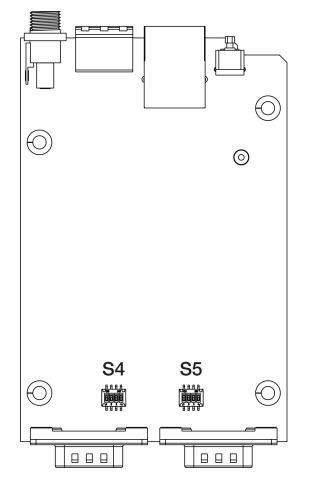
Pull High/Low Resistors for RS-422/485

You may need to set the pull high/low resistors when termination resistors are used for certain RS-422 or RS-485 environments.

S4 (Port 1)	DIP 1	DIP 2	DIP 3	DIP 4
S5 (Port 2)	Pull high resistor	Pull low resistor	Termination resistor	Reserved
ON	1 KΩ	1 KΩ	120 Ω	-
OFF	*150 KΩ	*150 KΩ	*N/A	-

*Default

S5 is for NPort W2250A-W4 only



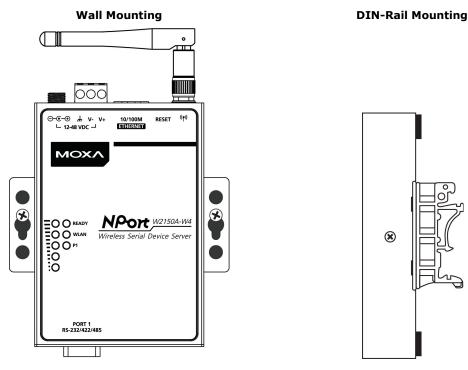


ATTENTION

Do not use the 1 K Ω setting while in RS-232 mode. Doing so will degrade the RS-232 signals and reduce the effective communication distance.

Placement Options

The NPort can be placed on a desktop or other horizontal surface. You can also install the NPort on a DINrail or on the wall.



Connecting the Hardware



ATTENTION

Before connecting the hardware, follow these important wiring safety precautions:

Disconnect power source

Do not install or wire this unit or any attached devices with the power connected. Disconnect the power before installation by removing the power cord before installing and/or wiring your unit.

Follow maximum current ratings

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

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

Use caution - unit may get hot

The unit will generate heat during operation, and the casing may be too hot to touch. Take care when handling the unit. Be sure to leave adequate space for ventilation.

The following guidelines will help ensure trouble-free signal communication with the NPort.

- Use separate paths to route wiring for power and devices to avoid interference. Do not run signal or communication wiring and power wiring in the same wire conduit. The rule of thumb is that wiring that shares similar electrical characteristics can be bundled together.
- If power wiring and device wiring paths must cross, make sure the wires are perpendicular at the intersection point.
- Keep input wiring and output wiring separate.
- Label all wiring to each device in the system for easier testing and troubleshooting

Connecting to the Network

Use the supplied Ethernet cable to connect the NPort to your Ethernet network. If the cable is properly connected, the NPort will indicate a valid connection to the Ethernet as follows:

- A green Ethernet LED indicates a valid connection to a 100 Mbps Ethernet network.
- An orange Ethernet LED indicates a valid connection to a 10 Mbps Ethernet network.
- A flashing Ethernet LED indicates that Ethernet packets are being transmitted or received.

Connecting the Power

Connect the VDC power line (12 to 48 V) to the NPort's power jack or terminal block (recommended for only one connection at a time). If power is properly connected, the "Ready" LED will initially glow red. When the system is ready, the "Ready" LED will turn green.

Connecting to a Serial Device

Use a serial cable to connect your serial device to a serial port on the NPort.

Overview

This chapter presents several ways to assign the NPort's IP address for the first time. Please refer to Chapter 2 for instructions on connecting to the network.

The web console is the recommended method for configuring the NPort. Please refer to Chapter 5 and 6 for details on using the web console for configuration.



ATTENTION

The LAN and WLAN interfaces cannot be used at the same time if you don't enable the Ethernet Bridge mode (please refer to Chapter 7 for more details). If the Ethernet link is active, then WLAN connections will be disabled. If the WLAN connection is active, then the Ethernet link will be disabled.



ATTENTION

Make sure that the Ethernet cable is connected before powering up the NPort.

Factory Default IP Settings

Network Interface	IP Configuration	IP Address	Netmask
LAN	Static	192.168.126.254	255.255.255.0
WLAN	Static	192.168.127.254	255.255.255.0

If your NPort is configured to get its IP settings from a DHCP server but cannot get a response, it will use the factory default IP address and netmask.



ATTENTION

If you forget the IP address of your NPort, you can look it up using the Device Search Utility (DSU). After the Device Search Utility (DSU) has found all NPorts on the network, each unit will be listed with its IP address. Please refer to Chapter 11 for additional information on using the Device Search Utility (DSU).

Using the Telnet Console to an Assign IP Address

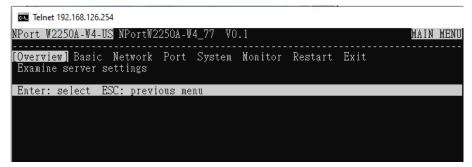
- 1. Select Command Prompt... from the Windows Start menu.
- 2. Enter telnet 192.168.126.254 (the NPort's default IP address) and click [OK].



 Enter your login account and password, then press ENTER. (Default login is admin and password is moxa.)



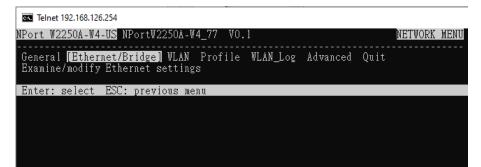
4. You will login to the **Overview** page.



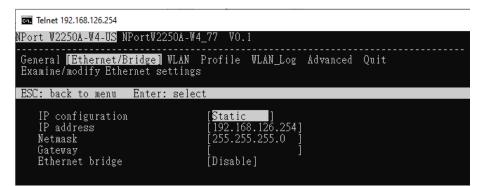
5. Press N or use the cursor keys to select Network and press ENTER.



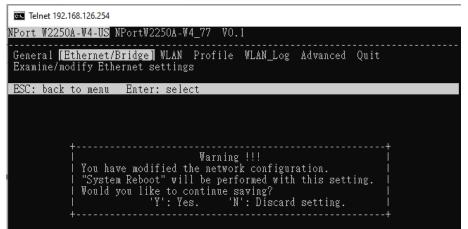
6. Press **E** or use the cursor keys to select **Ethernet** and press **ENTER**.



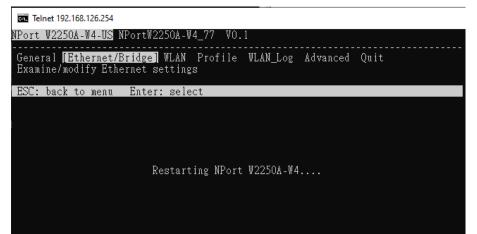
 Use the cursor keys to navigate between the different fields. For IP address, Netmask, and Gateway, enter the desired values directly. For IP configuration, LAN speed, and Ethernet bridge, press ENTER to open a submenu and select between the available options.



8. Press ESC to return to the menu. When prompted, press Y to save the configuration changes.



• The NPort will reboot with the new IP settings. You can telnet to the new IP to login again.



Using the Serial Console to an Assign IP Address

Before using the NPort's serial console, turn off the power and use a serial cable to connect the NPort console port to your computer's serial port. Port 1 on the NPort serves as the console port. Use Port 1 connecting to the console port with a serial-based terminal or terminal emulator program, such as Windows HyperTerminal. You may also download PComm Lite at <u>www.moxa.com</u>. The terminal type should be set as ANSI or VT100, and the serial communication parameters should be set as 19200, 8, N, 1 (19200 for baud rate, 8 for data bits, None for parity, and 1 for stop bits). As soon as the connection is open, you will be presented with a text menu displaying the NPort W2150A-W4/W2250A-W4 Series general settings. Please refer to Chapter 4 for a description of the available settings. The following instructions, we recommend using PComm Terminal Emulator, which can be downloaded free from <u>www.moxa.com</u>, to carry out the configuration procedure.

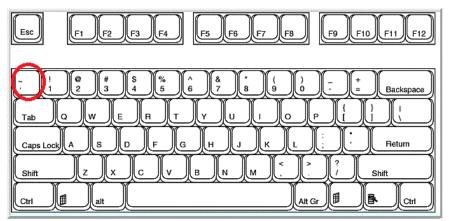
- 1. Connect your PC's serial port to the NPort's console port.
- 2. Open your terminal emulator program, such as Windows HyperTerminal. We recommend using PComm Terminal Emulator, which can be downloaded for free at www.moxa.com.
- 3. In your terminal emulator program, configure the communication parameters for the serial port on the PC. Set the parameters to **19200** for baudrate, **8** for data bits, **None** for parity, and **1** for stop bits.

Property	×
Communication Parameter	Terminal File Transfer Capturing
COM Options	
Ports :	COM1
Baud Rate :	19200 💌
Data Bits :	8 💌
Parity :	None
Stop Bits :	1
- Flow Control	Output State
RTS/CTS	DTR O ON O OFF
XON/XOFF	RTS ON COFF
	OK Cancel

 In your terminal emulator program, set the terminal type to ANSI or VT100. If you select Dumb Terminal as the terminal type, some of the console functions—especially the "Monitor" function—may not work properly.

Property	×
Communication Parameter	Terminal File Transfer Capturing
Terminal Type :	ANSI
Dumb Terminal Option : Transmit	
🗖 Local Echo	
Send 'Enter' Key As:	CR-LF
Receive	
CR Translation :	No Changed 💌
LF Translation :	No Changed 💌
	OK Cancel

5. Hold the **grave accent** key (`) down and power up the NPort.



The continuous string of grave accent characters triggers the NPort to switch from data mode to console mode.

6. The serial console will open and will be functionally identical to the Telnet console. Please refer to the Telnet console section for instructions on how to navigate the console and configure the IP settings.

Overview

This chapter introduces the different serial port operation modes that are available on the NPort W2150A-W4/W2250A-W4 Series. Each serial port on the NPort is configured independently of the other ports, with its own serial communication parameters and operation mode. The serial port's operation mode determines how it interacts with the network, and different modes are available to encompass a wide variety of applications and devices.

Real COM and **RFC2217** modes allow serial-based software to access the NPort serial port as if it were a local serial port on a PC. These modes are appropriate when your application relies on Windows or Linux software that was originally designed for locally attached COM or TTY devices. With these modes, you can access your devices from the network using your existing COM/TTY-based software, without investing in additional software.

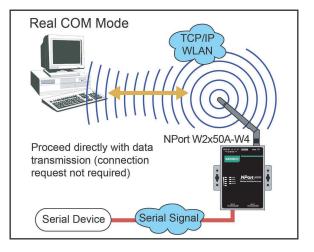
Three different socket modes are available for user-developed socket programs: **TCP Server**, **TCP Client**, and **UDP Server/Client**. For TCP applications, the appropriate mode depends on whether the connection will be hosted or started from the NPort serial port or from the network. The major difference between the TCP and UDP protocols is that TCP guarantees delivery of data by requiring the recipient to send an acknowledgement to the sender. UDP does not require this type of verification, making it possible to offer speedier delivery. UDP also allows multicasting of data to groups of IP addresses and would be suitable for streaming media or noncritical messaging applications, such as LED message boards.

Pair Connection Slave and **Master** modes are designed for serial-to-serial communication over Ethernet, in order to overcome traditional limitations with serial transmission distance.

In **Ethernet Modem** mode, the NPort acts as an Ethernet modem, providing a network connection to a host through the serial port.

Real COM Mode

Real COM mode works with NPort drivers that are installed on a network host. COM drivers are provided for Windows systems, and TTY drivers are provided for Linux and UNIX systems. The driver establishes a transparent connection to the attached serial device by mapping a local serial port to the NPort serial port. Real COM mode supports up to four simultaneous connections, so multiple hosts can collect data from the attached device at the same time.



ATTENTION

Real COM drivers are installed and configured through NPort Windows Driver Manager.

Real COM mode allows you to continue using your serial communications software to access devices that are now attached to your NPort device server. On the host, the NPort Real COM driver automatically intercepts data sent to the COM port, packs it into a TCP/IP packet, and redirects it to the network. At the other end of the connection, the NPort device server accepts the Ethernet frame, unpacks the TCP/IP packet, and sends the serial data to the appropriate device.



ATTENTION

In Real COM mode, several hosts can have simultaneous access control over the NPort serial port. If necessary, you can limit access by using the NPort's Accessible IP settings. Please refer to Chapter 8 for additional information on Accessible IP settings.

RFC2217 Mode

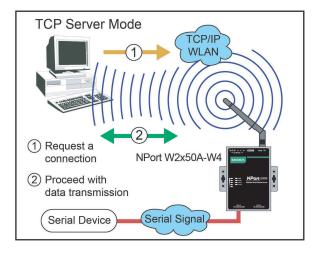
RFC-2217 mode is similar to Real COM mode, since it relies on a driver to transparently map a virtual COM port on a host computer to a serial port on the NPort. The RFC2217 standard defines general COM port control options based on the Telnet protocol and supports one connection at a time. Third party drivers supporting RFC-2217 are widely available on the Internet and can implement virtual COM mapping.

TCP Server Mode

In TCP Server mode, the NPort serial port is assigned an IP:port address that is unique on your TCP/IP network. It waits for the host computer to establish a connection to the attached serial device. This operation mode also supports up to eight simultaneous connections, so multiple hosts can collect data from the attached device at the same time.

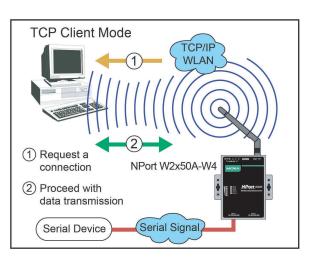
Data transmission proceeds as follows: A host requests a connection to the NPort serial port.

Once the connection is established, data can be transmitted in both directions—from the host to the device, and from the device to the host.



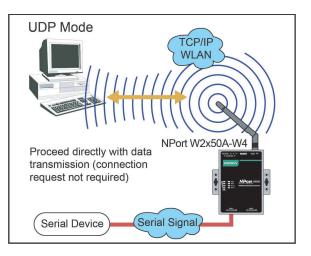
TCP Client Mode

In TCP Client mode, the NPort actively establishes a TCP connection to a specific network host when data is received from the attached serial device. After the data has been transferred, the NPort can automatically disconnect from the host computer through the Inactivity time settings. Please refer to Chapter 7 for details on these parameters. Data transmission proceeds as follows: The NPort requests a connection from the host. The connection is established and data can be transmitted in both directions between the host and device.



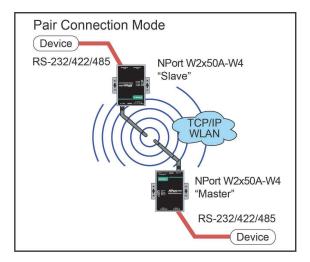
UDP Mode

UDP is similar to TCP but is faster and more efficient. Data can be broadcast to or received from multiple network hosts. However, UDP does not support verification of data and would not be suitable for applications where data integrity is critical. It is ideal for message display applications.



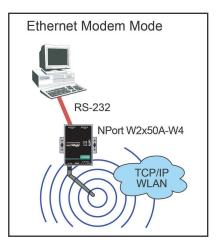
Pair Connection Modes

Pair Connection Master and Slave modes connect two NPort device servers over a network for serialto-serial communication. A device attached to one NPort can then communicate transparently to a device attached to the other NPort, as if a serial cable connected the two devices. Both data and modem control signals are exchanged, except for DCD signals. This can overcome traditional limitations with serial communication distance and introduce many new possibilities for serial-based device control.



Ethernet Modem Mode

Ethernet Modem mode is designed for use with legacy operating systems, such as MS-DOS, that do not support TCP/IP Ethernet. By connecting the properly configured NPort serial port to the MS-DOS computer's serial port, it is possible to use legacy software to transmit data over the Ethernet when the software was originally designed to transmit data over a modem.



Reverse Terminal Mode

Reverse terminal applications are similar to terminal applications, as they use the NPort W2x50A-W4 to manage the connection between a terminal and a server. The difference is that with reverse terminal applications; the terminal is connected through the network and the server is connected through the serial port, rather than the other way around. In practice, a reverse terminal session typically involves a network administrator telnetting to a device that has a dedicated serial console port used specifically for configuration.

For example, many routers, switches, UPS units, and other devices (including the NPort W2x50A-W4) have Console/AUX or COM ports to which a terminal can be physically connected for console management. With the NPort W2x50A-W4, the device's console port can be connected to a serial port on the NPort W2x50A-W4, allowing a network administrator to telnet to the device remotely through the network. Although modern network equipment allows other options for remote configuration through the network, there are situations in which it is necessary or desirable to configure a device by serial console (e.g., for security reasons, when using older-generation equipment, or as a backup configuration method when the network is down).

NPort W2x50A-W4 reverse terminal modes allow the use of the NPort W2x50A-W4 User Table or a RADIUS server for identity verification purposes.

5. Installing and Configuring the Software

Overview

This chapter describes how to install and use the NPort Windows Driver Manager, the Device Search Utility (DSU), and NPort Linux and UNIX drivers. You may download these items from Moxa's website that is provided with the NPort W2150A-W4/W2250A-W4 Series.

NPort Windows Driver Manager is a utility that installs and manages NPort COM drivers for COM mapping. The **Device Search Utility (DSU)** is a utility for the management of NPort device servers over the network. You may also use the Device Search Utility (DSU) to upgrade the firmware.

Device Search Utility (DSU)

Installing the DSU

- Download the DSU from Moxa's website: <u>https://www.moxa.com/support/download.aspx?type=support&id=10137</u> You may double click on the executable file. Once the program runs, click **Yes** to proceed.
- 2. The installation wizard will open. Click **Next** to proceed.

🛃 Setup - DSU	– 🗆 X
	Welcome to the DSU Setup Wizard
	This will install DSU Ver2.5 on your computer.
	It is recommended that you close all other applications before continuing.
	Click Next to continue, or Cancel to exit Setup.
	Next > Cancel

3. Select a destination location and click **Next** to proceed.

📴 Setup - DSU	
Select Destination Location Where should DSU be installed?	
Setup will install DSU into the following folder.	
To continue, click Next. If you would like to select a different folder, clic	k Browse.
C:\Program Files (x86)\Moxa\DSU	Browse
At least 2.2 MB of free disk space is required.	
< <u>B</u> ack Next >	Cancel

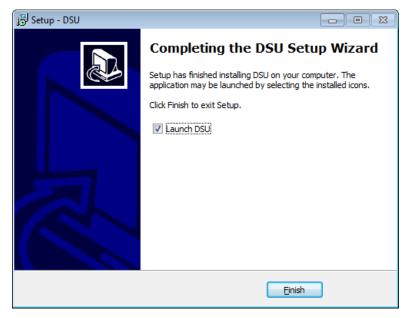
4. Show if you wish to create a desktop icon and click **Next** to proceed.

弱 Setup - DSU	- • •
Select Additional Tasks Which additional tasks should be performed?	
Select the additional tasks you would like Setup to perform while installing click Next.	DSU, then
Additional icons:	
Create a desktop icon	
< <u>B</u> ack <u>N</u> ext >	Cancel

5. Verify the installation parameters and click Install to proceed.

🔁 Setup - DSU 📃	• ×
Ready to Install Setup is now ready to begin installing DSU on your computer.	
Click Install to continue with the installation, or click Back if you want to review or change any settings.	
Destination location: C:\Program Files (x86)\Moxa\DSU	*
٠	
< Back Install	Cancel

6. The wizard will begin installing the files. After the files have been installed, click **Finish** to complete the installation.



Finding NPort Device Servers on a Network

You can use the Device Search Utility (DSU) to look up or change the IP address of any NPort device server on the network. Since the utility searches for devices based on their MAC address rather than IP address, all NPort units that are connected to the LAN will be located, regardless of whether they are part of the same subnet as the host.

1. In the Device Search Utility (DSU), click **Search** on the main toolbar.

DSU DSU					
File Function View Help	≝ ⊑ IP Locate Cons		-Lock Import Exp	ort Upgrade	
No 🛆 Moos	LAN1 MAC Address	LAN1 IP Address	LAN2 MAC Address	LAN2 IP Address	Status

2. The utility will search for NPort device servers.

rching						>
Searching	for devices			🔲 Show IPv6 Address	✓ <u>S</u> top	
Found 1	Device(s), 10 second	(s) left.				
Found 1	Device(s), 10 second	(s) left.	LAN1 IP Address	LAN2 MAC Address	LAN2 IP Address	

3. When the search is complete, the NPort units that were found will be listed in the main window.

🔎 DSU						
<u> </u>	<u>u</u> nction <u>V</u> iew <u>H</u> elp					
<u> </u>	🙎 🤷 Search Search	≝ ⊑ IP Locate Con:		Un-Lock Imp	 Lupgrade	
No A	Model	LAN1 MAC Address	LAN1 IP Address		 N2 IP Address	Status
🔒 1	NPort W2250A-W4	00:90:E8:33:55:A1	192.168.126.254			
-						

Unlock Device Servers

1. Select the device and click **Un-Lock**.

	P DS	SU									
]	<u>F</u> ile	F <u>u</u> n	ction <u>V</u> iew	<u>H</u> elp				\frown			
	Ē	n. xit	<u>s</u> earch	🤷 N Search	iP Locate	<u> </u>	sole <u>A</u> ssign IP	Un-Lock	I <u>m</u> port E <u>x</u> p	ort U <u>p</u> grade	
	No /	4	Model		LAN1 MAC Ad	dress	LAN1 IP Address		N2 MAC Address	LAN2 IP Address	Status
	91		NPort W225	50A-W4	00:90:E8:11:45	5:A3	192.168.126.254				

2. Enter password and click **OK**.

	-		\times
🗸 ОК	>	Canc	el
	✓ OK	-	− □

Modifying NPort IP Addresses

 Once the Device Search Utility (DSU) has found NPort device servers on the LAN, you can change any unit's IP address. Select the desired NPort in the main window and click **Assign IP** on the main toolbar. This will change the IP address for the active network connection (LAN or WLAN).

🔎 DSU						
<u> </u>	iction <u>V</u> iew <u>H</u> elp		\frown			
<u> </u>		⊻ ⊑ IP Locate Cons	s 1	ock I <u>mport Exp</u>	ort Upgrade	
No 🛆	Model	LAN1 MAC Address	LAN1 IF Address	LAN2 MAC Address	LAN2 IP Address	Status
 1	NPort W2250A-W4	00:90:E8:33:55:A1	192.168.126.254			

2. Enter the new IP address and netmask. If multiple units were selected, you may assign addresses sequentially by clicking **Assign IP Sequentially**. Click **OK** to proceed.

_	IP Address				
No	MAC Address	IP Address	Netmask	Gateway	
1	00:90:E8:33:55:A1	192.168.126.254	255.255.255.0		
	-	3	,		
		Assign IP	Sequentially		

3. The selected NPort will be restarted by the Device Search Utility (DSU) with the new IP address.

Informati	ion >	<
1	Configuration is applied ok.	
	OK	

Upgrading NPort Firmware

1. Once the Device Search Utility (DSU) has found NPort device servers on the LAN, you can upgrade any unit's firmware. Right-click the desired NPort in the main window and select **Upgrade**.

<u>E</u> xit	<u>s</u> earch	Search <u>I</u> P	≟ Locate <u>C</u>	onsole Assign II	un-Lock	Import Exp	bort Upgrade			
	Model		N1 MAC Address	LAN1 IP Addr		N2 MAC Address	LAN2 IP Address	Status	Firmware Version	
	NPort W/22504		Console (IPv4) Conso	4) Ctrl+C 4) (SSL) 6) 6) (SSL) Ctrl+I					Ver0.0.1 Build 22060908	

Select the new firmware file and click **OK** to proceed. To get the latest firmware for the NPort W2150A-W4/W2250A-W4 Series, visit www.moxa.com.

Upgrade file				\times
Select Firmv	vare File]
File path:				
			Browse	
		🦪 ОК	X Cancel	

3. The utility will begin upgrading the firmware for the selected unit. Do not disconnect or power off the unit while the firmware is being upgraded.

Upgrade	e Process				\times
	Processing., please wait		X Cancel		
No	Model	MAC Address	IP Address	Status	Τ
1	NPort W2250A-W4	00:90:E8:11:45:A3	192.168.126.254	Write Flash - 10%	

4. When the displayed status is OK, click **Close** to complete the process.

U	pgrade Pro	cess				×
	Proce	ssing., please wait		👖 <u>C</u> lose		
	No	Model	MAC Address	IP Address	Status	
	1	NPort W2250A-W4	00:90:E8:11:45:A3	192.168.126.254	OK	

ATTENTION

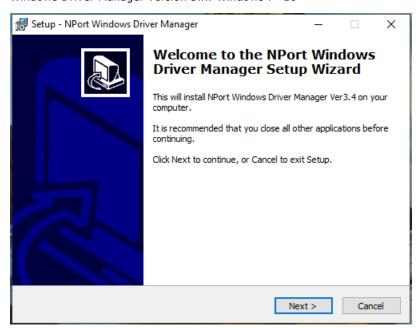
The Device Search Utility (DSU) supports upgrading the firmware of multiple units simultaneously if each unit is the same model. Hold down the CTRL key to add additional units to your selection; hold down the SHIFT key to select a block of units.

NPort Windows Driver Manager

NPort Windows Driver Manager installs remote NPort serial ports as new COM ports on your Windows PC. When the drivers are installed and configured, devices that are attached to serial ports on the NPort will be treated as if they were attached to your PC's own COM ports. The NPort serial port must be configured for Real COM mode when being mapped to a COM port.

Installing NPort Windows Driver Manager

- Download the NPort Windows Driver Manager from Moxa website: <u>https://www.moxa.com/support/download.aspx?type=support&id=974</u>
 You may double click on the executable file. Once the installation program runs, click [Yes] to proceed.
- The installation wizard will open. Click Next to proceed.
 Windows Driver Manager version 4.0: Windows 11/server 2022
 Windows Driver Manager version 3.x: Windows 7~10



3. Read and select I accept the agreement. Click Next to proceed.

ß	Setup - NPort Windows Driver Manager —	×
	License Agreement Please read the following important information before continuing.	ð
	Please read the following License Agreement. You must accept the terms of this agreement before continuing with the installation.	
	MOXA END-USER LICENSE AGREEMENT	^
	FOR NPort Windows Driver Manager	
	IMPORTANT: Please Read This Agreement Before Using The Software Indicated Above.	
	This End-User License Agreement ("EULA") is a legal agreement between you, the Customer (either as an individual or a single entity), and the Owner concerning this special purpose ("System") computer device that includes certain Owner, asflurge, conducts, ("Software"), installed, on the System Installer	¥
	I accept the agreement	
	I do not accept the agreement	
	< Back Next > C	ancel

4. Select a destination location and click Next to proceed.

🖟 Setup - NPort Windows Driver Manager -	_		×
Select Destination Location Where should NPort Windows Driver Manager be installed?		¢	
Setup will install NPort Windows Driver Manager into the follow	ing fol	der.	
To continue, click Next. If you would like to select a different folder, clic	k Brow	/se.	
C:\Program Files\Moxa\WPortDrvManager	Bro	wse	
At least 2.2 MB of free disk space is required.			
< Back Next >		Car	ncel

5. Select a folder for the program shortcuts and click **Next** to proceed.

😸 Setup - NPort Windows Driver Manager	_		Х
Select Start Menu Folder Where should Setup place the program's shortcuts?		6	D
Setup will create the program's shortcuts in the following Sta	rt Menu	folder.	
To continue, click Next. If you would like to select a different folder, c	lick Brow	ise.	
MoxaWPort Windows Driver Manager	Bro	wse	
< Back Next	>	Cance	ł

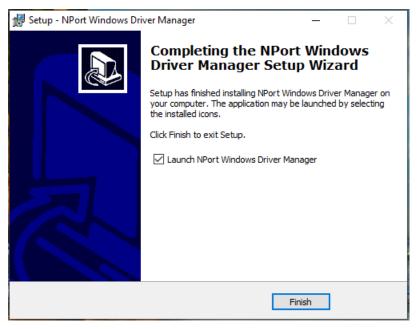
6. Verify the installation parameters and click Install to proceed.

🎲 Set	up - NPort Windows Driver Manager —		×
Re	ady to Install Setup is now ready to begin installing NPort Windows Driver Manager on your computer.		
	Click Install to continue with the installation, or click Back if you want to review or change any settings.	or	
	Destination location: C:\Program Files\Moxa\NPortDrvManager		^
	Start Menu folder: Moxa\WPort Windows Driver Manager		
	<	>	~
	< Back Tostall	Ca	incel
	change any settings. Destination location: C:\Program Files\Moxa\NPortDrvManager Start Menu folder: Moxa\NPort Windows Driver Manager	>	ncel

7. If you see a warning that the software has not passed Windows Logo testing, click **Continue Anyway** to proceed.

Softwa	are Installation
1	The software you are installing has not passed Windows Logo testing to verify its compatibility with Windows XP. (<u>Tell me why</u> <u>this testing is important.</u>) Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly
	recommends that you stop this installation now and contact the software vendor for software that has passed Windows Logo testing.
	Continue Anyway

8. The wizard will begin installing the files. When the files have been installed, click **Finish** to complete the installation.



Adding Mapped Serial Ports

NPort Windows Driver Manager adds a COM port to your PC that is mapped to an NPort serial port. The destination NPort serial port must be set to Real COM mode.

1. In NPort Windows Driver Manager, click Add on the main toolbar.

🔞 NPo	rt Windows	Driver Manager	_	×
<u> </u>	OM Mapping	C <u>o</u> nfiguration <u>V</u> iew <u>H</u> elp		
Exit	din Add	n Apply Undo Setting		
No	COM Port	Address 1 Address 2		

2. Click **Search** to search the network for NPort device servers. In the list of NPort device servers that were found, select the unit(s) that you will use for COM mapping and click **OK**.

Mapping IPv6 COM Port			Sea	arch Select All	Clear All
No M	lodel	MAC 1	Address 1	MAC 2	Address 2
☑ 1 N	Port W2250A	00:90:E8:33:55:A1	192.168.126.254		•
	-				
nput Mai					
)M Reverse Real CO	м		
		DM Reverse Real CO	м	First Mapping Port	
Real COM		DM Reverse Real CO	м]	First Mapping Port Data Port 950	
Real COM	M Redundant CC		м]		
		and Davies Deel CO			

3. Alternatively, you can select **Input Manually** and manually enter the **NPort IP Address**, **1st Data Port**, **1st Command Port**, and **Total Ports** for the desired NPort unit. Click **OK** to proceed.

Mapping IPv6 COM Port				Search Select All Clear All		
No	Model	MAC 1	Address 1	MAC 2	Address 2	
nnut	Manually					
		t COM Reverse Re	al COM			
				First Mapping Port		
N	Port IP Address 1	92.168.168.254		Data Port 95	0	
Г	Enable Auto IP F	eport		Command Port 96	6	
	MAC Address			Total Ports 1		

4. NPort Windows Driver Manager will list each available serial port and will automatically assign a new COM port to each one. The new COM port will not be accessible by the host system until it has been activated in NPort Windows Driver Manager. Activating a mapped COM port saves the information in the host system registry and makes the COM port available for use. Click **Yes** to activate the COM port(s); click **No** to activate the COM port(s) later.

Informati	ion X	
1	Do you want to activate the COM Port now?	
	<u>Y</u> es <u>N</u> o	
Processin	ng	
Plea	ase wait	
proc	cessing 20%	
	Cancel	
Informati	ion	 ×
1	COM Port Configuration is applied successfully Remember to change NPort operation mode to	M Mode.
	OK	

5. Activated COM ports will be listed in black; COM ports that have not been activated will be listed in blue. Once a COM port has been activated, the host computer will communicate with the new COM port as if it were physically attached. Since the COM mappings are stored in the host system registry, they will still be in effect if the PC is restarted or if Windows Driver Manager is closed.

	rt Windows Dr	-	- [
<u>F</u> ile <u>C</u> (OM Mapping C	C <u>o</u> nfiguration <u>V</u> iew <u>H</u> elp		
_ Exit	dd R	emove Apply Undo Setting		
lo	COM Port /	1	Address 2	
	COM2	192.168.168.254 950:966 (Port1)		
	VI Port - 1			

Configuring Mapped Serial Ports

1. To change the settings of a mapped serial port, select the desired port(s) and click **Setting** on the main toolbar.

<u>F</u> ile <u>C</u>	OM Mapping	ı C <u>o</u> n	figuration <u>V</u> iew <u>H</u> elp		
<u>Exit</u>	din Add	(<mark>1</mark> Rem			
0	COM Port	Δ.	Address 1	Address 2	
	COM2		192.168.168.254 950:966 (Port1)		

 On the Basic Setting tab, select the COM Number that will be assigned to the serial port. If you have selected multiple ports, you can assign COM numbers automatically in sequential order by selecting the Auto Enumerating COM Number for Selected Ports function.

COMP	ort Settin	g						×
Port	Number:	1 Po	rt(s) are Sele	ected.				
Basic	Settings	Advance	ed Settings	Serial Pa	rameters	Security	y │ IPv6 Settir	ngs
	Auto Enu	imerating (COM Numbe	r for Sele	cted Ports.			
	COM Nur	nber 00	M2 (current)	(in use)	•			
•	7 <u>H</u> elp			ſ	🗸 OI		🗶 Cancel	

3. On the **Advanced Setting** tab, configure **Tx Mode**, **FIFO**, and **Fast Flush**.

COM Port Settin	g		×						
Port Number: 1 Port(s) are Selected.									
Basic Settings	Advanced Settings	Serial Parameters Securi	ity IPv6 Settings						
🗖 Apply All	Apply All Selected Ports								
	settings will overwrite	the firmware							
setting. Tx Mode	Hi-Performa	nce 🗨							
FIFO	Enable	•							
Network 1	Timeout 5000	ms (500 - 20000)							
🔽 Fast F	- Flush (Flush Local Bufl	fer Only)							
🔽 Auto I	✓ Auto Network Re-Connection								
🔲 Alway	Always Accept Open Requests								
🗖 Drop V	Drop Writing Data If Network Connection Lost								
🗖 Retur	Return Error If Network Is Unavailable								
🔲 Ignore	🔲 Ignore TX Purge								
🔲 Enabl	Enable Auto IP Report								
MA	MAC Address								
? <u>H</u> elp		✓ OK	🗶 Cancel						

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.

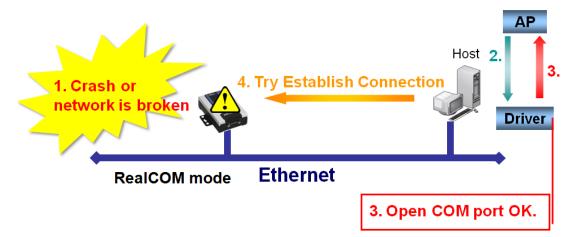
FIFO: This tells the driver whether or not to use the FIFO.

Network Timeout: You can use this option to prevent blocking if the target NPort is unavailable.

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 performance seems sluggish, try enabling Fast Flush.

Auto Network Re-Connection: With this option enabled, the driver will repeatedly attempt to reestablish the TCP connection if the NPort does not respond to background "check-alive" packets

Always Accept Open Requests: When enabled, the NPort driver will always accept requests to open a virtual COM port, even if communications with the device can not be established. With this option, the NPort driver will open a virtual COM port on the system even if the port is blocked or the Ethernet connection is disabled. If this is the case, the connected device will not receive and transmit data even though the system has opened a virtual COM port.



Drop Writing Data if Network Connection is Lost: This function will assure the data to be kept in the buffer or dropped when network connection is lost. The buffer size is 4 KBytes.

Return error if network is unavailable: If this option is disabled, the driver will not return any error even when a connection cannot be established to the NPort. With this option enabled, calling the Win32 Comm function will cause the error return code "STATUS_NETWORK_UNREACHABLE" when a connection cannot be established to the NPort. This usually means that your host's network connection is down, perhaps because of a cable being disconnected. However, if you can reach other network devices, maybe the NPort is not powered on or is disconnected. Not that **Auto Network Re-Connection** must be enabled in order to use this function.

Ignore TX Purge: Applications can use the Win32 API PurgeComm to clear the output buffer. Outstanding overlapping write operations will be terminated. Select the **Ignore TX Purge** checkbox to ignore the effect on output data.

4. On the **Serial Parameters** tab, specify the communication settings that the host will use when opening the COM port.

COM Port Settin	g					×
Port Number:	1 Port(s) are Sel	ected.			
Basic Settings	Advanced	Settings	Serial Parar	neters	Security	IPv6 Settings
🗖 Apply All	Selected Po	rts				
			registry and jeneral cases			
Baud Rat	e 96	00	-			
Parity	No	one	•			
Data Bits	8		•			
Stop Bits	1		-			
Flow Con	trol No	one	-			
	1					
<u> ? H</u> elp				🗸 ol		X Cancel

5. On the Security tab, select the Enable Data Encryption option to enable data to be encrypted when transmitted over the COM ports. After selecting the encryption option, select the Keep connection option to encrypt COM port communications immediately without restarting the COM ports. This may speed up opening and closing of the COM port for your host, but it also causes your host to tie up the NPort serial port so other hosts cannot use it.

COM Port Setting		×
Port Number: 1 Port(s) are Selected.		
Basic Settings Advanced Settings Serial Parameter	s Security	IPv6 Settings
Apply All Selected Ports		
Enable Data Encryption		
🗖 Keep Connection		
In Redundant COM mode, the security function	s not supporte	ed.
In Reverse Real COM mode, "Keep Connection"	is not suppor	rted.
	ОК	🗙 Cancel

6. On the IPv6 Setting tab, interface 1 and 2 can change.

0	M Port Setting							
	Port Number: 1 Port(s) are Selected.							
E	asic Settings Advanced Settings Serial Parameters Security IPv6 Settings							
	Apply All Selected Ports							
	The Interface Index is for Link-Local address mapping only. Assign correct interface for your COM Port to be opened successfully. Ignore the setting if the mapping address is NOT a link-local one. (e.g. fe80:#:#:##.#.#.#.#)							
	Interface Index for Address 1:							
	Wi-Fi: Qualcomm Atheros QCA61x4A Wireless Network Adapter 📃 🚽							
	Interface Index for Address 2:							
	Wi-Fi: Qualcomm Atheros QCA61x4A Wireless Network Adapter							
_								
	🥐 🕺 📈 🕺 🕺 🕺 🕺 🕺 🕺 🕺 🕹							

7. Click **OK** when you have finished configuring the COM port.

8. To save all COM mapping settings to a text file, right-click a COM port and select **Export** in the context menu. After the settings have been exported to a file, they can be imported on another host.

File	COM Mapping	Configura	tion <u>V</u> iew <u>H</u> elp			
Ĩ	-	Ctrl+N Ctrl+D	Apply Undo Setting			
No	Setting	Ctrl+C	ess 1 68.168.254 950:966 (Port1)	Address 2		
		Ctrl+S Ctrl+Z	00.100.234 330.300 (FURT)			
	Export					
			2			
	OM Port - 1					

Command-Line Installation/Removal

For NPort Windows Driver Manager v1.19 and above, it comes with command line script tool – npcli.exe for installation, removal of the driver and capability of configuring NPort driver functions.

After successfully installing NPort Windows Driver Manager v1.19 (or above), the default file path is C:\Program Files\NPortDrvManager as shown below. The main files that support the NPort command line tool are npcli.exe and GIdMap.dat. You may move these two files to your preferred location.

○ ○ ○ ○	C:\Program Fil	es\NPortD	rvManager
Organize 🔻	📷 Open	Burn	New folder
Name	^		
📕 driver			
퉬 help			
鷆 nportdll			
GIdMap.da	at		
🔌 mxdet.dll			
🚳 mxDrvHlp.	dll		
💷 mxpnpupg			
📑 npcli			
🍓 Npcom			
npcom.exe	e.manifest		
nptdrv2			
Nptdrv2			
nptdrv2.sy	s		
unins000.d	lat		
🕞 unins000			
VERSION			

Once NPort Windows Driver Manager v1.19 (or above) is installed, call up the cmd screen on your computer. Change the directory to the drive where you placed the above two files.



Type npcli /? to get detail information of what command lines are supported and the function descriptions.

C:\Windows\system32\cmd.exe	
Microsoft Windows [Version 6.1.7601] Copyright (c) 2009 Microsoft Corporation. All rights reserved.	* E
C:\Users\ts>cd C:\Program Files\NPortDrvManager	Pro-
C:\Program Files\NPortDrvManager <mark>)npcli /?</mark>	

The usage instructions will show up for a user's reference.

```
_____
NPort Command Line Interface Ver2.0 Build 16052400
      _____
sage:
 1. NPort Driver operation:
   npcli /driver [/install | /uninstall | /upgrade] [PATH NAME]
               Install specified driver to host.
 /install
 /uninstall
              Uninstall current installed driver from host.
              Upgrade specified driver without modifying the mapped ports.
 /upgrade
 PATH NAME
              Specify the installer file of the NPort Driver Manager to install
              or upgrade.
 2. RealCOM port operation:
   npcli /driver /add IP ADDR /port PORT NO /com COM NO [/txmode [hiperf |
         classical]] [/fifo [enable | disable]] [/flush [fast | normal]]
   npcli /driver /remove /com [COM NO | all]
 /add
               Add a RealCOM with a valid IP address (IP ADDR).
               Specify the NPort port number (PORT NO) to add.
 /port
 /com
              Specify the COM number to add or remove (COM NO).
              Set the TX mode as hi-performance (hiperf) or classical. The
 /t.xmode
              default is hiperf.
 /fifo
              Set the FIFO as enable or disable. The default is enable.
              Set to enable fast flush(fast) or disable fast flush(normal).
 /flush
              The default is fast.
 /remove
             Remove specified COM number (COM NO) or all RealCOM ports.
 3. NPort devices operation:
   npcli /devicd /search
   npcli /device /set ID /network [/ip IP ADDR] [/mask SUBNET]
         [/gateway IP_ADDR] [/password CIPHER]
   npcli /device /apply ID [/password CIPHER]
 /search
               Search the NPort and store the list to the memory.
               Specify the ID to set. Users must specify one of the searched
 /set
               NPorts for further operations. The default is 1.
 /port
               Specify the NPort port number (PORT NO) to set.
 /password
             Specify the password (CIPHER) if the NPort has one.
 /network
             Set to change the network settings.
              Change the IP address (IP ADDR) of NPort.
 /ip
 /mask
             Change the subnet mask (SUBNET) of NPort.
             Change the IP address (IP ADDR) of gateway.
 /gateway
 /apply
              Specify the ID to save changes and restart the NPort.
 4. Examples
   npcli /driver /install D:\Users\drvmgr setup Ver1.19.0 Build 15122492
   npcli /driver /uninstall
   npcli /driver /add 192.168.127.254 /port 1 /com 3
   npcli /driver /add 192.168.127.254 /port 2 /com 4 /flush normal
   npcli /device /search
   npcli /device /set 1 /network /ip 192.168.10.7 /mask 255.255.255.0
         /password moxa
   npcli /device /apply 1
Note:
 Npcli.exe requires an administrator privilege to change device settings.
 It support only IPv4 and it must be run under Windows XP and later versions.
```

Linux Real TTY Drivers

Real TTY driver are provided that will map Linux host TTY ports to NPort serial ports. Once the mapping has been set up, Linux users and applications can connect to a serial port as if it were a local TTY port. These drivers have been designed and tested for most Linux distributions, including Linux kernel version 2.4.x, 2.6.x, and 3.x, 4.x. Please check <u>http://www.moxa.com</u> for the latest Linux kernel supported.

Basic Steps

Follow these instructions to map a TTY port to an NPort serial port:

- 1. Install the NPort device server and set the target device port to Real COM mode.
- 2. Install the Real TTY driver files on the Linux host.
- 3. Map the host's TTY port to the target device port on the NPort.

Installing Linux Real TTY Driver Files

Before proceeding with the software installation, make sure you have completed the NPort device server has been installed and configured correctly. Note that the default LAN IP address for the NPort is **192.168.126.254**, whereas the default WLAN IP address is **192.168.127.254**.



ATTENTION

The target serial port must operate in Real COM mode in order to map TTY ports.

- 1. Get the driver file from https://www.moxa.com/support/support_home.aspx?isSearchShow=1.
- 2. Log in to the console as a super user (root).
- 3. Execute cd / to go to the root directory.
- 4. Copy the driver file **npreal2xx.tgz** to the / directory.
- 5. Execute tar xvfz npreal2xx.tgz to extract all files into the system.
- Execute /tmp/moxa/mxinst. (For Red Hat AS/ES/WS and Fedora Core1, execute "# /tmp/moxa/mxinst SP1".) The shell script will install the driver files automatically.
- 7. After installing the driver, you will see several files in the /usr/lib/npreal2/driver folder:

mxaddsvr (add server, map TTY port)
mxdelsvr (delete server, undo TTY port mapping)
mxloadsvr (reload server)
mxmknod (create device node/TTY port)
mxrmnod (remove device node/TTY port)
mxuninst (remove TTYport and

Enter the new IP address and netmask. If multiple units were selected, you mayMapping TTY Ports

Make sure that you set the operation mode of the desired NPort serial port to Real COM mode. After logging in as a super user, enter the directory **/usr/lib/npreal2/driver** and then execute **mxaddsvr** to map the target NPort serial port to the host TTY ports. The syntax of **mxaddsvr** is as follows:

mxaddsvr [NPort IP Address] [Total Ports] ([Data port] [Cmd port])

The **mxaddsvr** command performs the following actions:

- 1. Change npreal2d.cf.
- 2. Create TTY ports in directory /dev with major and minor number configured in npreal2d.cf.
- 3. Restart the driver.

Mapping TTY ports automatically

To map TTY ports automatically, you may execute **mxaddsvr** with just the IP address and number of ports, as in the following example:

cd /usr/lib/npreal2/driver # ./mxaddsvr 192.168.3.4 16

In this example, 16 TTY ports will be added, all with IP 192.168.3.4, with data ports from 950 to 965 and command ports from 966 to 981.

Mapping TTY ports manually

To map TTY ports manually, you may execute **mxaddsvr** and manually specify the data and command ports, as in the following example:

cd /usr/lib/npreal2/driver # ./mxaddsvr 192.168.3.4 16 4001 966

In this example, 16 TTY ports will be added, all with IP 192.168.3.4, with data ports from 4001 to 4016 and command ports from 966 to 981.

Removing Mapped TTY Ports

After logging in as root, enter the directory **/usr/lib/npreal2/driver** and then execute **mxdelsvr** to delete a server. The syntax of mxdelsvr is:

mxdelsvr [IP Address]

Example:

cd /usr/lib/npreal2/driver # ./mxdelsvr 192.168.3.4

The following actions are performed when executing mxdelsvr:

- 1. Change npreal2d.cf.
- 2. Remove the relevant TTY ports in directory /dev.
- 3. Restart the driver.

If the IP address is not provided in the command line, the program will list the installed servers and total ports on the screen. You will need to choose a server from the list for deletion.

Removing Linux Driver Files

A utility is included that will remove all driver files, mapped TTY ports, and unload the driver. Enter the directory **/usr/lib/npreal2/driver** and execute **mxuninst** to uninstall the driver. This program will perform the following actions:

- 1. Unload the driver.
- 2. Delete all files and directories in /usr/lib/npreal2.
- 3. Delete directory /usr/lib/npreal2.
- 4. Modify the system initializing script file.

UNIX Fixed TTY Drivers

A fixed TTY driver is provided that will map UNIX host TTY ports to NPort serial ports. Once the mapping has been set up, UNIX users and applications can connect to an NPort serial port as if it were a local TTY port. This driver has been designed and tested for most UNIX systems. Please check <u>http://www.moxa.com</u> for the latest UNIX systems support.

Installing the UNIX Driver

- Log in to UNIX and create a directory for the MOXA TTY. To create a directory named /usr/etc, execute the command:
 # mkdir -p /usr/etc
- Copy moxattyd.tar to the directory you created. For the /usr/etc directory, you would execute the following commands:

cp moxattyd.tar /usr/etc # cd /usr/etc

3. Extract the source files from the tar file by executing the command:

tar xvf moxattyd.tar

```
The following files will be extracted:

README.TXT

moxattyd.c --- source code

moxattyd.cf --- an empty configuration file

Makefile --- makefile

VERSION.TXT --- fixed TTY driver version

FAQ.TXT
```

4. Compile and link.

For SCO UNIX: # make sco For UnixWare 7: # make svr5 For UnixWare 2.1.x, SVR4.2: # make svr42

Configuring the UNIX Driver

Modify the configuration:

The configuration used by **moxattyd** is defined in the text file **moxattyd.cf**, which is in the same directory. You may use vi or any text editor to change the file, as follows:

ttyp1 192.168.1.1 950

You can refer to **moxattyd.cf** for detailed descriptions of the various configuration parameters. Please note that **Device Name** depends on the OS. See the Device Naming Rule section in README.TXT for more information.

To start the moxattyd daemon after system bootup, add an entry into **/etc/inittab** using the TTY name you defined in **moxattyd.cf**, as in the following example:

ts:2:respawn:/usr/etc/moxattyd/moxattyd -t 1

Device naming rule

For UnixWare 7, UnixWare 2.1.x, and SVR4.2, use:

pts/[n]

For all other UNIX operating systems, use:

ttyp[n]

The value of [n] should be equal or larger than 11 in order to prevent conflicts with the device names of functional keys in some UNIX systems.

Starting moxattyd

Execute the command **init q** or reboot your UNIX operating system.

Adding an additional server

Change the text file **moxattyd.cf** to add an additional server. Users may use vi or any text editor to change the file. For more configuration information, refer to **moxattyd.cf**, which contains detailed descriptions of the various configuration parameters.

Find the process ID (PID) of the **moxattyd**.

ps -ef | grep moxattyd

Update the configuration of **moxattyd**.

kill -USR1 [*PID*] (e.g., if moxattyd PID = 404, **kill -USR1 404**)

This completes the process of adding an additional server.

Overview

This chapter introduces the NPort web console and explains how to configure the basic settings.

The NPort can be configured from anywhere on the network through its web console. Simply point the browser to the device server's IP address to open the web console. Network settings, operation mode, and other items can all be configured through the browser.

Navigating the Web Console

To open the web console, enter your device server's IP address in the website address line. If you are configuring the NPort for the first time over an Ethernet cable, you will use the default IP address, **192.168.126.254**.

There are two account types: **admin** and **user**. If you enter the system with **admin** account, you will have the right to read and write. If you enter the system with **user** account, you will only have the right to read.

If prompted, enter the console password. The default password for both **admin** and **user** accounts is **moxa**. The password will be transmitted with MD5 encryption over the Ethernet.

MO	CC Tota	al Solution for Ind	ustrial Device Networking	W	/ww.moxa.com
Model Name Location	- NPort W2250A-W4-U3 - NPortW2250A-W4_77 -		- 192.168.126.254 - TBBKB0000077	 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
		Account	1		
		Password			
			Login		



ATTENTION

If you have forgotten the password, you can use the reset button to load factory defaults, but this will erase all previous configuration information.

The web console will appear as shown below.

MOXV	Total S	Total Solution for Industrial Device Networking			
Model Name Location	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	■ IP ■ Serial No.	- 192.168.126.254 - TBBKB0000077	MAC Address Firmware	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
	• Welc	ome to the	NPort W2250A-W	/4	
Main Menu	Model name	N	Port W2250A-W4-US		
Overview	Serial No.	Т	BBKB0000077		
Wizard	Firmware version	on 0.	1 Build 22071215		
Basic Settings	Ethernet IP add	ress 19	92.168.126.254		
- Network Settings	Ethernet MAC a	ddress 00	0:90:E8:11:45:A3		
- Serial Port Settings	WLAN IP addres	ss N	/A		
- System Management	WLAN MAC add	Iress 14	4:13:33:4B:6A:9D		
- System Monitoring	SSID	N	/A		
- Restart	WLAN network				
			/A		
WEBSERVER	WLAN RF type				
	WLAN country of				
	WLAN fast roan				
	Active network		thernet		
	Uptime	-	days 00h:21m:43s		
	Serial Port 1		eal COM, 115200, None, 8, 2, None		
	Serial Port 2	L			
	Serial Port 2	R	eal COM, 115200, None, 7, 2, None		

Settings are presented on pages that are organized by folder. Select the desired folder in the left navigation panel to open that page. The page will be displayed in the main window on the right. Certain folders can be expanded by clicking the adjacent "-" symbol.

For example, if you click **Basic Settings** in the navigation panel, the main window will show a page of basic settings that you can configure.

After you have made changes on a page, you must click **[Submit]** in the main window before jumping to another page. Your changes will be lost if you do not click **[Submit]**.

Once you click [Submit] button, the device server will reboot and with a beep alarm.

Basic Settings

MOX/	Total	Total Solution for Industrial Device Networking			
 Model Name Location 	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	■ IP ■ Serial No.	- 192.168.126.254 - TBBKB0000077	 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
	:-Bas	ic Settings			
Main Menu	Server Setting	IS			
Overview	Server name		NPortW2250A-W4_77		
Wizard Basic Settings	Server location	1			
- Network Settings - Serial Port Settings	Time Settings				
- System Management	Time zone		(GMT+08:00)Beijing, Chongqing, Ho	ong Kong, Urumqi	~
- System Monitoring	Local time (24-	hour)	2022 / 07 / 14	18 : 42 : 00	1
- Restart	Time server				
	2		Submit		

On the **Basic Settings** page, you can configure **Server name**, **Server location**, **Time zone (24-hour**), **Local time**, and **Time server**.

Server Name

Default	NPortW2150A_ <serial no.=""> or NPortW2250A_<serial no.=""></serial></serial>
Options	free text (e.g., "Server 1")
Description	This is an optional free text field to help you differentiate one device server from another.
	It does not affect operation of the NPort device server.

Server Location

Default	
Options	free text (e.g., "Bldg 1, 2nd Floor")
Description	This is an optional free text field to help you differentiate one device server from another.
	It does not affect operation of the NPort device server.

Time Zone

Default	(GMT)Greenwich Mean Time
Options	(GMT)Greenwich Mean Time
	(GMT-01:00)Azores, Cape Verde Is.
	(GMT-02:00)Mid-Atlantic etc.
Description	This field shows the currently selected time zone and allows you to select a different time
	zone.

Local Time

Default						
Options	Date (yy:mm:de	d), Time (hh:m	m:ss)			
Description	The NPort has a such as the auto according to the refresh the brow	built-in real-tir omatic warning NPort's built-ir vser to get an u rect date or time	ne clock tha e-mail or S n real-time o pdated read e, and click	it allows you to ad NMP trap. This fiel clock. This is not a ling. [Submit] . The ch	d shows the live field, so	current time you will need to
	ΜΟΧΛ	s Total S	olution for Indust	rial Device Networking		www.moxa.com
	Model Name Location	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	■ IP ■ Serial No.	- 192.168.126.254 - TBBKB0000077	 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
	- Main Menu Overview Wizard Basic Settings - Network Settings - Serial Port Settings - System Monitoring - Restart	Basic Settings O	к	Back		



ATTENTION

There is a risk of an explosion if the real-time clock battery is replaced incorrectly!

The real-time clock is powered by a lithium battery. We strongly recommend that you get help from a Moxa support engineer before replacing the battery. Please contact the Moxa RMA service team if you need to change the battery.

Time Server	
Default	
Options	IP address or domain name (e.g., "192.168.1.1" or "time.nist.gov")
Description	This optional field specifies your time server's IP address or domain name, if a time server is used in your network. The NPort supports SNTP (RFC-1769) for automatic time calibration. The device server will request time information from the specified time server every 10 minutes.

Overview

This chapter explains how to configure all settings located under the **Network Settings** folder in the NPort web console.

Network Settings

General Settings

ΜΟΧΛ	Total S	Total Solution for Industrial Device Networking			www.moxa.com
ModelNameLocation	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	■ IP ■ Serial No.	- 192.168.126.254 - TBBKB0000077	 MAC Address Firmware 	- 00:00:E8:11:45:A3 - 0.1 Build 22071215
	Gen	eral Settings	ŝ		
- Main Menu	General Setting	js			
Overview	DNS Server 1				
Wizard	DNS Server 2				
Basic Settings					
- Network Settings			Submit		
General Settings			Gubrint		
Ethernet/Bridge Settings					
- WLAN Settings					
Advanced Settings					
- Serial Port Settings					
- System Management					
- System Monitoring					
- Restart					

On the General Settings page in the Network Settings folder, you can change DNS server 1 and 2.

Default	
Options	IP address (e.g., "192.168.1.1")
Description	This field is for the DNS server's IP address, if applicable. With the DNS server configured, the NPort device server can use domain names instead of IP addresses to access hosts.
	Domain Name System (DNS) is how Internet domain names are identified and translated into IP addresses. A domain name is an alphanumeric name, such as www.moxa.com, that it is usually easier to remember than the numeric IP address. A DNS server is a host that translates a text-based domain name into an IP address in order to establish a TCP/IP connection. When the user wants to visit a particular website, the user's computer sends the domain name (e.g., www.moxa.com) to a DNS server to request that website's numeric IP address. When the IP address is received from the DNS server, the user's computer uses that information to connect to the website's web server.
	The NPort will play the role of a DNS client, actively querying the DNS server for the IP address associated with a particular domain name.

DNS Server 1 and 2

Ethernet/Bridge Settings

To enable the Ethernet-to-Wireless function, also called Wireless Client, go to the **Ethernet/Bridge Settings** page and enable **Ethernet Bridge**. When it's enabled, the LAN and WLAN will use the same IP configuration (use the same IP address, netmask and gateway settings).

MOX/	Total S	Solution for Indus	trial Device Networking		www.moxa.com
= Model = Name = Location	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	■ IP ■ Serial No.	- 192.168.126.254 - TBBKB0000077	 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
- Main Menu			s - Ethernet/Bridg	ge	
Overview	Ethernet bridge		Enable V		
Wizard	IP configuration		Static 🗸		
Basic Settings	IP address		192.168.126.254		
- Network Settings					
General Settings	Netmask		255.255.255.0		
Ethernet/Bridge Settin	gs Gateway				
- WLAN Settings					
Advanced Settings			Submit		
- Serial Port Settings					
- System Management					
- System Monitoring					
- Restart					



ATTENTION

In dynamic IP environments, the NPort will send three requests every 30 seconds to the DHCP server until the network settings have successfully been assigned. The first request will time out after one second; the second request will time out after three seconds, and the third request will timeout after five second. If the DHCP server is unavailable, the NPort will use the factory default network settings.

Default	Disabled
Options	Enabled, Disabled
Description	This field specifies whether to enable Ethernet Bridge mode or not. When Ethernet Bridge is enabled, the LAN and WLAN interfaces are bridged together. Data can be seamlessly transferred between serial lines, LAN, and WLAN. The LAN and WLAN will use the LAN IP setting, and WLAN IP setting will be disabled.
	Disabled: When disabled, you can use either the LAN or WLAN. Enabled: When enabled, you can use both the LAN and the WLAN.
	Ethernet Serial

IP Configuration

Default	Static
Options	Static, DHCP
Description	This field determines how the NPort's IP address will be assigned.
	Static: IP address, netmask, and gateway are user-defined.
	DHCP: IP address, netmask, gateway, DNS, and time server are assigned by the DHCP
	server.

IP Address

Default	192.168.126.254
Options	IP address (e.g., "192.168.1.1")
Description	This field is for the IP address that will be assigned to your NPort device server. An IP
	address is a number assigned to a network device (such as a computer) as a permanent
	address on the network. Computers use the IP address to identify and talk to each other
	over the network. Choose a proper IP address that is unique and valid in your network
	environment. If your device server will be assigned a dynamic IP address, set the IP
	configuration parameter appropriately.

Netmask

Default	255.255.255.0
Options	Netmask setting (e.g., "255.255.0.0")
Description	This field is for the subnet mask. A subnet mask represents all of the network hosts at one geographic location, in one building, or on the same local area network (LAN). When a packet is sent out over the network, the NPort device server 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 device server, a connection is established directly from the device server. Otherwise, the connection is established through the gateway as specified in the Gateway parameter.

Gateway

Default	
Options	IP address (e.g., "192.168.1.1")
Description	This field is for the IP address of the gateway, if applicable. A gateway is a network
	computer 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 device server needs to know the IP address of the default gateway computer in order
	to communicate with the hosts outside the local network environment. Consult your
	network administrator if you do not know how to set this parameter.

WLAN Settings

WLAN

ΜΟΧΛ Total Solution for Industrial Device Networking www.moxa.com 192.168.126.254 MAC Addr 00:90:E8:11:45:A3 NPort W2250A-W4-US NPortW2250A-W4 77 IP Serial No. • WLAN Settings WLAN Settings - Main Menu Static 🗸 Overview IP configuration Wizard 192 168 127 254 IP address Basic Settings Netmask 255.255.255.0 - Network Settings Gateway General Settings Ethernet/Bridge Settings WLAN Settings WLAN Profile WLAN Log Settings Advanced Settings - Serial Port Settings - System Management - System Monitoring - Restart

The **WLAN** page is located under **WLAN Settings** in the **Network Settings** folder. You can modify **IP configuration**, **IP address**, **Netmask**, and **Gateway** for your WLAN.

The NPort W2150A-W4/W2250A-W4 Series supports IEEE 802.11a/b/g/n wireless network interfaces. The supported IP configurations are static and dynamic (DHCP). Users can set up the IP configuration with the serial console, or the Web/Telnet consoles through the NPort's Ethernet interface. For detailed information about configuring **IP configuration**, **IP address**, **Netmask**, and **Gateway**, see the previous section, Ethernet Configuration.

IP	Configu	iration
----	---------	---------

Default	Static
Options	Static, DHCP
Description	This field determines how the NPort's IP address will be assigned.
	Static: IP address, netmask, and gateway are user-defined.
	DHCP: IP address, netmask, gateway, DNS, and time server are assigned by the DHCP server.

IP Address

Default	192.168.127.254
Options	IP address (e.g., "192.168.1.1")
Description	This field is for the IP address that will be assigned to your NPort device server. An IP address is a number assigned to a network device (such as a computer) as a permanent address on the network. Computers use the IP address to identify and talk to each other over the network. Choose a proper IP address that is unique and valid in your WLAN environment. If your device server will be assigned a dynamic IP address, set the IP configuration parameter appropriately.

Netmask

Default	255.255.255.0
Options	Netmask setting (e.g., "255.255.0.0")
Description	This field is for the subnet mask. A subnet mask represents all the network hosts at one geographic location, in one building, or on the same LAN. When a packet is sent out over the network, the NPort device server 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 device server, a connection is established directly from the device server. Otherwise, the connection is established through the gateway as specified in the Gateway parameter.

Gateway

Default	
Options	IP address (e.g., "192.168.1.1")
Description	This field is for the IP address of the gateway, if applicable. A gateway is a network
	computer 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 device server needs to know the IP address of the default gateway computer in order
	to communicate with the hosts outside the local network environment. Consult your
	network administrator if you do not know how to set this parameter.

Profile

ΜΟΧΛ	Total S	Solution for Indus			www.moxa.com
ModelNameLocation	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	■ IP ■ Serial No.	- 192.168.126.254 - TBBKB0000077	 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
	: Wire	eless LAN F	Profile Settings		
- Main Menu	Wireless LAN P	rofile			
Overview	Network type		Infrastructure Mode 🗸		
Wizard	Profile name		Infrastructure		
Basic Settings			General Security		
- Network Settings					
General Settings			Submit Activate		
Ethernet/Bridge Settings				-	
- WLAN Settings WLAN	Please remeber to	o activate Profile service	e by pressing "Activate" button after configuri	ng.	
Profile					
WLAN Log Settings					
Advanced Settings					
- Serial Port Settings					
Contain on Containgo					
- System Management					
- System Management - System Monitoring					
- System Management - System Monitoring - Restart					
- System Management - System Monitoring	- NPort W2250A-W4-US - NPort W2250A-W4_77	Solution for Indu: P Serial No.	strial Device Networking - 192.108.126.254 - ТВВК80000077	 MAC Address Firmware 	WWW.MOXa.COM - 00:90:E8:11:45:A3 - 0.1 Build 22071215
System Management System Monitoring Restart	- NPort W2250A-W4-US	■ IP	- 192.168.126.254		- 00:90:E8:11:45:A3
System Management System Monitoring Restart	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	IP Serial No.	- 192 188 128 254 - TBBKB0000077		- 00:90:E8:11:45:A3
System Management System Monitoring Restart Model Madel Name Location Main Menu Overview	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	IP Serial No.	- 192 188 128 254 - TBBKB0000077		- 00:90:E8:11:45:A3
System Management System Monitoring Restart Model Model Name Location	- NPort W2250A-W4-US - NPortW2250A-W4_77 - - - - General Propert	IP Serial No.	- 192 168 126 254 - тввквооооотт Properties		- 00:90:E8:11:45:A3
- System Management - System Monitoring - Restart Model - Model - Name - Location Main Menu Overview Wizard Basic Settings	- NPort W2250A-W4-US - NPortW2250A-W4_77 - - - - - - - - - - - - -	IP Serial No.	- 192.188.126.254 - тввквооооотт Properties Infrastructure		- 00:90:E8:11:45:A3 - 0.1 Build 22071215
System Management System Monitoring Restart Model Mane Location Main Menu Overview Wizard Basic Settings Network Settings	- NPort W2250A-W4-US - NPortW2250A-W4_77 - - - - - - - - - - - - -	IP Serial No.	- 192.183.126.254 - тввквооооотт Properties	• Firmware	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
System Management System Monitoring Restart Model Model Name Location Main Menu Overview Wizard Basic Settings - Network Settings General Settings	- NPort W2250A-W4-US - NPortW2250A-W4_77 - - - - - - - - - - - - -	E IP Serial No.	- 192.183.126.254 - тввквооооотт Properties Infrastructure Auto v profile 1	• Firmware	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
System Management System Monitoring Restart Model Model Name Location Main Menu Overview Wizard Basic Settings - Network Settings General Settings Ethernet/Bridge Settings	- NPort W2250A-W4-US - NPortW2250A-W4_77 - General Propert Profile name RF type SSID Fast roaming	IP Serial No.	- 192.188.126.254 - тввквооооотт Properties Infrastructure Auto profile1 Disable ✓	• Firmware	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
- System Management - System Monitoring - Restart Model - Model - Name - Location - Main Menu Overview Wizard Basic Settings - Network Settings General Settings Ethermet/Bridge Settings - WLAN Settings	- NPort W2250A-W4-US - NPortW2250A-W4_77 - General Propert Profile name RF type SSID Fast roaming Scan channels - Scan channels -	IP Serial No. AN Profile] ties	- 192 183 126 254 - ТВВКВ0000077 Properties Infrastructure Auto profile1 Disable N/A N/A	• Firmware	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
- System Management - System Monitoring - Restart Model Maine - Location Main Menu Overview Wizard Basic Settings - Network Settings General Settings Ethermet/Bridge Settings	- NPort W2250A-W4-US - NPortW2250A-W4_77 - General Propert Profile name RF type SSID Fast roaming Scan channels - Scan channels - Scan channels -	IP Serial No. AN Profile] ties 1 2 3	- 192 183 128 254 - ТВВКВ0000077 Properties Infrastructure Auto profile1 Disable N/A N/A N/A	• Firmware	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
System Management System Monitoring Restart Model Model Name Location Main Menu Overview Wizard Basic Settings Ceneral Settings Ethernet/Bridge Settings Ethernet/Bridge Settings WLAN	- NPort W2250A-W4-US - NPortW2250A-W4_77 - General Propert Profile name RF type SSID Fast roaming Scan channels - Scan channels - Scan channels - Roaming threshol	IP Serial No. AN Profile] ties 1 2 3 old	- 192 183 128 254 - твяквоооотт Properties Infrastructure Auto profile1 Disable N/A N/A N/A N/A -70dBm (-70~-40)	• Firmware	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
System Management System Monitoring Restart Model Model Name Location Main Menu Overview WiZard Basic Settings Ceneral Settings Ethernet/Bridge Settings Ethernet/Bridge Settings ULAN Profile	- NPort W2250A-W4-US - NPortW2250A-W4_77 - General Propert Profile name RF type SSID Fast roaming Scan channels - Scan channels - Scan channels -	IP Serial No. AN Profile] ties 1 2 3 old	- 192 183 128 254 - ТВВКВ0000077 Properties Infrastructure Auto profile1 Disable N/A N/A N/A	• Firmware	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
System Management System Monitoring Restart Model Model Name Location Main Menu Overview Wizard Basic Settings Ceneral Settings Ethermet/Bridge Settings Ethermet/Bridge Settings , WLAN Settings WLAN Profile WLAN Log Settings	- NPort W2250A-W4-US - NPortW2250A-W4_77 - General Propert Profile name RF type SSID Fast roaming Scan channels - Scan channels - Scan channels - Roaming threshol	IP Serial No. AN Profile] ties 1 2 3 old	- 192 183 128 254 - твяквоооотт Properties Infrastructure Auto profile1 Disable N/A N/A N/A N/A -70dBm (-70~-40)	• Firmware	- 00:90:E8:11:45:A3 - 0.1 Build 22071215

The **Profile** page is located under **WLAN Settings** in the **Network Settings** folder. This is where you configure the NPort for Infrastructure operation.

Network	Туре
---------	------

Default	Infrastructure Mode
Options	Infrastructure Mode
Description	The NPorts in Infrastructure Mode do not communicate directly with each other, but through a wireless access point (AP).
	Example of Infrastructure Mode
	After setting the Network type, you will need to adjust the General and Security settings t
	establish the wireless connection.

General Settings for WLAN Profile

The **General** page is opened through the **Profile** page, under **WLAN Settings** in the **Network Settings** folder. You can type a profile name to help you differentiate one profile from another. It does not affect the operation of the NPort. Click **[General]** to open the General page for the selected profile. In Infrastructure Mode, only one profile is available.

In Infrastructur	e Mode				
мохл	• Total	Solution for Indus	trial Device Networking		www.moxa.com
 Model Name Location 	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	■ IP ■ Serial No.	- 192.168.126.254 - TBBKB0000077	 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
	:-Wir	eless LAN P	rofile Settings		
- Main Menu	Wireless LAN	Profile			
Overview	Network type		Infrastructure Mode 🗸		
Wizard	Profile name		Infrastructure		
Basic Settings			General Security		
- Network Settings			General Security		
General Settings					
Ethernet/Bridge Settings			Submit Activate		
- WLAN Settings					
WLAN	Please remeber	to activate Profile service	by pressing "Activate" button after config	guring.	
Profile					

MOX/	Tota	I Solution for Indus	trial Device Networking		www.moxa.com
= Model = Name = Location	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	■ IP ■ Serial No.	- 192.168.126.254 - TBBKB0000077	 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
- Main Menu	General Pro	LAN Profile]	Properties		
Overview Wizard Basic Settings - Network Settings General Settings Ethernet/Bridge Settings - WLAN Settings WLAN Profile WLAN Log Settings Advanced Settings	Scan channe Scan channe Roaming thre	ls - 1 ls - 2 ls - 3 eshold	Infrastructure Auto ▼ profile1 Disable ▼ N/A ▼ N/A ▼ N/A ▼ -70 dBm (-70~40) 2 dBm (2~10)	Site Survey	
5 5	Roaming diff		erence	erence 2 dBm (2~10)	

On the General page, you can configure **Profile name**, **RF type**, and input an **SSID** provided by your Wi-Fi AP. Additional settings are also available.

Profile Name

Default	Infrastructure (in Infrastructure Mode)
Options	free text (e.g., "Primary Connection")
Description	This is a free text field to help you differentiate one profile from another. It does not affect
	operation of the NPort.
RF Type	
Default	Auto for Infrastructure Mode.
Options	Auto, 802.11a, 802.11b/g, 802.11a/n, 802.11b/g/n
Description	This field determines which wireless standard will be used by the selected profile. 802.11a 802.11b/g, 802.11a/n and 802.11b/g/n are supported.
	Auto: In Infrastructure Mode, the NPort will automatically select between 802.11a, 802.11b/g, 802.11a/n and 802.11b/g/n according to the settings of the AP.
	802.11a: The Unlicensed National Information Infrastructure (UNII) 5 GHz band is used for communication, which differs from the RF band used by 802.11b and 802.11g. Consequently, 802.11a devices cannot communicate with 802.11b or 802.11g devices. (Multi-mode 802.11a/b/g APs or client adapters can resolve this.) Transmission rates up to 54Mbps are supported.
	802.11b/g: This option means our device will support for 802.11b or 802.11g. 802.11b: This is the well-known "Wi-Fi" standard, also referred to as "802.11 High-Rate (HR)." Wireless communication is in the 2.4 GHz ISM band, using the DSSS spread spectrum transmission scheme. 802.11b supports data rates of 1 Mbps, 2 Mbps, 5.5 Mbps and 11 Mbps.
	802.11a/n: This option means our device will support up to 150 Mbps data rate to communicate with an 802.11a/n AP.
	802.11b/g/n: This option means our device will support up to 72.2 Mbps data rate to communicate to a 802.11b/g/n AP.

2210

Default	profile1
Options	free text (e.g., "Coffeeshop WLAN")
Description	This field specifies the SSID, or name, of the wireless network (SSID) that will be used by the NPort. Wireless devices must use the same SSID in order to communicate with each other.

Site Survey

When you click **Site Survey**, the device server will scan for all the APs it can find nearby. It shows all the signal strengths between the device server and the APs. You may check the checkbox and click **OK** to create a profile for the specified AP.

SSID	Security	Signal Strengt
O AREONING	WPA2-PSK	-86 dBm
O HTC 348D	WPA2-PSK	-81 dBm
0.00	None	-88 dBm
C LIPCAHM	None	-90 dBm
C MHG-Meble	WPA2	-71 dBm
	WPA2-PSK	-71 dBm
O MHG-NB	WPA2	-88 dBm
© PV0_1	WPA2-PSK	-74 dBm
Sepido_58270s_d15da3	WPA	-71 dBm
O LIEHO	WPA2	-74 dBm
O Uniteds	WPA2-PSK	-69 dBm
	WPA2-PSK	-71 dBm



Fast Roaming (Infrastructure mode only)

Default	Disable
Options	Disable, Enable
Description	This field is available in Infrastructure Mode and is used to specify the NPort W2150A-W4/W2250A-W4 Series roaming behavior. Roaming is the ability to connect to different APs so that wireless communication is not confined to one area or one particular AP. The NPort W2150A-W4/W2250A-W4 Series will only roam between APs, as specified by the SSID.
	Disable: Fast Roaming function will be disabled.
	NPort W2150A-W4/W2250A-W4 Series will scan all available channels and roam between APs as specified by the SSID. It scans the channel when booting up and will associate with the highest signal strength AP. Only when the associated AP is lost, it will re-associate again.
	Enable: Fast Roaming function will be enabled.
	NPort W2150A-W4/W2250A-W4 Series will only scan the pre-defined Scan Channels - 1 , Scan Channels - 2 & Scan Channels - 3 and roam between APs as specified by the SSID.
	It scans the channel and will associate with the highest signal strength AP. It also scans the channel regularly and will re-associate with the highest signal strength AP (if there is) automatically.

Scan channels – 1, Scan channels – 2, Scan channels – 3 (Infrastructure mode)

Default	N/A
Options	1 through 36, 40, 44, 48, 52, 56, 60, 64, 100, 104, 108, 112, 116, 120, 124, 128, 132,
	136, 140, 149, 153, 157, 165
Description	This field is for fast roaming under Infrastructure Mode and specifies the radio channel to
	use for the wireless network. Choose the channel according to the factory setting of the AP.

Roaming threshold

Default	-70 (Disable)
Options	numbers
Description	When the signal strength between the device and the AP is worse than this number, below -70 dBm as the default number, the device server will scan for a new AP to establish the connection.

Roaming difference

Default	2 (Disable)
Options	numbers
Description	When the device server finds a new AP, the signal strength between device server and the new AP must above this number compared to the old AP, then the device server will
	change to establish a new connection with the new AP. For example, when the signal strength to the old AP is -70 dBm. When the new AP is -69 dBm, the device server will keep the connection to the old one. If the new AP is -68 dBm, the device server will switch the connection to the new AP
	the connection to the old one. If the new AP is -68 dBm, the device server will switch the connection to the new AP.

Security Settings for WLAN Profile

The **Security** page is opened through the **Profile** page, under **WLAN Settings** in the **Network Settings** folder. In Infrastructure Mode, click **[Security]** to open the Security page. Three profiles are available in Infrastructure Mode.

ΜΟΧΛ	Total S	Solution for Indu	strial Device Networking		www.moxa.com
 Model Name Location 	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	■ IP ■ Serial No.	- 192.168.126.254 - TBBK80000077	 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
	:•Wire	eless LAN F	Profile Settings		
lain Menu	Wireless LAN P	rofile			
Overview	Network type		Infrastructure Mode 🗸		
Wizard	Profile name		Infrastructure		
Basic Settings			General Security	D	
- Network Settings					
General Settings Ethernet/Bridge Settings			Submit Activate		
- WLAN Settings					
WLAN	Please remeber t	o activate Profile service	e by pressing "Activate" button after config	uring.	
Profile					
νοχν	Total S	olution for Indus	strial Device Networking		www.moxa.com
 Model Name Location 	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	■ IP ■ Serial No.	- 192.168.126.254 - TBBKB0000077	 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
Name	- NPortW2250A-W4_77 -		- TBBKB0000077		
Name Location	- NPortW2250A-W4_77 -	• Serial No.	- TBBKB0000077		
Name Location	- NPortW2250A-W4_77 -	• Serial No.	- TBBKB0000077		
Name Location ain Menu Overview	- NPortW2250A-W4_77 - - Security Proper	• Serial No.	- тввквооооотт Properties		
Name Location ain Menu Overview Wizard	- NPortW2250A-W4_77 - Security Proper Profile name Authentication	• Serial No.	- TBBKB0000077 Properties Infrastructure		
Name Location in Menu Overview Mizard Basic Settings	- NPortW2250A-W4_77 - - Security Proper Profile name	• Serial No.	- TBBKB0000077 Properties Infrastructure Open System		
Name Location in Menu Overview Mizard Basic Settings Network Settings General Settings	- NPortW2250A-W4_77 - Security Proper Profile name Authentication	• Serial No.	- TBBKB0000077 Properties Infrastructure Open System		
Name Location Ioration Avara Verview Avzard Sasic Settings Network Settings General Settings Ethemet/Bridge Settings	- NPortW2250A-W4_77 - Security Proper Profile name Authentication	• Serial No.	- TBBKB0000077 Properties Infrastructure Open System • Disable •		
Name Location Iain Menu Overview Wizard Basic Settings - Network Settings General Settings	- NPortW2250A-W4_77 - Security Proper Profile name Authentication	• Serial No.	- TBBKB0000077 Properties Infrastructure Open System • Disable •		

You will need to configure **Authentication** and **Encryption**. These settings must match the settings on the wireless device at the other end of the connection (such as the AP). Different settings and options are available depending on how **Authentication** and **Encryption** are configured.

Authentication

Default	Open System
Options	Open System, Shared Key, WPA, WPA-PSK, WPA2, WPA2-PSK
Description	This field specifies how wireless devices will be authenticated. Only authenticated devices will be allowed to communicate with the NPort. If a RADIUS server is used, this setting must match the setting on the RADIUS server.
	Open System: The NPort will simply announce a desire to associate with access point. No authentication is required.
	Shared Key: Authentication involves a more rigorous exchange of frames to ensure that the requesting station is authentic. WEP encryption is required.
	WPA: This is a managed authentication option in Infrastructure Mode. The Wi-Fi Alliance, the industry trade group that owns the Wi-Fi trademark and certifies devices with the Wi-Fi name created WPA. It is based on Draft 3 of the IEEE 802.11i standard. Each user uses a unique key for authentication, distributed from an IEEE 802.1X authentication server, also known as a RADIUS server. We also referred this option to as WPA Enterprise Mode, since it should meet rigorous enterprise security requirements. Tunneled authentication is supported, depending on the EAP method selected.
	WPA-PSK: This is an unmanaged authentication option in Infrastructure Mode. Instead of a unique key for each user, a pre-shared key (PSK) is manually entered on the access point to generate an encryption key that is shared among all users. Consequently, this method does not scale well for enterprise. A PSK that uses a mix of letters, numbers and non- alphanumeric characters is recommended. This option is also referred to as WPA Personal Mode, since it is designed for the needs and capabilities of small home and office WLANs.
	WPA2: This is a managed authentication option in Infrastructure Mode. WPA2 implements the mandatory elements of 802.11i. Supported encryption algorithms include TKIP, Michael, and AES-based CCMP, which is considered fully secure. Since March 13, 2006, WPA2 has been mandatory for all Wi-Fi-certified devices. We may also refer this option to as WPA2 Enterprise Mode. Tunneled authentication is supported, depending on the EAP method selected.
	WPA2-PSK: This is an unmanaged authentication option in Infrastructure Mode. It employs WPA2 encryption algorithms but relies on a PSK for authentication. A PSK that uses a mix of letters, numbers and non-alphanumeric characters is recommended. We can also refer this option to as WPA Personal Mode.

Encryption	
Default	Disable
Options	Disable, WEP, TKIP, AES-CCMP
Description	This field specifies the type of encryption to use during wireless communication. Different encryption methods are available depending on the Authentication setting. Also, each encryption method has its own set of parameters that may also require configuration.
	Disable: No encryption applies to the data during wireless communication. This option is only available if Authentication is set to Open System .
	WEP: Wired Equivalent Privacy (WEP) is only available for Open System and Shared Key authentication methods. Data is encrypted according to a key. The NPort supports both 64 and 128-bit keys. This method may deter casual snooping, but is not considered very secure.
	TKIP: Temporal Key Integrity Protocol (TKIP) is only available for WPA, WPA2, WPA-PSK, and WPA2-PSK authentication methods. TKIP is part of a draft standard from the IEEE 802.11i working group and uses the RC4 stream cipher with 128-bit keys for encryption and 64-bit keys for authentication. TKIP improves on WEP by adding a per-packet key mixing function to de-correlate the public initialization vectors (IVs) from weak keys.
	AES-CCMP: This is a powerful encryption method that is only available for WPA, WPA2, WPA-PSK, and WPA2-PSK authentication methods. Advanced Encryption Standard (AES) is the block cipher system used by the Robust Secure Network (RSN) protocol and is equivalent to the RC4 algorithm used by WPA. CCMP is the security protocol used by AES, equivalent to TKIP for WPA. Data undergoes a Message Integrity Check (MIC) using a well- known and proven technique called Cipher Block Chaining Message Authentication Code (CBC-MAC). The technique ensures that even a one-bit alteration in a message produces a dramatically different result. Master keys are not used directly but are used to derive other keys, each of which expire after a certain amount of time. Messages are encrypted using a secret 128-bit key and a 128-bit block of data. The encryption process is complex, but the administrator does not need to be aware of the intricacies of the computations. The result is encryption that is much harder to break than even WPA.

PSK Passphrase

Default	
Options	free text (e.g., "This is the WLAN passphrase")
Description	This field is only available for WPA-PSK and WPA2-PSK authentication methods. If the
	NPort's passphrase does not match the AP's passphrase, the connection will be denied. A
	PSK of sufficient strength—one that uses a mix of letters, numbers and non-alphanumeric
	characters—is recommended.

Security Settings for WEP Encryption

ΜΟΧΛ	s Total S	Total Solution for Industrial Device Networking			www.moxa.com	
Model Name Location	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	■ IP ■ Serial No.	- 192.188.126.254 - TBBKB0000077	 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215	
	:•WLA	N Profile	Properties			
Main Menu	Security Propert	ies				
Overview	Profile name		Infrastructure			
Wizard	Authentication		Open System V			
Basic Settings	Encryption		WEP 🗸			
- Network Settings	WEP key length		64-bits 🗸			
General Settings Ethernet/Bridge Settings	WEP key index		1 🗸			
- WLAN Settings	WEP key source		🔵 Manual Generate WEP ke	eys by passphrase		
WLAN	WEP key format		ASCII 🗸			
Profile	WEP key 1					
WLAN Log Settings	WEP key 2					
Advanced Settings	WEP key 3					
- Serial Port Settings	WEP key 4					
- System Management	WEP Key 4					
- System Monitoring			Colomit			
- Restart			Submit			

When Encryption is set to WEP on the **Security** page for the WLAN profile, you will configure **WEP key length**, **WEP key index**, and **WEP key source**. It will display other settings, depending on how **WEP key source** is configured.

WEP Key Length

Default	64bits
Options	64bits, 128bits
Description	This field specifies the length of the WEP key. 64bits is the industry standard for WEP, but
	128bits provides better protection.

WEP Key Index

Default	1
Options	1 through 4
Description	This field specifies the primary WEP key to use for the WLAN.

WEP Key Source

Default	Manual
Options	Manual, Generate WEP keys by passphrase
Description	This field specifies whether the WEP key will be generated manually or through a user-
	specified passphrase. A passphrase is equivalent to a free-text password that will generate
	the WEP key. A passphrase is typically easier to remember and enter than a long and
	complicated WEP key.

WEP Passphrase

Default	
Options	free text (e.g., "This is the WEP passphrase")
Description	This field is only available if WEP key source is set to Generate WEP keys by
	passphrase. A standard hexadecimal password will be generated using the supplied
	passphrase. For example, if "404tech" is entered, the WEP key will be
	"DB971608E942FC39BD89FC4ADB".

WEP Key Format

Default	ASCII
Options	ASCII, HEX
Description	This field is only available if WEP key source is set to Manual. It specifies the format you
	will use to enter the WEP key.

WEP Key 1 Through 4

Default				
Options	free text in ASCII or HEX			
Description	These fields are only available if WEP key source is set to Manual. Enter each WEP key in ASCII or HEX as specified in WEP key format. The number of characters required for each key depends on WEP key length and WEP key format.			
	WEP Key Length	WEP Key Format	Key Length	
	64bits	ASCII	5 characters	
		HEX	10 characters	
	128bits	ASCII	13 characters	

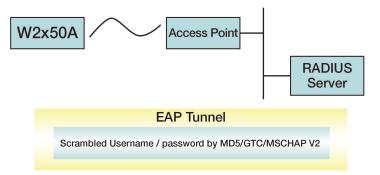
Security Settings for WPA, WPA2

ΜΟΧΛ	Total S	Solution for Indus	strial Device Networking		www.moxa.com
Model Name Location	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	■ IP ■ Serial No.	- 192.168.126.254 - TBBKB0000077	 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
	:•WL	AN Profile]	Properties		
- Main Menu	Security Proper	ties			
Overview	Profile name		Infrastructure		
Wizard	Authentication		IWPA V		
Basic Settings	Encryption		Open System		
- Network Settings	EAP method	(Shared Key WPA		
General Settings			WPA-PSK		
Ethernet/Bridge Settings	Username	· · · · · · · · · · · · · · · · · · ·	WPA2 WPA2-PSK		
- WLAN Settings	Verify server cer				
WLAN	Trusted server c	ertificate	Not Installed		
Profile	User certificate		Not Installed		
WLAN Log Settings	User private key		Not Installed		
Advanced Settings					
- Serial Port Settings - System Management			Submit		
	Total Sc	olution for Indust	trial Device Networking		
MOXA®	- NPort W2250A-W4-US	■ IP	trial Device Networking	MAC Address	- 00:90:E8:11:45:A3
Model				■ MAC Address ■ Firmware	
 Model Name 	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	■ IP	- 192.168.126.254 - ТВВКВ0000077		- 00:90:E8:11:45:A3
Model Name Location	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	• IP • Serial No. N Profile P	- 192.168.126.254 - ТВВКВ0000077		- 00:90:E8:11:45:A3
 Model Name 	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	• IP • Serial No. N Profile P	- 192.168.126.254 - ТВВКВ0000077		- 00:90:E8:11:45:A3
Model Name Location Main Menu	- NPort W2250A-W4-US - NPortW2250A-W4_77 - - Security Propert	• IP • Serial No. N Profile P	- 192 168, 128 254 - тввквооооотт Properties		- 00:90:E8:11:45:A3
Model Name Location Main Menu Overview	- NPort W2250A-W4-US - NPortW2250A-W4_77 - - Security Properti Profile name Authentication	• IP • Serial No. N Profile P	- 192 168, 128 254 - твВквооооотт Properties		- 00:90:E8:11:45:A3
Model Name Location Main Menu Overview Wizard	- NPort W2250A-W4-US - NPortW2250A-W4_77 - - Security Properti Profile name Authentication Encryption	• IP • Serial No. N Profile P	- 192 168, 128 254 - твВквооооот7 Properties		- 00:90:E8:11:45:A3
Model Name Location Main Menu Overview Wizard Basic Settings Network Settings General Settings	- NPort W2250A-W4-US - NPortW2250A-W4_77 - - - - - - - - - - - - - - - - - -	• IP • Serial No. N Profile P	- 192 168, 128 254 - твВквооооот7 Properties		- 00:90:E8:11:45:A3
Model Name Location Main Menu Overview Wizard Basic Settings - Network Settings General Settings Ethernet/Bridge Settings	- NPort W2250A-W4-US - NPortW2250A-W4_77 - - Security Properti Profile name Authentication Encryption EAP method Username	= IP = Serial No. IN Profile P	- 192 168, 128 254 - TBBKB0000077 Properties Infrastructure WPA TKIP TLS 		- 00:90:E8:11:45:A3
Model Name Location Main Menu Overview Wizard Basic Settings - Network Settings General Settings Ethernet/Bridge Settings - WLAN Settings	- NPort W2250A-W4-US - NPortW2250A-W4_77 - - - - - - - - - - - - -	IP = Serial No. IN Profile P ies ificate	- 192 168, 128 254 - TBBKB0000077 Properties Infrastructure WPA TKIP TLS Disable Disable		- 00:90:E8:11:45:A3
Model Name Location Main Menu Overview Wizard Basic Settings - Network Settings General Settings Ethernet/Bridge Settings - WLAN Settings WLAN	- NPort W2250A-W4-US - NPortW2250A-W4_77 - - - - - - - - - - - - -	IP = Serial No. IN Profile P ies ificate	- 192 168, 128 254 - TBBKB0000077 Properties Infrastructure WPA TKIP TLS Disable Not Installed		- 00:90:E8:11:45:A3
Model Name Location Main Menu Overview Wizard Basic Settings - Network Settings General Settings Ethernet/Bridge Settings - WLAN Settings VILAN Profile	- NPort W2250A-W4-US - NPortW2250A-W4_77 - - - - - - - - - - - - -	IP = Serial No. IN Profile P ies ificate	- 192 168, 128 254 - TBBKB0000077 Properties Infrastructure WPA TKIP TLS Disable Disable		- 00:90:E8:11:45:A3
Model Name Location Main Menu Overview Wizard Basic Settings General Settings General Settings Ethemet/Bridge Settings - WLAN Settings WLAN Profile WLAN Log Settings	- NPort W2250A-W4-US - NPortW2250A-W4_77 - - - - - - - - - - - - -	IP = Serial No. IN Profile P ies ificate	- 192 168, 128 254 - TBBKB0000077 Properties Infrastructure WPA TKIP TLS Disable Not Installed		- 00:90:E8:11:45:A3
Model Name Location Main Menu Overview Wizard Basic Settings - Network Settings General Settings Ethernet/Bridge Settings WLAN Settings WLAN Profile WLAN Log Settings Advanced Settings	- NPort W2250A-W4-US - NPortW2250A-W4_77 - - - - - - - - - - - - -	IP = Serial No. IN Profile P ies ificate	- 192 168, 128 254 - TBBKB0000077 Properties Infrastructure WPA TKIP TLS Disable Not Installed Not Installed		- 00:90:E8:11:45:A3
Model Name Location Main Menu Overview Wizard Basic Settings General Settings General Settings Ethemet/Bridge Settings - WLAN Settings WLAN Profile WLAN Log Settings	- NPort W2250A-W4-US - NPortW2250A-W4_77 - - - - - - - - - - - - -	IP = Serial No. IN Profile P ies ificate	- 192 168, 128 254 - TBBKB0000077 Properties Infrastructure WPA TKIP TLS Disable Not Installed Not Installed		

When WPA or WPA2 is used for authentication, you will also need to configure **EAP method** in the **Security** settings for the WLAN profile. It will also display other settings, depending on how **EAP method** is configured.

There are two parts to WPA and WPA2 security, authentication, and data encryption.

Authentication occurs before access is granted to a WLAN. Wireless clients such as the NPort W2150A-W4/W2250A-W4 Series are first authenticated by the AP according to the authentication protocol used by the RADIUS server. Depending on the WLAN security settings, an EAP tunnel can scramble the username and password that is submitted for authentication purposes.



• Encryption occurs after WLAN access has been granted. For all wireless devices, data is first encrypted before wireless transmission, using mutually agreed-upon encryption protocol.

EAP Method

Default	PEAP
Options	TLS, PEAP, TTLS, LEAP
Description	This field specifies the EAP method to use for authentication. Four methods are supported.
	TLS: Transport Layer Security (TLS) was created by Microsoft and accepted by the IETF as RFC 2716: PPP EAP TLS Authentication Protocol. Passwords and tunneled authentication are not used. A user certificate and user private key are used to identify the NPort. The NPort's user certificate and user private key must already be installed on the RADIUS server.
	PEAP: Protected Extensible Authentication Protocol (PEAP) is a proprietary protocol which was developed by Microsoft, Cisco, and RSA Security.
	TTLS: Tunneled Transport Layer Security (TTLS) is a proprietary protocol which was developed by Funk Software and Certicom, and is supported by Agere Systems, Proxim, and Avaya. TTLS is being considered by the IETF as a new standard. For more information on TTLS, read the draft RFC EAP Tunneled TLS Authentication Protocol.
	LEAP: Lightweight Extensible Authentication Protocol (LEAP) is a proprietary protocol which was developed by Cisco. LEAP doesn't check certificate during the authentication process.

Tunneled Authentication

Default	PAP (when using TTLS)
	GTC (when using PEAP)
Options	GTC, MD5, MSCHAP V2 (when using PEAP)
	PAP, CHAP, MSCHAP, MSCHAP V2, EAP-MSCHAP V2, EAP-GTC,
	EAP-MD5 (when using TTLS)
Description	This field specifies the encryption method to use during the authentication process.
	Different methods are available, depending on the EAP Method setting.

Username

Default	
Options	free text (e.g., "Smith_John")
Description	This field specifies the username that will gain access to the WLAN. The correct username
	and password must be provided for access to be granted.

Password

Default	
Options	free text (e.g., "Password123")
Description	This field specifies the password that will gain access to the WLAN. The correct username and password must be provided for access to be granted.

Anonymous Username

Default	
Options	free text (e.g., "Anyuser")
Description	This field specifies the anonymous username to use when starting authentication. After the
	RADIUS Server has been verified by certificate, the true username and password will
	complete the authentication process.

Verify Server Certificate

Default	Disable
Options	Disable, Enable
Description	Disable: The certificate from the RADIUS server will be ignored.
	-
	Enable: The certificate from the RADIUS server will authenticate access to the WLAN. The
	RADIUS server's trusted server certificate must already be installed on the NPort. To install
	a trusted server certificate, visit the corresponding page in the System Management>
	Certificate folder.

Trusted Server Certificate

This field is available for PEAP, TLS, and TTLS EAP methods only. It displays information on the trusted server certificate that is installed on the NPort. To install a trusted server certificate, visit the corresponding page in the **System Management > Certificate** folder.

User Certificate

This field is available only when the EAP method has been set to TLS. It displays information on the user certificate that is installed on the NPort. To install a user certificate, visit the corresponding page in the **System Management > Certificate** folder.

User Private Key

This field is available only when EAP method has been set to TLS. It displays information on the user private key on the NPort.

WLAN Log Settings

ΜΟΧΛ	s Total	Total Solution for Industrial Device Networking			
Model Name Location	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	■ IP ■ Serial No.	- 192.168.126.254 - TBBKB0000077	 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
- Main Menu	WLAN Log Set	AN Log Sett	ings		
Overview	WLAN Log		Disable 🗸		
Wizard					
Basic Settings			Submit		
- Network Settings			Cubin		
General Settings					
Ethernet/Bridge Settings					
- WLAN Settings					
WLAN					
Profile					
WLAN Log Settings					

WLAN Log Settings

Default	Disable
Options	Disable, Enable
Description	When the wireless connection between the device server and the AP is not stable, you may
	enable this function to have more information for troubleshooting. You may find System
	Monitoring \rightarrow System Status \rightarrow WLAN Log for the detail logs. Before calling for help
	from Moxa, please enable this function to collect some information.

Advanced Settings

MOXA	* Total	Total Solution for Industrial Device Networking					
= Modei = Name = Location	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	■ IP ■ Serial No.	- 192.168.126.254 - TBBKB0000077	 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215		
Main Menu	:• Adv	anced Setti	ngs				
Overview Wizard Basic Settings - Network Settings General Settings Ethernet/Bridge Settings - WLAN Settings WLAN Profile	Enable Gratuito Send intervals (IP/MAC address IP/MAC address IP/MAC address	10-1000 sec) Hes 1 Hes 2 Hes 3	Enable ↓ 180 IP 192.168.127.211 IP 192.168.127.222 IP 192.168.127.233 IP 192.168.127.244	MAC 11:22:33L44:AA:11 MAC 11:22:33L44:BB:22 MAC 11:22:33L44:CC:33 MAC 11:22:33L44:DD:44			

On the **Advanced Settings** page in the **Network Settings** folder, you can change **Gratuitous ARP**. For this function, the NPort will actively send ARP packets to inform the devices in the network how to find the NPort. If you enable Ethernet/Bridge mode, you can input the IP/MAC address of the legacy device that connected to the Ethernet port of the NPort. The NPort will help to send out the ARP packets with its IP address to inform the network how to find this legacy device.

Gratuitous ARP

Default	Enabled
Options	Enable / Disable
Description	Gratuitous ARP requests provide duplicate IP address detection. The NPort sends broadcast packets to update ARP tables on other devices (e.g., AP, PC) periodically. We can use this function to notify networked devices that the NPort is still alive. Moreover, the NPort can send Gratuitous ARP for legacy devices that do not have this function. If you want the NPort to send Gratuitous ARP for legacy devices, enter the legacy devices' IP and Mac addresses in IP/MAC address field.

Send Period

Default	180 seconds
Options	10-1000 seconds
Description	This field specifies how long the NPort periodically sends Gratuitous ARP.

IP/MAC Addresses

•	
Default	N/A
Options	IP address and MAC address of the legacy device (e.g., IP: "192.168.1.1", MAC:
	"11:22:33:44:AA:11"). This function is only available when Ethernet Bridge is enabled.
Description	IP address: legacy device IP address.
	MAC address: legacy devices MAC address.

Overview

This chapter explains how to configure all settings located under the **Serial Port Settings** folder in the NPort web console.

Serial Port Settings

Operation Modes

ΜΟΧΛ	8	Total Solution for Industrial Device Networking					www.moxa.com
 Model Name Location 	- NPort W2250 - NPortW2250/ -		■ IP ■ Serial No.	- 192.168.126.254 - TBBKB0000077		 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
		:•Operat	tion Mode				
- Main Menu	Port	Operating mode	Packet length	Delimiter 1	Delimiter 2	Delimiter process	Force transmit
Overview		B10014	0	00 (Disable)	00 (Disable)	Do Nothing	0
Wizard	1	Real COM	Max connection:	1			
Basic Settings	2	Real COM	0	00 (Disable)	00 (Disable)	Do Nothing	0
- Network Settings	-		Max connection:	1			
General Settings							
Ethernet/Bridge Settings							
- WLAN Settings							
Advanced Settings							
- Serial Port Settings							
Operation Mode							

Each serial port on the NPort is configured through the hyperlink below the column of **Operating mode**.

MOXA	8	Total Solution for Industrial Device Networking					www.moxa.com
Model Name Location	- NPort W22 - NPortW22 -	250A-W4-US 50A-W4_77	■ IP ■ Serial No.	- 192.168.126.254 - TBBKB0000077		 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
		:•Operat	tion Mode				
- Main Menu	Po	rt Operating mode	Packet length	Delimiter 1	Delimiter 2	Delimiter process	Force transmit
Overview		Real COM	0	00 (Disable)	00 (Disable)	Do Nothing	0
Wizard		Real COW	Max connection:	1			
Basic Settings	2	Real COM	0	00 (Disable)	00 (Disable)	Do Nothing	0
- Network Settings			Max connection:	1			
General Settings							
Ethernet/Bridge Settings							
- WLAN Settings							
Advanced Settings							
- Serial Port Settings							
Operation Mode							
Operation Mode							

Click the link of **Real COM**. It will show the Port settings page. The Operation Modes page for each serial port is where you configure the serial port's operation mode and related settings. For an introduction to the different operation modes, please refer to Chapter 4.

ΜΟΧΛ	* Total S	olution for Indus	trial Device Networking		www.moxa.com
Model Name Location	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	= IP = Serial No.	- 192.168.126.254 - TBBKB0000077	 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
- Main Menu	Port Settings	ation Mod	e		
Avail metrical Overview Wizard Basic Settings - Network Settings General Settings Ethernet/Bridge Settings - WLAN Settings Advanced Settings - Serial Port Settings Operation Mode	Port Operation mode TCP alive check Max connection Ignore jammed If Allow driver cont Connection goes	rol	1 Real COM T I O I Disable RTS always low always higl DTR always low always higl		
Communication Paramete Communication Paramete Data Buffering/Log - System Management - System Monitoring - Restart	Packet length Delimiter 1 Delimiter 2 Delimiter process Force transmit	s ve settings to all serial p	0 (0 - 65535 ms)	when packet length is 0)	

Operation Mode

Real COM
Real COM, RFC2217, TCP Server, TCP Client, UDP, Pair_Master, Pair_Slave, EModem
Along with Application, this field specifies the serial port's operation mode, or how it will interact with network devices. Depending on how Application is configured, different options are available for Mode. Depending on how Mode is configured, additional settings will be available for configuration. For an introduction to the different operation modes, please refer to Chapter 4. Real COM: This serial port will operate in Real COM mode.
RFC2217: This serial port will operate in RFC2217 mode.
TCP Server: This serial port will operate in TCP Server mode.
TCP Client: This serial port will operate in TCP Client mode.
UDP: This serial port will operate in UDP mode.
Pair_Master: This serial port will operate in Pair Connection Master mode.
Pair_Slave: This serial port will operate in Pair Connection Slave mode. EModem: This serial port will operate in Ethernet Modem mode.

Settings for Real COM Mode

ΜΟΧΛ	Total S	olution for Indus	trial Device Networking		www.moxa.com
 Model Name Location 	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	■ IP ■ Serial No.	- 192.168.126.254 - TBBKB0000077	 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
	: Oper	ration Mode	•		
- Main Menu	Port Settings				
Overview	Port		1		
Wizard	Operation mode		Real COM		
Basic Settings	TCP alive check	time	7 (0 - 99 min)		
- Network Settings	Max connection		1		
General Settings	Ignore jammed II	0	Disable V		
Ethernet/Bridge Settings			Disable V		
- WLAN Settings	Allow driver con				
Advanced Settings	Connection goes	down	RTS 🔿 always low 💿 always high		
- Serial Port Settings			DTR 🔾 always low 💿 always high		
Operation Mode	Data Packing				
Communication Paramete	rs Packet length		0 (0 - 1024)		
Data Buffering/Log - System Management	Delimiter 1		00 (HEX) C Enable		
- System Monitoring	Delimiter 2		00 (HEX) Enable		
- Restart	Delimiter proces	0		hen packet length is 0)	
- Nostan	Force transmit	3		nen packet length is 0/	
goahead WEBSERVER			0 (0 - 65535 ms)		
WEBSERVER	Apply the abo	ve settings to all serial po	orts		
			Submit		

When **Operation Mode** is set to Real COM on a serial port's **Operation Modes** page, you will configure additional settings including **TCP alive check time**, **Max connection**, **Ignore jammed IP**, **Allow driver Control, Connection goes down**, **Packet length**, **Delimiter 1**, **Delimiter 2**, **Delimiter process**, and **Force transmit**.

TCP Alive Check Time

Default	7 min
Options	0 to 99 min
Description	This field specifies how long the NPort will wait for a response to "keep-alive" packets before closing the TCP connection. The NPort checks connection status by sending periodic "keep- alive" packets. 0: The TCP connection will remain open even if there is no response to the "keep-alive" packets.
	1 to 99: If the remote host does not respond to the packet within the specified time, the NPort will force the existing TCP connection to close.

Max connection

Default	1
Options	1 to 8
Description	This field specifies the maximum number of connections the serial port will accept.
	1: Only one specific host can access this serial port, and the Real COM driver on that host will have full control over the port.
	2 to 8: This serial port will allow the specified number of connections to be opened simultaneously. With simultaneous connections, the Real COM driver will only provide a pure data tunnel with no control ability. The serial communication will be determined by the NPort rather than by your application program. Application software that is based on the Real COM driver will receive a driver response of "success" when using any of the Win32 API functions. The NPort will send data only to the Real COM driver on the host. Data received from hosts will be sent to the attached serial device on a first-in-first-out basis.



ATTENTION

When Max connection is two or greater, the serial port's communication settings (i.e., baudrate, parity, data bits, etc.) will be determined by the NPort. Any host that opens the COM port connection must use identical serial communication settings.

Ignore jammed IP				
Default	Disable			
Options	Disable, Enable			
Description	This field specifies how an unresponsive IP address is handled when there are simultaneous connections to the serial port.			
	Disable: All transmissions will be suspended if one IP address becomes unresponsive. Transmission will only resume when all hosts have responded.			
	Enable: Data transmission to the other hosts will not be suspended if one IP address becomes unresponsive.			

Allow driver control

Default	Disable
Options	Disable, Enable
Description	This field specifies how the port will proceed if driver control commands are received from multiple hosts that are connected to the port. Disable: Driver control commands will be ignored. Enable: Control commands will be accepted, with the most recent command received taking precedence.

Connection goes down

Default	always high
Options	always low, always high
Description	This field specifies what happens to the RTS and DTR signals when the Ethernet connection goes down. For some applications, serial devices need to know the Ethernet link status through RTS or DTR signals sent through the serial port.
	Always low: The selected signal will change to low when the Ethernet connection goes down.
	Always high The selected signal will remain high when the Ethernet connection goes down.

Packet length

Default	0
Options	0 to 1024
Description	This field specifies the maximum amount of data that is allowed to accumulate in the serial port buffer before sending. 0: Packet length is disregarded and data in the buffer will be sent as specified by the delimiter settings or when the buffer is full.
	1 to 1024: Data in the buffer will be sent as soon it reaches the specified length.

Delimiter 1 and 2

Default	Disabled
Options	Disabled, Enabled, 00 to FF
Description	These fields are used to define special delimiter character(s) for data packing. Enable Delimiter 1 to control data packing with a single character; enable both Delimiter 1 and 2 to control data packing with two characters received in sequence.
	When these fields are enabled, serial data will accumulate in the serial port's buffer until the buffer is full or until the specified delimiter character(s) are received. 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 will be packed according to Delimiter process.
	Delimiters must be incorporated into the data stream at the software or device level.



ATTENTION

When **Delimiter 1** is enabled, **Packet length** must be set to 0.

Delimiter process

Default	Do Nothing		
Options	Do Nothing, Delimiter + 1, Delimiter + 2, Strip Delimiter		
	This field specifies how data is packed when delimiter characters are received. This field has no effect if Delimiter 1 is not enabled.		
	Do nothing: Data accumulated in the serial port's buffer will be packed, including delimiters.		
Description	Delimiter + 1: One additional character must be received before the data in the serial port's buffer is packed.		
	Delimiter + 2: Two additional characters must be received before the data in the serial port's buffer is packed.		
	Strip Delimiter: Data accumulated in the serial port's buffer will be packed, but the delimiter character(s) will be stripped from the data.		

Force transmit

Default	0 ms
Options	0 to 65535
	This field controls data packing by the time that elapses between bits of data. When using this field, make sure that 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.
	0: If serial data is not received, the NPort will wait indefinitely for additional data.
Description	1 to 65535: If serial data is not received for the specified amount of time, the data that is currently in the buffer will be packed for network transmission. The optimal force transmit time depends on your application, but it must be at least larger than one character interval within the specified baudrate. For example, assume that the serial port is set to 1200 bps, 8 data bits, 1 stop bit, and no parity. In this case, the total number of bits needed to send a character is 10 bits, and the time required to transfer one character is 8.3 ms, so the force transmit time must be larger than 8.3 ms.

Settings for RFC2217 Mode

ΜΟΧΛ	Total S	olution for Indust	rial Device Networking		www.moxa.com
= Model = Name = Location	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	■ IP ■ Serial No.	- 192.188.126.254 - TBBKB0000077	 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
		ration Mode			
- Main Menu	Port Settings				
Overview Wizard Basic Settings - Network Settings - Serial Port Settings Operation Mode	Port Operation mode TCP alive check TCP port Data Packing	time	1 RFC2217 7 0 - 99 min) 4001		
Communication Parameter	rs Packet length		0 (0 - 1024)		
Data Buffering/Log - System Management	Delimiter 1		00 (HEX) 🗌 Enable		
- System Monitoring - Restart	Delimiter 2 Delimiter proces Force transmit	8	00 (HEX) Enable Do Nothing (Processed only 0 (0 - 65535 ms)	when packet length is 0)	
WEB SERVER	Apply the abo	ve settings to all serial po	rts Submit		

When **Operation Mode** is set to **RFC2217** on a serial port's **Operation Modes** page, you will configure additional settings, including **TCP alive check time**, **TCP port**, **Packet length**, **Delimiter 1**, **Delimiter 2**, **Delimiter process**, and **Force transmit**.

TCP alive check time

Default	7 min
Options	0 to 99 min
Description	 This field specifies how long the NPort will wait for a response to "keep-alive" packets before closing the TCP connection. The NPort checks connection status by sending periodic "keep-alive" packets. 0: The TCP connection will remain open even if there is no response to the "keep-alive" packets.
	1 to 99: If the remote host does not respond to the packet within the specified time, the NPort will force the existing TCP connection to close.

TCP port

Default	4001
Options	
Description	This field specifies the TCP port number that the serial port will use to listen to connections,
	and that other devices must use to contact the serial port.

Packet length

Default	0
Options	0 to 1024
Description	This field specifies the maximum amount of data that is allowed to accumulate in the serial
	port buffer before sending.
	0: Packet length is disregarded and data in the buffer will be sent as specified by the
	delimiter settings or when the buffer is full.
	1 to 1024: Data in the buffer will be sent as soon it reaches the specified length.

Delimiter 1 and 2

Default	Disabled
Options	Disabled, Enabled, 00 to FF
Description	These fields are used to define special delimiter character(s) for data packing. Enable
	Delimiter 1 to control data packing with a single character; enable both Delimiter 1 and 2
	to control data packing with two characters received in sequence.
	When these fields are enabled, serial data will accumulate in the serial port's buffer until
	the buffer is full or until the specified delimiter character(s) are received. 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 will be packed according to Delimiter process.
	Delimiters must be incorporated into the data stream at the software or device level.

Delimiter process

Default	Do Nothing
Options	Do Nothing, Delimiter + 1, Delimiter + 2, Strip Delimiter
Description	This field specifies how data is packed when delimiter characters are received. This field has no effect if Delimiter 1 is not enabled.
	Do nothing: Data accumulated in the serial port's buffer will be packed, including delimiters.
	Delimiter + 1: One additional character must be received before the data in the serial port's buffer is packed.
	Delimiter + 2: Two additional characters must be received before the data in the serial port's buffer is packed.
	Strip Delimiter: Data accumulated in the serial port's buffer will be packed, but the delimiter character(s) will be stripped from the data.

Force transmit

Default	0 ms
Options	0 to 65535
Description	This field controls data packing by the time that elapses between bits of data. When using this field, make sure that 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.
	0: If serial data is not received, the NPort will wait indefinitely for additional data.
	1 to 65535: If serial data is not received for the specified amount of time, I will pack the data that is currently in the buffer for network transmission. The optimal force transmit time depends on your application, but it must be at least larger than one character interval within the specified baudrate. For example, assume that the serial port is set to 1200 bps, 8 data bits, 1 stop bit, and no parity. In this case, the total number of bits needed to send a character is 10 bits, and the time required to transfer one character is 8.3 ms, so the force transmit time to be larger than 8.3 ms.

Settings for TCP Server Mode

ΜΟΧΛ	Total S	Solution for Indust	rial Device Networking		www.moxa.col
= Model = Name = Location	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	■ IP ■ Serial No.	- 192.168.126.254 - TBBKB0000077	 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
	:• Ope	ration Mode			
Main Menu	Port Settings				
Overview	Port		1		
Wizard	Operation mode	· · · · · ·	TCP Server 🗸		
Basic Settings	TCP alive check	time	7 (0 - 99 min)		
- Network Settings - Serial Port Settings	Inactivity time		0 (0 - 65535 ms)		
Operation Mode	Max connection		1 🗸		
Communication Paramet	ers Ignore jammed I	Р	Disable 🗸		
Data Buffering/Log	Allow driver con	trol	Disable 🗸		
- System Management	TCP port		4001		
- System Monitoring	Cmd port		966		
- Restart	Connection goe	s down	RTS () always low () always hig	h	
goahead WEBSERVER			DTR 🔿 always low 💿 always hig	h	
WEBSERVER	Data Packing				
	Packet length		0 (0 - 1024)		
	Delimiter 1		00 (HEX) Enable		
	Delimiter 2		00 (HEX) Enable		
	Delimiter proces	8	Do Nothing V (Processed only	when packet length is 0)	
	Force transmit		0 (0 - 65535 ms)		
	Apply the abo	we settings to all serial po	rts		
			Submit		

When **Operation Mode** is set to **TCP Server** on a serial port's **Operation Modes** page, configure additional settings such as **TCP alive check time**, **Inactivity time**, **Max connection**, **Ignore jammed IP**, **Allow driver control**, **TCP port**, **Cmd port**, **Connection goes down**, **Packet length**, **Delimiter 1**, **Delimiter 2**, **Delimiter process**, and **Force transmit**.

TCP alive check time

Default	7 min
Options	0 to 99 min
Description	 This field specifies how long the NPort will wait for a response to "keep-alive" packets before closing the TCP connection. The NPort checks connection status by sending periodic "keep-alive" packets. 0: The TCP connection will remain open even if there is no response to the "keep-alive" packets.
	1 to 99: If the remote host does not respond to the packet within the specified time, the NPort will force the existing TCP connection to close.

Inactivity time

Default	0 ms
Options	0 to 65535 ms
Description	This field specifies the time limit for keeping the connection open if no data flows to or from the serial device.
	0: The connection will remain open even if data is never received. For many applications, the serial device may be idle for long periods of time, so 0 is an appropriate setting.
	1 to 65535: If there is no activity for the specified time, the connection will be closed. When adjusting this field, 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

Default	1
Options	1 to 8
Description	This field specifies the maximum number of connections that the serial will accept port.
	1: Only one specific host can access this serial port, and the Real COM driver on that host will have full control over the port.
	2 to 8: This serial port will allow the specified number of connections to be opened simultaneously. With simultaneous connections, the Real COM driver will only provide a pure data tunnel with no control ability. The serial communication will be determined by the NPort rather than by your application program. Application software that is based on the Real COM driver will receive a driver response of "success" when using any of the Win32 API functions. The NPort will send data only to the Real COM driver on the host. Data received from hosts will be sent to the attached serial device on a first-in-first-out basis.



ATTENTION

When Max connection is two or greater, the serial port's communication settings (i.e., baudrate, parity, data bits, etc.) will be determined by the NPort. Any host that opens the COM port connection must use identical serial communication settings.

Ignore jammed IP	
Default	Disable
Options	Disable, Enable
Description	This field specifies how an unresponsive IP address is handled when there are simultaneous connections to the serial port.
	Disable: All transmission will be suspended if one IP address becomes unresponsive. Transmission will only resume when all hosts have responded.
	Enable: Data transmission to the other hosts will not be suspended if one IP address becomes unresponsive.

Allow driver control

Default	Disable
Options	Disable, Enable
Description	This field specifies how the port will proceed if driver control commands are received from multiple hosts that are connected to the port.
	Disable: Driver control commands will be ignored.
	Enable: Control commands will be accepted, with the most recent command received taking precedence.

TCP port

Default	4001
Options	0 to 9999
Description	This field specifies the TCP port number that the serial port will use to listen to connections,
	and that other devices must use to contact the serial port.

Cmd port

966
This field specifies the TCP port number for listening to IP-Serial Lib commands from the
host.

IP Serial Library Introduction

What is IP Serial Library?

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

Why Use IP Serial Library?

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

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

The NPort Serial Device Servers use 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 decoding and encoding. Compared to using only one TCP port to control serial communication (such as RFC 2217), IP Serial Library uses a command port to communicate with NPort in user's program. IP Serial Library not only runs with excellent efficiency, but also runs with no decoding or encoding problems.

You can find the usage of other functions in the subsection of **Real COM** mode in page 7-4.

Connection goes down

Default	aluana kiak
Default	always high
Options	always low, always high
Description	This field specifies what happens to the RTS and DTR signals when the Ethernet connection goes down. For some applications, serial devices need to know the Ethernet link status through RTS or DTR signals sent through the serial port.
	Always low: The selected signal will change to low when the Ethernet connection goes down. Always high The selected signal will remain high when the Ethernet connection goes down.

Packet length

Default	0
Options	0 to 1024
Description	This field specifies the maximum amount of data that is allowed to accumulate in the serial port buffer before sending.
	0: Packet length is disregarded and data in the buffer will be sent as specified by the delimiter settings or when the buffer is full.

1 to 1024: Data in the buffer will be sent as soon it reaches the specified length.

Delimiter 1 and 2

Default	Disabled
Options	Disabled, Enabled, 00 to FF
Description	These fields are used to define special delimiter character(s) for data packing. Enable Delimiter 1 to control data packing with a single character; enable both Delimiter 1 and 2 to control data packing with two characters received in sequence.
	When these fields are enabled, serial data will accumulate in the serial port's buffer until the buffer is full or until the specified delimiter character(s) are received. 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 will be packed according to Delimiter process.
	Delimiters must be incorporated into the data stream at the software or device level.



ATTENTION

When **Delimiter 1** is enabled, **Packet length** must be set to 0.

Default	Do Nothing
Options	Do Nothing, Delimiter + 1, Delimiter + 2, Strip Delimiter
Description	This field specifies how data is packed when delimiter characters are received. This field has no effect if Delimiter 1 is not enabled.
	Do nothing: Data accumulated in the serial port's buffer will be packed, including delimiters.
	Delimiter + 1: One additional character must be received before the data in the serial port's buffer is packed.
	Delimiter + 2: Two additional characters must be received before the data in the serial port's buffer is packed.
	Strip Delimiter: Data accumulated in the serial port's buffer will be packed, but the delimiter character(s) will be stripped from the data.

Force transmit

Default	0 ms
Options	0 to 65535
Description	This field controls data packing by the time that elapses between bits of data. When using this field, make sure that 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.
	0: If serial data is not received, the NPort will wait indefinitely for additional data.
	1 to 65535: If serial data is not received for the specified amount of time, the data that is currently in the buffer will be packed for network transmission. The optimal force transmit time depends on your application, but it must be at least larger than one character interval within the specified baudrate. For example, assume that the serial port is set to 1200 bps,
	8 data bits, 1 stop bit, and no parity. In this case, the total number of bits needed to send a character is 10 bits, and the time required to transfer one character is 8.3 ms, so the force transmit time to be larger than 8.3 ms.

Settings for TCP Client Mode

ΜΟΧΛ	Total S	Total Solution for Industrial Device Networking					
	NPort W2250A-W4-US NPortW2250A-W4_77	■ IP ■ Serial No.	- 192.168.126.254 - TBBKB0000077	 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215		
	• Oper	ration Mode					
Main Menu	Port Settings						
Overview	Port		1				
Wizard	Operation mode	C	TCP Client				
Basic Settings	TCP alive check	time	7 (0 - 99 min)				
- Network Settings	Inactivity time		0 (0 - 65535 ms)				
- Serial Port Settings	Ignore jammed I	р	Disable V				
Operation Mode Communication Parameters					Port 4001		
Data Buffering/Log	Destination add	ress 2			Port 4001		
- System Management	Destination addr	ess 3			Port 4001		
- System Monitoring	Destination addr				Port 4001		
- Restart	Designated loca		5010		4001		
and the second s	Designated local	-	5011				
goahead WEBSERVER	Designated local		5012				
	Designated local		5013				
	Connection cont		Startup/None V				
	Data Packing						
	Packet length		0 (0 - 1024)				
	Delimiter 1						
	Delimiter 2						
		_	00 (HEX) Enable	n nachat langth is 0)			
	Delimiter proces	8	Do Nothing V (Processed only whe	en packet length is 0)			
		Force transmit 0 (0 - 65535 ms)					
	Apply the abo	Apply the above settings to all serial ports					
			Submit				
			Submit				

When **Operation Mode** is set to **TCP Client** on a serial port's **Operation Modes** page, you will be able to configure additional settings such as **TCP alive check time**, **Inactivity time**, **Ignore jammed IP**, **Destination address 1-4**, **Designated local port 1-4**, **Connection control**, **and Packet length**, **Delimiter 1**, **Delimiter 2**, **Delimiter process**, and **Force transmit**.

TCP Alive Check Time

Default	7 min
Options	0 to 99 min
Description	This field specifies how long the NPort will wait for a response to "keep-alive" packets before closing the TCP connection. The NPort checks connection status by sending periodic "keep-alive" packets. 0: The TCP connection will remain open even if there is no response to the "keep-alive"
	packets. 1 to 99: If the remote host does not respond to the packet within the specified time, the NPort will force the existing TCP connection to close.

Inactivity time

Default	0 ms				
Options	0 to 65535 ms				
Description	This field specifies the time limit for keeping the connection open if no data flows to or from the serial device.				
	0: The connection will remain open even if data is never received. For many applications, the serial device may be idle for long periods of time, so 0 is an appropriate setting.				
	1 to 65535: If there is no activity for the specified time, the connection will be closed. When adjusting this field, 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.				

Ignore jammed IP

Default	Disable					
Options	Disable, Enable					
Description	This field specifies how an unresponsive IP address is handled when there are simultaneous connections to the serial port.					
	Disable: All transmission will be suspended if one IP address becomes unresponsive. Transmission will only resume when all hosts have responded.					
	Enable: Data transmission to the other hosts will not be suspended if one IP address becomes unresponsive.					

Destination address 1 to 4

Default	
Options	IP address and port (e.g., "192.168.1.1" and "4001")
Description	This field specifies the remote host(s) that will access the attached device. At least one
	destination must be provided. This field supports the use of domain names and names
	defined in the host table.



ATTENTION

In TCP Client mode, up to four connections can be established between the serial port and TCP hosts. The connection speed or throughput may be low if any one of the four connections is slow, since the one slow connection will slow down the other three connections.

Designated local port 1 to 4

-	•
Default	
Options	1 to 65535
Description	This field specifies the TCP port number that will be used for data transmission with the
	serial port.

Connection control

Default	Startup/None
Options	Startup/None, Any Character/None, Any Character/Inactivity Time, DSR On/DSR Off, DSR
	On/None, DCD On/DCD Off, DCD On/None
Description	This field specifies how connections to the device are established and closed.
	Startup/None: The connection will be opened as the NPort starts up. The connection will only be closed manually.
	Any Character/None: The connection will be opened as soon as a character is received from the attached device. The connection will only be closed manually.
	Any Character/Inactivity Time: The connection will be opened as soon as a character is received from the attached device. The connection will be closed if no data is received for the time specified in Inactivity time.
	DSR On/DSR Off: The TCP connection is opened when the DSR signal is on, and closed when the DSR signal is off.
	DSR On/None: The TCP connection is opened when the DSR signal is on. The connection will only be closed manually.
	DCD On/DCD Off: The TCP connection is opened when the DCD signal is on, and closed when the DCD signal is off.
	DCD On/None: The TCP connection is opened when the DCD signal is on. The connection will only be closed manually.

Packet length

Default	0
Options	0 to 1024
Description	This field specifies the maximum amount of data that is allowed to accumulate in the serial port buffer before sending.
	0: Packet length is disregarded and data in the buffer will be sent as specified by the delimiter settings or when the buffer is full.
	1 to 1024: Data in the buffer will be sent as soon it reaches the specified length.

Delimiter 1 and 2

Default	Disabled
Options	Disabled, Enabled, 00 to FF
Description	These fields are used to define special delimiter character(s) for data packing. Enable Delimiter 1 to control data packing with a single character; enable both Delimiter 1 and 2 to control data packing with two characters received in sequence.
	When these fields are enabled, serial data will accumulate in the serial port's buffer until the buffer is full or until the specified delimiter character(s) are received. 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 will be packed according to Delimiter process.
	Delimiters must be incorporated into the data stream at the software or device level.



ATTENTION

When $\ensuremath{\textbf{Delimiter 1}}$ is enabled, $\ensuremath{\textbf{Packet length}}$ must be set to 0.

Default	Do Nothing				
Options	Do Nothing, Delimiter + 1, Delimiter + 2, Strip Delimiter				
Description	This field specifies how data is packed when delimiter characters are received. This field has no effect if Delimiter 1 is not enabled.				
	Do nothing: Data accumulated in the serial port's buffer will be packed, including delimiters.				
	Delimiter + 1: One additional character must be received before the data in the serial port's buffer is packed.				
	Delimiter + 2: Two additional characters must be received before the data in the serial port's buffer is packed.				
	Strip Delimiter: Data accumulated in the serial port's buffer will be packed, but the delimiter character(s) will be stripped from the data.				

Force transmit

Default	0 ms
Options	0 to 65535
Description	This field controls data packing by the amount of time that elapses between bits of data. When using this field, make sure that 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.
	0: If serial data is not received, the NPort will wait indefinitely for additional data.
	1 to 65535: If serial data is not received for the specified amount of time, the data that is currently in the buffer will be packed for network transmission. The optimal force transmit time depends on your application, but it must be at least larger than one character interval within the specified baudrate. For example, assume that the serial port is set to 1200 bps, 8 data bits, 1 stop bit, and no parity. In this case, the total number of bits needed to send a character is 10 bits, and the time required to transfer one character is 8.3 ms, so the force transmit time to be larger than 8.3 ms.

Settings for UDP Mode

MOX/	S.	Total So	lution for Indus	for Industrial Device Networking WWW.MO				ww.moxa.com	
ModelNameLocation	- NPort W2250A - NPortW2250A -		■ IP ■ Serial No.		- 192.168.126.254 - TBBKB0000077		 MAC Address Firmware 		:90:E8:11:45:A3 Build 22071215
		:• Opera	ntion Mode	;					
- Main Menu		Port Settings							
Overview		Port		1					
Wizard		Operation mode	(UDP	~				
Basic Settings		Destination addres	is 1	Begin		End		Port	4001
- Network Settings		Destination addres	is 2	Begin		End		 Port	4001
- Serial Port Settings		Destination addres	is 3	Begin		End		_	4001
Operation Mode Communication Param	atom	Destination addres	s 4	Begin		End			4001
Data Buffering/Log	cicis	Local listening por		4001					1001
- System Management		Data Packing	-						
- System Monitoring		-							
- Restart		Packet length		0	(0 - 1024)				
		Delimiter 1		00	(HEX) Enable				
	z í	Delimiter 2		00	(HEX) 🗌 Enable				
	_	Delimiter process		Do No	thing (Processed only)	when (packet length is 0)		
		Force transmit		0	(0 - 65535 ms)				
		Apply the above settings to all							
					Submit				

When **Operation Mode** is set to **UDP** on a serial port's **Operation Modes** page, configure additional settings such as **Destination address 1** through **4**, **Local listen port**, **Packet length**, **Delimiter 1**, **Delimiter 2**, **Delimiter process**, and **Force transmit**.

Destination address 1 to 4

Default	
Options	IP address range and port (e.g., "192.168.1.1" to "192.168.1.64" and "4001")
Description	In UDP mode, you may specify up to four ranges of IP addresses for the serial port to connect to. At least one destination range must be provided.
	The maximum selectable IP address range is 64 addresses. However, you can enter multicast addresses in the Begin field, in the form xxx.xxx.255. For example, enter "192.127.168.255" to allow the NPort to broadcast UDP packets to all hosts with IP addresses between 192.127.168.1 and 192.127.168.254.

Local listen port

Default	4001
Options	
Description	This field specifies the UDP port that the NPort listens to and that other devices must use
	to contact the attached serial device.

Packet length

·	
Default	0
Options	0 to 1024
Description	This field specifies the maximum amount of data that is allowed to accumulate in the serial port buffer before sending.
	0: Packet length is disregarded and data in the buffer will be sent as specified by the delimiter settings or when the buffer is full.
	1 to 1024: Data in the buffer will be sent as soon it reaches the specified length.

Delimiter 1 and 2

Default	Disabled				
Options	Disabled, Enabled, 00 to FF				
Description	These fields are used to define special delimiter character(s) for data packing. Enable Delimiter 1 to control data packing with a single character; enable both Delimiter 1 and 2 to control data packing with two characters received in sequence.				
	When these fields are enabled, serial data will accumulate in the serial port's buffer until the buffer is full or until the specified delimiter character(s) are received. 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 will be packed according to Delimiter process.				
	Delimiters must be incorporated into the data stream at the software or device level.				



ATTENTION

When **Delimiter 1** is enabled, **Packet length** must be set to 0.

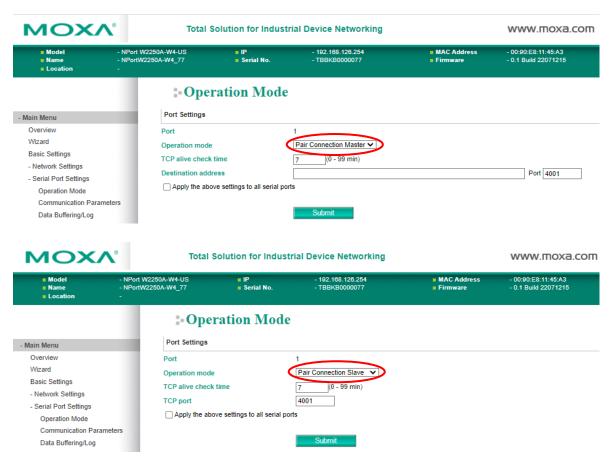
Delimiter process

Default	Do Nothing				
Options	Do Nothing, Delimiter + 1, Delimiter + 2, Strip Delimiter				
Description	This field specifies how data is packed when delimiter characters are received. This field has no effect if Delimiter 1 is not enabled.				
Do nothing: Data accumulated in the serial port's buffer will be packed, including delimiters.					
	Delimiter + 1: One additional character must be received before the data in the serial port's buffer is packed.				
	Delimiter + 2: Two additional characters must be received before the data in the serial port's buffer is packed.				
	Strip Delimiter: Data accumulated in the serial port's buffer will be packed, but the delimiter character(s) will be stripped from the data.				

Force transmit

Default	0 ms
Options	0 to 65535
Description	This field controls data packing by the amount of time that elapses between bits of data. When using this field, make sure that 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.
	0: If serial data is not received, the NPort will wait indefinitely for additional data.
	1 to 65535: If serial data is not received for the specified amount of time, the data that is currently in the buffer will be packed for network transmission. The optimal force transmit time depends on your application, but it must be at least larger than one character interval within the specified baudrate. For example, assume that the serial port is set to 1200 bps, 8 data bits, 1 stop bit, and no parity. In this case, the total number of bits needed to send a character is 10 bits, and the time required to transfer one character is 8.3 ms, so the force transmit time to be larger than 8.3 ms.

Settings for Pair Connection Master Mode and Pair Connection Slave Mode



When **Operation Mode** is set to **Pair Connection Master** or **Pair Connection Slave** on a serial port's **Operation Modes** page, configure additional settings such as **TCP alive check time**, **Destination address** and **TCP port.** A Pair Connection application involves one serial port communicating over an IP network to another serial port as if a serial cable connected the two serial ports. Pair Connection modes can extend RS-232 transmission to unlimited distances.

An NPort device server is needed at both ends of the connection. The serial port at one end must be set to Pair Connection Master mode, and the serial port at the other end must be set to Pair Connection Slave mode. It does not matter which serial port is master and which serial port is slave.

TCP alive check time

Default	7 min				
Options	0 to 99 min				
Description	 This field specifies how long the NPort will wait for a response to "keep-alive" packets before closing the TCP connection. The NPort checks connection status by sending periodic "keep-alive" packets. 0: The TCP connection will remain open even if there is no response to the "keep-alive" packets. 				
	1 to 99: If the remote host does not respond to the packet within the specified time, the NPort will force the existing TCP connection to close.				

Destination address

Default				
Options	IP address and port (e.g., "192.168.1.1" and "4001")			
Description	This field specifies the IP address for the NPort at the opposite end of the Pair Connection,			
	and the TCP port number for communication with the serial port. The port number must			
	match with that serial port's TCP port setting.			

TCP port

ier poit	
Default	4001
Options	
Description	This field specifies the TCP port to use for communication with the attached serial device.
	The serial port at the opposite end of the Pair Connection must use this port number to
	establish the connection.

Settings for Ethernet Modem Mode

ΜΟΧΛ	Total	Total Solution for Industrial Device Networking			www.moxa.com
Name	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	■ IP ■ Serial No.	- 192.168.126.254 - TBBKB0000077	 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
- Main Menu	Port Settings	ration Mode	;		
Overview Wizard Basic Settings - Network Settings - Serial Port Settings Operation Mode			Ethernet Modem 7 (0 - 99 min) 4001 rts		
Communication Parameter Data Buffering/Log	15		Submit		

When **Application** is set to **Ethernet Modem Mode**, the NPort will accept AT commands such as "ATD 192.127.168.1:4001" from the serial port. A TCP connection will then be requested from the specified remote Ethernet Modem or PC. When the remote unit accepts this TCP connection, the NPort will return the "**CONNECT** {*baudrate*}" signal to the serial port and will then enter data mode. Please refer to Appendix C for details on Ethernet modem commands.

TCP alive check time

Default	7 min				
Options	0 to 99 min				
Description	This field specifies how long the NPort will wait for a response to "keep-alive" packets before closing the TCP connection. The NPort checks connection status by sending periodic "keep-alive" packets. 0: The TCP connection will remain open even if there is no response to the "keep-alive"				
	packets. 1 to 99: If the remote host does not respond to the packet within the specified time, the NPort will force the existing TCP connection to close.				

тер роп	
Default	4001
Options	
Description	This field specifies the TCP port to use for communication with the attached serial device.

Settings for Reverse Terminal Mode

MOX	∧ °	Total Solution for Industrial Device Networking				
= Model = Name = Location	- NPort W2250A-W4 - NPortW2250A-W4_ -		IP Serial No.	- 192.168.128.254 - TBBKB0000077	 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
		•Operatio	n Mode			
- Main Menu	Port	Settings				
Overview	Port		1			
Wizard	Oper	ation mode	(Reverse Terminal 🔹		
Basic Settings	TCP	alive check time	1	7 (0 - 99 min)		
- Network Settings			Ĺ			
- Serial Port Settings		ivity time	L	0 (0 - 99 min)		
Operation Mode	ТСР	port	l	4001		
Communication Par	ameters Terr	ninal				
Data Buffering/Log	Auth	entication type	[None 🗸		
- System Management	Мар		[CR-LF 🗸		
- System Monitoring		-				
- Restart		pply the above setting	js to all serial ports			
	R		1	Submit		

TCP alive check time (default=7 min): This field specifies how long the NPort W2150A-W4/W2250A-W4 will wait for a response to keep-alive packets before closing the TCP connection. The NPort W2150A-W4/W2250A-W4 checks the connection status by sending keep-alive packets periodically. If the remote host does not respond to the packet within the time specified in this field, the NPort W2150A-W4/W2250A-W4 will force the existing TCP connection to close. For socket and device control modes, the NPort W2150A-W4/W2250A-W4 will listen for another TCP connection from another host after closing the connection. If the TCP alive check time is set to 0, the TCP connection will remain open even if there is no response to the keep-alive packets.

Inactivity time (default=0 min): This field specifies the idle time setting for auto-disconnection. A setting of 0 min. will cause the port to remain connected even when idling.

TCP port (default=4001): This is the TCP port number assignment for the serial port on the NPort W2150A-W4/W2250A-W4. It is the port number that the serial port uses to listen to connections and that other devices must use to contact the serial port. To avoid conflict with well-known TCP ports, the default is set to 4001.

Authentication type (default=None): This field allows you to configure the method used, if any, to verify a user's ID and authorization.

Option	Description
None	Authentication is not required
Local	Verify the ID against the NPort W2150A-W4/W2250A-W4 User Table.
RADIUS	Verify the ID against the external RADIUS server

Try next type on authentication denied (default=Disable): This field enables or disables the system to try the next type if the first authentication is denied.

Map keys <CR-LF> (default=CR-LF): This specifies how the **ENTER** key is mapped from the Ethernet port through the serial port.

Option	Description
<cr-lf></cr-lf>	Carriage return + line feed (i.e., the cursor will jump to the next line and return
<ck-lf></ck-lf>	to the first character of the line)
<cr></cr>	Carriage return (i.e., the cursor will return to the first character of the line)
<lf></lf>	Line feed (i.e., the cursor will jump to the next line, but not move horizontally)

Communication Parameters

MOX/	°.	Total	Solution for Industrial I	Device Netwo	rking			www	v.moxa.com
 Model Name Location 	- NPort W2250A-W4-US - NPortW2250A-W4_77 -		∎ IP ■ Serial No.	- 192.168.126.254 - TBBKB0000077		 MAC Address Firmware 		- 00:90:E8:11:45:A3 - 0.1 Build 22071215	
- Main Menu	* Modif		al Parameter meter" settings will cause the ser	ial port to restart co	nnections.				
Overview Wizard Basic Settings - Network Settings	Port 1 2	Alias	Baud rate 115200 ✔ 115200 ✔	Parity None None	Data bit 8 🗸 8 🗸	Stop bit	Flow control	FIFO Enable V Enable V	Interface RS-232 RS-232
- Serial Port Settings Operation Mode Communication Param	eters			Submit					

The **Communication Parameters** page for each serial port is where serial communication settings are specified, such as **Baud rate**, **Data bits**, and **Stop bits**.

Alias

Default	
Options	free text (e.g., "Secondary console connection")
Description	This is an optional free text field to help you differentiate one serial port from another. It
	does not affect operation of the NPort device server.



ATTENTION

Serial communication settings should match the attached serial device. Check the communication settings in the user's manual for your serial device.

Default	115200
Options	300, 600, 1200, 1800, 2400, 4800, 9600, 19200, 38400, 57600, 115200, 230400, 460800, 921600, Other
Description	This field specifies the baudrate for the serial port. Nonstandard baudrates are supported through the Other setting. When set to Other , you may manually enter a baudrate of your choice, up to 921600.
	300 to 921600: The serial port will operate at the specified baudrate.
	Other: The serial port will operate at a baudrate that is manually entered by the user.

Default	None
Options	None, Odd, Even, Space, Mark
Description	This field specifies the type of parity bit used for each character frame.

Data bit

Default	8
Options	5, 6, 7, 8
Description	This field specifies the number of data bits used to encode each character of data.

Stop bit

•	
Default	1
Options	1, 1.5, 2
Description	This field specifies the number of stop bits used for each character frame.

Flow control

Default	RTS/CTS
Options	None, RTS/CTS, XON/XOFF
Description	This field specifies the type of flow control used by the serial port.

FIFO

Default	Enable
Options	Enable, Disable
Description	This field specifies whether the serial port will use the built-in FIFO. A 128-byte FIFO is provided to each serial port for both Tx and Rx directions. To prevent data loss during serial communication, this should be set to Disabled if the attached serial device does not have a FIFO.

Interface

Interface	
Default	RS-232
Options	RS-232, RS-422, RS-485 2-wire, RS-485 4-wire
Description	This field specifies the type of interface the serial port will use.

Data Buffering/Log

MOXV	Total	Solution for Indust	rial Device Networking		www.moxa.com
 Model Name Location 	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	■ IP ■ Serial No.	- 192.168.126.254 - TBBKB0000077	 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
	:-Data	a Buffering/I	Jog		
- Main Menu	Port		Port buffering (10M)	Serial da	ata logging (64K)
Overview	Port 1		Disable 🗸	Disable	•
Wizard	Port 2		Disable 🗸	Disable *	
Basic Settings	All Ports		Disable 🗸	Disable •	•
- Network Settings			Ordersit		
- Serial Port Settings			Submit		
Operation Mode					
Communication Paramete	rs				
Data Buffering/Log					

On the serial port's **Data Buffering/Log** page, you can enable or disable **Port buffering** and **Serial data logging**.

Port buffering

Default	Disable
Options	Enable, Disable
Description	This field specifies whether the serial port will use port buffering when the network
	connection (Ethernet or WLAN) is down. Port buffering can be used in Real COM mode, TCP
	Server mode, TCP Client mode, and Pair Connection mode. For other modes, the port
	buffering settings will have no effect.

Default Disable Options Enable, Disable Description This field specifies whether data logs for the serial port will be stored on system RAM. Each serial port is allotted 64 KB for data logging. The data log is not saved when the NPort is powered off.

Serial data logging(64K)

Overview

This chapter explains how to configure all settings located under the **System Management** folder in the NPort web console.

System Management

Misc. Network Settings

Accessible IP List

ΜΟΧΛ			Total Solution for Industrial Device Networking				www.moxa.com
= Model = Name = Location		t W2250/ tW2250A	A-W4-US A-W4_77	■ IP ■ Serial No.	- 192.168.126.254 - TBBKB0000077	= MAC Addro = Firmware	ess - 00:90:E8:11:45:A3 - 0.1 Build 22071215
			:• A	ccessible IP Lis	st		
- Main Menu		E	nable the a	ccessible IP list ("Disable" will a	allow all IP's connection requests	s.)	
Overview		No.	Active	IP		Netmask	
Wizard		1]
Basic Settings			_]
- Network Settings		2					
- Serial Port Settings		3]
- System Management			_				1
 Misc. Network Settings 		4					
Accessible IP List	>	5]
SNMP Agent		6					1
User Table]
Authentication Server		7					
System Log Settings		8]
- Auto Warning Settings			_				
- Maintenance		9]
- Certificate		10]

The Accessible IP List page is located under Misc. Network Settings in the System Management

folder. This page is used to restrict access to the NPort by IP address. Only IP addresses on the list will be allowed access to the NPort. You may add a specific address or range of addresses by using a combination of IP address and netmask, as follows:

To allow access to a specific IP address

Enter the IP address in the corresponding field; enter 255.255.255.255 for the netmask.

To allow access to hosts on a specific subnet

For both the IP address and netmask, use 0 for the last digit (e.g., "192.168.1.0" and "255.255.255.0").

To allow access to all IP addresses

Make sure that Enable the accessible IP list is not checked.

Refer to the following table for more configuration examples.

Desired IP Range	IP Address Field	Netmask Field
Any host	Disable	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

SNMP Agent Settings

ΜΟΧΛ	e Total S	Solution for Indus	trial Device Networking		www.moxa.com
Model Name Location	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	■ IP ■ Serial No.	- 192.168.126.254 - TBBKB0000077	 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
		IP Agent Se	ttings		
- Main Menu	Configuration				
Overview	SNMP		Enable 🗸		
Wizard	Contact name				
Basic Settings	Location				
- Network Settings	Read community	v strina	public		
- Serial Port Settings	Write communit		private		
- System Management	SNMP agent ver		V1, V2c, V3 V		
- Misc. Network Settings					
Accessible IP List	Read-only usern		rouser		
SNMP Agent	Read-only authe		Disable 🗸		
Authentication Server	Read-only pass				
System Log Settings	Read-only priva	cy mode	Disable 🗸		
- Auto Warning Settings	Read-only priva	су			
- Maintenance	Read/write user	name	nvuser		
- Certificate	Read/write authorite	entication mode	Disable 🗸		
- System Monitoring	Read/write pass	word			
- Restart	Read/write priva	cy mode	Disable 🗸		
	Read/write priva	су			
webserver					
			Submit		

The **SNMP Agent** page is located under **Misc. Network Settings** in the **System Management** folder. This page is used to configure the SNMP Agent on the NPort.

SNMP

Default	Enable
Options	Enable, Disable
Description	This field enables or disables the SNMP Agent. If enabled, you will need to configure other
	SNMP Agent settings. You will need to enter a community name under Read community
	string.

Contact Name

Default	
Options	free text (e.g., "J Smith")
Description	This is an optional free text field that can specify the SNMP emergency contact name,
	telephone, or pager number.

Location

Default	
Options	free text (e.g., "Building XYZ")
Description	This is an optional free text field that can specify the location for SNMP agents such as the
	NPort.

Read Community String

Default	public
Options	free text (e.g., "public community")
Description	This field specifies the read community string used for the SNMP Agent. This is a text password mechanism that is used to weakly authenticate queries to agents of managed network devices.

Write Community String

Default	private
Options	free text (e.g., "private community")
Description	This field specifies the write community string used for the SNMP Agent. This is a text
	password mechanism that is used to weakly authenticate changes to agents of managed
	network devices.

SNMP Agent Version

Default	V1, V2c, V3
Options	V1, V2c, V3 / V1, V2c / V3 only
Description	This field specifies which version(s) of SNMP to support.

Read Only User Name

Default	rouser
Options	free text (e.g., "guest")
Description	This field specifies a username to use for read-only access.

Read Only Authentication Mode

Default	Disable
Options	Disable, MD5, SHA
Description	This field specifies the type of authentication to use for read-only access.

Read Only Password

Default	
Options	free text (e.g., "password123")
Description	This field specifies the password that users must enter for read-only access, if read-only
	authentication is enabled.

Read Only Privacy mode

Default	Disable
Options	Disable
Description	This field specifies whether data encryption will be used during read-only access.

Read Only Privacy

Default	
Options	free text (e.g., "read only key")
Description	This field specifies the encryption key for read-only access, if read-only privacy is enabled.

Read/Write User Name

Default	rwuser
Options	free text (e.g., "admin")
Description	This field specifies a username to use for read/write access.

Read/Write Authentication Mode

Default	Disable
Options	Disable, MD5, SHA
Description	This field specifies the type of authentication to use for read/write access.

Read/Write Password

Default	
Options	free text (e.g., "password123")
Description	This field specifies the password that users must enter for read/write access, if read-only
	authentication is enabled.

Read/Write Privacy mode

	-		
Default	Disable		
Options	Disable, DES, AES		
Description	This field specifies whether data encryption will be used during read/write access.		
Read/Write	e Privacy		
Default			
Options	free text (e.g., "read write key")		
Description	This field specifies the encryption key for read/write access, if read-/write privacy is enabled.		

User Table

ΜΟΧΛ	с	Total Solution for Industrial Device Networking				
 Model Name Location 	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	■ IP ■ Serial No.	- 192.168.126.254 - TBBKB0000077	 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215	
	:-0	Jser Table				
- Main Menu	No	Username		Password		
Overview	1					
Wizard						
Basic Settings	2					
- Network Settings	3					
- Serial Port Settings	4					
- System Management	4					
- Misc. Network Settings	5					
Accessible IP List	6					
SNMP Agent						
User Table	7					
Authentication Server	8					
System Log Settings						
- Auto Warning Settings	9					

The NPort User Table can authenticate users for reverse terminal access and is useful if you do not have an external RADIUS server for authentication. The NPort User Table stores up to 64 entries, with fields for User Name and Password.

Authentication Server

MOX	Total	Total Solution for Industrial Device Networking			
Model Name Location	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	■ IP ■ Serial No.	- 192.168.126.254 - TBBKB0000077	 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
		hentication	Server		
- Main Menu					
Overview	RADIUS server				
Wizard	RADIUS key				
Basic Settings	UDP port		1645 🗸		
- Network Settings	RADIUS account	oting	Disable 🗸		
- Serial Port Settings	101010 0 00000	ining	<u>Broader</u>		
- System Management					
- Misc. Network Setting	s		Submit		
Accessible IP List					
SNMP Agent					
User Table					
Authentication Serve	er				
System Log Settings	5				

RADIUS server: If you are using a RADIUS server for user authentication, enter its IP address here.

RADIUS key: If you are using a RADIUS server for user authentication, enter its password here.

UDP port (default=1645): Please select which UDP port your RADIUS server is using to communicate. The device supports UDP port 1645 or 1812.

RADIUS accounting: Use this field to enable or disable RADIUS accounting.

System Log Settings

MOXA [®] Total Se			tion for Industr	www.moxa.com		
Model Name Location	- NPort W2250A-W4-US - NPortW2250A-W4_77 -		■ IP ■ Serial No.	- 192.168.126.254 - TBBKB0000077	 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
	-	System	Log Setti	ngs		
- Main Menu	Event Group	Local Log	Summary			
Overview	System		System Cold Start, System Warm Start			
Wizard	Network		DHCP Get IP/Renew, Mail Failure, NTP Connection Failure, IP Conflict, Network Link Down			
Basic Settings	Config		Login Failure, IP Changed, Password Changed, Firmware Upgrade, SSL Certificate Import, Config Import, Config Expo Wireless Certificate Import, Serial Data Log Export			
- Network Settings	0.11.1	_				
- Serial Port Settings	OpMode		Connect, Disconnec	a, Restan		
- System Management				O david		
- Misc. Network Settings				Submit		
Accessible IP List						
SNMP Agent						
User Table						
Authentication Server						
System Log Settings						

The **System Log** page is located under **Misc. Network Settings** in the **System Management** folder. This is where you select the type of events that will be logged by the NPort.

Group	Event			
System	ystem Cold Start, System Warm Start			
Network	HCP, Get IP/Renew, Mail Fail, NTP Connect Fail, IP Conflict, Network Link Down			
Config	Login Fail, IP Changed, Password Changed, Firmware Upgrade, SSL Certificate Import,			
	Config Import, Config Export, Wireless Certificate Import, Serial Data Log Export			
Op Mode	Connect, Disconnect, Restart			

Auto Warning Settings

Event Settings

ΜΟΧΛ	Total	Total Solution for Industrial Device Networking			
Model Name Location	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	■ IP ■ Serial No.	- 192.168.126.254 - TBBKB0000077	 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
	:-Syst	em Event Se	ttings		
- Main Menu	System Event				
Overview	Cold start		Mail 🗌 🛛 Trap 🗌		
Wizard	Warm start		Mail Trap		
Basic Settings - Network Settings	Config Event				
- Serial Port Settings	Console(web/te	ext) login authentication fa	ailuMail 📄 Trap 🗌		
- System Management	IP changed		Mail 🗌		
- Misc. Network Settings - Auto Warning Settings	Password char	nged	Mail 🗌		
Event Settings Senal Event Settings			Submit		

The **Event Settings** page is located under **Auto Warning Settings** in the **System Management** folder. This is where you specify how the NPort will notify you of system and configuration events. Depending on the event, different options for notification are available, as shown above. **Mail** refers to sending an e-mail to a specified address. **Trap** refers to sending an SNMP trap.

Event	Description
Cold start The NPort was powered on, or was restarted after a firmware upgrad	
Warm start The NPort restarted without powering off.	
Console login auth fail	An attempt has been made to open the web, Telnet, or serial console, but the password was incorrect.
IP changed	The IP address has been changed.
Password changed	The password to the console has been changed.

Serial Event Settings

 Model Name Location 	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	■ IP ■ Serial No.	- 192.168.126.254 - TBBKB0000077		 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
	Seri	al Event Sett	ings			
Main Menu	Serial Port Event		DCD changed		DSR cha	nged
Overview	Port 1		Mail	Trap	Mail 🗆	Trap 🗆
Wizard	Port 2		Mail	Trap	Mail 🗌	Trap 🗆
Basic Settings	All Ports		Mail 🗌	Trap 🗆	Mail 🗌	Trap 🗌
- Network Settings						
- Serial Port Settings			Submit			
- System Management						
- Misc. Network Settings						
- Auto Warning Settings						
Event Settings						
Serial Event Settings						

The **Serial Event Settings** page is located under **Auto Warning Settings** in the **System Management** folder. This is where you specify how the NPort will notify you of DCD and DSR events for each serial port. **Mail** refers to sending an e-mail to a specified address. **Trap** refers to sending an SNMP trap.

A change in the DCD (Data Carrier Detect) signal shows that the modem connection status has changed. If the DCD signal changes to low, it shows that the connection line is down. A change in the DSR (Data Set Ready) signal shows that the data communication equipment is powered off. If the DSR signal changes to low, it shows that the data communication equipment is powered down.



ATTENTION

SNMP shows a change in DCD or DSR signals but does not differentiate between the two. A change in either signal from "-" to "+" is showed by "link up" and a change in either signal from "+" to "-" is showed by "link down."

E-mail Alert

		Total Solution for Industrial Device Networking			
Port W2250A-W4-US IPortW2250A-W4_77	= IP = Serial No.	- 192.168.126.254 - TBBKB0000077	 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215	
S-E-M Mail settings	ail Alert				
My server Username Password From e-mail addres To e-mail addres To e-mail addres	Irress Iss 1 Iss 2 Iss 3				
	PortW2250A-W4_77 E-M Mail settings Mail server (SM My server Username Password From e-mail addre To e-mail addre To e-mail addre	PortW2250A-W4_77 Serial No. E-Mail Alert Mail settings Mail server (SMTP) Ny server requires authentication Username	PortW2250A-W4_77 Serial No TBBKE0000077	PortW2250A-W4_77 Serial No TBBKB0000077 Firmware Firmware Firmware Firmware Firmware Firmware Firme-mail address Froe-mail address 1 Froe-mail address 2 Froe-mail address 3 Froe-mail address 4 Froe	

The **E-mail Alert** page is located under **Auto Warning Settings** in the **System Management** folder. This is where you specify how and where e-mail is sent when e-mail is used for automatic notification of system and serial port events.



ATTENTION

Consult your network administrator or ISP for the mail server settings to use for your network. If these settings are not configured correctly, e-mail notification may not work properly.

Mail Server	(SMTP)
Default	
Options	free text (e.g., "192.168.3.3")
Description	This field specifies the IP address of the mail server that will be used when sending
	automatic warning e-mails. If the mail server requires authentication, select My server
	requires authentication and enter the username and password.

From e-mail address

Default	
Options	free text (e.g., "jsmith@xyz.com")
Description	This field specifies the e-mail address that will be listed in the e-mail's From field.

To e-mail address 1 to 4

Default	
Options	free text (e.g., "admin@abc.com")
Description	These fields specify the destination e-mail address(es) for the automatic e-mail warnings.

SNMP Trap

Total Solution for Industrial De			trial Device Networking	vice Networking		
 Model Name Location 	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	■ IP ■ Serial No.	- 192.168.126.254 - TBBKB0000077	 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215	
		IP Trap				
- Main Menu	SNMP Trap					
Overview	SNMP trap serv	er IP or domain name				
Wizard	Trap version		_ v2c () v1			
Basic Settings	Trap communit	v				
- Network Settings		,				
- Serial Port Settings			Submit			
- System Management			Jubilit			
- Misc. Network Settings						
- Auto Warning Settings						
Event Settings						
Serial Event Settings						
E-mail Alert						
SNMP Trap						

The **SNMP Trap** page is located under **Auto Warning Settings** in the **System Management** folder. This is where you specify the SNMP trap settings to use for automatic notification of system and serial port events.

SNMP Trap Server IP

Default	
Options	IP address (e.g., "192.168.5.5")
Description	This field specifies the IP address of the SNMP trap server that will receive SNMP traps.

Trap Version

Default	v1
Options	v1, v2c
Description	This field specifies the SNMP trap version to use.

Trap Community

•	•
Default	
Options	free text (e.g., "public access")
Description	This field specifies the SNMP trap community.

Maintenance

Console Settings

ΜΟΧΛ	Total	Total Solution for Industrial Device Networking			www.moxa.com
Model Name Location	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	∎ IP ■ Serial No.	- 192.168.126.254 - TBBKB0000077	 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
- Main Menu	Configurations	sole Settings			
Overview Wizard Basic Settings - Network Settings - Serial Port Settings - System Management - Misc. Network Settings - Auto Warning Settings - Maintenance Console Settings - Ping	HTTP console HTTPS console Telnet console SSH console Serial console Reset button		Enable V Enable V Enable V Enable V Enable V Always enable V		

The **Console Settings** page is located under **Maintenance** in the **System Management** folder. This is where you enable or disable access to the various NPort configuration consoles, as well as the behavior of the reset button. You may change **HTTP console**, **HTTPS console**, **Telnet console**, **SSH console**, **Serial Console**, and **Reset button**.

HTTP Console

Default	Enable
Options	Enable, Disable
Description	This field enables or disables access to the HTTP (web) console.

HTTPS Console

Default	Enable
Options	Enable, Disable
Description	This field enables or disables access to the HTTPS (web) console.

Telnet Console

Default	Enable
Options	Enable, Disable
Description	This field enables or disables access to the Telnet console.

SSH Console

Default	Enable
Options	Enable, Disable
Description	This field enables or disables access to the SSH console.

Serial Console

Default	Enable
Options	Enable, Disable
Description	This field enables or disables access to the serial console.

Reset Button

Default	Always Enable
Options	Always Enable, Disable after 60 sec
Description	This field specifies the behavior of the hardware reset button.
	Always Enable: The reset button will be operated as usual.
	Disable after 60 sec: The reset button will only be effective for the first 60 seconds that the NPort is powered on.

Ping

ΜΟΧΛ	e Total	Total Solution for Industrial Device Networking				
 Model Name Location 	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	IPSerial No.	- 192.168.126.254 - TBBKB0000077	 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215	
- Main Menu	Ping Destination					
Overview Wizard Basic Settings - Network Settings - Serial Port Settings - System Management - Misc. Network Settings - Auto Warning Settings - Maintenance Console Settings Ping Firmware Upgrade	Destination		Activate			

The **Ping** page is located under **Maintenance** in the **System Management** folder. It provides a convenient way to test an Ethernet connection or verify an IP address. Enter the IP address or domain name in the Destination field and click **[Activate].** The results will be displayed immediately.

Firmware Upgrade

ΜΟΧΛ	Total	Solution for Indus	www.moxa.com		
 Model Name Location 	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	IPSerial No.	- 192.168.126.254 - TBBKB0000077	 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
	:-Firmv	vare Upgrad	le		
- Main Menu	!!! Warning !!!				
Overview			Note: Upgrading the firmware will di	scard your unsaved configuration	on changes and restart the system!
Wizard	Select firmware file	e	Choose File No file chosen		
Basic Settings					
- Network Settings			Submit		
- Serial Port Settings					
- System Management					
- Misc. Network Settings					
- Auto Warning Settings					
- Maintenance					
Console Settings					
Ping					
Firmware Upgrade					
Configuration Import					

The **Firmware Upgrade** page is located under **Maintenance** in the **System Management** folder. This is where you can update the NPort firmware. After obtaining the latest firmware from www.moxa.com, select or browse for the firmware file in the **Select firmware file** field. Before clicking **[Submit]**, save the NPort configuration using the **Configuration Export** page, since the firmware upgrade process may cause all settings to revert to factory defaults.

Configuration Import

ΜΟΧΛ	Total	www.moxa.com					
 Model Name Location 	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	IPSerial No.	- 192.168.126.254 - TBBKB0000077	 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215		
	Confi	-Configuration Import					
- Main Menu	Configuration Imp	port					
Overview	Select configuration	on file	Choose File No file chosen				
Wizard	IP configuration		Import all configurations, including	IP configurations.			
Basic Settings				-			
- Network Settings			Submit				
- Serial Port Settings			Cabin				
- System Management							
- Misc. Network Settings							
- Auto Warning Settings							
- Maintenance							
Console Settings							
Ping							
Firmware Upgrade							
Configuration Import							
Configuration Export							

The **Configuration Import** page is located under **Maintenance** in the **System Management** folder. This is where you can load a previously saved or exported configuration. Select or browse for the configuration file in the **Select configuration file** field. If you also wish to import the IP configuration (i.e., IP address, netmask, and gateway), make sure that **Import all configurations including IP configurations** is checked.



ATTENTION

You may import the existing configuration file of the NPort W2x50A Series to facilitate the process. Please note:

- 1. If your NPort W2x50A Series is configured as BOOTP of the IP configuration (Web console: under **Network Settings > Ethernet/Bridge Settings**), it will be DHCP instead.
- If your NPort W2x50A Series is configured as Ad-hoc Mode of the Network type (Web console: under Network Settings > WLAN Settings > Profile), it will be Infrastructure Mode.
- 3. If your NPort W2x50A Series is configured less than 300 baudrate (Web console: Serial Port Settings > Communication Parameters), it will be 300.

NOTE

The NPort W2x50A-W4 Series configuration file cannot be imported to the NPort W2x50A Series for use.

Configuration Export

ΜΟΧΛ	Tota	www.moxa.com			
Model Name Location	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	■ IP ■ Serial No.	- 192.168.126.254 - TBBKB0000077	 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
	:-Conf	iguration Exp	ort		
- Main Menu	Configuration E	Export			
Overview					
Wizard			Export		
Basic Settings					
- Network Settings					
- Serial Port Settings					
- System Management					
- Misc. Network Settings					
- Auto Warning Settings					
- Maintenance					
Console Settings					
Ping					
Firmware Upgrade					
Configuration Import					
Configuration Export	>				
Load Factory Default					

The **Configuration Export** page is located under **Maintenance** in the **System Management** folder. This is where you can save the NPort's current configuration to a file on the local host. Click **[Download]** to begin the process. A window should appear asking you to open or save the configuration text file.

Load Factory Default

ΜΟΧΛ	Total		www.moxa.com		
 Model Name Location 	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	■ IP ■ Serial No.	- 192.168.126.254 - TBBKB0000077	 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
- Main Menu Overview Wizard Basic Settings - Network Settings - Serial Port Settings - Serial Port Settings - Serial Port Settings - Misc. Network Settings - Auto Warning Settings - Maintenance Console Settings - Ping Firmware Upgrade Configuration Export Load Factory Default Change Password	Click on Submit to	gs unchanged, make sure th Default	ult Ig the console password, to the factor at Keep IP Settings is enabled. Submit	y default values. To leave the IP add	tress, netmask, gateway and

The **Load Factory Default** page is located under **Maintenance** in the **System Management** folder. Click **[Submit]** to reset all settings to the factory defaults. You can preserve the NPort's existing IP settings (i.e., IP address, netmask, gateway, WLAN profile, and all certificates) by making sure **Keep IP settings** is checked before clicking **[Submit]**.

Change Password

 Model Name Location 	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	IPSerial No.	- 192.168.126.254 - TBBKB0000077	 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
		Password			
Main Menu	Password				
Overview	Account name		admin 🗸		
Wizard	Old password				
Basic Settings	New password				
- Network Settings	Confirm new passwor	al.			
- Serial Port Settings	Commin new passwor	a			
- System Management					
- Misc. Network Settings			Submit		
- Auto Warning Settings					
- Maintenance					
Console Settings					
Ping					
Firmware Upgrade					
Configuration Import					
Configuration Export					
Load Factory Default					
Change Password					

The **Change Password** page is located under **Maintenance** in the **System Management** folder. To change the password, choose the account name first, and then enter the old password in the **Old password** field. Enter the new password twice, once in the **New password** field and once in the **Confirm password**. Leave these fields blank to remove password protection.



ATTENTION

If you forget the password, the ONLY way to configure the NPort is by loading the factory defaults with the reset button. All settings will be lost.

Before setting the password, you may want to first export the configuration to a file. Your configuration can then be easily imported back into the NPort if necessary.

Certificate

Ethernet SSL Certificate Import

ΜΟΧΛ	Total	Total Solution for Industrial Device Networking							
Model Name Location	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	IPSerial No.	- 192.168.128.254 - TBBKB0000077	 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215				
- Main Menu	:• Ether		ificate Import						
Overview Wizard Basic Settings - Network Settings - Serial Port Settings - System Management - Misc. Network Settings - Auto Warning Settings - Maintenance - Certificate Ethernet SSL Certificat WLAN SSL Certificat		ate/key file	192.168.126.254 192.168.126.254 from 2022/7/14 to 2082/6/29 Choose File No file chosen						

The **Ethernet SSL Certificate Import** page is located under **Certificate** in the **System Management** folder. This is where you can load the Ethernet SSL certificate. Select or browse for the certificate file in the

Select SSL certificate/key file field. The NPort only supports the PEM format of the certificate so far. If your file is in another format, for example DER or PFX, please convert it to PEM first.

	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	IPSerial No.	- 192.168.126.254 - TBBKB0000077	 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
Main Menu	:• WLA	N SSL Certif	icate Import		
Overview Wizard Basic Settings - Network Settings - Serial Port Settings - System Management - Misc. Network Settings - Auto Warning Settings - Maintenance - Certificate Ethemet SSL Certificate In WLAN SSL Certificate In		ate/key file	Not installed Not installed from Not installed to Not installed Choose File No file chosen Submit		

The **WLAN SSL Certificate Import** page is located under **Certificate** in the **System Management** folder. By default, the WLAN SSL certificate is automatically generated by the NPort based on the IP address of the wireless interface. You can also import a certificate. Select or browse for the certificate file in the **Select SSL certificate/key file** field.

WPA Server Certificate Import

WLAN SSL Certificate Import

MOXA® • Model • Name	- NPort W2250A-W4-US - NPortW2250A-W4_77							
Location			ficate Import					
Nain Menu	Installed Certifica	te						
Overview	Issued to		Not installed					
Wizard	Issued by		Not installed					
Basic Settings	Valid		from Not installed to Not installed					
- Network Settings	Select WPA server							
- Serial Port Settings	Select WPA server	certificate file	Choose File No file chosen					
- System Management								
- Misc. Network Settings			Submit					
- Auto Warning Settings								
- Maintenance								
- Certificate								
Ethernet SSL Certificate	Import							
WLAN SSL Certificate II	nport							
WPA Server Certificate	hand							

The **WPA Server Certificate Import** page is located under **Certificate** in the **System Management** folder. This is where you can load the WPA server certificate. Select or browse for the certificate file in the **Select WPA server certificate file** field.

You must install the trusted server certificate from the RADIUS server in order to enable **Verify server** certificate in the WLAN Security settings. This certificate will then be used by the NPort to authenticate the RADIUS server.

WPA User Certificate Import

ΜΟΧΛ	Total	www.moxa.com			
 Model Name Location 	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	■ IP ■ Serial No.	- 192.168.126.254 - TBBKB0000077	 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
	WPA	User Certific	ate Import		
- Main Menu	Installed Certifica	te			
Overview	Issued to		Not installed		
Wizard	Issued by		Not installed		
Basic Settings	Valid		from Not installed to Not installed		
- Network Settings	Select WPA user of	artificata fila			
- Serial Port Settings	Select WPA user of	ertificate me	Choose File No file chosen		
- System Management					
- Misc. Network Settings			Submit		
- Auto Warning Settings					
- Maintenance					
- Certificate					
Ethernet SSL Certificate	Import				
WLAN SSL Certificate Ir	nport				
WPA Server Certificate	mport				
WPA User Certificate Im	port				
WPA User Key Import					

The **WPA User Certificate Import** page is located under **Certificate** in the **System Management** folder. This is where you can load the WPA user certificate. Select or browse for the certificate file in the **Select WPA user certificate file** field.

The user certificate of the NPort must be installed in the RADIUS server when the NPort uses WPA (WPA2)/TLS. The trusted server certificate of the RADIUS server must also be installed in the NPort.

WPA User Key Import

ΜΟΧΛ	Total	www.moxa.com			
	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	■ IP ■ Serial No.	- 192.168.126.254 - TBBKB0000077	 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
	:• WPA	User Key Im	port		
Main Menu Overview Wizard Basic Settings Network Settings Serial Port Settings System Management Misc. Network Settings Auto Warning Settings Maintenance Certificate Ethernet SSL Certificate Im WPA Server Certificate Im WPA User Certificate Im WPA User Certificate Im WPA User Key Import Certificaterem	Key length Select SSL certific Password for priva Password for priva	ate/key file	Not install!! Choose File No file chosen Submit		

The **WPA User Key Import** page is located under **Certificate** in the **System Management** folder. This is where you can load the WPA user certificate. Select or browse for the user private key file in the **Select WPA user privacy key file** field and enter the **Password for the private key**.

The user private key of the NPort must be installed in the RADIUS server when the NPort uses WPA(WPA2)//TLS. The trusted server certificate of RADIUS server must also be installed on the NPort.

Certificate/Key Delete

ΜΟΧΛ	Total S	Total Solution for Industrial Device Networking							
 Model Name Location 	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	■ IP ■ Serial No.	- 192.168.126.254 - ТВВКВ0000077	 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215				
	: Certifi	cate/Key D	eletion						
- Main Menu	Installed Certificate	9							
Overview Wizard Basic Settings - Network Settings - Serial Port Settings - System Management - Misc. Network Settings - Auto Warning Settings - Auto Warning Settings - Maintenance - Certificate Ethemet SSL Certificate Im WPA Server Certificate Im WPA User Certificate Im WPA User Key Import	mport		Delete Keep No certificate installed! No certificate/private key installed! Submit						

The **Certificate/Key Delete** page is located under **Certificate** in the **System Management** folder. This page is where you can delete certificates or WPA keys that have been installed on the model. When you click **[Submit]**, any certificate or key that has been set to **Delete** will be deleted from the NPort.

Overview

This chapter explains how to use the **System Monitoring** functions on the NPort web console. These functions allow you to monitor many aspects of your operation.

System Monitoring

Serial Status

Serial to Network Connections

ΜΟΧΛ		Total Solution for Industrial Device Networking								www.moxa.com		
= Model = Name = Location	- NPort W2250A-W4- - NPortW2250A-W4_ -			192.168.126.254 TBBKB0000077			MAC Address Firmware		- 00:90:E8:11:45:A3 - 0.1 Build 22071215			
	-	Serial-to-Netwo	ork Conr	nections								
Main Menu	🛃 Aut	to refresh										
Overview	Port	OP Mode				Conr	ections					
Wizard Basic Settings	1	Real COM]]]]]	1 1] [1]]]]		
- Network Settings - Serial Port Settings	2	Real COM	l l]]] [1 1	C C	1] [1		
- System Management - Misc. Network Settings												
- Auto Warning Settings - Maintenance												
- Certificate												
- System Monitoring - Serial Status												
Serial-to-Network Conn Serial Port Status	ections											

The **Serial to Network Connections** page is located under **Serial Status** in the **System Monitoring** folder. On this page, you can monitor the current operation mode and host connection status for each serial port.

Serial Port Status

ΜΟΧΛ [°]		Total Solution for Industrial Device Networking								www.moxa.com		
 Model Name Location 	- NPort W22 - NPortW22 -	250A-W4-US 50A-W4_77	∎ IP ∎ Seria		- 192.168.126.254 - TBBKB0000077			AC Addres rmware	5	- 00:90:E8: - 0.1 Build		
		• Ser	ial Port St	atus								
- Main Menu		Auto refre	sh									
Overview		Port	TxCnt	RxCnt	TxTotalCnt		RxTotalCnt	DSR	DTR	RTS	CTS	DCD
Wizard		1	0	()	0	0		۲	۹		
Basic Settings		2	0	()	0	0	•	۲	۲	۲	
- Network Settings												
- Serial Port Settings												
- System Management												
- Misc. Network Settings												
- Auto Warning Settings												
- Maintenance												
- Certificate												
- System Monitoring												
- Serial Status												
Serial-to-Network Conne	ctions											
Serial Port Status												
Serial Port Error Count												

The **Serial Port Status** page is located under **Serial Status** in the **System Monitoring** folder. On this page, you can monitor the signal and data transmission status for each serial port.

TxCnt: number of Tx packets (to device) for the current connection

RxCnt: number of Rx packets (from device) for the current connection

TxTotalCnt: number of Tx packets since the NPort was powered on

RxTotalCnt: number of Rx packets since the NPort was powered on

Serial Port Error Count

ΜΟΧΛ	s Total	Total Solution for Industrial Device Networking								
= Model = Name = Location	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	■ IP ■ Serial No.	- 192.168.126.25 - TBBKB0000077		 MAC Address Firmware 	- 00:90:E8:11:45: - 0.3 Build 22071				
	Seri	al Port Error	Count							
- Main Menu	Auto refresh									
Overview				Err	Cnt					
Wizard	Port	Frame	Pa	rity	Overrun	B	reak			
Basic Settings	1		0	0		0				
- Network Settings	2		0	0		0				
- Serial Port Settings										
- System Management										
- System Monitoring										
- Serial Status										
Serial-to-Network Con	nections									
Serial Port Status										
Serial Port Error Coun										
Serial Port Settings										

The **Serial Port Error Count** page is located under **Serial Status** in the **System Monitoring** folder. On this page, you can view the current number of frame, parity, overrun, and break errors for each serial port.

Serial Port Settings

ΜΟΧΛ	Total Solution for Industrial Device Networking							www	www.moxa.com			
	NPort W2250 NPortW2250			= IP = Ser	ial No.		168.126.254 KB0000077		MAC Ad Firmwa		- 00:90:E8: - 0.1 Build 2	
			Serial Po	rt S	etting	s						
- Main Menu		🛃 Aut	to refresh									
Overview								Flow	Control			
Wizard		Port	Baud Rate	D	ata Bits	Stop Bits	Parity	RTS/CTS	XON/XOFF	FIFO		Interface
Basic Settings		1	115200	7		2	None	OFF	ON	Enable	RS-232	
- Network Settings		2	115200	7		2	None	OFF	ON	Enable	RS-232	
- Serial Port Settings												
- System Management												
- Misc. Network Settings												
- Auto Warning Settings												
- Maintenance												
- Certificate												
- System Monitoring												
- Serial Status												
Serial-to-Network Connecti	ons											
Serial Port Status												
Serial Port Error Count												
Serial Port Settings												
- System Status												

The **Serial Port Settings** page is located under **Serial Status** in the **System Monitoring** folder. On this page, you can view the current communication settings for each serial port.

System Status

Network Connections

ΜΟΧΛ		Total Solution for Industrial Device Networking						
 Model Name Location 	- NPort W2250A-W4-L - NPortW2250A-W4_7 -					- 00:90:E8:11:45:A3 - 0.1 Build 22071215		
	:-1	Networ	k Connec	tions				
- Main Menu Overview	Auto refresh Protocol	Recv-Q	Send-Q	Local Address	Foreign Address	State		
Wizard	TCP	0	0	*:443	*:0	LISTEN		
Basic Settings - Network Settings	тср	0	0	*:4900	*:0	LISTEN		
- Serial Port Settings	TCP	0	0	*:966	*:0	LISTEN		
- System Management - Misc. Network Settings	TCP	0	0	*:967	*:0	LISTEN		
- Auto Warning Settings	TCP	0	0	*:80	*:0	LISTEN		
- Maintenance	TCP	0	0	*:950	*:0	LISTEN		
- Certificate - System Monitoring	тср	0	0	*:22	*:0	LISTEN		
- Serial Status	TCP	0	0	*:951	*:0	LISTEN		
- System Status	TCP	0	0	*:23	*:0	LISTEN		
Network Connections Serial Data Log	тср	0	1391	192.168.126.254:80	169.254.164.100:60563	ESTABLISHED		
System Log	UDP	0	0	*:161	*:0			
WLAN Log WLAN Status	UDP	0	0	*:4800	*:0			
- Restart								

The **Network Connections** page is located under **System Status** in the **System Monitoring** folder. On this page, you can view the status of any network connection to the NPort.

Serial Data Log

Data logs for each serial port can be viewed in ASCII or HEX format. After selecting the serial port and format, you may click **Select** all to select the entire log if you wish to copy and paste the contents into a text file. The **Clear log** and **Refresh** buttons allow you to clear or refresh the log contents.

ΜΟΧΛ	Total	www.moxa.com			
 Model Name Location 	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	■ IP ■ Serial No.	- 192.188.128.254 - TBBKB0000077	 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
	- Serial	Data Log			
- Main Menu	Download Serial D	ata Log			
Overview	Serial port		Port1 V		
Wizard	Download format		● ASCII ◯ HEX		
Basic Settings					
- Network Settings			Clear log Download		
- Serial Port Settings			Clear log Download		
- System Management					
- Misc. Network Settings					
- Auto Warning Settings					
- Maintenance					
- Certificate					
- System Monitoring					
- Serial Status					
- System Status					
Network Connections					
Serial Data Log System Log					

The **Serial Data Log** page is located under **System Status** in the **System Monitoring** folder. This is where you can download the current data log for a serial port. Select the desired serial port in the **Select port** field. Select the desired data format in the **Download format** field. Click **[Clear log]** to clear the log contents.

The data log includes all data sent or received by the specified serial port since the NPort was powered on. The maximum size of the log is 64 KB.

ΜΟΧΛ	104	a solution for industr	ial Device Networking		www.moxa.co
ModelNameLocation	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	IPSerial No.	- 192.168.126.254 - TBBKB0000077	 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
	- Syste	em Log			
Main Menu	System Log				
Overview					
Wizard					
Basic Settings					
- Network Settings					
- Serial Port Settings					
- System Management					
- Misc. Network Settings					
- Auto Warning Settings					
- Maintenance					
- Certificate					
- System Monitoring					
- Serial Status					
- System Status				11	
Network Connections					
Serial Data Log			Clear log Refresh		
System Log					

The **System Log** page is located under **System Status** in the **System Monitoring** folder. This is where you can view the log of NPort system events. Click **[Clear log]** to clear the log contents. Click **[Refresh]** to refresh the log contents.

System Log

WLAN Log

 Model Name Location 	- NPort W2250A-W4 - NPortW2250A-W4_323 -	IPSerial No.	- 10.0.2.59 - TMOXA0000323	 MAC Address Firmware 	- 14:13:33:4B:6A:07 - 0.3 Build 22071510
	: WL	AN Log			
Main Menu	WLAN Log				
Overview	2022/07/20 02:4	49:52 Scan 28 APs, show	the best 3 with the same SSID:		
Wizard	2022/07/20 02:4	49:52 01. 06:90:e8:53:ff:c	3 ssid='MOXA_RoamingTest'		
Basic Settings		49:52 freq=2412 rssi=- 49:52 Skip roam	91 dBm		
- Network Settings			the best 3 with the same SSID: cf ssid='MOXA RoamingTest'		
- Serial Port Settings	2022/07/20 02:4	49:55 freq=2437 rssi=-6	65 dBm		
- System Management		49:55 02. 06:90:e8:53:ff:c 49:55 freq=2412 rssi=-9	3 ssid='MOXA_RoamingTest'		
- System Monitoring	2022/07/20 02:4	49:55 Need to roam			
- Serial Status		49:55 Connect to 06:90:e 49:55 Authentication com			
- System Status	2022/07/20 02:4		:90:e8:53:d9:cf, reason=3		
Network Connections			interference environment.		
Serial Data Log					
System Log					
WLAN Log					
WLAN Status					
- Restart			Clear log Downlog	ad Refresh	

The **WLAN Log** page is located under **System Status** in the **System Monitoring** folder. This is where you can view the log between the device server and the access points. It's an excellent tool for an engineer to troubleshoot if there is any issue with the wireless connection. To clear the log contents, click **[Clear log]**. Click **[Download]** to save the log to a txt file for an engineer to troubleshoot, e.g., Moxa's Technical Support Team. Click **[Refresh]** to refresh the log contents.

NOTE

The WLAN log is for R&D analysis. If you encounter a wireless problem, please provide the WLAN log and topology for MOXA diagnostic purposes.

WLAN Status

Main Method Overview Wizard Basic Settings - Network Settings - Serial Port Settings - System Management - Misc. Network Settings - Auto Warning Settings - Auto Warning Settings - Gertificate - System Monitoring - Serial Status - System Status	AW4_77 WLAN St Auto refresh Information Active profile name IP configuration IP address Netmask	IP Serial No. tatus N/A Stat N/A	ic	MAC Address Firmware	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
Main Method Overview Wizard Basic Settings - Network Settings - Serial Port Settings - System Management - Misc. Network Settings - Auto Warning Settings - Auto Warning Settings - Gertificate - System Monitoring - Serial Status - System Status	Auto refresh Information Active profile name IP configuration IP address Netmask	N/A Stat N/A	ic		
main Werhu Overview Wizard Basic Settings - Network Settings - System Management - Misc. Network Settings - Auto Warning Settings - Maintenance - Certificate - System Monitoring - System Status - System Status	Information Active profile name IP configuration IP address Netmask	Stat N/A	ic		
Wizard Basic Settings - Network Settings - Serial Port Settings - System Management - Misc. Network Settings - Auto Warning Settings - Auto Warning Settings - Maintenance - Certificate - System Monitoring - Serial Status - System Status	Active profile name IP configuration IP address Netmask	Stat N/A	ic		
Basic Settings - Network Settings - Serial Port Settings - System Management - Misc. Network Settings - Auto Warning Settings - Auto Warning Settings - Maintenance - Certificate - System Monitoring - Serial Status - System Status	IP configuration IP address Netmask	Stat N/A	ic		
Basic Settings - Network Settings - Serial Port Settings - System Management - Misc. Network Settings - Auto Warning Settings - Maintenance - Certificate - System Monitoring - Serial Status - System Status	IP configuration IP address Netmask	N/A			
Network Settings Setial Port Settings System Management Misc. Network Settings Auto Warning Settings Maintenance Certificate System Monitoring Serial Status System Status	IP address Netmask	N/A			
- Serial Port Settings - System Management - Misc. Network Settings - Auto Warning Settings - Auto Warning Settings - Certificate - System Monitoring - Serial Status - System Status	Netmask				
- System Management - Misc. Network Settings - Auto Warning Settings - Maintenance - Certificate - System Monitoring - Serial Status - System		N/A			
- Auto Warning Settings - Maintenance - Certificate - System Monitoring - Serial Status - System Status					
- Maintenance - Certificate - System Monitoring - Serial Status - System Status	Gateway	N/A			
- Certificate - System Monitoring - Serial Status - System Status	Network type	N/A			
- System Monitoring - Serial Status - System Status	RF type	N/A			
- Serial Status - System Status	SSID	N/A			
- System Status	Channel	N/A			
- System Status	Authentication	N/A			
	Encryption	N/A			
Network Connections		US			
Selial Data Log	Region				
-/	Signal strength	N/A			
		N/A			
WLAN Status	Connection speed				

The **WLAN Status** page is located under **System Status** in the **System Monitoring** folder. This is where you can view the current WLAN settings and status.

Overview

This chapter explains how to use save your configuration changes and restart the NPort using the NPort web console. Configuration changes will not be effective until they are saved, and the NPort is rebooted.

Restart

Restart System

ΜΟΧΛ	Total	Solution for Industri	al Device Networking		www.moxa.com		
Model Name Location	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	■ IP ■ Serial No.	- 192.168.126.254 - TBBKB0000077	 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215		
- Main Menu	:• Syster	m Restart					
Overview		Clicking Restart will disconnect all serial and Ethernet connections and reboot the system.					
Wizard	N	TE: Unsaved configuration	changes will be discarded, and dat	a currently in the middle of tran	smission may be lost.		
Basic Settings					,		
- Network Settings		1	Submit				
- Serial Port Settings	CODINI						
- System Management							
- System Monitoring							
- Restart Restart System Restart Ports							

The **Restart System** page is in the **Restart** folder. Click **[Restart]** to restart the NPort, and the new settings will take effect upon restart.

Restart Ports

ΜΟΧΛ	Total	Solution for Industr	ial Device Networking		www.moxa.com
= Model = Name = Location	- NPort W2250A-W4-US - NPortW2250A-W4_77 -	■ IP ■ Serial No.	- 192.168.128.254 - TBBKB0000077	 MAC Address Firmware 	- 00:90:E8:11:45:A3 - 0.1 Build 22071215
	:-Resta	rt Ports			
- Main Menu	Select Ports				
Overview	Port 1	Port 2			
Wizard					
Basic Settings			Submit		
- Network Settings					
- Serial Port Settings					
- System Management					
- System Monitoring					
- Restart					
Restart System					
Restart Ports					

The **Restart Ports** page is in the **Restart** folder. Select the desired serial and click **[Select All]** to select all serial ports. Click **[Submit]** to restart the selected serial ports.

Overview

If you want to remote control your serial devices on an Android platform, then the MxNPortAPI is a simple application programming tool you can use. The MxNPortAPI helps programmers develop an Android application to access the device server by TCP/IP.

The MxNPortAPI provides frequently used serial command sets like port control, input/output, etc., and the style of developed Android application is similar to MOXA Driver Manager. For more details about the provided functions, please refer to the "MxNPortAPI Function Groups" section.

This MxNPortAPI is layered between the Android application and Android network manager framework. This Android library is compatible with Java 1.7, Android 3.1 (Honeycomb - API version 12), and later versions.

Application (Phone, Contacts, Camera)				
Java API	MxNPortAP			
Frameworks (USB, Package, Location)				
Libraries	Dalvik Runtime			
Linux Kernel				

How to Start MxNPortAPI

You can download the MxNPortAPI from Moxa's website at <u>http://www.moxa.com</u>, and develop the application program in popular OSs, such as Windows, Linux, or Mac.

(You can refer the Android studio website to see the system requirements for development environment: <u>https://developer.android.com/studio/index.html?hl=zh-tw#Requirements</u>).

To start your application program, please unzip the MxNPortAPI file and refer to the index (.html) under the Help directory.

 ★ Favorites ► Desktop ▲ Downloads ♥ Recent Places ➡ Libraries ➡ Documents ➡ Music ➡ Pictures ➡ Videos 	Name Com Lindex-Files Lindex-Fi	Date modified 11/22/2017 3:42 PM 11/22/2017 3:42 PM 11/2/2017 3:42 PM 11/8/2017 8:02 PM 11/8/2017 8:02 PM 11/8/2017 5:30 PM	Type File folder File folder File folder HTML Document HTML Document HTML Document	2 KB 2 KB 2 KB 19 KB
Downloads Recent Places Libraries Documents Music Pictures	index-files resources files f	11/22/2017 3:42 PM 11/22/2017 3:42 PM 11/8/2017 8:02 PM 11/8/2017 8:02 PM 11/8/2017 8:02 PM	File folder File folder HTML Document HTML Document	2 KB
 Recent Places Libraries Documents Music Pictures 	iresources illiclasses-frame illiclasses-noframe illiclasses-nofr	11/22/2017 3:42 PM 11/8/2017 8:02 PM 11/8/2017 8:02 PM 11/8/2017 8:02 PM	File folder HTML Document HTML Document	2 KB
Libraries Libraries Documents Music Fictures	 allclasses-frame allclasses-noframe constant-values deprecated-list 	11/8/2017 8:02 PM 11/8/2017 8:02 PM 11/8/2017 8:02 PM	HTML Document HTML Document	2 KB
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Documents Music Pictures	 constant-values deprecated-list 	11/8/2017 8:02 PM		
 Music Pictures 	deprecated-list		HTML Document	
Pictures		10/26/2017 5:30 PM		
	10 help des		HTML Document	4 KB
🛃 Videos		11/8/2017 8:02 PM	HTML Document	8 KB
	🔊 index	11/8/2017 8:02 PM	HTML Document	3 KB
	🕘 index-all	10/26/2017 5:34 PM	HTML Document	46 KB
🖳 Computer	🖉 overview	11/8/2017 3:54 PM	HTML Document	16 KB
~	e overview-summary	11/8/2017 8:02 PM	HTML Document	20 KB
🙀 Network	e] overview-tree	11/8/2017 8:02 PM	HTML Document	6 KB
	package-list	11/8/2017 8:02 PM	File	1 KB
	Script	11/8/2017 8:02 PM	JScript Script File	1 KB
	erialized-form	11/8/2017 8:02 PM	HTML Document	5 KB
	stylesheet	9/15/2017 5:41 PM	Cascading Style S	14 KB

For more details about the installation, please refer to the Overview section.

All Classes	JavaScript is disabled on your browser.
MxException	OVERVIEW PACKAGE CLASS TREE INDEX HELP
MxException.ErrorCode MxNPort	PREV NEXT FRAMES NO FRAMES ALL CLASSES
MtxNPort.FlowCtrl MtxNPort.loctlMode	This document is the programming guide for the MxNPortAPI.
MxNPort.LineError MxNPort.ModemStatus	See: Description
MxNPortService Version	
	Packages
	Package Description
	com.moxa.mxnportapi
	This document is the programming guide for the MxNPortAPI. You can get information about how to code with the MxNPortAPI quickly and how to link the MxNPortAPI Library into your program.
	1. Introduction to the NPort Android API
	Android Platform
	Application
	(Phone, Contacts, Camera)
	Java API MxNPortAPI
	Frameworks
	(USB, Package, Location)
	Libraries Dalvik
	Runtime
	Linux Kernel

MxNPortAPI Function Groups

The supported functions in this API are listed below:

Port Control	Input/Output	Port Status Inquiry	Miscellaneous
open close setIoctlMode setFlowCtrl setBaud setRTS setDTR	read write	getBaud getFlowCtrl getIoctlMode getLineStatus getModemStatus getOQueue	setBreak
flush			

Example Program

To make sure this API is workable with the device server on an Android platform, see the example program below:

```
Thread thread = new Thread()
{
@Override
public void run() {
      /* Enumerate and initialize NPorts on system */
      List<MxNPort> NPortList = MxNPortService.getNPortInfoList();
      if(NPortList!=null){
               MxNPort.IoctlMode mode = new MxNPort.IoctlMode();
               mode.baudRate = 38400;
               mode.dataBits = MxNPort.DATA_BITS_8;
               mode.parity = MxNPort.PARITY NONE;
               mode.stopBits = MxNPort.STOP BITS 1;
               MxNPort mxNPort = NPortList.get(0); /* Get first NPort device */
               try {
                        byte[] buf = {'H','e','l','l','o',' ','W','o','r','l','d'};
                       mxNPort.open(); /*open port*/
                       mxNPort.setIoctlMode(mode); /*serial parameters setting*/
                       mxNPort.write(buf, buf.length); /*write data*/
                       mxNPort.close(); /*close port*/
               } catch (MxException e){
                       /*Error handling*/
               }
         }
  }
};
thread.start();
```

A. SNMP Agents with MIB II & RS-232-Like Groups

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

RFC1213 MIB-II Supported SNMP Variables

System MIB

SysDescr SysObjectID SysUpTime

Interfaces MIB

itNumber ifIndex ifDescr ifType ifMtu ifSpeed ifPhysAddress ifAdminStatus

IP MIB

ipForwarding ipDefaultTTL ipInreceives ipInHdrErrors ipInAddrErrors ipForwDatagrams ipInUnknownProtos ipInDiscards ipInDelivers ipOutRequests SysContact SysName SysLocation

ifOperStatus ifLastChange ifInOctets ifInUcastPkts ifInNUcastPkts ifInDiscards ifInErrors ifInUnknownProtos

ipOutDiscards ipOutNoRoutes ipReasmTimeout ipReasmReqds ipReasmOKs ipReasmFails ipFragOKs ipFragFails ipFragCreates ipAdEntAddr SysServices

ifOutOctets ifOutUcastPkts ifOutNUcastPkts ifOutDiscards ifOutErrors ifOutQLen ifSpecific

ipAdEntIfIndex ipAdEntNetMask ipAdEntBcastAddr ipAdEntReasmMaxSize IpNetToMediaIfIndex IpNetToMediaPhysAddress IpNetToMediaNetAddress IpNetToMediaType IpRoutingDiscards

ICMP MIB

IcmpInMsgs IcmpInErrors IcmpInDestUnreachs IcmpInTimeExcds IcmpInParmProbs IcmpInSrcQuenchs IcmpInRedirects IcmpInEchos IcmpInEchoReps

UDP MIB

UdpInDatagrams UdpNoPorts UdpInErrors IcmpInTimestamps IcmpTimest ampReps IcmpInAddrMasks IcmpOutMsgs IcmpOutErrors IcmpOutDestUnreachs IcmpOutDestUnreachs IcmpOutTimeExcds IcmpOutParmProbs IcmpOutSrcQuenchs IcmpOutRedirects IcmpOutEchos IcmpOutEchoReps IcmpOutTimestamps IcmpOutTimestampReps IcmpOutAddrMasks IcmpOutAddrMaskReps

UdpOutDatagrams UdpLocalAddress UdpLocalPort

Address Translation

AtIfIndex AtPhysAddress AtNetAddress

tcpEstabResets

ТСР МІВ

tcpRtoAlgorithm tcpRtoMin tcpRtoMax tcpMaxConn tcpActiveOpens tcpPassiveOpens tcpAttempFails

SNMP MIB

snmpInPkts snmpOutPkts snmpInBadVersions snmpInBadCommunityNames snmpInASNParseErrs snmpInTooBigs snmpInNoSuchNames snmpInBadValues snmpInReadOnlys snmpInGenErrs tcpCurrEstab tcpInSegs tcpOutSegs tcpRetransSegs tcpConnState tcpConnLocalAddress

snmpInTotalReqVars snmpInTotalSetVars snmpInGetRequests snmpInGetNexts snmpInSetRequests snmpInGetResponses snmpInTraps snmpOutTooBigs snmpOutNoSuchNames snmpOutBadValues tcpConnLocalPort tcpConnRemAddress tcpConnRemPort tcpInErrs tcpOutRsts

snmpOutGenErrs snmpOutGetRequests snmpOutGetNexts snmpOutSetRequests snmpOutGetResponses snmpOutTraps snmpEnableAuthenTraps

RFC1317: RS-232 MIB Objects

Generic RS-232-like Group

rs232Number

RS-232-like General Port Table

rs232PortTable rs232PortEntry rs232PortIndex rs232PortType rs232PortInSigNumber rs232PortOutSigNumber rs232PortInSpeed rs232PortOutSpeed

RS-232-like Asynchronous Port Group

rs232AsyncPortTable rs232AsyncPortEntry	rs232AsyncPortIndex rs232AsyncPortBits	rs232AsyncPortStopBits rs232AsyncPortParity
The Input Signal Table		
rs232InSigTable rs232InSigEntry	rs232InSigPortIndex rs232InSigName	rs232InSigState

The Output Signal Table

rs232OutSigTable	rs232OutSigPortIndex	rs232OutSigState
rs232OutSigEntry	rs232OutSigName	

B. Well-known Port Numbers

Listed below are Well-known Port Numbers that may cause network problems if they are assigned to an NPort serial port. Refer to RFC 1700 for Well-known Port Numbers or refer to the following introduction from IANA.

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

- Well-known Ports range from 0 through 1023.
- **Registered Ports** range from 1024 through 49151.
- Dynamic and/or Private Ports range from 49152 through 65535.

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

TCP Socket	Application Service
0	reserved
1	TCP Port Service Multiplexor
2	Management Utility
7	Echo
9	Discard
11	Active Users (systat)
13	Daytime
15	Netstat
20	FTP data port
21	FTP CONTROL port
23	Telnet
25	Simple Mail Transfer Protocol (SMTP)
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 to 223	Reserved for future use

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

A serial port on the NPort can be set to Ethernet Modem mode, allowing a PC or device to connect to the NPort as if it was an Ethernet modem. This section provides additional detail about how the NPort operates in Ethernet Modem mode.

Dial-in Operation

The NPort can listen for a TCP/IP connection request from a remote Ethernet modem or host. The NPort's response depends on the ATS0 value, as follows.

ATSO=0: 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.

ATSO≥1: The NPort will accept the TCP connection immediately. It will send the "**CONNECT** {*baudrate*}" command to the serial port and will immediately enter data mode.

Dial-out

The NPort accepts ATD commands such as "**ATD 192.168.1.1:4001**" from the serial port. It will then request a TCP connection from the specified remote Ethernet modem or PC. Once the remote unit accepts this TCP connection, the NPort will send the "**CONNECT** {*baudrate*}" command to the serial port and will immediately enter data mode.

Disconnection Request from Local Site

When the NPort is in data mode, you can start disconnection by sending "+++". Some applications allow you to directly set the DTR signal to off, which will also start disconnection. The NPort will enter command mode, and you can then enter "**ATH**" to close the TCP connection "**NO CARRIER**" will be returned to the serial port.



ATTENTION

When entering "+++" to disconnect, the three "+" characters must be sent in quick succession, and the sequence must be prefaced and followed by a guard time to protect the raw data. You can change the disconnect character using register S2. You can set the guard time using register S12.

Disconnection Request from Remote Site

After the TCP connection has been closed by the remote Ethernet modem or PC, the NPort will send "**NO CARRIER**" to the serial port and will return to command mode.

AT Commands

Ethernet Modem mode supports the following common AT commands, as used with a typical modem:

No.	Command	Description	Remarks
1	ATA	Answer manually	
2 ATD		Dial up specified IP address and port number	
	AID	ATD 192.168.1.1:950 (example)	
3 A	ATE	ATE0=Echo OFF	
	ATL	ATE1=Echo ON (default)	
4	ATH	ATH0=On-hook (default)	
		ATH1=Off-hook	
5	ATI, ATIO,	Modem version	reply "OK" only
5	ATI1, ATI2		
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"
	ATV	Result code type	
		ATV0 for digit code,	
		ATV1 for text code (default)	
13		0=OK	
		1=connect	
		2=ring	
		3=No carrier	
		4=error	
14	ATZ	Reset (disconnect, enter command mode and restore the	
		flash settings)	
1 5	AT&C	Serial port DCD control	
15		AT&C0=DCD always on AT&C1=DTE detects connection by DCD on/off (default)	
16	AT&F	Restore manufacturer's settings	
10	AT&F AT&G	Select guard time	reply "OK" only
17	AT&G AT&R	Serial port RTS option command	reply "OK" only
18 19	AT&R AT&S	Serial port DSR control	reply "OK" only
-		•	
20	AT&V	View settings	
21	AT&W	Write current settings to flash for next boot up	

S Registers

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